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SINGING AND SETTING, WITH THE TWO FOLD USE
THEREOF ECCLESIASTICAL AND CIVIL (1636): A
COMPUTER-ASSISTED TRANSLITERATION OF BOOK I
AND THE FIRST CHAPTER OF BOOK II, WITH INTRO-
DUCTION SUPPLEMENTARY NOTES, COMMENTARY,
AND APPENDICES.

The Ohio State University, Ph.D., 1974
Music

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CHARLES BUTLER'S THE PRINCIPLES OF MUSIC
IN SINGING AND SETTING, WITH THE TWINFOLD USE THEREOF
ECCLESIASTICAL AND CIVIL (1636)
A COMPUTER-ASSISTED TRANSLITERATION OF BOOK I
AND THE FIRST CHAPTER OF BOOK II, WITH INTRODUCTION
SUPPLEMENTARY NOTES, COMMENTARY, AND APPENDICES

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
Arthur Timothy Smith, B.A., M.A.

* * * * *

The Ohio State University
1974

Reading Committee: Approved By
Professor Richard Hoppin
Professor Norman Phelps
Professor William Poland

Adviser
Department of Music
Charles Butler's *The Principles of Music in Singing and Setting, with the Twofold Use Thereof, Ecclesiastical and Civil*, as originally published in 1636 by John Haviland of London, is a compactly printed volume composed of two main sections of elaborately annotated text: "Book I: The Principles of Music," and "Book II: Of the Uses of Music." Under the Chapter heading "Of the Moods," Book I deals with the psychological effects of music; under the Chapter headings "Of Singing," "Of Setting," and "Of the Two Ways of Setting," the balance of Book I deals with the rudiments of reading and composing music. The first Chapter of Book II contains a brief discussion of instruments and voice; the balance of Book II is devoted to an apologia, or defense of the practice of music. Preceding Book I are the author's dedicatory epistle to Prince Charles, his reader's preface, three laudatory epistles from his readers, and a printer's
preface, the purpose of which is to explain a novel system of phonetic spelling devised by Butler and used in the printing of his text.

The purpose of the present dissertation is to present a new edition of the theoretical portion of the Principles of Music: Book I, dealing with the psychological effects of music and the rudiments of music, and the first Chapter of Book II, the discussion of instruments and voice. The justification for presenting such an edition lies in the following considerations: First, the theoretical portion of Butler's treatise constitutes a relatively independent body of subject matter which can be suitably taken as the topic of a single dissertation. Second, the theoretical portion of the treatise represents an important contribution to English music-theoretical writing of the sixteenth- and seventeenth-centuries. For a confirmation of this statement the reader is referred specifically to the portion of the dissertation's "Introduction" titled "Charles Butler's Books: The Principles of Music and the Tradition of English Music-Theoretical Writing," and to the "Evaluation of the Theoretical Portion of the Principles of Music" following the dissertation edition. Thirdly, such an edition is justified by the fact that, following the compactly printed
Haviland edition of 1636, the *Principles of Music* has been reissued in no form other than modern facsimile editions; Butler's text and textual annotations, a large percentage of which are in Latin, have never been reprinted in a form compatible with the expectations of present-day readers. Some of the difficulties encountered in reading the Haviland edition are readily apparent from an examination of the dissertation's Figure 2: "The Printer's Preface and Sample Pages from the Haviland Edition of the *Principles of Music,*"

Exclusive of the normal preliminaries and concluding appendices and bibliography, the dissertation is divided into four main sections: "Introduction," "Forward to the Transliterated Edition," "The Transliterated Edition," and "Evaluation of the Theoretical Portion of the *Principles of Music.*" The subdivisions of these main sections are set down in the "Table of Contents" of the dissertation. However, by way of introducing the "Table of Contents" and some of its terminology as well as explaining the form of the dissertation, the following summary statement is offered.

The "Introduction" presents background information concerning Charles Butler, England during his lifetime, and
his published books, with a concluding emphasis on the
Principles of Music and its position among English
music-theoretical writings. The "Forward to the
Transliterated Edition," serves to explain both the use of
the computer and the editorial procedure involved in
preparing the dissertation edition. In "The Transliterated
Edition," besides the theoretical portion of Butler's text
and annotations, are presented the dissertation writer's
editorial comments, in either one of two forms: footnote
materials clearly delineated as editorial, and independent
chapter-like sections titled "Editorial Commentary." The
"Evaluation" section of the dissertation serves to present an
examination of the nature of Butler's authority as a theorist
and to summarize the value of the Principles of Music, so
far as it concerns the theory of music.
ACKNOWLEDGEMENTS

The undertaking and completion of the present study and edition is to a large extent the result of the encouragement and guidance of the writer's dissertation advisor, Professor Norman Phelps, Chairman of Graduate Studies in The Ohio State University School of Music. Other individuals who were particularly helpful either in an advisory capacity or in background preparation were Professor William Poland, Music Theory and Composition Division, Professor Kenneth M. Abbott, Department of Classics, Professor Keith E. Mixter, Music History and Literature Division, various members of the Department of Romance Languages and Literature, and Professor Herbert S. Livingston, Chairman of the Music History and Literature Division.

Presentation of the dissertation in its present
printed form was made possible through the services of the IRCC (Instruction and Research Computer Center) at Ohio State. IRCC'S IBM S370/165 computer is responsible for the physical production; transliteration, ACD (editorial), and formatting programs were written by Thomas G. Whitney, whose interest in music and Renaissance English proved to be of considerable advantage. Instrumental in obtaining the services of IRCC were Professor Poland and Mr. Fred Hofstetter.

A special gesture of thanks goes to the various members of The Ohio State University Libraries for providing source materials and convenient, as well as congenial, work facilities; particularly to be mentioned are Professor Olga Buth, Head of Music Library, and her staff, and the Main Library personnel in Rare Books, Microform Room, Circulation, Medieval and Renaissance Studies, and Interlibrary Loan. This gesture is also extended to Mrs. Gwen M. Money of Lincolnshire, England, for making available a copy of "The Form and Order of Service" in connection with Charles Butler's memorial window (see pp. 5-8).

Finally, appreciation is extended to all those who,
with Professor Phelps, the readers, Mrs. Money, Mother, and Bishop Trelease of New Mexico, expressed an interest in seeing the dissertation reach completion.
VITA

August 29, 1935 . . . . . . . . . . . . . . . . Born - Akron, Ohio
1958 . . . . . . . . . . . . . . . . . . . . B.A., Kent State University, Kent, Ohio
1959-1961 . . . . . . . . . . . . . . . . Graduate Assistant, School of Music, Kent State University, Kent, Ohio
1961 . . . . . . . . . . . . . . . . . . . . M.A., Kent State University, Kent, Ohio

FIELDS OF STUDY

Major Field: Music Theory
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INTRODUCTION

Charles Butler (c. 1560-1647)

Charles Butler was born in Buckinghamshire, England—possibly in Great Wycombe, Buckinghamshire, according to Anthony à Wood’s Athenae Oxonienses.¹ The University of Oxford matriculation records suggest that the date of birth was around 1561;² Wood alludes to an earlier birthdate—around 1559.³ None of the biographical sources


²According to Andrew Clark, ed., Register of the University of Oxford, II, Part II (Oxford: Clarendon Press, 1887), 106, which reads: "24 Nov. 1581, Magd. C. Butler, Charles: Bucks., pleb. f. [son of a commoner], 20." In II. Part I (1887), xxiv, Clark states that the matriculation date was not always accurately represented in the Oxford records.

³According to Athenæ, II, 51, Butler "took his last farewell of this world on the 29th of March in sixteen hundred forty and seven, and in that of his age 88, or thereabouts." Most writers give the date as either 1559 or 1560.
generally available* comment on Butler's early life and education; however, since he was a student at Oxford, it can be assumed, at least, with a fair degree of certainty, that he received early instruction in the trivium (grammar, logic, rhetoric) at one of the Elizabethan grammar schools—the normal form of college preparation for those times.5

In some of these grammar schools the student was required to study Greek, the most important text being the Greek New Testament; in some, perhaps even Old Testament Hebrew.6 To be sure, the main business was Latin: authors such as Terence, Cicero, Virgil, Ovid, and Horace (accompanied by some of the then modern Latin authors—for


example, George Buchanan and Erasmus). Thus when Butler entered Magdalen Hall, Oxford, in 1579 and became an arts student, he would under these circumstances have been continuing, and expanding upon, an intensive study of the classics, while branching out into the quadrivium by way of arithmetic and music; according to the new statutes of 1564-65 the arts student "was required to have spent two terms at Grammar, four terms at Rhetoric, five terms at Dialectic, three terms at Arithmetic, and two terms at Music [lecture on Boethius, De musica] before determination." Butler received the B.A. degree on February 6, 1563/4; on June 28, 1587, he


8Even in the pre-grammar schools, drawing, music, and arithmetic were generally not yet considered essential parts of an education directed primarily toward acquiring, through reading and writing, the elements of a religious life (Charlton, Education, 100-01). However, some schools went beyond the basics.

9David G. T. Harris, "Musical Education in Tudor Times (1485-1603)," Proceedings of the Musical Association, LXV (1938-39), 123. The music lecture was falling into disrepute during Butler's time; complaints concerning impracticality of subject matter and lack in attendance are discussed by Harris in his article (124-25). As for the degrees in music, they were granted (at least in part) on the basis of ability in composition; however, the knowledge of practical music seems to have been gotten from outside the lecture (cf. Clark, Register, II, Part I, 145-49; and Harris, 124-25).
received the M.A. degree, the requirements for which involved studies in moral and natural philosophy. While at Oxford between 1579 and 1585, according to Clark's Register and Joseph Foster's Alumni Oxonienses, he was a chorister.

Butler left Oxford in 1593 and took a position as Rector of the small church of Nately Scures, east of Basingstoke, Hampshire. Two years later he became Master

10 Clark, Register, II, Part III (1888), 119:

11 Clark, Register, II, Part I, 66.

12 Clark, II, Part II, 106, apparently drawing his information from J. R. Bloxam, A Register of the Presidents, Fellows, Demies, Instructors in Grammar and in Music, Chaplains, Clerks, Choristers, and Other Members of Saint Mary Magdalen College in the University of Oxford . . . (8 vols.; Oxford: W. Graham, 1853-65), I, 20, and Foster, Alumni, I (Oxford: Parker, 1891), 222, gave the same dates. However, Bloxam, Register, I, 20, which, as to the biographical sketch of Butler, is almost completely a reprint of Wood's article (Athenae II, 57), does not say when Butler was a chorister, precisely; furthermore, Bloxam's use of the word "chorister" seems to be simply a replacement for (perhaps also an interpretation of) Wood's term "bible clerk." Poster Watson, The English Grammar Schools to 1660 (Cambridge: University Press, 1908), 212-13, apparently also drawing information from Bloxam's register, referred to Butler as "Master of Music in the Song School in connexion with Magdalen College." The other biographical sources make no mention of Butler's being a "Master of Music."

13 This and the following date ("two years later") are according to Gilbert Reaney's "Introduction" (p. v) to the Da Capo Press facsimile edition (New York, 1970) of Butler's Principles of Music. However, Butler's biographers are not
of the Basingstoke grammar school--the "Holy Ghost School," which, formerly maintained by the Guild, or Brotherhood of the Holy Ghost, was confiscated by the Crown in 1548, fourteen years after the separation of the English Church from Rome.\footnote{H. Arthur Doubleday and William Page, eds., The Victoria History of Hampshire and the Isle of Wight (6 vols.; London: Constable, 1900-14), II, 365, 366, and 372. Bullen ("Butler," 497) gives the source as "Hist. of Hampshire by Woodward, Willis, and Lockhart, iii. 230-2."}

He held these two positions until 1600, at which time\footnote{Poster, Alumni, I, 222. Cf. Money, Butler, title.} he became Vicar at Wootton St. Lawrence, three miles west of Basingstoke. This position was held until March 29, 1647,\footnote{Puller, "Hant-shire," 13, gave the date of Butler's death as 1640.} when Butler died at the age of approximately eighty-eight years.\footnote{Wood, Athenae, II, 51.} He was buried in the chancel of Wootton's church. Some three centuries later, his long period of service as Vicar, as well as achievements as scholar and writer, brought to him the honor of a memorial window in the same church. In Figure 1, the window has been reproduced from "The Form and Order of Service in the Parish Church of Wootton St. Lawrence, Hampshire, on the Occasion of the Unveiling and Dedication of the Coronation Window in Memory of Charles Butler . . . ," printed for the service in agreement with each other as to these two dates.
The Coronation Window in the North Aisle

To the Glory of God and in memory of Charles Butler Vicar of this Church from 1642 to 1647 author of a notable book on bees "The Feminine Monarchie." This window was placed here to mark the Coronation of Queen Elizabeth II in 1953.

The window was designed
by Gerald E. R. Smith of the
A. K. Nicholson Stained Glass
Studio, where it was wrought.

Figure 1. Butler's memorial window
held November 14, 1954, in commemoration of the coronation of Queen Elizabeth II (1952). The window is described in the "Form and Order of Service" as follows:

In the left-hand light Butler is shown holding in one hand his chalice and cover paten (1625), and in the other hand his classic bee book "The Feminine Monarchie," written in his home near the south side of the church (1609). Behind him is the honeycomb with the outer inscription "Solertia et Labore" (Wit and Industry), which appears in his book. On the left are the arms of Magdalen, Oxford, where he was a chorister from 1579. Below is Butler preaching from his new pulpit (1624) at Wootton, and his final words from his fifth and last book "The Principles of Music" written near the church in 1636. At the apex of this light are the arms of the Diocese of Winchester, in which he worked as a priest for fifty-two years.

In the right-hand light at the apex is a figure of St. Cecilia, patron of music. In the medallions below are shown the Norman Church of Nateley Scures, four miles to the east of Basingstoke, and the thirteenth century chantry school of the Holy Ghost in that town. Butler was Rector and Schoolmaster at the same time from 1595 to 1600. Running through the two lights below again is the church of Wootton St. Lawrence as it was in Butler's time. He was buried in the chancel in an unmarked grave in 1647. At the foot are the old beehives of which he wrote. At the side here is the badge of Queen Elizabeth I, the Tudor rose, and her motto "Rosa sine Spina" (A Rose without a Thorn!). Other items in this light are the four bells (1625), and the fragment of the fifteenth century font in which Butler baptised his five children, the youngest being Elizabeth (1612), his "honey girl," to whom he gave some hives at her birth which yielded a dowry of £400 at her marriage here (1632). Her husband was the Reverend Richard White, brother of the great grandfather of Gilbert White of Selborne.

In the quatrefoil tracery above these two
lights are the Royal Cypher of Queen Elizabeth II, and the national emblems of England (rose), Wales (leek), Scotland (thistle), and Ireland (shamrock).
Charles Butler's Times

During the formative and early productive years of Butler's life England was in a state of relative peace. Even during the years of his vicarage there were no real battles on English soil until the civil war which began in 1642; by then the religious differences between Anglicans and Puritans, and the differences between King and Parliament, all of which had to some extent been fermenting since the times of Elizabeth (Queen of England 1558-1603), came to a head. That England had managed to play only a secondary role in the religious wars which tore at vast areas of the continent was due in part to her insular separation from the continent, in part to her preoccupation with internal affairs, and perhaps also (particularly in the case of Elizabeth) in part to a good deal of common sense. England, in this state of semi-isolation, was developing a strong national spirit, a national religion (uniquely rooted in political separation from Rome), and a form of government in the long view—and contrary to continental absolutism and the policy of Laud and Charles I (King of England
1625-49)—pointed in the direction of restrained and responsible monarchy with parliamentary participation. England was also developing, with the aid of foreign investment and technology to some extent, her natural resources; she was expanding industrially and agriculturally as well as commercially and colonially. While Europe warred, England prospered;¹ when the civil war came "the new forces were so strong," as Rowse put it, "that it didn't do much harm."²

Socially, Butler's England was in a state of transition between medieval and modern times. The nobility still existed as a class, but their importance was giving way to a rising class of country gentlemen who were becoming the wealthiest and most powerful group in the kingdom. Class distinctions were still very clearly defined, but there was now a considerable social intercourse among the classes; within the gentry itself there was a great flexibility: a man—merchant, businessman, successful lawyer, wealthy

¹Actually, following the Elizabethan boom which ended in the 1580's, there was a long period of inflation—part of a general inflation which resulted from the flood of New World wealth—which caused hard times for many with fixed incomes while speculators and investors made fortunes. However, the accumulation of capital made possible by "cheap money" was responsible for many of the expansive achievements of the time. Cf. A. L. Rowse, The England of Elizabeth (New York: The Macmillan Company, 1961), 108-09.

yoeman—could push his way into the class of gentlemen through his own initiative and accumulated wealth.

Restrictions in education tended to be concerned more with age, scholarship, and locality rather than with social and economic status:

So it happened that, in Elizabeth's time, instead of being sent . . . to the house of some great lord for training in manners, morals, and accomplishments, sons of noblemen and gentry began to attend the local grammar schools, where they sat on the same benches with the sons of farmers and townspeople; . . . and an analysis of the entries at Colchester between 1638 and 1643 shows a large proportion of sons of gentlemen and clergy, together with sons of grocers, tailors, drapers, tanners, etc.3

Other changes in education—which was largely controlled by political and religious factors—were primarily quantitative rather than qualitative in nature. With favorable economic conditions, widespread availability of inexpensive printed matter, and expansion of facilities, education was increasing at all levels. Yet throughout most of the seventeenth century the method of study in the traditional English universities remained largely scholastic and custom-

3J. Howard Brown, Elizabethan Schooldays (Oxford: Basil Blackwell, 1933), 38-39; cf. Charlton, Education, 96-97. The phrase "began to attend" in the first half of this quotation should be emphasized in the case of the nobility, the sons of whom were educated for the most part in their own homes by private tutors (Charlton, Education, 97).
bound to Aristotelian authority; the heavy reliance on classical languages and literature in the grammar schools was similarly non-progressive.

In other respects, too, the English people were only beginning to shake off the restraints of the medieval world. For example, there was a widespread belief in elves, fairies, Tom Thumbs, and similarly supernatural beings; even in educated circles there was a not uncommon belief in witchery. The beginnings of modern science, as we know it today, were just starting to bring down the walls of medieval superstition. Some of the traditionally accepted beliefs of Aristotelian origin about man's physical world had just recently been questioned, and afterwards successfully revised: the Ptolemaic concept of a geocentric universe—questioned by Copernicus (1543) and conclusively disputed by Kepler and Galileo (early seventeenth century); the Galenic concept of medicine—gradually replaced by the findings of first-hand observation and experiment, beginning with Paracelsus, but especially Vesalius (1543) and his


illustrations based on human dissection, as opposed to animal dissection. There were other, similar advancements, such as Galileo's experiments in mechanics, and the significant contributions to the concept of scientific method by Descartes and Butler's countryman, Sir Francis Bacon. There were also advancements by way of newly acquired techniques, such as Napier's and Brigg's logarithms.

In the arts, some of the important contributors of the time were El Greco, Rubens, Toledo and Herrera (Escorial Palace), Cervantes, Palestrina, Caccini, and, in England, Shakespeare and William Byrd. To be sure, the greatest English contributions were in the fields of literature and music; architecture and painting were dominated by foreign influences and were secondary—notwithstanding the contributions of the miniaturist portrait painters (Hilliard, Cooper) and the achievements of Inigo Jones (the Queen's House at Greenwich, Covent Garden, and others). Some of the important English poets and dramatists of the time were Marlowe, Spenser, Shakespeare, Jonson, Beaumont and Fletcher, Donne, and Thomas Campion. The high stage of development and activity was reached in poetry (lyric, dramatic, descriptive) and drama (comic as well as tragic, including the masque) during the period composed of the end of Elizabeth's reign and the first half of that of James I (King of England
1603-1625); as in the case of music, so in poetry and drama these years saw some of the greatest achievements of the English people throughout their entire history. However, the first half of the seventeenth century also saw decline and transition in poetry, a shift of emphasis in many writers from Elizabethan passion to subtle intellectuality, and an increase of religious poetry, which was generally lacking among the predominantly erotic Elizabethan verse. Drama, in the view of modern criticism, began to decline after Shakespeare (d. 1616), becoming more ephemeral in character. It nevertheless retained its popularity. When the Puritans closed the theatres by law in 1642, plays continued much as before; even after more stringent laws were passed, the theatre, in some respects driven underground, managed to survive. 6

Prose writing, overshadowed by poetry and drama during the Elizabethan age, nevertheless had risen, even during Elizabeth's time, to a position of first-rate importance; it continued to develop, slowly, yet steadily, eventually acquiring the leading position among the literary arts. The great interest in national literature and the English

6Davanant's Cruelty of the Spaniards (1658), for example, was actually welcomed during Cromwell's reign because of its propaganda value. Cf. Davies, The Early Stuarts, 398-99.
language can be seen in the writings on orthography and pronunciation, the merits of rhyme as against classical metres, the need for purity in usage of the native tongue, the superiority of the English language, and in an early stage of English lexicography. In addition there were translations of contemporary literature, especially Italian, as well as the classics, Greek and Latin. Prose reached high points in Hooker (Ecclesiastical Polity), Bacon (Essays, and other works), the 1611 Bible, Burton (Anatomy of Melancholy), and Donne (Sermons). There were important biographical, historical, and geographical works by Camden, Bacon, and Hakluyt.

The developments and achievements in music during the Elizabethan period (in the field of music, extending to the mid-1620's) represent, not forgetting the outstanding contributions of later individuals such as Purcell and Handel, the most fruitful period of English musical productivity prior to the twentieth century. Music was widely cultivated and highly regarded--its status stemming from the court itself, as well as the nobility; "it cannot be emphasized too much that the English universities were the only institutions to confer the baccalaureate and doctorate in music, the only universities in which the art of music
achieved the dignity of a separate faculty."7 Some of the
degree holders who attended Oxford during Butler's time were
Nathaniel Gyles, John Bull, Thomas Morley, and John Dowland;
later Thomas Weelkes, Thomas Tomkins, and Orlando Gibbons (D.
Mus.). 8

As in the case of politics, social development, and
literature, music of the Elizabethan period was characterized
by nationalistic features. There was the development of the
forms appropriate to the English liturgy—the anthem, the
service, and their sub-types—with a continued cultivation of
traditional Latin forms; there was the development of the
English madrigal (from Italian models), the English schools
of lutenists, virginalists, and consort music, with the
tradition of native secular song. There were also peculiar
intrinsic features: melodic angularity; contrapuntally
logical harmonic false-relations; and a liking for occasional
strong dissonances. In English music, in contrast to
continental practice, there were generally greater tendencies
toward major and minor tonality, and greater tendencies
toward formal or purely musical organization in secular vocal

7 Nan Cooke Carpenter, Music in the Medieval and
Renaissance Universities (Norman: University of Oklahoma

8 Clark, Register, II, Part I, 146-49; names, dates,
and degrees are given, and in some cases, requirements for
the degrees.
writing. English music also maintained a chronological detachment from continental developments. As the Elizabethan age in general was a late flowering of the renaissance spirit which had long since passed its early stages in its native Italy, so did English music of this age show certain characteristics of lateness in development. The use of imitation "penetrated the traditional forms of English church music only gradually" toward the middle of the sixteenth century.\(^9\)

The Italian-inspired madrigalist movement reached its peak in England when Italy was directed more towards monody and the early stages of baroque opera. Italian monody was not accepted in England until around 1620 (Peerson and Porter, figured bass being first used by Peerson);\(^{10}\) Italian chamber music style and bel canto after 1650;\(^{11}\) opera later. The "formative period of English baroque music" coincided


\(^{11}\)Ibid., 148.

\(^{12}\)Ibid., 148-49.
with the reign of Charles I,\textsuperscript{13} during the latter years of Butler's life. On the whole, the quality of the music produced in England during these post-Elizabethan years is generally characterized as relatively inferior, especially in comparison to the achievements of the Tudor church musicians, the Elizabethan madrigalists, virginalists, and composers of lute songs.\textsuperscript{14} Even so, as noted by Lillian M. Ruff in her study "The Social Significance of the 17th Century English Music Treatises,"\textsuperscript{15} the enthusiasm for music was considerable:

Judging by the number of treatises on theory and composition published in England in the 17th century, chiefly for the benefit of amateur musicians, the desire to understand theory and to learn the basic elements of simple composition must have been greater here than in any other country in

\textsuperscript{13}Manfred F. Bukofzer, \textit{Music in the Baroque Era, from Monteverdi to Bach} (New York: W. W. Norton, 1947), 180. Blume, \textit{Renaissance and Baroque Music}, 145, writes that around 1600 the songs and instrumental works of Dowland inaugurated a "pronounced English Baroque." However, Bukofzer, 71, points out that ayres were not stylistically connected with monody, but dependent on the French \textit{air de cour}.

\textsuperscript{14}Kenneth R. Long, \textit{The Music of the English Church} (New York: St. Martin's, 1972), 201, states that "after the brilliant period of the Elizabethans and Jacobians during which church music achieved new heights in beauty, richness, expressiveness and technical mastery, it was suddenly hurled to the lowest depths it had ever reached."

Europe. From the 1620s English composers were struggling against the forces of religious and political conflicts, and music was reduced to a domestic art until the Restoration. Even during the Puritan régime [Oliver Cromwell's Protectorate, 1653-56], music per se continued to be held in high esteem, and it was cultivated by people of any social standing. Most households in London had a keyboard instrument, and some of the wealthier ones would have had viols, recorders, a lute, and possibly other instruments. The political and social trends of the time spread the musical cult to wider circles—men like John Bunyan and Samuel Pepys who hailed from humble backgrounds, were enthusiastic amateur musicians; social status seems to have been immaterial where music-making was concerned: maid-servants and men-servants who had musical talent took part with their masters' families in performing music.
Charles Butler's Books

General.--Butler's Principles of Music, which is to a large extent concerned with sixteenth- and early seventeenth-century English musical practice, is one of six books by him, which show that—not unusual for his times—he was a man of varied interests; in these books are seen some features of the man's interests, of his education, and of the spirit of the period during which they were written:

Rhetoricae libri duo (Oxford: 1598; later editions 1600, 1618, 1621, 1628, 1629, 1635, 1642, 1649, 1655, 1671, 1684)

The Feminine Monarchie, or a Treatise Concerning Bees (Oxford: 1609; later editions 1623, 1634 [reformed spelling], 1673 [Latin], 1682 [Latin], 1704)

Συγγένεια De propinquitate matrimonii impediente, regula (Oxford: 1625; later edition

1In the following list, the information on editions (which is not necessarily complete) is taken from: British Museum, General Catalogue of Printed Books . . . to 1955, XXX (London: The Trustees of the British Museum, 1965), 1118-19; and [Library of Congress], The National Union Catalog, Pre-1956 Imprints, LXXXVII (London: Mansell, 1970), 322-24.
1643)

*Oratoria libri duo* (Oxford: 1629; later edition 1633)

*The English Grammar* [reformed spelling] (Oxford: 1633; later editions 1634, 1910)

*The Principles of Musik, in Singing and Setting: with the two-fold Use thereof, [ Ecclesiasticall and Civil. ]* (London: John Haviland, 1636 [reformed spelling])

The preface of the first of these shows Butler's high regard for and indebtedness to Peter Ramus (1515-72), an outspoken critic of Aristotelianism and a reformer in the field of liberal arts (logic) who lost his life as a Protestant victim of the Massacre of St. Bartholomew's Day. After editing Ramus' *Rhetoricae* in 1597, Butler issued his own book of the same title, which, going through at least eleven editions during the seventeenth century, became "the most famous textbook in the history of Ramistic rhetoric in England." New editions of the second book, the treatise on beekeeping, were published "until late in the eighteenth century, and no English work on skep beekeeping has yet appeared which

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The book is of interest to the musician because of its inclusion of Butler's "Melissomelos, or Bees' Madrigal," an example of four-part table music (see Appendix C, pp. 510-16) in which the sounds, or tunes of the bees were purported to be rendered in musical notation.5

De propinquitate matrimonii impediente, which prompted Fuller to describe Butler as "a pious man, a painful Preacher, and a Solid Divine,"6 is a dissertation on the propriety of consanguinity in marriage. The English Grammar, as indicated above, was issued at least twice during Butler's lifetime and was reissued in 1910—a critical edition by A. Eichler.7 In this book, Butler "was the first to explain the historical background of the unphonetical character of English spelling,"8 and proposed a reformation of English spelling based on his own system of orthography.

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*H. Malcolm Fraser, History of Beekeeping in Britain (London: Bee Research Association, 1956), 32. A skep is a domed hive made of twisted straw.

5According to Fraser, Beekeeping, 32, the Bee's Madrigal was "splendidly rendered by students from Worcester and Somerville Colleges, Oxford, when Butler's memorial window in his Church at Wootton St. Lawrence was unveiled on 14th November 1954." (See Figure 1, p. 6, above.)


7In Neudrucke frühneuenglischer Grammatiken, IV, Part I (Halle: Max Niemeyer, 1910).

Nearly the same system was used in the 1634 edition of the treatise on bees and the last of Butler's books, *The Principles of Music* (see Haviland's "The Printer to the Reader," Figure 2). The grammar was dedicated to the future Charles II, apparently in the idle hope (as Eichler put it)⁹ that it would be used in the young prince's education.

DE

Printer to the Reader.

A Description of Antiquities, Certainties, and Facilities, of de Ortes, or new writing, used in this and other books; but sufficiently demonstrated in the English Grammar, yet, because de Aspirants (which is most affected in some parts) are not sufficiently explained, in the present page it is explained, by their simple consonants and the Letter of Aspiration [H] of which are not noting, etc., but Abbreviations.

The alphabet is as follows:

- s: ch, like @ or @: as in stiff, tank.
- d, l: d: as in deal, dar.
- k: ch, —: as in Cain, caper.
- g: as in karacter, Tikicus.
- p: gh, like @: as in big, mighty.
- f: ph, like @ or @: as in phyl, piloteer.
- w: sh, like d: as in fall, gibberish.
- ph: wh: —: as in waw, waw.

Not here, but, of all de Aspirants, C and W are peculiar to the English: the rest are common to other Languages with ours: You may be pleased to observe, that S Sonant and S Silent, because different in power and use, are for the Readers ear, distinguished in Figure also. And the Qd writing (as de Aspirate) is an Abbreviation of C or K and Y, as v, d for v after it, having no t, if & @ or omit, as in quid. So de Preface to de Grammar, and last Letter in this place.

J. Haviland.

Figure 2. The printer's preface and sample pages from the Haviland edition of the Principles of Music.
De PRINCIPLES OF MUSIK.

Lib. I. Cap. I. Of de Mod's.

Music is the Art of modulating Notes in voice or instrument. Music, having a great power over the affections of the mind, by its various Moods produces in the hearers various effects.

DeP Mod's are five: [Dorik, Lsidian, Aeolian, Dorian, and Ionik.]

(1) De Dorik Mod consists of sober slow-timed Notes, generally in Counter-point, set to a Psalm or pious Canticle, in Meter or Rhytmical vers: the Notes answering the number of the Syllables. Dies moves to sobriety, prudence, modesty, and godliness.

Vide (c) in Noti.

(2) De Lydian Mod is a grave, full, solemn Mufik in Different parts, of slow time, set to a Hymn, Anseam, or other spiritual song in prose, and sometimes inverse; the Notes exceeding often the number of the Syllables: it moves his heavenly harmonies, ravishes the mind with a kind of ecstasies, lifting it up from the regards of earthly things, unto the depth of celestial joys: Vide (c) in Noti, vide it doth lively resemble. Vide Sec. in chap. 3. § 1.

De
De (k) Edik Mod is dit, wie, wit its soft pleasing sounds, pacifyet de Passions of de mind, and wit instruments or distiles fa-fa's, in continued distant, delighting de 

dren, and not intending de mind of de hearer, like Mercu-

t's Cadences, exerts affection and cares, and so lull them 
sweetly to sleep. Vid. (c) in Notix.

De (l) Prygian Mod is a manly and courageus kind of 

Music, wie, wit his lately, or loud and violent tons, rou-

sec de spirit, and inciteth to arms and activit: see ar Mar-

ces, Almain, and de warlike sounds of Trumpet, Fife, and 

Drum. Vid. (c) in Notix.

De (m) Tonit Mod is contrary to de Prygian: an effe-

minar, and delisc kind of Music, see unto pleasant songs 

and sonnets of low, and sue like fancis, for hooned mire and 

deligt, chiefly in fealing and oder merriments. Vid. (c) in 

Notix.

And from Music is compounded of some or all of de:

as de Barrag-galliard. For all wie various effects,dis (l) Ma-


tematical Art and levna. liberal Science, has been always re-

spect, and used, of all sorts of people, as well (n) learned 

and ingenious, as (n) ignorant and barbarous.

De (o) Mod, wie Cylies Rhodogum (out of Casydorset, 

or rader King Theodoris Epistle to Hottins ) righ descri-

ber *by de Effets, som Defin and Diltinglip (as dey doe de 

Air)by de final Key of de Bat: or rader by its (c) Con-

stituted Tons) but Skilful Musicians know hout to form 

any Mod in any Key or Tons indifferently: so it be* con-

formable to de Air of the Subjeft.

A N A T T I O N A T I O N S T O C A P . I.

A N A T T I O N A T I O N S T O C A P . I.

A N A T T I O N A T I O N S T O C A P . I.

A N A T T I O N A T I O N S T O C A P . I.

A N A T T I O N A T I O N S T O C A P . I.

A N A T T I O N A T I O N S T O C A P . I.

A N A T T I O N A T I O N S T O C A P . I.
Cap. I. Of de Modis.

Modulatio potest ad Salmam Musicam pertinere; quamvis modus, unde fonsum verbum est, posuit cium in alius revobis.

( ) Poetor inrum. Deus in effect dox sar hat holy. *F aster dividit* : "Sonum simplex est: aut in voce animalis, aut in Bose status in Organis factura, aut in quod pulsa eductus. By de frict, meaning vocal Mufic; ( )x est de ece: by de second, de music of Organs and oper wind's instruments; by de tull, de Harp or Lute, or other instrument dat sound by ece of ebrock.

( ) Tullius. Affectione et Platoni, nihil tam facile in animos tenere ait, mulus infra: quamvis modus, ur defect in thes verb am ejl, poftt ctism in tins rebus cjur, 1) oc1 or in' trum. D us in c fsc ft dtu'-t dat holy: Fader dividc: *fom-

*Sonum trilex est: aut in voce animantis, aut in to quod fiat eductus in Organis: aut in to quod plute ad eccltum, pariter sunt immutati cum cantibus. Deus Plato: and after him *Artifcle. In melodies ipsas sunt limitatum metrum: & hoc airt manifetum: Satum animis harmonium diffinse in natura: ita ut qui audiant alter dis ponantur, nec codem modum habeant ad unamquemque par-

*Sonum: sed ad quasdam fexilitatem & contrathe magis, ad quasdam mollaris secundum mentem: ad aliam vero mediocris & composita plurimum: aut sidetur Dominica est uerum omnium harmoniam. Def varias effectos were likest observed by T. Macrebius. Omnibus habitis animis, cantibus gubernatur: nam quae data se mus, edam: nec non cursum immitit, & et radiat: quam sagges, & et tamen sedecet & etc.

And by S. *Lyder: *Omnes affectus notii, por fomam um decidet, vel notates: ostia quae articula familiariter excitantur magis, cion fucari et artificioso voces cantam aux. Also by Cassiodorus, or other King *Theodorus, morat alque: Mufica cunct de sectae Natura, tamquam sectam Regina, tropis suis ornata pro efferit, reliqua cogitationes excitant; omnino facili ejici, ut Ipsam solam semper decidere audias. Trallatum nasi: quos uidentur: tamidob fortuna atten-

*Stratag sum; veritatem excitat: blandam excitat ignaviam, favores, tum nym, eloquentiam adducit, & atque quae arctum talium, ad hominem studium vocavit, excitat: nam mentis buno cogitacionibus temperat ad urbem: pertinco ad unum convertit ad auxiliari

*Stratagum: & (quod beatum genus carnium est) per dulcissimum voluptate exorrit animi passiones: incorporatum anima corporaer mulcit, & solo auditud quod vult deducit.

( ) Fiv. As *Catius Rhodogonis observat orn de abov-cited Ex-

*Platice Quod Cappadonum (falsus) super modum Musici sequatur, annexa de dam magistri Dorius prudentis largitores & ciaiténs effecior: Phrygion potus exstnuntum fuerit inflamat: Nox animi temperat, et lapsum, jam placati attribuit: Lydias intercella ob-

*Stratagum, & terceno delidus graviter collethm aperturam includit, hauriam, operum etvmin adjectum à pluresque, inuenit, quum prædicere intellegat se secundum. But *Martinius Capella, namely: in degrees of

*Stratagum, account in all 15 Dorius, Hypercorius, Hyper-

dorus: LYDIUS, Hypolythius, Hvnonolius; AEOLICUS, Hypo-

*Thedicus, Hypercorius: PHRYGIAN C. S, Hypophysis, Hypercor-

*Phrygian: 2

*Vasatius: 9.

*Stratagum 3.

*Vasatius: 9.

*Farnesius: 9.

*Vasatius: 9.

*Galanthus has indicat-

*Vasatius: 9.

*Farnesius: 9.

*Vasatius: 9.

*Galanthus has indicat-

*Farnesius: 9.

*Vasatius: 9.

*Galanthus has indicat-
The Principles of Music and the tradition of English music-theoretical writing.—Having gone through only one edition, the treatise on music, dedicated to Prince Charles, would seem to have been the least popular of Butler's works. Discounting certain peripheral criticisms, those concerned mainly with the difficulty in reading the reformed spelling, it was highly regarded by its seventeenth- and eighteenth-century reviewers: Roger North, Charles Burney, and Sir John Hawkins. Prior to an examination of their remarks, since they were variously tempered with references to both earlier and later English writings on music theory, the sixteenth- and seventeenth-century tradition of English music-theoretical writing must be brought into focus, and is therefore briefly summarized in the following few paragraphs.

The "first printed work in English on musical theory," according to Morrison Boyd,10 was William Bathe's A Brief Introduction to the True Art of Musicke, published in 1584.11 While Henry Davey refers to the book as having been


"subsequently reprinted,\footnote{12} according to Hawkins it was so revised, "as hardly to retain a single paragraph of the former edition," and later appeared as \textit{A Briefe Introduction to the Skill of Song}\footnote{13}--a smallish, forty-two-page octavo consisting of: a four-page introduction; a discussion of the basics, with an emphasis on solmization, under four headings or chapters ("For Naming," "For Quantitie," "For Time," "For Tune"); a mathematically tabulated method for producing canon; concords and discords; a Latin poem and a psalm setting; ten ways of two parts in one on a plainsong; and a concluding, double-sized page presenting solmization mutations in various clefs. Prior to these books by Bathe, and of interest from the standpoint of terminology as well as solmization and the rudiments of music necessary for reading music from the psalter, is the very brief "A Short Introduction into the Science of Musicke" which appeared in \textit{collect}ed by P. Delamote (1574),\footnote{12} which may have been "the prototype of the 17th-century [English] treatise."


\footnote{13}Ann Arbor: University Microfilms, 1951; originally printed in London: Thomas Este, [1596?]. Hawkins, \textit{General History}, II, 498. The present writer has neither located a copy of the first edition nor found a real description of its contents. According to Boyd, \textit{Elizabethan Music}, 253, "copies are so rare that the British Museum and other important libraries possess none." Nor did Boyd have access to a copy when he wrote his book.
the 1561 and later editions of the Sternhold and Hopkins Psalter.\textsuperscript{14} During the same year that the revised Bathe is conjectured to have appeared, 1596, an anonymous The Pathway\textsuperscript{15} to Musicke was published in London by William Barley. The book contained ninety-six rather sparsely printed quarto pages dealing basically with the fundamentals: note names and number, solmization, mensuration and proportion, and some consecution (progression of intervals one upon another).\textsuperscript{16} In the following year, 1597, appeared the first printing of Thomas Morley's famous A Plaine and Easie Introduction to Practicall Musicke (London: Peter Short), a folio of over two hundred pages, in toto easily five times the content of either The Pathway or Bathe's Skill of Song. Divided into three parts, Morley's treatise

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\textsuperscript{15}In second and later references to frequently cited titles in which "vv" and "v" stand for "w" and "u," respectively, they are transliterated accordingly.

\textsuperscript{16}According to Ruff, "17th Century English Music Treatises," 413, The Pathway "was a direct descendant from Delamote's treatise [A Briefe Instruction of Musick]." Ruff also states that The Pathway is largely "a plagiarized translation of two German treatises: P. Beurhusius, Protomateum Musicae (1580), and L. Lossius, Protemata Musicae Practicae (1570), edited with a lack of understanding of the subject."
dealt with the basics in its first part: the scale, solmization, mensuration; and, in the annotations, the Greek species, the modes, proportions, and some errors in *The Pathway*. The second and third parts dealt largely with writing two-part descant and setting in up to five and more parts; it included sections on canon, double descant, "dittying" (word-expression), and the forms of music. Boyd described the book as "the most important English book on music before the publication of the musical histories of Hawkins and Burney in 1776."\(^{17}\)

Following a second edition of Morley's *Introduction* of 1608 were Thomas Campion's *A New Way of Making Powre* Parts in Counter-point* (London: T[homas] S[nodham], n.d.), Giovanni Coperario's unpublished *Rules How to Compose*, both dating from around 1613 or 1614,\(^{18}\) and Thomas Ravenscroft's *A Briefe Discovrse of the True (But Neglected) Vse of Charact'ring the Degrees - - in Mensurable Musicke* (London: Edw. Allde, 1614). The specialized nature of the

\(^{17}\)Elizabethan Music, 223.

contents is largely implied in the titles. Besides a brief introduction to the scale and solmization, Campion's work dealt largely with two-voice consecution and four-part harmonic progression, and included "a necessary discourse of keyes, and their proper closes." The manuscript by Coperario, after a few introductory pages on concords, discords, and resolutions, dealt mainly with four-part composition: harmonic progressions, suspensions, and imitation. It also included a section on "division" of parts. While these two treatises on harmony were progressive for their time, the treatise by Ravenscroft was not; Boyd described it as a "pedantic and unnecessary book . . . written in a vain attempt to induce composers to use the correct but obsolescent medieval time signatures." 19 Besides the discussion of mensuration, there were examples using the same in the "five usual recreations," so that the theoretical discussion itself consisted of only twenty-two quarto pages--sufficient for the handling of such a specialized study, however. In 1631 appeared Elway Bevin's A Briefe and Short Instruction of the Art of Mysicke (London: R. Young), which, like the treatises of Campion and Coperario, was largely a specialized handling of a phase of composition--in this case canon, with a few introductory pages on concords

19Elizabethan Music, 225.
and discords, consecution and proportion, and syncopation.20

Other pre-1636 music treatises of interest are The Praise of Musicke (Oxford: Barnes, 1586), essentially a formal defense of the practice of music containing a section on the psychological effects of music (amplified by various quotations from the classic writers);21 and John Dowland's English translation of Andreas Ornithoparcus' Micrologus (1517), published in 1609 (London: Printed for Thomas Adams), a general, but outdated introductory theoretical discussion of from one third to one half the content of Morley's Introduction. A two-volume Latin work, Utriusque cosmi, by Robert Fludd (Oppenheimii: Aere Johan-Theodori de Bry, 1617-19), is described by Boyd as "a pseudo-philosophical work of little value, with some practical descriptions of musical instruments."22 Besides


these there were brief instrumental-theoretical introductions in some of the published collections of music,\textsuperscript{23} and, in the field of acoustics, Bacon's \textit{Historia et inquisitio prima de soni} \ldots, written before 1622 and published in 1688,\textsuperscript{24} and Centuries 101-290 of his \textit{Sylva sylvarum: or A Naturall Historie}, published in 1627,\textsuperscript{25} interesting early attempts which still show the influence of medieval thinking and reverence for ancient authority.

Coming then to Butler's 1636 \textit{Principles of Music}, the tradition of English music-theoretical writing acquired in it its first well-rounded, well-organized general introduction of moderate length—a quarto with from one third to one half the content of Morley's \textit{Introduction}. The \textit{Principles of Music} combined, or improved upon, several features of the English tradition of introductory treatises. First—an improvement over the incipient organization found

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\textsuperscript{23}\textit{As Robert Dowland, Varietie of Lute Lessons, 1610; and Thomas Robinson, The Schoole of Musicke, 1603, and New Citharen Lessons, 1609. Earlier (1568 and 1574, according to Davey, \textit{History}, 127) there were translations of Le Roy's instruction-book for the lute.}

\textsuperscript{24}\textit{The dates are according to Boyd, \textit{Elizabethan Music}, 266-67. According to Basil Montagu, ed., \textit{The Works of Francis Bacon}, XI (London: William Pickering, 1829), vi, it was published in 1658. For an English translation, see Montagu, \textit{Bacon}, XV (1834), 225-47.}

in Bathe's *Skill of Song*—it had a well planned and
typographically extremely well defined sequence of chapters
with divisions and subdivisions; this was a distinct
advantage, from the viewpoint of the novice, over the loosely
organized dialogue form of Morley. Secondly, as did Morley's
treatise, it featured annotations of antiquarian, historical,
and contemporary theoretical interest; in Butler there was an
emphasis on classical and contemporary Latin quotations.
There was an improvement in the mechanics of presenting the
annotational material in that, contrary to Morley's method,
the annotations were accessible and closely related to the
text in a physical sense, particularly because of annotation
cues in the basic text itself. Finally, the *Principles of
Music* included a lengthy discussion of the psychological
effects of music and an apology, or defense of music, both
similar to corresponding sections of *The Praise of Musicke*.
Following Butler's work and during the '40's (a time of civil
war, suppression of services, and destruction of organs)
there was no activity in the production of theoretical
treatises in England; starting with the '50's and during the
second half of the century, the English tradition was not
only resumed but abundantly increased through several types
of writing: translations of ancient and contemporary writers
(Ptolemy, Descartes, Alstedius); treatises on thoroughbass
(beginning with Locke's Melothesia, 1673); articles in the Philosophical Transactions of the Royal Society; philosophical treatises; and others. The most popular, published treatises were John Playford's eminently practical An Introduction to the Skill of Musick (first printed London, 1654, under the title A Breefe Introduction to the Skill of Musick for Song & Violl; twenty-two subsequent printings,26 the last in 1730); and Christopher Simpson's A Compendium of Practical Musicke (first printed London, 1665, under the title The Principles of Practical Musick; expanded into five parts, 1667; ninth ed., possibly 1770).27 These books—octavos with about one fourth the content of Morley's Introduction—were written for a middle-class society in which music enjoyed an increased popularity; both were well organized, like Butler's book, with the additional advantage of tables of contents, but lacked (for the most part) the scholarly annotations of both Morley and Butler.

Roger North (1651-1734), successful politician, amateur musician, and forward-looking music theorist,


27Simpson's Celys . . . The Division-Viol (1656; 2nd ed., 1667) also contained a section on composition.
remarked around 1695 that upon learning to compose, his
teacher, John Jenkins\textsuperscript{28} lent him a copy of Butler's
\textit{Principles }"with the commendation of it that it was the
best of the kind."\textsuperscript{29} Upon studying the book, North came to
the same conclusion (though he may have had some reservations
about the extent of the book's practicability) and wrote the
following around 1715:

\begin{quote}
The book of Mr. Morley hath sufficiently
shewed the rules of musick in his time, but it is
not easy to gather them out of his dialogue way of
wrighting, which according to usage is stuff with
abundance of impertinences, and also with matters,
in our practise, wholly obsolete. I know many
serve themselves of Mr. Sympson's books, which are
doubtless very good, and worthy as could be
expected from a meer musick master, as he was, but
they are not compleat. Nay some make shift with
poor old Playford's \textit{Introduction}, of which may be
truely sayd that it is but just (if at all) better
than none. But there is a musicall grammer ever to
be recommended, compiled by a famous master of
sciences Mr. Butler, and I doe not know another in
any language comparable to it. And one may be
secure that whatever is done persuant to the
prescriptions of this work, cannot be irregular or
absurd. But Ayre is to be drawne from other
fountains than grammaticall exactnesses.\textsuperscript{30}
\end{quote}

\textsuperscript{28}(1592-1678), a composer of viol fancies and violin
music.

\textsuperscript{29}John Wilson, ed., \textit{Roger North on Music} (London:
Novello, 1959), 23.

\textsuperscript{30}\textit{Ibid.}, 137. As for Morley's book, this contrasts
with an earlier statement by North: "Mr. Jenkins lent me
Butler . . . ; I also procured Morley's \textit{Introduction}; which
books together with constant playing and wrighting . . . I
became as I thought a master of composition . . . ." (\textit{Ibid.},
23).
John Wilson, North's twentieth-century editor seems to have agreed, generally, for he writes of Butler's *Principles* that "though it was now out of date there had been no later English book of similar scope and scholarship in the seventeenth century."\(^{31}\)

The comments of Burney and Hawkins are similar to those of North, except that more credit is given to Morley's *Introduction* and Playford's and Simpson's books are not specifically criticized. Burney, while characterizing Butler's "Saxon and new characters" as "redundant, or of uncertain powers," gave the following testimonial:

> It is . . . better digested, more compressed, and replete with useful information, than any work of the kind that appeared for more than a century after Morley's *Introduction*. The quotations are perhaps too numerous, and the display of musical erudition may be thought to border on pedantry; yet, allowing these to be censurable, the book contains more knowledge, in a small compass, than any other of the kind, in our language.\(^{32}\)

Hawkins's analysis and commendation is more scholarly and perceptive in tone:

\(^{31}\)Ibid., 137.

This book abounds with a great variety of curious learning relating to music, selected from the best writers ancient and modern, among which latter the author appears to have held Sethus Calvisius in high estimation. [It is] ... a very learned, curious, and entertaining book; and ... may be read to great advantage, and may be considered as a judicious supplement to Morley's Introduction. 33

33 Hawkins, General History, II, 574-75.
The Use of the Computer in Preparing the Transliterated Edition

The assistance of the computer\(^2\) was enlisted initially to provide a study-concordance for the theoretical portion of Butler's text. The resulting concordance recorded, with the inclusion of an average twenty-word context per word, and in consecutive manner, all occurrences of every specific word used by Butler; the concordance also designated the specific location of each passage within the Haviland edition. As a result one could see "at a glance,"

\(^1\)Although the entire dissertation was printed by The Ohio State University Instruction and Research Computer Center (see "Acknowledgements," pp. vi-vii), only the production of the dissertation edition of Butler's text is discussed insofar as the role of the computer is concerned, since, exclusive of the concordance and transliteration programs discussed in the following paragraphs, the other portions of the dissertation were produced by means similar to those used in the production of the dissertation edition.

for example, the thirty-eight contextual situations in which Butler used the term "air" and confidently and quickly deduce the precise meanings for "air" valid for Butler's treatise. The computer's calculations for producing the concordance were completed in a matter of seconds; the concordance would have otherwise taken years to formulate.

Prerequisite to producing the concordance, Butler's text had to be prepared in a form capable of being processed by the computer; thus a data base of about six thousand key-punched cards of from one to fifteen words of text per card was constructed. From this data base the computer, provided with modern-English equivalents for the spellings deduced from Butler's text by the dissertation writer, produced, in addition to the concordance and several word frequency lists, a transliterated text in a raw form comparable to a long scroll with randomly and widely varying lengths of text lines. This raw form, in turn, after various editorial additions, deletions, and repositionings by means of key-punched "file-maintenance" cards, was converted through a highly sophisticated system of programming into the form of the present edition. The computer was used extensively in all phases of editorializing except for the alterations in punctuation, which had been largely completed prior to the assembling of the data base.
Editorial Procedure

Spelling.--Butler's peculiar alphabet and spellings have been wholly modernized (see preceding entry). The words "sixt," "fift," and "eight" have been changed to "sixth," "fifth," and "eighth," while the archaic verb ending "-eth" has been retained; in no cases have Butler's English words been replaced by synonymous words or expressions.

Punctuation.--For purposes of fluency and simplicity from the standpoint of the modern reader, the punctuation has been revised. "Superfluous" commas and brackets, sometimes parentheses, have been eliminated; the colon functioning as semi-period has been replaced by the semicolon or some other mark. In all instances an effort has been made not to obscure the author's original meaning.¹

¹Although Butler's system of punctuation (explained in his English Grammar iv.3.2) "goes a long way to explaining the pointing of the King James bible" and "is particularly enlightening on the early seventeenth century function of the colon" (Partridge, Tudor and Augustan English, 177), his grammatical structuring in the Principles of Music often reaches such a state of complexity, that editorial simplification and clarification in punctuation seems quite justified.
Grammar and word order.--In spite of some unfamiliar constructions—for example, the use of "which" and "where" in a relatively independent rather than dependent sense—and in spite of some curiously placed subordinate clauses, the grammar and word order have not been altered. Editorial suggestions which might clarify any ambiguous statements have been placed in brackets.

Latin and Greek quotations, phrases, and single words.--For purposes of fluency in the transliterated edition longer quotations from Latin and Greek prose and poetry have been removed and replaced by English equivalents (if not already provided by Butler himself). The original Latin quotations, in the form in which Butler presented them (as to punctuation, capitalization, and so on), are reproduced in Appendix A. The original Greek quotations are represented in Appendix A by their equivalents from modern editions. Brackets within translations of Latin quotations, unless otherwise indicated, enclose portions of translation for which Butler presented no corresponding Latin, or, more precisely, frequently enclose portions of translation the
Latin of which he purposely omitted, since ellipsis was a prominent feature of his style. Unacknowledged translations are by the dissertation writer. Translators other than the dissertation writer are acknowledged in first, full footnote citations with the words "translated by" or "translation from" followed by the appropriate source; in second and later citations the translation is assumed to be from the source referred to unless preceded by a qualifying "cf."

Shorter Latin and Greek phrases are sometimes retained, in modernized form, as a necessary part of the text; likewise single words, for example those indicating specific etymology, are sometimes retained in the text. The common, utilitarian expressions "vide" ("see") and "i.e." ("i.e.") are rendered in English.

Musical and other examples.--Non-literary materials, under the general heading of "figures," are frequently relocated in the transliteration of the 1636 Haviland edition; the points at which these materials originally appeared are indicated in bracketed identifying remarks.
Butler's marginal notes and annotation cues, with an explanation of editorial page-line indicators.—Butler's marginal notes are of three types. First is the note indicating the source of quoted material or of derived material otherwise presented. In the present edition, this type has been entered as a footnote, with editorial additions enclosed by brackets. (Butler's in-text, wholly parenthetical acknowledgements of this same type have also been rendered as footnotes.)

Second is the marginal note providing supplemental or explanatory information. This type has been rendered in the present edition either as a footnote (which is the case with longer, more involved notes) or as a parenthesized addition to the text itself.

The third type of marginal note functions as a paragraph heading; in the present edition it has been entered in modern form: underlined and at the beginning of the appropriate paragraph. In a few cases, in order to avoid redundancy, they have been omitted.

In the Haviland edition, annotation and marginal-note cues always precede the word or phrase explained or elaborated upon, or, in the case of quotations, the sentence or paragraph quoted. The placement of annotation cues
(parenthesized, lower-case letters) has not been altered in the present edition; in the case of the obelisk and asterisk marginal-note indicators of the Haviland edition, the process has been reversed (i.e., the note indicator follows the material to which the note refers) and the indicators have been replaced by numbers.

Annotation cues and the annotation designators to which they correspond have been expanded to include either page or page-line cross-references corresponding to the Haviland oriented page-line references placed conspicuously throughout the transliterated edition in the form of micro-print numbers separated by a dash. For example, the Haviland "(a)" of the first page of the first chapter of Book I is given the form "(2a)," since the corresponding annotation appears on Haviland page 2; the Haviland annotation designator "(a)" which appears on page 2 at the head of the annotation is given the form "(1.1a)," since page 1, line 1 is the exact Haviland location of the annotation cue. Thus the annotation cue and designator are matched by letter—as (1.1a) with (2a) and (1.1b) with (2b)—not by number:
Music is the (2a) art of (2b) modulating notes in (3c) voice or instrument, the which, having a great (3d)

Annotation, diss. p. 55:

(1.1a) [Music is] an art.--So Aristotle:

[For at present most people take part in it for the sake of pleasure; but] those who originally included it in education did so because, as has

In the page-line indicators, the numbering of lines (devised by the dissertation writer) includes only lines of text; excluded are Book, Chapter, Section, and Paragraph headings.

Editorial footnotes.--Editorial footnotes are indicated as such by bracketed footnote numbers. In these notes, as well as in the bracketed additions to Butler's notes, page-line indicators (explained in the preceding entry) are used extensively.

In all literary-source references of the trans-
literated edition, editorial or otherwise, the reference
to Book takes the form of a capital Roman numeral; the
reference to Chapter takes the form of a lower case Roman
numeral; all subdivisions of chapters are indicated by Arabic
numerals. For example, Butler's reference "L.1.c.11"
(Liber 1, Caput 11, or Book I, Chapter 11) appears as "I.xi";
"c.4.vers.24.Artic.15" appears as "iv.24.15." To avoid
confusion, "p." always appears in conjunction with the page
number when it occurs as a part of such a citation—for
example, "I.xi, p. 15."

In a few sources, such as Calvisius' Melopoeia, in
which there is no pagination, each chapter (which usually has
less than ten pages) is simply given its own set of
hypothetical page numbers, beginning with "1" for the page on
which the chapter heading appears; in shorter sources such as
The Pathway, in which neither page numbers nor chapter
headings are present, one set of hypothetical page numbers is
assigned to the work as a whole, beginning with "1" for the
first page of text proper (exclusive of forward, laudatory
epistles, and similar preliminaries). Hypothetical
pagination is always enclosed in quotation marks.
THE PRINCIPLES OF MUSIK,
IN SINGING AND SETTING:
WITH
The two-fold Use thereof,
[Ecclesiasticall and Civil.]

By
CHARLS BUTLER Magd. Master of Arts.

LONDON,
Printed by John Haviland, for the Author:
1636.
Music is the (2a) art of (2b) modulating\(^1\) notes in
(3c) voice or instrument, the which, having a great (3d)
power over the affections of the mind, by its various moods
producesthe hearers various effects.

\(^{[1]}\)Thomas Elount, *Glossographia* (Menston, England: The
Scolar Press, 1969; facsimile of London, 1656 ed.), no page,
gave for the definition of "modulation," "a pleasant tuning,
a singing or playing by number or measure."
The five moods.²—These moods are (3e) five: Doric, Lydian, Aeolic, Phrygian, and Ionic.

Doric.—The (4f) Doric mood consisteth of sober slow-timed notes, generally in counterpoint, set to a psalm or other pious canticle in meter or rhythmical verse, the notes answering the number of the syllables. This moveth to sobriety, prudence, modesty, and godliness. (See (3e) in notes.)

Lydian.—The (5g) Lydian mood is a grave, full, solemn music in descant (for the most part), of slow time set to a hymn, anthem, or other spiritual song in prose and sometime in verse—the notes exceeding often the number of the syllables—which through his heavenly harmony ravisheth the mind with a kind of ecstasy, lifting it up from the regard of earthly things unto the desire of celestial joys (see (3e) in notes), which it doth lively resemble. (See in iii.1.)

Aeolic.—The (5h) Aeolic mood is that which, with

[²]"Mood" and "mode" are to some extent interchangeable, as Simpson noted in his 1667 Compendium (Rochester: University of Rochester Press, [19]54; microprint copy) VI.ii, pp. 111-12: "That which the Grecians called Mode or Mood, the Latins termed Tone or Tune." The spelling "mood" is used in transliterating Butler's text because of the particular meaning he attached to the word. (See editorial commentary to I.i, pp. 80-103.)
its soft, pleasing sounds, pacifieth the passions of the mind, and, with instruments or dittiless fa-las in continued descant delighting the sense and not intending the mind of the hearer, like Mercury's caduceus, charmeth affections and cares, and do lulleth him sweetly asleep. (See (3e) in notes.)  

Phrygian.--The (6i) Phrygian mood is a manly and courageous kind of music which, with his stately or loud and violent tones, rousesthe spirit and incitesthe arms and activity. Such are marches, almains, and the warlike sounds of trumpet, fife, and drum. (See (3e) in notes.)  

Ionic.--The (7k) Ionic mood is contrary to the Phrygian--an effeminate and delicate kind of music set unto pleasant songs and sonnets of love, and such like fancies for honest mirth and delight, chiefly in feasting and other merriments. (See (3e) in notes.)

[3]This is a reference to the English ballet, the "fa-la" refrain of which, in the hands of Thomas Morley and his followers, was in a more complex, contrapuntal style than that of Gostoldi's balletti.

[4]A staff and symbol of peace. Mercury is supposed to have parted two warring snakes with his caduceus.

[5]Allemande. According to Morley (Introduction III, p. 181; cf. edition by R. Alec Harman, A Plain and Easy Introduction to Practical Music, New York, W. W. Norton, [1953], 297) "the alman is a more heauie daunce than this galliard] (fitie representing the nature of the people [German], whose name it carieth)..."
And some music is compounded of some or all of these—as the battle-galliard. For all which various effects this (81) mathematical art and seventh liberal science hath been always respected and used of all sorts of people, as well (8m) learned and ingenious as (8n) ignorant and barbarous.

These five moods, which Coelius Rhodoginus (out of Cassiodorus, or rather king Theodorius, epistle to Boethius) rightly describeth by the effects, some define and distinguish (as they do the airs) by the final key of the bass, or rather by its (9o) constituted tone. But skilful musicians know how to form any mood in any key or tone indifferently so it be conformable to the air of the subject.

[6] Probably a reference to William Byrd's battle suite and victory galliard for virginals; possibly a reference to virginals music by Bull. (See commentary to 2.18, pp. 101-03.)

7See (e) in notes.
8See [I.]iii.4.4 and (d) in notes [86.21-46].
9See (b) and (c) in [I.]iii.4.4 [81.37-82.2].
10Ibid.
(1.1a) [Music is] an art.—So Aristotle:

[For at present most people take part in it for the sake of pleasure; but] those who originally included it in education did so because, as has often been said, nature itself seeks to be able not only to engage rightly in business but also occupy leisure nobly. . .¹

and Boethius:

While there are four mathematical disciplines, the others indeed labor toward the investigation of truth, but music is concerned with not only speculation but also morality.²

(1.1b) Modulating.—So doth St. Augustine define it:


Music is the science of modulating well.\(^3\)

The proper difference whereof he doth thus there maintain:

Modulating can pertain only to music, while mode, from which the word is derived, may occur also in other things.\(^4\)

(1.2c) **Voice or instrument.**—Thus in effect doth that holy father divide:

There are three types of sound: either the living voice, or that made by breathing of organs, or that produced by striking,\(^5\)

by the first, meaning vocal music (which is the chief); by the second, the music of organs and other wind instruments; by the third, the harp or lute, or other instrument that soundeth by touch or stroke.

\((1.3d)) [**Power over the mind.**—So] Tullius:

For I agree with Plato that nothing gains an influence so easily over youthful and impressionable minds as the various notes of song, the greatness of whose power both for good and evil can hardly be set forth in words. For it arouses the languid, and calms the excited; now it restrains our desires, now gives them free rein. Many Greek States considered it important to retain

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\([*)Ibid.; 1084.\]

\(^5\)[St. Augustine,] *De ordine* II. [xiv; Migne, *Patrologia*, Vol. XXXII, 1014.]
their old tunes; but when their songs became less manly, their characters turned to effeminacy at the same time. . . .

Thus Plato—and after him Aristotle:

. . . pieces of music . . . contain in themselves imitations of character; and this is manifest, for even in the nature of the mere melodies [moods] there are differences, so that people when hearing them are affected differently and have not the same feelings in regard to each of them, but listen to some in a more mournful and restrained state . . . and to others in a softer state of mind, but in a midway state and with the greatest composure to another, as the Dorian mode alone of tunes [or moods]7 seems to act. . . .

These various effects were likewise observed by Macrobius:

Every disposition of the mind is governed by songs. For song gives and takes away sleep; it releases or recalls cares; it suggests anger and urges mercy; and so on.9

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7[The bracketed insets, in this case, represent Butler's marginal notes. According to Henry George Liddell and Robert Scott, A Greek-English Lexicon (New York: Harper & Brothers, 1849), 1507, under "τόνος," "in the later musical writers, τόνοι were the ἀρμονίαι of Plato, and Arist., measures or modes, Lat. modi. . . ." (The ninth edition of Liddell's and Scott's Lexicon, revised and augmented by Henry Stuart Jones, Oxford, Clarendon Press, 1966, does not give the same precise statement.)]


9[De somnio Scip[ionis] II.[iii.]}
And by St. Isidore:

All our dispositions of mind, because of diversity or newness of sounds (I know that occult familiarity), are excited more when there is singing in a sweet and artful voice.10

Also by Cassiodorus, or rather king Theodorius, more at large:

When music, with her secret nature, ornamented with her tropes, as if queen of the senses, comes forth, remaining thoughts rise, and all is cast aside, so that she may be delighted by having only herself heard. She delights hurtful sorrow; she attenuates swelling furies; she vanquishes a blood-thirsty rage; she excites the idleness of sleep and languor; she gives a most healthful quiet to the vigilant; she recalls the disinterested, spoiled by base love, to honest study; she replaces the ever adverse tedium of the mind with good thoughts; she turns pernicious hate into helpful kindness; and (what is a happy way of management) through the sweetest sensualities she expels the passions of the mind. She corporeally strikes the incorporeal soul and alone leads the hearer to the desired.11

(1.7e) [Moods] five—as Coelius Rhodoginus observeth out of the above-cited epistle:

What Cassiodorus writes about the modes of music should be given careful attention. The Dorian mode is the bestower of prudence and the author of

10De ecclesiast[icis] officiis I.v. [Source not available for verification.]

11Epist[ula] ad Boetium Musicum, which is the fortieth epist[le] in Cassiodorus. [See Magnus Aurelius Cassiodorus (c. 485-c. 580), Cassiodori Senatoris variae II.xi.3-4, in Epistulae Theodorianae variae, ed. by Th. Mommsen, Monumenta Germaniae historica, Auctorum antiquissimorum, Vol. XII (Berolini: Apud Weidmannos, 1694), 70.]
purity; the Phrygian mode excites wars and kindles a vow of madness; the Aeolian pacifies a tempestuous spirit and then produces slumber in the reconciled; the Lydian sharpens the intellect of the dull and leads those weighted down by mundane appetites to a desire for heavenly things—an extraordinary accomplisher of good. Many are attracted to the Ionian, which they understand as florid and pleasant.¹²

But Martianus Capella, making three degrees of each of these five, accounteth in all fifteen:¹³

DORIUS, Hypodorius, Hyperdorius LYDIUS, Hypolydus, Hyperlydus; AEOLICUS, Hypaeolicus, Hyperaeolicus; PHRYGIUS, Hypophrygius, Hyperphrygius; TONICUS, Hypoionicus, Hyperionicus.

¹²Variarum IX.iii. [The present writer has located Butler's reference, listed as V.xxii (rather than IX.iii) in a volume by Lodovico Ricchieri (known as Lodovicus Coelius Rhodoginus, 1450-1520) identified, according to information supplied by the University of Michigan due to absence of title page, as Sicviti antiquarvm lectionvm (Venetiis: In Aedibvs Aldi et Andrae Soceri, 1516), 224-26. This sixteen-book volume is quite possibly an abridged version of Rhodoginus’ Lectionum antiquarum libri XXX (Venice: Alde, 1516), cited by Robert Eitner, Biographisch-bibliographisches Queellen-Lexikon der Musiker und Musikgelehrten (New York: Musurgia, 1947; reprint of Leipzig, 1900-04 ed.), VIII, 207. According to Eitner, IX.iii of the work deals with music. It may therefore correspond to Butler's citation.

¹³As Glarean us hath [in] Dodecahordi I.xxxi; [(New York: Broude Brothers, [1967]; facsimile of Basil, 1547 ed.) Glarean us discussed the fifteen modes of Martianus Capella and rejected them in favor of a twelve-mode (six authentic, six plagal) system like that of Aristoxenus (with some difference in terminology): "But we shall propose, like Aristoxenus, six principal modes, with a single plagal for each..." Cf. Heinrich Glarean, Dodecahordon, trans. by Clement A. Miller, Musicological Studies and Documents, Vol. VI (n.p.: American Institute of Musicology, 1965), I, 102.]
in all which "Hypo-" signifieth a defect, and "Hyper-" an excess of the mood principal.\textsuperscript{14}

Some ancient musicians made but two moods, Doric and Phrygian, referring all other unto them.

Some posit two kinds of modes in music the Dorian and the Phrygian. All others are referred to as either Dorian or Phrygian.\textsuperscript{15}

The five moods, by which those various effects are wrought, Cassiodorus showeth to have their several appellations of the countries in which, according to their several manners and dispositions, they were invented and practiced:

All this is done in five modes, each of which is designated by the names of the provinces where they are found,\textsuperscript{16}

\begin{itemize}
\item [\textsuperscript{14}]"De harmonia," De nuptiis Philologiae et Mercurii IX.316G-317G. Cf. Adolphus Dick, ed., Martianus Capella (Stutgardiae: In Aedibus B. G. Teubneri, 1969), 497-98: tropi uero sunt quindecem, sed principales quinque, quibus bini tropi cohaerent: id est Lydias, cui adhaerent ὑπολύδιος et ὑπερλύδιος. . . . Glareanus appears to cite the same source in Dodecachordon I.xxii; Miller, I, 102: "There are fifteen tropes (says Martianus) but five principal tropes, to each of which are connected two tropes. First the Lydian, to which the Hyperlydian and Hypolydian belong. . . ."
\item [\textsuperscript{15}]Arist[totle,] Pol[ítica] IV.iii.[4. Cf. Aristotle, Opera, III, 260F.]
\item [\textsuperscript{16}]In the above-cited epistle. [Cassiodorus, Variae II.xl.4; Mommsen, 70.]
\end{itemize}
The musical modes are designated by the names of the peoples. . . . For according to the enjoyment of any one people the mode itself is called by the same name.17

Doric.--The first hath his name of Doria, a civil part of Greece near Athens. The other four had their beginnings and names from certain regions of Asia Minor, which, bordering upon Greece, were peopled by Grecian colonies.

Lydian.--The Lydian mood was so called of Lydia, famous for the golden river Pactolus and the winding retrograde Meander--the one resembling the treasure and glorious matter of the ditty, the other the pleasing reports and reverts, with other admirable varieties of the music. The chief cities are Philadelphia and Sardis (the royal seat of rich Creasus18).

Aeolic.--The Aeolic of Aeolia, the kingdom of Aeolus,19 whence he is feigned to send his rustling winds--the which do herein resemble this mood, that they also have a sopiting faculty.

Phrygian.--The Phrygian mood of Phrygia, a region

17De musica I.i; [Migne, 1168-69; cf. Bower, 33.
18]560-546 king of Lydia, celebrated for his riches.
19]A mythological figure, possibly a son of Jupiter.
bordering upon Lydia and Caria, in which is Cios, that martial mart-town,\textsuperscript{20} and the most high hill Ida,\textsuperscript{21} famous for the Trojan War.

\textbf{Ionic}.—The Ionian of Ionia, which lieth between Aeolia and Caria for the goodness of air and the commodious situation inferior to none of the Asian regions—whose plenty and idleness turned their honest mirth into lasciviousness,\textsuperscript{22} as Athenaeus observed in his time:

\begin{quote}
But the character of the Ionians to-day is more voluptuous, and the character of their mode is much altered.\textsuperscript{23}
\end{quote}

It was adorned with twelve great cities, whereof Ephesus and Miletus were two.

\textquote{This mood is also called "modus chromaticus", that \ldots\}  

\textsuperscript{[20]}C. Plinius Secundus (Major), \emph{Historia naturalis} V.xl.144, and Herodotus V.122.

\textsuperscript{[21]}In Homer's \emph{Iliad}, the place from which the gods watched the battles in the plain of Troy.

\textsuperscript{22}See II.iii.4, (b) in notes.

\textsuperscript{23}\textit{Deipnosophist[ae (The Deipnosophists)] XIV.} [625; translation by Charles Burton Gulick, trans. and ed., Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press, 1957-67; first printed 1927-41) VI, 371. Athenaeus was writing during the late second century A.D. The quotation from his Deipnosophists is immediately preceded by the following sentence: "Hence also the kind of music known as the Ionian mode is neither bright nor cheerful, but austere and hard, having a seriousness which is not ignoble; and so their mode is well adapted to tragedy."}
is, "coloratus," "fucatus," of "chroma," "color," because as pictures are beautified with trim lively colors to please the wanton eye, so this kind is as if it were colored with delicate lively sounds to please the wanton ear.

(1.9f) Doric.-- Of the Doric mood are the psalms in meter and all grave and honest songs, such as is "Like to the Damask rose We See," the author whereof is Mr. F[ra]ncis Quarles (who hath written many excellent divine poems).

[Like to the damask rose you see,  
Or like the blossom on the tree,  
Or like the dainty flower of May,  
Or like the morning to the day,  
Or like the sun, or like the shade,  
Or like the gourd which Jonas had,  
Even such is man, whose thread is spun,  
Drawn out and cut, and so is done.

The rose withers, the blossom blasteth,  
The flower fades, the morning hasteth:  
The sun sets, the shadow flies,  
The gourd consumes, and man he dies.

Like to the blaze of fond delight;  
Or like a morning clear and bright;  
Or like a frost; or like a shower;  
Or like the pride of Babel's tower;  
Or like the hour that guides the time;  
Or like the beauty in her prime;  
Even such is man, whose glory lends  
His life a blaze or two, and ends.

Delights vanish; the morn o'r casteth  
The frost breaks, the shower hasteth;  
The tower falls, the hour spends;  
The beauty fades, and man's life ends.
The Whole Book of Psalms was lately set forth in four parts by Mr. Thomas Ravenscroft, composed by John Farmer, Thomas Morley, G. Kirbye, Thomas and John Tomkins, R. Allison, I. Milton, and sundry others, but the greatest part by him that set them out.

Of this mood were those sober feast-hymns wont to be sung in the praise of honourable men, which Tully remembereth [thus]:

... would there were still extant those songs, of which Cato in his Origines has recorded, that long before his time the several guests at banquets used to sing in turn the praise of famous men!

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[26] The 1636 edition of Butler's Principles does not include the poem. The version given here is from Quarles' Argalus and Parthenia (Ann Arbor: University Microfilms, 1952; facsimile of London, [1632?] ed., first printed 1629), immediately following the conclusion of the third Book. (The spelling, in a few instances, has been modernized; internal capitalization has been abbreviated.) According to A. B. Pearson, "Like to the Damask Rose," Music and Letters, XXXV (1954), 116, music was written to it by Henry Lawes "some time before 1634."


[27] In Brutus 38 [(i.e., xix.75); translation by G. L. Hendrickson, rev. ed., Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press, 1962), 71.]
In another place, to voice is added the recorder or shalm:

... Cato, a writer of great authority, has stated in his *Origines* that at banquets it was the custom of our ancestors for the guests at table to sing one after the other to the accompaniment of the flute in praise of the merits of illustrious men,\(^\text{28}\)

although the Pythagoreans seemed rather to affect the harp or other string instruments, because everyone by himself might sing and play upon *entata* [strings]\(^\text{29}\) together. This mood, for the morality and mediocrity thereof (I may add for facility) the Philosopher adviseth to be first learned of young beginners:

It is certain that the Dorian, above the others, is suitable for the education of youth.\(^\text{30}\)

(1.14g) Lydian.—Of the Lydian mood are those solemn hymns and other sacred church-songs, called "*moteta*," à *motu*,\(^\text{31}\) because they move the hearts of the hearers, striking into them a devout and reverent regard of Him for

\(^{28}\)[Cicero,] *Tusculanae quaestiones* (i.e., *disputationes*) IV. [ii; translation by J. E. King, rev. ed., Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press, 1966), 331.]

\(^{29}\)[See II.i.1 (93.13-14).]


\(^{31}\)[The accepted etymology indicates that "motet" is a diminutive of the French "mot" ("word"). Butler appears to have indicated a derivation from "motus" ("motion").]
whose praise they were made. These motets require most art of all music in setting—fitly to take discords and bindings, using plain, soft, sweet descanting—with frequent, graceful reports and reverts.\textsuperscript{32} Agreeable unto the art of the setters should be the art of singers: sweetly and plainly to express the words and syllables of the ditty that they may be understood of the congregation, and, being like their motets, grave, sober, holy, to sing with a grace to the Lord in their hearts. (See II.i.2 [95.1-98.13] and ii.5.) Of this mood seem those religious vows of the Romans in their sacrifices and their grave canzons\textsuperscript{33} at the solemn feasts of their magistrates, of which Tully [saith]:

\begin{quote}
And it is by no means a proof of an un instructed age that stringed instruments play a prelude at the festivals of the gods and the feasts of the magistrates. . . .\textsuperscript{34}
\end{quote}

and likewise those funeral elegies of noble men, commanded in the old Roman laws:

\begin{quote}
. . . in the case of men who have been honoured by the State a laudatory oration is to be pronounced before an assembly of the people, and that this oration is to be followed by a song to the music of the flute. To this song the name "nenia" is given, a word which signifies a song of mourning in Greek
\end{quote}

\textsuperscript{32}See I.iii.4.3 (72.1-15) for "reports and reverts."

\textsuperscript{33}A common seventeenth-century word for songs.

\textsuperscript{34}\textit{Tusculanae quaeestiones} IV.[ii; Loeb, 331.]
Of this mood is that passionate lamentation of the
good, musical King for the death of his Absalom, composed in
five parts by Mr. Thomas Tomkins, now organist of his
Majesty's Chapel. The melodious harmony whereof, when I
heard in the music school, whether I should more admire the
sweet, well-governed voices (with consonant instruments) of
the singers or the exquisite invention, wit, and art of the
composer it was hard to determine.

These naenia, or funeral elegies seem to have been
the first use of this mood, as Coelius Rhodoginum observeth
in the place of Cassiodorus before cited:

\[\textit{Cicero, De legibus} II.[xxiv.62; Loeb, 449.].\]

\[\textit{The composition is "When David Heard," Songs of 3,
4, 5 and 6 Parts (1622), ed. by Edmund H. Fellowes, rev. by
Thurston Dart, The English Madrigalists, Vol. XVIII (London:
Stainer and Bell, 1960), 112-23.}\]

\[\textit{Tomkins was appointed one of the organists at the
Chapel Royal in 1621, according to Denis Stevens, Thomas
Tomkins 1572-1656 (London: Macmillan, 1957), 37, who quotes
from E. F. Rimbault, The Old Cheque Book, or Book of
Remembrance, of the Chapel Royal from 1561 to 1744 (1872),
10, for the information.}\]

\[\textit{"Oxon" according to Stevens, Tomkins, 36.}\]

\[\textit{Stevens, Tomkins, 36, used this reference of
Butler's as a proof "that mixed consorts were very much the
order of the day," since neither MS nor printed versions of
the piece by Tomkins contain any hint of instrumental
participation.}\]
The Lydian mode is used primarily for tearful laments. For Aristoxenus says in the first book of De musica that Olympus played the flute in the Lydian mode at the burial ceremonies of the python. *0

This stately mood the Philosopher preferreth before all:

The Lydian mode, especially, of all harmonies, offers beauty as well as instruction. *1

(2.1h) Aeolic.--Of the Aeolic mood was that enchanting music of the harp provided for King Saul when the evil spirit troubled him, which music, being made by one that was cunning and could play well, so charmed the evil spirit that Saul was refreshed, and was well, and the evil spirit departed from him. *2

Of this mood was the pathetic song of the good bishop Flavianus which moved pity in the emperor Theodosius and procured pardon for the people's offence:

The people of Antioch, fearing the anger of the emperor, Theodosius, because of rising civil discord, supplicated God with certain lugubrious melodies. And Flavianus, the bishop, when he interceded between the emperor and the citizens concerning this offence, persuaded the youths who customarily sang at the table of the emperor to sing psalms which were used in the supplications of


*2 I Samuel 16:23.
the Antiochians. Consequently, the emperor was overcome with compassion, his anger immediately was put aside and he was reconciled to the city.\footnote{Sozomen, \textit{Historia ecclesiastica} VII.xxiii. [The work was written c. 440. Cf. edition by Joseph Bidez and Günther Christian Hansen, \textit{Die griechischen christlichen Schriftsteller der ersten drei Jahrhunderte}, Vol. L (Berlin: Akademie-Verlag, 1960).]}

Of this mood was that calm symphony wherewith Achilles appeased his own passions against Agamemnon, as Plutarch noteth out of Homer:


\footnote{[\textit{Institutiones oratoriae}] IX.iv.[12; translation by H. E. Butler, Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press, 1953-66; first printed 1920-22), III, 511 and 513.]}  

To show that music is useful in many circumstances he gives us Achilles in the poem digesting his anger against Agamemnon by means of music, which he learned from the most wise Cheiron... instructor not only in music but in justice and medicine as well.\footnote{\textit{De musica" [xl.1145E-1146A; translation from Benedict Einarson and Phillip H. De Lacy, trans. and eds., \textit{Plutarch's Moralia}, Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press, 1960-66; first printed 1927-61), XIV, 445 and 447.]}

Of this mood also was the Pythagorean evensong mentioned by Quintilian:

\footnote{[\textit{Institutiones oratoriae}] IX.iv.[12; translation by H. E. Butler, Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press, 1953-66; first printed 1920-22), III, 511 and 513.]}  

... and before they retired to rest, [they were accustomed] to soothe their minds by melodies from the same instrument [lyre], in order that all restlessness of thought might be lulled by orderly repose,\footnote{\textit{De musica" [xl.1145E-1146A; translation from Benedict Einarson and Phillip H. De Lacy, trans. and eds., \textit{Plutarch's Moralia}, Loeb Classical Library (Cambridge, Massachusetts: Harvard University Press, 1960-66; first printed 1927-61), XIV, 445 and 447.]}

and by Tully:
The Pythagoreans withdrew their thoughts from intense meditation by the use of song and the music of the harp to calm their minds. . . .

For consopiting cares and passions, instruments entata symphona [lute, harp] (see II.i.1 [94.26-28]) are generally more fit than other instruments or voices.

(2.7i) Phrygian. --Thus doth the Philosopher describe this mood:

The Phrygian mood doth distract and ravish the mind, and doth as it were set it besides itself . . .

and again,

. . . having the same force among the moods that the pipe or fife hath among instruments, for both of them do rouse up men's minds and drive them into passions. . .

Which thing the skilful musician Timotheus proved in the great Alexander, whom, with his Phrygian flute, he did so

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"Tusc[ulanae] quaest[iones] IV.[ii; Loeb, 329 and 331. The bracketed portion of this translation represents a direct interpretation of the grammatical variants in Butler's Latin text (altered, apparently, for the sake of complete sentence structure.)


incense, that the king ran presently to take up arms— which
being done, "Such," quoth Timotheus, "should be the music of
kings": 6-35

They say that Timotheus disturbed Alexander so much
with the flute songs that he played, that, in the
course of what was heard, he straightaway hastened
to seize arms. Timotheus, then, was supposed to
have said that such songs of the flute should be
the music of the king. 49

6-38

The like doth Marsenius report of this Hyperphrygian mood in
sundry examples. 50

6-41

But the story of Ericus's musician passeth all—[he]
who, having given forth that he was able by his art to drive
men into what affections he listed—even into anger and
fury—and being required by the king to put his skill in
practice, harped so long, not upon one string (as the proverb
is), but upon his polychord lyre, with such effectual melody
and harmony in variety of proportions, figures, consecutions,
synecopes, fugas, formalities, in his different airs and
moods, that his auditors began first to be moved with some

49 Suidas [(c. tenth century)] in letter "T"; [Suidae
Lexicon, graece et latina, ed. by Gottfried Bernhardt (Halis
et Brunsvigae: Sumptibus Schwetschkiorum (M. Bruhn),
[1852-53]), 11, 1141.]

50 [Marin Mersenne (1588-1648), Quaestiones
celeberrimae] in Genesim (1623) iv.24.15.

51 King of Denmark surnamed "Bonus." [Erik Ejigod
("always good"), king from 1095 to 1103.]
strange and contrary passions; and at last, with his Phrygian mood, he set the king into such a frantic mood that in a rage he fell upon his most trusty friends and, for lack of weapon, slew some of them with his fist—which when he came to himself, he did much lament. This is recorded at large by Krantzius (Daniae\textsuperscript{52} V.iii) and by Saxo Grammaticus (Historiae Daniae XII).\textsuperscript{53} Therefore is this mood fit for the wars being so used by the Lacedaemonians, Romans, Germans, and other warlike nations, with divers instruments:

The Etruscans, for example, use the trumpet for war; the Arcadians, the horn; the Sicels, the flute;\textsuperscript{54} the Cretans, the lyre; the Lacedaemonians, the pipe; the Thracians, the bugle; the Egyptians, the drum; and the Arabs, the cymbal [and the Trojans the clarion],\textsuperscript{55}

of which Virgil [saith]:

\begin{quote}
\[\text{probable Chronica regnorum aquilonarium, Daniae, Sueciae et Norvagiae (Strassbourg, 1546). (Source not available.) Albert Krantz (1450?-1517) was a German historian.}\]
\[\text{Fidiculis ["small lute"].}\]
\end{quote}
Misenus, son of Aeolus, surpassed by none in stirring men with his bugle's blare, and in kindling with his clang the god of war.56

[and in the same place]:

. . . he braved the fray, glorious for clarion and spear alike.57

[Thus Quintilian:]

It is recorded . . . that the armies of Sparta were fired to martial ardour by the strains of music. And what else is the function of the horns and trumpets attached to our legions? The louder the concert of their notes, the greater is the glorious supremacy of our arms over all the nations of the earth.58

Such was our ancestors' mood, of which Tacitus saith:

They went into battle singing.59

Of this mood also (though not so violent) was the Pythagoreans' hunt's-up,60 or morning-music, to waken and


58*[Institutiones oratoriae]* I.x.[14; Loeb, I, 167.]

59In *his* description of the Germans [(i.e., *Germania*). Exact Latin not found.]

rouse up their spirits to study and action. Of which
Quintilian [saith]:

It was the undoubted custom of the Pythagoreans,
when they woke from slumber, to rouse their souls
with the music of the lyre, that they might be more
alert for action. . . .

(2.12k) Ionic.—Of the Ionic mood were those
epithalamia, or hymens [wedding songs] mentioned by Homer
in his description of their nuptial rites:

. . . by the light of the blazing torches they were
leading the brides from their bowers through the
city, and loud rose the bridal song. And young men
were whirling in the dance, and in their midst
flutes and lyres sounded continually. . . .

Also those love sonnets, of which Tully [saith]:

We cannot doubt that there were poets before Homer,
as we may infer from the songs which he introduces
into the feasts . . . of the suitors,

and generally all pleasant songs at feasts, unto which
Ecclesiasticus, in praising good men, compareth the sweet
memorial of King Josias: "The remembrance of Josias is as

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61[Institutiones oratoriae] IX.iv.[12; Loeb, III,
511.]

62Iliad XVIII.[492-95; translation by A. T. Murray,
Loeb Classical Library (Cambridge, Massachusetts: Harvard
University Press, 1965-67; first printed 1924-25), II, 325.]

63Brut[us] 36 [(i.e., xviii.71); Loeb, 67. Homer,]
Iliad I.

64See II.iii.2, "II," [pp. 123-25.]
sweet as honey in all mouths; and as music at a banquet of wine."  

The abuse of this mood is reformed by the sober tones of the Doric, as Boethius showeth out of Tully's fragments:

When intoxicated youths, impelled, as happens, even by the playing of flutes, were about to break down the doors of a bashful maiden, it is said that Pythagoras warned the flutist to play a spondee. For when that was done, the heaviness of the modes and the gravity of the playing calmed the mad impudence of those youths. Thereafter, it is said, the Lacedaemonians disapproved of the chromatic mode, since it moved youth to such a frame of mind.  

Of this mood are madrigals and canzonets.

Madrigal.--The madrigal is a chromatic mood in descant whose notes do often exceed the number of the syllables of the ditty—sometime in duple, sometime in triple proportion—with quick and sweet reports, and repeats, and all pleasing varieties of art in four, five, or six parts, having in one or more of them one or more rests (especially in the beginning) to bring in the points begun in another part.

Canzonet.--A canzonet (as the name importeth) is a

[66] De musica I.i; Migne, 1170; cf. Bower, 40.
[67] Cf. 4.36-39.
less or shorter song, of the same mood, whose notes (for the most part in counterpoint) do seldom exceed the number of the syllables, beginning and ending together the lines of each verse, commonly in four parts, so that the canzonet is to the madrigal as the canticle to the motet.

The chief authors hereof were Alfonso Ferrabosco, Luca Marenzio, Horatio Vecchi, and Giovanni Croce.

Of this sort are pavans, invented for a slow and soft kind of dancing altogether in duple proportion, unto which are framed galliards for more quick and nimble motion, always in triple proportion—and therefore the triple is oft called galliard-time and the duple pavan-time.

In this kind is also comprehended the infinite multitude of ballads (set to sundry pleasant and delightful tunes by cunning and witty composers) with country-dances fitted unto them. But both in madrigals and canzonets,

[68] This is the same list, in the same order, as that given by Morley (Introduction III, p. 180; Harman, 294) for madrigal composers, except that Morley adds Stephano Venturi and Ruggiero Giovanelle between Vecchi and Croce.

[69] Whether the meaning is that the ballad music was adapted to dancing with or without simultaneous singing is not clear. One would suppose the latter to be the case according to the conclusion drawn by Evelyn Kendrick Wells, The Ballad Tree (New York: The Ronald Press, 1950), 205: "Thus dance and song, whether ballad or carol, seem to have parted company in England before the sixteenth century. Whatever fragments of the custom of dancing to song are left
counterpoint with descant and descant with counterpoint are sometime interchangeably and artificially mixed.

All which surely might and would be more freely permitted by our sages were they used, as they ought, only for health and recreation and not corrupted, as they are, with dangerous immodesty and filthy obscenity—to the offence of God and good folk and to the hurt both of body and soul.

(See II.iii.3 and 4.)

Of the uses and abuses of music and verses at feasts, weddings, and other meetings this is Martyr's sentence:

All these, if moderately and appropriately done are able both to be borne and to be commended. For three types of good are in evidence here: honesty, utility, and delight.

(2.181) [Mathematical art.]-See (a).

(2.20m) As well learned...-[So] Cicero:

today are found in the singing games and the processional lyrics of some folk observations. At any rate, there was a constant borrowing of ballad tunes for dancing and dance tunes for ballad settings during Butler's time (Ibid.).

[70]The parts referred to in II.iii are titled "Of Objections against Solemn Church Music," and "Of the Special Uses of Divine Music."

The Greeks held that the proof of the highest education was found in instrumental and vocal music: thus it is that Epaminondas, to my mind the leading man in Greek history, was, we are told, an accomplished singer to the accompaniment of the harp, whilst Themistocles, to go back many years previously, was held to show a lack of culture in refusing to play the lyre at banquets. Musicians accordingly flourished in Greece; everyone would learn music, and the man who was unacquainted with the art was not regarded as completely educated.\(^72\)

(2.20m) (2.21n) [Learned and ignorant.—So]

Macrobius:

\[8-44\]

... not only those who are more refined in their habits, but all the barbarous peoples as well, have adopted songs by which they are inflamed with courage or wooed to pleasure; for the soul ... is so captivated by its charm that there is no breast so cruel or savage as not to be gripped by the spell of such an appeal,\(^73\)

\[9-1\]

and Athenaeus:

\[9-2\]

Music contributes also to the exercise and the sharpening of the mind; hence all Greeks as well as those barbarians with whom we are acquainted make use of it. With good reason Damon of Athens and his school say that songs and dances are the result of the soul's being in a kind of motion; those songs which are noble and beautiful produce noble and beautiful souls, whereas the contrary kind

\[\text{72}^{\text{Tusc[ulamae] quaest[iones] I.[ii; Loeb, 7.]}\]

\[\text{73}^{\text{In somnium Scipionis [i.e., De somnio Scipionis], II.iii; cf. edition by Iocabus Willis, Ambrosii Theodosii Macrobiuii (Lipsiae: In Aedibus B. G. Tubneri, 1936); translation by William Harris Stahl, Macrobius, Commentary on the Dream of Scipio (New York: Columbia University Press, 1952), 195.}]}\]
produce the contrary.\textsuperscript{74}

(2.250) [\textit{Constituted tone}.]—Although each key have
in it divers tones, yet, the mi-clef being known, one only is
taken. For in scala duralis the constituted tone of G sol re
ut is ut; in scala naturalis it is sol; in scala mollaris it
is re. Likewise in scala duralis the constituted tone of C
sol fa ut is fa; in scala naturalis it is ut; and in scala
mollaris it is sol—and so of the rest. (See the second
scale in ii.2 and (f) in notes [(Figure 9).])

\textsuperscript{74}Deipnosophist\ae\ XIV.[628; Loeb, VI, 387 and 389.
Damon was a celebrated sophist and musician, and teacher of
Pericles and Socrates.]
I.i: the Concept of Mood

Before Butler's Principles of Music, the only English theoretical writing that dealt with the ecclesiastical modes (discounting Dowland's translation of Ornithoparcus, which devoted its entire twelfth chapter to the subject) was Morley's Introduction. Morley relegated the discussion of the various ambitus of the modes to the annotations for his Part III (Harman ed., 300-04) and always seemed to use the third person plural in doing so:

Some tunes (say they) are of the odde number, as the first, third, fifth and seventh: others of the even number: as the second, fourth, sixth and eight: the odde they call Autentas, the even Plagales. To the autentas they give more liberty of ascending then [than] to the Plagale, which have more liberty of descending then [than] they, according to this verse. . . .

This contrasts strongly with, for example, Morley's statement introducing a diagram of the scale in Part I, page 2 (Harman ed., 10): "... here is the Scale of Musicke, which wee
term the Gam." Robert Stevenson, discussing Morley's concept of the modes in *Musica disciplina*, made the following observations:

Morley's failure to discourse lengthily on tones or modes is a point of capital importance. No one looking at the Magnificats of Taverner, Tallis, and Whyte, in *Tudor Church Music* can have failed to observe how differently planned are the English Magnificats, though using Latin texts, from those of Costanzo Festa, Cristóbal de Morales, Gombert, Palestrina, Lassus, and Victoria. The continental composers wrote in tones; Taverner and Tallis, also writing Latin Magnificats, conspicuously avoided the "tonal" schemes adhered to by Palestrina and his continental colleagues. . . . the Latin Magnificats of Taverner and Tallis differed as much from the Magnificats of the continental composers as did English Masses from continental Masses.

Butler discussed the moods in respect to their psychological effects alone. In 2.22-28 (cf. 86.12-13) he acknowledged tonal definitions on the part of some writers but did not feel any need to discuss the moods in this sense. The psychological attributes used by Butler, as he indicated in 3.37, came from Coelius Rhodoginus, who in turn derived them from Cassiodorus. The passage referred to from

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1Vi (1952), 177-84. The title of the article is "Thomas Morley's 'Plaine and Easie' Introduction to the Modes." The quotation is from p. 183.

2Butler did define the airs according to tonal center (cf. commentary to 82.3-10, 86.21-46, pp. 406-08: "the six tones, or airs"). However, he never used the modal terminology in discussing the airs. The difference between "mood" and "air" is pointed out in 86.12-15.
Cassiodorus' "Epistle to Boethius" (Variae II.xI.3-4) reads as follows:


(The Dorian is the bestower of prudence and effector of chastity. The Phrygian excites to wars and kindles a vow of fury. The Aeolian pacifies a tempestuous mind and bestows sleep with its pleasing sound. The Iastian [Ionian] sharpens a dull intellect and, an accomplisher of good things, gives an appetite for celestial things to minds burdened with earthly desire. The Lydian, invented to oppose excessive cares and worries of the mind, refreshes with recreation and strengthens with delight.)

As can be seen from a comparison of this passage with that of Rhodoginus' Antigvarvm lectionum V.xxii, translated in 3.38-44, the descriptions of Dorian, Phrygian, and Aeolian are identical. However, Rhodoginus' description of the Lydian corresponds to Cassiodorus' Iastian, or Ionian, nearly word for word:

Lydius intellectum obtusis acuit, & terreno dasyderio grauatis caelestium appetentiam inducit, bonorum operator eximius.

(The Lydian sharpens the dull intellect and, an excellent accomplisher of good things, induces an appetite for celestial things to the minds burdened with earthly desire.)
While his description of the Ionian has no such close word-for-word correspondence it is nevertheless Cassiodorus' Lydian:

 Ionicum, quod floridum intelligunt, ac iucundum.

 (. . . the Ionic, which they understand as florid and pleasant.)

Butler followed the "inverted" version given by Rhodoginus. He appears to have affirmed the character of the Ionian mode (or Ionic mood) from the quotation from Athenaeus in 4.32-33:

 But the character of the Ionians to-day is more voluptuous, and the character of their mode is much altered.

He omitted the description immediately preceding this in Athenaeus--a description closer to Cassiodorus' Ionian:

 Hence also the kind of music known as the Ionian mode is neither bright nor cheerful, but austere and hard, having a seriousness which is not ignoble; and so their mode is well adapted to tragedy. 3

He appears to have affirmed the character of the Lydian 4

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4Burney, History, II, 291n, did not completely accept Butler's concept of Lydian, for he stated that "Butler . . . speaking of the Lydian mood of the ancients, which he seems to have persuaded himself he understood, says, 'of this mood is that passionate lamentation of the musical king. . . .'" (Cf. 5.31.)
from the quotation of 5.40-42:

The Lydian mode is used primarily for tearful lamentations. For Aristoxenus says in the first book of *De musica* that Olympus played the flute in the Lydian mode at the burial ceremonies of the Python.

The wording of 5.39-40 seems to indicate that he supposed this to be from Cassiodorus; it is actually from Plutarch's "*De musica*" xv.1136C.5

Ornithoparcus (*Micrologus* I.xiii; Dowland trans., 36) also cited Rhodoginus--specifically, *Antiquvarvm lectionvm* V.xxii rather than the edition cited by Butler--in discoursing on the effects of music; but he omitted the Ionian. The author of *The Praise of Musicke* (p. 56 of chapter iv: "The Effects and Operation of *Musicke*") likewise omitted the Ionian, and furthermore claimed Macrobius' *Somnium Scipionis* II as the source for the following Latin:


which he translated:

... As the eye is delighted with the variety of colours, so is the eare, with the diversitie of sounds. Modus Dorius is a giver of wisdome, and a causer of chastitie. Modus Phrygius prouoketh to fight, and maketh courageous. Aeolius quieteth the mind, & giveth sleepe to the pacified sens. Lydius sharpneth dul wits, & to men oppressed with earthly cares, it bringeth a desire of heauenly things: being a wonderfull worker of good motion.

His introductory simile is comparable to a similar passage, used in a similar manner, though separated from the descriptions of the moods themselves by several lines, in Ornithoparcus (Micrologus I.xiii; Dowland trans., 36):

\[\text{Nec mirum: inquit Guido.13.micrologi capi: si varietate sonorum delectatur auditus, cum varietate colorum gratuletur visus, odorum varietate foueatur olfactus. . . .} \]

(Neither is it maruell (saith Guido in the 13 cha. of his Mic.) if the hearing be delighted with the variety of sounds, seeing that the sight, is pleased with the variety of colours, the smelling power, with the variety of odours, & the taste, with diuersity of meats.)

Ornithoparcus cited Macrobius, without specifying Somnium Scipionis II.iii.9 (which is the correct passage), not for the descriptions of the moods but for the following:

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*Butler used the same simile (4.36-39) in his discussion of the Tonic mood as modus chromaticus (the "colorful mood").
... for every habit of the mind is governed by 
songs, (as Macrobius writeth) for songs make men  
sleepy, and wakefull, careful, & merrie, angry, &  
merciful, songs do heale diseases ... ,

which appears just a few lines after his quotation from  
Rhodoginus. It is therefore possible that The Praise of  
Musicke drew its descriptions of the moods from Orni-
thoparcus but misquoted by citing Macrobius instead of  
Rhodoginus.?

Neither Ornithoparcus nor the author of The  
Praise of Musicke limited their discussions to the  
Cassiodorus-Rhodoginus attributes. Ornithoparcus cited  
Plato's Republic as a source of additional information.  
The Praise of Musicke cited Plutarch and gave, just prior  
to the supposed material from Macrobius, the following  
description of the modi musici:

For Modus Dorius, beeing a graue and staied part  
of musick, aunswereth to that which I called chast  
and temperate. Modus Lydius used in comedies, in  
former times, being more lighter and wanton than  
Dorius, answereith to that which I termed amorous  
and delightsome. Modus Phrygius distracting the  
mind variably, also called Bacchicus for his great

7Although the present author has not found such a  
passage in Somnium Scipionis as that indicated by The  
Praise of Musicke, nor any passage in which the moods are  
specified by their proper names, it is impossible to state  
eunequivocally that Macrobius was misquoted. As Stahl points  
out (Macrobius, Commentary on the Dream of Scipio, 59-60),  
a list of the manuscripts of the Somnium Scipionis "would  
quickly run into the hundreds."
force & violence answereth to that which I called warlik, And **Myxolydius** most used in tragedies expressing in melody those lamentable affections which are in tragedies represented, answereth to that which before I named Melancholike and dolefull. As for those other, **Hypodorius**, Hypolydius, Hypophrygius, & Hypermyxolydius, there is no doubt, but that they being collateral and assistants to these, move such like affection as their principall.⁸

Butler, after quoting the fifteen **modi** given by Martianus Capella (3.44-4.2), defined "Hypo-" and "Hyper-" literally—as "defective" and "excessive," respectively; examples are given in 6.39 in Mersenne's "Hyperphrygian mood" and in 41.13 in "that Hyperlydian music which, where the sobriety, decency, and piety of the singers concur with the art and sweetness of the song, maketh such a heavenly harmony as is pleasing unto God and man." This last was amplified by Butler by referring the reader to II.i.1, sub-paragraph III, a characteristic part of which reads as follows:

> It came even to pass, as the trumpeters and singers were as one, to make one sound to be heard in praising and thanking the Lord; and when they lift up their voice with the trumpets and cymbals and instruments of music and praised the Lord, saying, For he is good; for his mercy endureth for ever: that then the house was filled with a cloud, even the house of the Lord.

So that the priests could not stand to

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⁸Plutarch, "De musica" xvi.1136D-Ε, gives no such clear attributes except for Dorian. Case, Apologia, 53, speaks of "Harmonica Tragica, Hellica, Comica, Solennis," which correspond with the basic four **modi** described in The Praise of Musicke, 54-55, quoted here.
minister by reason of the cloud: for the glory of the Lord had filled the house of God.®

The Hyperlydian mood, then, according to Butler's concept, was simply a more intense, a more stimulating form of the Lydian mood.

The English concept of moods does not appear to have originated in writings devoted exclusively to music. In 1565 Thomas Cooper's *Thesaurus linguae romanae et britannicae* gave the following definition for Dorian music:

> Dorica, ae, f.g. A certayne kynde of musike representyng a grauitie, and therefore was assigned to noble men & great personages.

Along with this definition in Thomas Thomas' *Dictionarium lingvae latinæ et anglicæ* of 1587 appeared the following for Phrygian music:

> Phrygian melos, A melody or tune, wherein seemed to be a diuine furie.

The definition of Doric music closely resembles Butler's:

4.40, "grave and honest songs"; 4.47-5.1, "those sober feast hymns wont to be sung in the praise of honorable men." The definition of Phrygian music is also similar, though the

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®II Chronicles 5:13-14.


verbal correspondence is not as strong: 2.8-9, "music which, with his stately or loud and violent tones, rouseth the spirit and inciteth to arms and activity"; 6.43, "even unto anger and fury"; 7.2, "a frantic mood." In 1589 John Rider's Bibliotheca scholastica\textsuperscript{12} repeated the definition of Doric music under "Musicke" ("Concentio"); under "Dorica" he gave the following:

\textbf{... A kinde of musicke very harde to be applied to a song.}

This would seem to correspond more to Butler's Lydian mood: 92.21-24, "all these helps concurring will not suffice to the framing of a good lesson (especially in the Lydian mood) unless the author ... be transported ... with some musical fury." Actually, the similarity between the Doric and Lydian moods can easily be seen from a comparison of Butler's descriptions of them in 1.9-13 (Doric) and 1.14-21 (Lydian); such a similarity—although Butler used the word "solemn" only in describing the Lydian mood (1.14, 5.13, 5.24, 41.9-16)—was also indicated in John Florio's Queen Anna's New World of Words, or Dictionarie of the Italian and English Tongues of 1611:\textsuperscript{13}

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Dorica . . . Also a kind of graue solemn musicke.

Lidio . . . Also a kinde of mourneful solemn musike.

The "mournful" character of Florio's Lydian seems to correspond to Plutarch's Lydian of older times (5.40-42) and to the Mixolydian of The Praise of Musicke which is suitable for tragedy. Florio also gave Thomas' definition of Phrygian music; he mentioned Ionic but did not define it.

The lexicon by Rider was extremely popular, being republished with the revisions of Francis Holyoke (student at Queen's College, Oxford, about 1582)\(^4\) in 1606 and subsequently reprinted 1612, 1617, 1626 (edited by Nicholas Gray), 1627, 1639, 1640, 1648-9, and 1659. Of these, the present writer has examined the 1612, 1640, and 1659 editions.

The 1612 edition of Rider's Dictionary\(^5\) gave no new definitions for the moods; those of the 1589 edition were simply reprinted. In the 1640 edition,\(^6\) in addition to the

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\(^6\)Riders Dictionary Corrected and Augmented, edited by Francis Holyoke (Ann Arbor: University Microfilms, 1956;
old definitions of "Concentio," "Dorica," and "Phrygium melos," appeared the following:

Doricus, a, um δωρικός, ad Dores pertinens, ut doricae musicae, & doricus tonus.

(Doricus, a, um δωρικός, pertaining to the Dorians, as Dorian music and Dorian tone.)

Lydius modus in musicis dicitur qui decurrit in f. & f. divisus in c. finitus in f. levatus decurrit in b, & bb, dividitur in f. durus est ac minax, Luciano θακτικός, i. insanus, ambitus ejus est, fa, ut, vel fa, ut, sol, ut, quam in Ionicum mutatur, sed tum pro mi accipit fa, a Lydis populus dictus est, Mart.

(The modus called "Lydian" in music runs from f to f, is divided in c, and finishes in f; raised, it runs from b to bb, is divided in f; it is hard and threatening; according to Lucian, Bacchic, that is, maë; its ambitus is fa ut, or fa ut sol ut as it changes into the Ionic, but then it takes fa for mi. It was named after the Lydian people (Mart.).)

Ionicus . . . ; also wanton, Ut Ionica saltatio. A wanton and effeminate dance.

Phrygius modus, modus in musicis habens severam quandam indignanti exultationem.

(Phrygian modus is a modus in music having a certain harsh and impatient exultation.)

Hyperlidius, graec. est accentus vel tenor, in voce noviss. & acutissimus, Isid.2.19.

(Hyperlidius, Greek, is accentus or tenor in the extreme or most acute voice. . . .)

Hypodorius est accentus vel tenor in voce omnium gravissimus, Isid.2.19.

(Hypodorius is accentus or tenor in the lowest of all voices. . . .)

facsimile of London, 1640 ed.), no pagination.
Hypolidius, gravis sonus in musica, qui & sublidius dicitur, & hypodoneus vel hypodoreus.

(Hypolidius, a grave sound in music which is also called "sublidius," and hypodoneus, or hypodoreus.)

These were printed in the 1659 edition. They were also reprinted (sometimes approximately) in Thomas Holyoke's A Large Dictionary in Three Parts of 1677, which also included additional definition of the Phrygian:

Phrygius modus, vel melos in musicis, Luciano εὐθεῖος, Apuleio religiosus, habet severam quandam indignantis insultationem.

(The Phrygian mode, or melody in music, in Lucian "εὐθεῖος" ("enthusiastic"), in Apuleius "religiosus" ("religious"), . . . .)

Just a year before, Elisha Coles' An English Dictionary gave the following definitions:

Moods in Musick, Dorick, Lydian, Aeolick, Phrygian, and Ionick.

Dorick-mood, Dorian-musick, of a slow solemn time, from C sol fa ut to A la mi re.

Lydian Musick, dolefull.

Mixolydian, (q. Mixt Lydian) Musick,


lamentable, fit for Tragedies.

Previously Thomas Blount's *Glossographia* (1656) and Edward Phillips' *The New World of English Words* (1658)²⁰ reprinted the Cooper-Thomas-Rider-Holyoke definition of "Dorica," or "Dorick"; Blount also included the 1640 Rider-Holyoke definition of "Ionicus."

Shortly before Blount and Phillips, in 1654, John Playford had given in chapter viii of the first edition of his *Introduction* a condensed version of Butler's representation of the tradition of Cassiodorus, Rhodoginus, Ornithoparcus, and the anonymous *Praise of Musicke*; this chapter of Playford's, titled "Of the Five Moods used by the Grecians," was continued until the 1664 edition, was restored in the 1672 edition, and did not appear in Henry Purcell's 1694 edition of the *Introduction*.²¹ The following description of the Lydian mood, which corresponds to 1.14-20 and 4.18-22, or phrases thereof, almost word for word, is quoted from the 1674 edition of Playford's *Introduction*:²²


²¹The present writer has not seen all of Playford's editions, and is relying mainly on Zimmerman, "Introduction," 16-17 (in Playford, *Skill of Musick*, 12th ed.) for the continuance and discontinuance of the chapter on the Greek moods.

it is typical of Playford's method of borrowing:

The Lydian Mood was used to grave solemn Musick, the Descant or Composition being of slow time, fitted to Sacred Hymns and Anthems, or Spiritual Songs, in Prose, sometimes in Verses alone, and sometimes in a full Chorus of four or five Parts; which moveth a kind of Heavenly Harmony, whereby the mind is lifted up from the regard of earthly things to those celestial Joys above. This Mood had its derivation from the famous River in Lidia called Pactolus, and the winding retrograde Meander, representing thereby the admirable variety of Sound in Musick, passing by the famous Cities, Philadelphia, and Sardis once the Royal Seat of rich King Crassus.

In his description of the Doric mood, Playford used the word "solemn," too, which double usage occurred previously in Florio's 1611 Italian-English dictionary, Queen Anna's New World of Words.

Meanwhile Simpson, in his 1667 Compendium (IV.ii, pp. 111-12), informed his reader that "that which the Grecians called Mode or Mood, the Latins termed Tone or Tune," and that "the Greeks distinguished their Moods by the names of their Provinces; as Dorick, Lidian, Ionick, Phrigian, &c," while "the Latins reduced theirs, to eight Plain-song Tunes." He commenced to discuss authentic and plagal modes (pp. 113-15) and to give a table of the twelve modes with finals: Dorian on D, Hypodorian on D, Phrygian on E, and so on. Simpson concluded the discussion (p. 116) with the observation that
whereas we read such strange and marvellous things of the various affections and different effects of the Grecian Moods: we may very probably conjecture that it proceeded chiefly from their having Moods of different measure joyned with them; which we find by experience, doth make that vast difference betwixt Light and Grave Musick; though both set in the same Key, and consequently the same Mood or Tone,

which, in its last part, concords with Butler's 2.26-28:

But skilful musicians know how to form any mood in any key or tone indifferently so it be conformable to the air of the subject.

Finally, returning to the lexicographers, John Kersey, in his 1708 *Dictionarium anglo-britannicum*, had some (apparently) novel observations to make:

Phrygian Mood, a Warlike kind of Musick, fit for Trumpets, Hautboys, &c. Also a cheerful, sprightly Measure in dancing.

Lydian Mood, a sort of Harmony which was us'd in solemn grave Musick.

Ionick Mood, a kind of Musick that consisted of light, soft, and melting Strains.

Of these, only the wording of the Lydian is by now completely familiar to the observer of the previously cited dictionaries.

A third carrier of the concept of moods in music existed in the sixteenth- and seventeenth-century English

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literature. E. K.'s gloss of Spenser's *The Shepheardes Calender*, c. 1579, gave the same story that Butler quoted from Suidas in 6.32-38:

... that memorable history of Alexander: to whom when as Timotheus the great Musitian playd the Phrygian melodie, it is said, that he was distraught with such unwo ned fury, that straight way rysing from the table in great rage, he caused himselfe to be armed, as ready to goe to warre (for that musick is very war like),

but with an ending which, except for the reference to Lydian and Ionic music, was more like Butler's story from Krantzius and Saxo Grammaticus in 6.41-7.6:

And immediatly whenas the Musitian chaunged his stroke into the Lydian and Ionique harmony, he was so furr from warring, that he sat as styl, as if he had bene in matters of counsell.24

In 1595 Gabriel Harvey's *Pierces Supererogation*25 succinctly defined the essence of all five moods:

... Achilles harp was an instrument of glory, and a quier of diuine Hymnes, consecrated to the honour of valorous Captaines, and mighty Conquerours. He regarded not the dainety Lydian, Ionian, or Aeolian Melody: but the braue Dorian, and impetuous Phrygian Musique: and waged Zenophantus to inflame and enrage his courage with the furious notes of the Battail.

Philemon Holland's 1603 translation of Plutarch's *Moralia*
brought these references to the attention of the English reader:

Plato . . . chose the Dorian, as that which is most beseeoming valiant, sober and temperate men. . . . there was more gravity and dignitie in the Dorian Musicke . . . Dorique Musicke . . . the beauty and honesty thereof.

Neither was he unskillfull in the Lydian Musicke, nor the Ionian; for he knew well enough that tragoedie used this kind of melodie.

Likewise the Sublydian Musicke, if it be contrary to the Mixolydian, and in resemblance comming neere unto the Ionique, was by report devised by Damon the Athenian.26

The confusion of Ionic and Lydian (at least the use of both in the same general context without differentiation of one from the other) occurs also in the following passage from Robert Burton's *The Anatomy of Melancholy* of 1632:

Lewis the xi. when he inuited Edward the 4. to come to Paris, told him that as a principall part of his entertainment, hee should heare sweet voices of children, Ionick and Lydian tunes, exquisite Musick, he should have a----and the Cardinall of Burbon to be his confessor, which he vsed as a most plausible argument: as to a sensuall man indeede it is.27


Burton was also familiar with Cassiodorus' psychological attributes of the moods:

Many other properties Cassiodorus epist.4. reckons vp of this our divine Musicke, not only to expell the greatest grieves, but it doth extenuate feares and furies, appeaseth cruelty, abateth heauinesse, and to such as are watchfull it causeth quiet rest; it takes away spleene and hatred, bee it instrumentall, vocall, with strings, winde, Quae a spiritu, sine manuum dexteritate gubernatur, &c. it cures all irksomenesse and heauinesse of the Soule. Labouring men that sing to their worke, can tell as much, and so can souldiers when they goe to fight, whom terror of death cannot so much affright, as the sound of trumpet, drum, fife, and such like musick, animates. It makes a child quiet, the nurses song, and many times the sound of a trumpet on a sudden, belles ringing, a carre-mans whistle, a boy singing some ballat tune early in the street, alters, reviues, recreats a restless patient that cannot sleepe in the night, &c. In a word [here, cf. Butler 3.26-36] it is so powerfull a thing, that it rauisheth the soule, regina sensuum, the Queene of the senses, by sweet pleasure, which is an happy cure, and corporall tunes pacifie our incorporeall soule, sine ore loquens, dominatum in animam exercet, and rules it without words, and carries it beyond itselfe, helpes, elevates, extends it.28

Milton's "L'Allegro" of the same year made the following reference to Lydian music:

Lap me in soft Lydian Aires, Married to immortal verse.29

28Burton, Melancholy II.ii.6.3, p. 295.

and, in his *Paradise Lost* of 1667, the following to Dorian:

Anon they move In perfect *Phalanx* to the *Dorian* mood of Flutes and soft Recorders; . . . . \(^{30}\)

In 1697 John Dryden, in his "Alexander's Feast," made the following to the more pleasurable Lydian:

Softly sweet, in *Lydian* measures, Soon he sooth'd his soul to pleasures. \(^{31}\)

Burney, in the following excerpt from his *General History* (I, 61-62), without having Butler specifically in mind, gave a good summary of what Butler's first chapter was concerned with:

But such miraculous powers have been attributed to the modes in ancient music, that it must be confessed there is nothing so difficult as to imagine they could have been produced by a mere transposition of the scale to a different pitch, while the intervals remained the same, or even by the effects of modulation. There must have been other characteristics and strong-marked distinctions: as the kind of poetry to which the music was set; the rhythm or measure; or the nature of certain melodies invented and used by particular nations. Indeed it was from this last circumstance that the denominations of the principal modes were derived, such as the *Dorian*, *Phrygian*, *Lydian*, *Ionian*, and *Aeolian*; and there may perhaps have been originally something strongly characteristic in the melodies, as well as in the *dialects* of those countries.

\(^{30}\) *Fletcher, Milton's Poetical Works*, II (1945; facsimile of 1667 ed), 236.

... and mere modulation, though it has its effects, yet can it boast of none like those said to have been operated by a change from the soft Lydian, or grave Dorian, to the furious Phrygian. I should rather suppose them, that in times of musical refinement among the ancients ... the names of the musical modes had much the same use as our technical terms, grazioso, grave, allegro, con furia: ... 

Shortly following this, Burney translated from Teodato Osio's L'armonia del nudo parlare, which he assumed to contain the first treatment of the possibility of the Greek moods, or modes actually having been based on poetic meters:

... "with a perhaps, per aventura ... speaking of the Mixolydian mode, he says, "I have often thought that it might have resembled the trochaic foot; as the Phrygian might the Anapest; the Hypophrygian, the Iambic; the Hypodorian, the Dactyl; and the Doric gravity might likewise have been expressed by the sluggish spondee. ..."

One year before Osio's L'armonia, Butler made such a specific connection between the Doric mood and the spondee in quoting from Boethius in 7.40-8.4; however, he mentioned none of the other poetic meters by name, but in 44.8 referred only to "the meters of the Doric and Ionic moods."

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2.18: Moods of the Battle-Galliard

A group of pieces by Byrd, which appeared in My Ladye Newells Book (1591) in nearly consecutive pagination, consisted of the following titles, presented in the modernized form given in Musica britannica:

The Battle

a The Soldiers' Summons G $ (4/2)  
b The March of Footmen C $ (4/4)  
c The March of Horsemen C C (3/2)  
d The Trumpets C $ (4/2)  
e The Irish March C $ (12/4)  
f The Bagpipe and the Drone C [C] (12/4)  
g The Flute and the Drum C C (3/2)  
h The March to the Fight C C (3/2)  
i The Retreat C $ (2/2)  

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The Galliard for the Victory $G \phi \frac{3}{2}$

The first and last of these are in a modal-sounding $G$ (tonal center); the others, in $C$, are very major sounding, with a predominance of fifth root-progressions. The titles, of course, are suggestive, and would seem to imply different moods.

Bull may have written a "Battle Paven"² as well as a "Battle Galliard," which are grouped together and verbally designated as a pair in the Paris Conservatory MS Res. 1185 (ölim 18548). The MS was written before 1652.³ According to the commentary in Musica britannica, the titles are:

Battle paven [anon]/The Batell Pavin

[Battle Galliard] Galyard [anon]/The Galliard to it.⁴

He may also have written "A Battle, and no Battle: frigian

²According to John Bull, Keyboard Music: II, ed. by Thurston Dart, Musica britannica, Vol. XIX (London: Stainer and Bell, 1963), 233, No. 109a, the piece is ascribed to Bull on grounds of style but may have been written by Ferdinando Richardson.


musique [anon] ..." and is credited with several other pieces the titles of which, in some MSS (including Res. 1185), contain references to "Ionick," "Lidian," and "Dorick" music.

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5 Ibid., No. 108.

6 Cf. Ibid., Nos. 104, 110; and Bull, Keyboard Music: I, Nos. 58, 58a, 59, 60, 61. Two of these (using "Doric") date from 1609-19; the others date more around the middle of the seventeenth century; no dates are given for Drexel 4180-85 in the commentary.
CHAPTER II

OF SINGING

Section 1

Of the Number of the Notes

The parts of music.--Music consisteth either in

(10a) singing or setting.

In singing are considered five things: the number, the
names, the tune, the time, and the seven extern[al] adjuncts
of the notes.

The number of the notes.--Within the ordinary
compass of human voices, that is, from the lowest note of a
man's bass unto the highest of a boy's treble, are contained
(11b) three septenaries of musical notes—although there are found some basses that reach below and some trebles that arise above this ordinary compass. And in instruments the notes are extended farther, both upward and downward, as in the virginal to c sol fa above ee la and to cc fa ut below gam ut (in which compass is contained four eighths, or a tetrakisdiapason), whereunto is also added aa replaced upon the lowest of the narrow or short keys, of which sort all the rest are hemitonia, serving for the sharpening and flattening of the ordinary notes of the scale, all which ordinary notes are expressed in the broad keys alone.¹ But the organ goeth yet a far greater compass as reaching one whole septenary below cc fa ut and fifteen notes, or a disdiapason above the hyperbolean c sol fa—in all fifty-one notes in the direct and natural order of the scale, besides the twenty extraordinary hemitones and the second set both of principals and diapasons.²

10-6

The number of notes musical is therefore divided by septenaries, because there are in nature but (11c) seven

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¹For range of virginals, see commentary, pp. 111-12.

²See "index" in notes to [I.ii.]2 after (8) in (f), [19.7-13. The index character, which is omitted (and which is always referred to by the term "index") in the present edition, is printed in the margin of p. 19, directly opposite l. 7, in the Haviland ed. For range of organ, see commentary, pp. 113-14.]
distinct sounds, expressed in music by seven distinct notes in the seven several clefs of the scale. For the eighth and fifteenth notes have the sound or tune and therefore the name and clef of the first, the ninth and sixteenth of the second, the tenth and seventeenth of the third, the eleventh and eighteenth of the fourth, the twelfth and nineteenth of the fifth, the thirteenth and twentieth of the sixth, the fourteenth and twenty-first of the seventh.

Rules and spaces.—These thrice seven notes (as the clefs wherein they stand) are discerned by their places. A place is either rule or space. In eleven rules with their spaces is comprehended the whole scale. Of which rules, in the pricking or setting down of any part, (11d) five are commonly used because that number of rules and their spaces are places enough for as many notes as the ordinary compass of a part doth reach unto. If any note happen to exceed this compass, his place is to be notified by (11e) a short rule drawn for the nonce, either above or below, as you shall have cause—above, as in the bass, and below, as in the countertenor of the Dial. (See (h) in notes for [I.]iii.1 [(42.17-20).])
Annotations to Chapter II, Section 1

(9.16a) ["Singing.""]--Because singing is the best expressing of musical sounds, therefore, by a synecdoche, the word "canó" ("to sing") is enlarged and signifieth commonly as well to play on instruments as to sing with voices, as

[in] Tusc[ulanæ] quaest[iones] I:

. . . Epaminondas . . . was, we are told, an accomplished singer [cecinisse] to the accompaniment of the harp. . . .

and Eclog[ae] II:

. . . you shall rival Pan in song [canendo].

So Met[amorphoses] I:

. . . [he] plays [cantat] upon his reed pipe

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1 See (m) in [I.]i [(i.e., Cicero, Tusculanæ quaestiones I.ii; Loeb, 7). Butler probably would have said "an accomplished harpist."]

2 [Virgil,] Eclogae II.[31; cf. edition in Fairclough, Virgil, 1, 12. Pan, as a musician, was noted for his pipes.]

(See Rhetoricae I.ii.) "Singing" also by a metonymy of effect signifieth here as well the knowledge of the precepts as the practice, for the practice alone doth not make a musician—as Ornithoparchus [noteth] out of Guido:

The difference between musicians and cantors is great. The one knows and prescribes; the other does what is prescribed. The musician is thus to the cantor as the magistrate is to the herald.5

(9.23b) These three septenaries or orders of notes and sounds Tully did observe:

For the voice possesses a marvellous quality, so that from merely three registers, high, low and intermediate, it produces such a rich and pleasing variety in song,6

and Quintilian mentioneth, where he likeneth rhetoric to music:

... the hands of the musician, even though his


eyes be turned elsewhere, produce bass, treble, or intermediate notes by force of habit... 

(10.7c) These seven natural distinct sounds are notes the Poet showeth been observed and used, even by Orpheus, the father of music, both in voice and instrument, where in recounting the pleasant exercises of the Elysian Fields he saith:

Some foot the dance, some verses do recite; And Orpheus the seven several notes there sings In numbers; and the same doth sweetly strike Now on the harp, now on the cittern strings,

although Boethius affirm the perfect septenary to have been found out afterward by degrees. (See [I.]ii.2 (f) in notes [(17.22–18.3).])

(10.18d) Five [rules] are commonly [used].—For plain-song, it being but of little compass, four rules have sufficed; for instruments (which go beyond the compass of voices) six are required; and for the virginals and organs two sixes—one for the left hand or lower keys and the other for the right or upper keys— the which two senaries (when gg is set in the highest of the lower three rules of the

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†[Institutiones oratoriae] v.x.[125; Loeb, II, 271.]

§[Virgil,] Aeneid VI.[644–47; Butler's translation.]

right hand and  in the lowest of the higher three of the left hand) do contain all the gamut, the lowest of the right hand and the highest of the left hand being the same—to wit, B.

(10.22e) [The short rule.]—But if many notes exceed (so that the set pitch of the song be altered), transposition of the clef is permitted—by which means also a general mistaking of the places in pricking is wont to be amended, as: [Figure 4].

[Figure 4. Transposition of the clef]
Alek Hodsdon, writing in *Grove's Dictionary*,\(^1\)

stated that during the sixteenth and seventeenth centuries the range of the virginals was "some four octaves (short-octave tuning in the Bass), playing at 8-ft. pitch." Butler indicated a range of four octaves and a minor third, short-octave in the bass; his AA-re was placed on "the lowest of the narrow or short keys" (9.30), that is, the lowest "black" key. This would have been, in appearance, the C-sharp key if the instrument described by Butler were of the type referred to by Thurston Dart in the revised edition of Galpin's book as Thomas White's "earliest known \___________

instrument," dated 1642.2 James White and Thomas White are described as "pre-eminent" among English virginal-makers of the seventeenth century; the clause "their handiwork survives to our own time"3 is suggestive of the earlier period of relative obscurity. White's 1642 instrument, according to Dart, had forty-nine keys, with a short octave, a compass from AA to c 3; twenty-nine "white" keys from C to c 3, twenty "black" keys, five per octave, the lowest actually AA in sound, would appear to be the proper distribution.

3Ibid., 95.
"The largest pre-Commonwealth organ of which details survive is that made by Robert Dallam for York Minster in 1632," according to Clutton and Niland's The British Organ.¹ The contract for the organ specified fifty-one pipes for each of nine stops,² the number fifty-one being "unusual," according to the article "Organ" in Grove's Dictionary.³ Clutton and Niland give no range; the

¹Cecil Clutton and Austin Niland, The British Organ (London: B. T. Batsford, 1964; first printed 1963), 57. As a result of the ordinance of 1644, many organs were destroyed; others were removed to prevent destruction; a few completely escaped injury. (Cf. Reginald Whitworth and W. L. Sumner, "Organ," Grove's Dictionary, VI, 298.) According to Edward J. Hopkins and Edward F. Rimbault, The Organ (3rd ed.; London: Robert Cocks, 1877), 91, the ordinance was entitled "Two ordinances of the Lords and Commons assembled in Parliament, for the speedy demolishing of all organs, images, and all matters of superstitious monuments in all Cathedralls, and Collegiate or Parish-churches and Chapels, throughout the Kingdom of England and the Dominion of Wales; the better to accomplish the blessed reformation so happily begun, and to remove all offences and things illegal in the worship of God. Dated May 9th, 1644."

²A copy of the contract is given in Hopkins and Rimbault, The Organ, 69-70.

³Whitworth and Sumner, VI, 297.
Grove's article estimates the range as having run from FF on the AA key (short octave) to "C in Alt."

Included in the Grove's article is a description of a 1637 organ—which Clutton and Miland say might have been built as early as 1615*—built by Thomas Harris (possibly, according to Clutton and Miland), for Magdalen College, Oxford:

Its Manuals ranged from 'Do Sol Re' (double C) without the CC up to D in Alt, fifty notes; and the Great Organ had eight stops, while the Choir had five. 5

The manual range of fifty notes—thirty "white" notes and twenty "black" notes (if taken as the visible keyboard range), with the stops—in all, specified as eight-, four-, two-, and one-foot, could yield an audible range of fifty-one "white" notes, comparable to Butler's fifty-one notes "in the direct and natural order of the scale" (10.2-3), with the twenty keyboard "black" keys comparable to Butler's "twenty extraordinary hemitones" (10.3), the half steps other than B-C and E-F. None of the nineteenth- and twentieth-century sources cited above appear to have been aware of Butler's description.

*The British Organ, 56.

Whitworth and Sumner, 297. There is no evidence that pre-Commonwealth British organs had pedals (The British Organ, 60-61).
Section 2

Of the Names of the Notes

12-1

The names of the notes.--The names of the notes were
(14a) invented for the more easy and speedy instruction of
scholars in tuning them, that, being taught the names and
tunes together, when they are perfect in those, they might by
the help of them know these the more readily.

12-6

The second fa, or pha.--For the seven notes there
are but six several names: ¹ ut, re, Mi,² fa, sol, la. The
seventh note, because it is but a half tone above la, as the
fourth is above Mi (whereas the rest are all whole tones), is
fitly called by (15b) the same name--the which being added,
the next note will be an eighth or diapason to the first, and
consequently placed in the same letter or clef and called by

[¹]See commentary to I.ii.2, pp. 147-49.

[²]In this section both letters of "mi" were
consistently capitalized in the Haviland edition.
the same name.

12-13

[The master note.]—Of these seven notes thus named
Mi is the principal, or master note,³ which, being found,*
the six servile notes do follow (both ascending and
descending) in their order—as in [the] example. [See Figure
5a.]


*See the three Mi clefs [14.14-27.]
Figure 5. The seven notes
But the perpetual order of the notes in the gamut (as of the months in the year) is most fitly exemplified in that figure which hath no end. [See Figure 5b.]

These names though they be still taught in schools (according to the first institution) among other principles of the art, yet the modern vulgar practice doth commonly change ut and re—the one into sol, the other into la—and that for the seven several notes they use but four several names, which doth not a little hinder the learners both in singing and in setting. But if you will needs retain this change, then take this short direction: After Mi sing fa, sol, la twice upward and la, sol, fa twice downward, and so come you both ways to Mi again, in the same clef.

The gamut, or scale.—Answerable unto these seven distinct notes are seven several clefs, or keys, called by the names of the first seven letters of the alphabet—(G, A, B, C, D, E, F). And therefore as the seven notes so the seven clefs are tripled: (17e) the first septenary whereof is noted with capitals, the second with vulgar letters, and the third with double vulgar—which three septenaries, for the reason after—mentioned (see (16d) in


[6]See (c) in [I.ii.]1[(11.7-20)].
notes), are called the (17f) "gamut," the ground and
foundation of all music, both vocal and instrumental. 14-1

The old gamut or scale whose highest clef was ee la
wanted one clef of the three septenaries, although the
trebles of many ordinary songs do reach a note higher, as
their basses do [a note lower] to F fa ut below gam ut. 14-5

Three signed-clefs.—In the scale, or gamut are
(21g) three "signed-clefs" which have certain signs, or marks
whereby they may be known. And these are the highest of the
lowest, or the bass F; the lowest of the highest, or the
treble G; and the middlemost of the middlemost, or the mean
C—one of which three is prefixed to every part of a song,
that by it, ascending and descending in alphabetical order,
you may certainly find all the rest. The (21h) mark of the
bass F is this: ); of the mean C this: $; of the treble G
this: "gg."7
14-14

Three mi-clefs.—Besides these signed-clefs there
are also in the scale to be noted (21i) three "mi-clefs"—B,
E, and A—so called because in one of these three is placed
the master note Mi, by which the names of all other notes (as
before is showed) are known.

7For want of the common character we are fain to
substitute gg, whereof it was made. [Characters commonly
used were $, $, $, $, $, and $.]
To know which of these three clefs hath the Mi in the present song, first, by the signed-clef, look out the next B, where, if you find not a flat, is his place. If the flat put him out thence, look him in E, where you shall have him unless the flat likewise (which happeneth seldom) do remove him—and then his place is certainly in A. (See (21i) in notes.)

The rule of the mi-clef and the order of the notes being known, it is enough to learn for the gamut the thrice seven letters forward and backward, observing especially the three signed-clefs—the bass F, the mean C, and the treble G.

*See [I.]ii.5[(35.32-33) for "flat."]
Annotations to Chapter II, Section 2

(12.1a) [Invention of the syllables.]--The author of this useful invention was Guido Aretinus, a famous musician of whom Ornithoparchus [Micrologus] I.iii giveth this large testimony:

. . . Guido Aretinus, a Benedictine monk, a most witty musician, who only (after Boethius did give light to music) found out the voices, ordered the keys, and by a certain divine industry, invented a most easy way of practice. . . .

And in I.ii he setteth down the strange manner of the invention:

. . . Guido Aretinus, a monk led by a divine inspiration, devoutly examining the Hymn of Saint John Baptist, marked that the six capital syllables of the verses, namely, ut, re, mi, fa, sol, la, did agree with musical concords. Wherefore he applied them in the chords of his Introductory, which device Joannes XXII, Bishop of Rome, allowed.

The famous syllables he found in the first Sapphic of the hymn:

\[ \text{Vt queant laxis resonare fibris}, \]

Mira gestorum Famuli tuorum;
Solve polluti Labij reatum,
[Sancte Ioannes.]³

Which six names were thenceforth generally taught and practiced, in the same order, ascending and descending, as in witty Owen's conceited epigram:

1

\[\text{when he rises, Aulicus speaks;}\]

\[\text{while he's falling, another speaks.}^4\]

(12.9b) The same name.--Yet some, because the seventh note hath a distinct sound from all the rest, thought good likewise to give it a distinct name and call it "si."⁵

³"That with enfranchised voices thy servants may be able to proclaim the wonders of thy deeds, remove the sin of [their] polluted lips, O holy John." Gustave Reese, Music in the Middle Ages (New York: W. W. Norton, 1968; first printed 1940), 150.

⁴[John] Owen [(c. 1560-1622)], Epigrammatum I.⁷¹. [Cf. ed. of Londini: Ex Officina Rogeri Danielis, 1659, p. 18. The Daniels edition introduces the epigram with the title "Musica Aulica duorum vocum" ("Flute music of two voices"). The wit is in the use of the word "aulicus," in the sense of both "pertaining to the flute" and "pertaining to a princely court." Although the version of the Latin given by Butler (ed. not identified) does not conflict, essentially, with that of the 1659 London ed., the two versions of the music have one major difference—that of modality. While the version given by Butler corresponds to his scala molaris (Mixolydian, in modern terms) that of the London ed., if it is assumed that the C clef is incorrect and that the G clef was intended, corresponds to the Ionian mode, even though the seventh degree (the only difference between these two modes) does not occur in the actual melodic representation.]

⁵[Marin Mersenne]. No source cited.
Ericius Puteanus, admitting also Guido's six names, calleth
the seventh "bi"; and a certain Dutchman took upon him not
only to give a distinct name to the seventh note, as they,
but also to new-name all the rest, thus: bo, ce, di, ga, lo,
ma, ni. All these agree to call the seven several notes by
seven several names, as some say the Greeks did by their
seven vowels--α, ε, η, ι, ο, ω, υ.  

Pha. But because (as is above said) this seventh
note is but a semitonium from his inferior la, as the fourth
is from his inferior Mi, questionless it is best, and most
easy for the learners, to call them both (as the manner now
is) by the same name--although the second half note may, for

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6In his Musathena [ix, pp. 35-36. Cf. Kassel:
Bärenreiter, 1962; facsimile of Hanover, 1602 ed. Puteanus' 
title translated reads "Musathena, or seven notes for a new
and easy way of singing music." The "bi" is from the word
"labii" in the third line of the Hymn of Saint John.]

7[ Johannes] Keplerus [(1571-1630)], Harmonices mundi
III.x[(i.e., ix)] (Bruxelles: Culture et Civilisation, 1968;
facsimile of Linz, Austria, 1619 ed.), 50 (mismumbered 47)
and 57. As to the founder of this system, Martin Ruhnke,
"Solumization," Die Musik in Geschichte und Gegenwart, ed.
by Friedrich Blume (Kassel: Bärenreiter, 1949-- ), XII, 847,
states that according to Sweertius (De tintinnabulis)
Waelrant must have been the founder of "Bocedisation."
Alstedius (1630) and Corvinus (1643), Ruhnke continues,
ascribe the invention on the contrary to the Netherlander D.
Mostard, who used the syllables for the first time in
1598--original treatise missing but parts cited by Alstedius.
Irene Bogaert, "Waelrant," Die Musik, XIV, 64, gives
Waelrant's dates as 1517-95.

8Mersennus. [No source cited. See commentary to
15.16-17, p. 155.]
difference from the first, be written "pha," which is the first syllable of "pharos," the name of an high tower, and of an upper garment, as this second hemitonium is the uppermost and highest of all the seven notes.

(13.7c) [Four syllables.]—That this change is a let to speedy and certain singing appeareth by this: that sol being four notes above ut and ut three above sol, la four notes above re and re three above la, acquainting ourselves with their proper names in these different risings and fallings, we shall, by that means, easily hit upon the right sounds of the notes in those divers distances—like as passing from la to Mi and from Mi to la we do readily give them their right tunes, by reason of their divers names; whereas this change being made, from sol to sol and from la to la will be sometime three and sometime four notes, so that the so naming of them doth not help to the different sounds of these different distances.

The like certainty is between re and sol and between ut and fa, which by this change is lost in both. For then, ascending from sol to fa and likewise from la to sol, the distance is sometime three notes and sometime two.

For this cumbersome change they have two excuses: one, that re and ut are not so facile and fluent sounds
(especially in quick time) as la and sol; the other, that they can sing as readily and as truly with these four as with all.

To the first I say concept is much; but whoso trieth shall find that re is a syllable as facile and fluent as any--running smoothly and joining fitly, even in swiftest time, to any note, either superior or inferior, so that there is no cause of changing that at all.

And for ut, when we descend unto it or ascend from it, specially where it is one of the lowest notes of a part, it is yet commonly retained; and if elsewhere it seemeth not so fluent and facile a name, the chiefest cause of it is disuse. But when it shall return, quasi post liminio [as if by right of return], into its own right and have possessed it a while in peace, it will be found as fitting as his supplanter sol--and that in swiftest notes too--if "t," his final consonant, be elided as "l" in sol is wont in like case to be, as in [this] example:

![Figure 6. Solmization of ut]

9For though it be written "ut," it is sounded "oot."
But howsoever, the great use and benefit will more than make
amends for a little inconvenience.

And for the other excuse, expert singers indeed that
instantly know the tunes of the notes by their places may
call them at their pleasure: they may say Mi for fa and fa
for Mi, and, if they will, ut for sol and re for la, as well
as sol for ut and la for re; they may call any note by any
name, and all notes by one name—else how could they sing
ditty according to the note at first sight? But unto
learners, for whose help this fit number of fit names was
invented, the strict observing of them in their proper places
will prove no small furtherance, both in singing and setting:
in singing, as to a more speedy and true tuning\textsuperscript{10} of that
which they see pricked, so to a speedy true pricking down of
that which they hear tuned; and in setting (believe it) they
shall much more readily discern the concords and discords by
observing these distinct names of the notes than by marking
the distances of the clefs.

\textbf{Tu.}—If you think that the metathesis of the letters
will make this name more facile, so also is it one of the
capital syllables of the same first verse, and so doth it
begin with a consonant and end with a vowel, as all other

\textsuperscript{10}For "tuning," see commentary to 1.ii.3, pp. 171-73.
names do but one, whose last is a half vowel—fit enough to precede any of the other names save only in very quick time, where it is wont to lose his final consonant (see above). But if you love the ease and speed of the learners, in any case diminish not the just number of the names—the principal help to certain and ready tuning [singing in pitch].

Now for the passing from fa to fa, between which the distance is sometimes of three, sometimes of four notes, because it cannot be helped (being so ordered upon good reason at the first) it must be tolerated; and one such uncertain rising and falling among the rest, which are certain, cannot much hinder.

(13.15d) G, A, B. . . .--The use of these seven letters in the scale, answerable to the seven essential or natural sounds, Franchinus saith to have been the invention of St. Gregory:

Seven such essential notes with seven letter-names [it is credibly written] were prescribed by Gregory [according to this incantation of Virgil in the sixth Aeneid.]11

11 See (a) above [(probably a reference to the divine inspiration of Guido in 14.34).]

12[Franchinus Gaffurius (1451-1522), Practica musicae] I.ii; [cf. translation by Clement A. Miller, Musicological Studies and Documents, Vol. XX ([Dallas, Texas:] American Institute of Musicology, 1968), 25. The passage in Aeneid VI (645-47) is translated in Loeb, I, 551, as follows: There,
Where note that although G be the seventh letter of the Latin alphabet, yet, being the first letter in the word "Greece," it is set in the first place of each septenary, and in the first septenary retaineth the name and form of the Greek gamma, "Γ," in remembrance that the art of music, as other learned arts, came from that seat of the muses, as Ornithoparchus noteth out of Berno Abbas:

The Greek letter is placed in the baser part of the Introductory, in honor of the Greeks, from whom music came to us; for Berno the Abbot (in his first book of music) saith, "The Latins chose rather to put the Greek letters than the Latin, that the Greeks may be noted hereby to be the authors of this art." 13

To this purpose speaketh Glareanus:

Ancient musicians called tones phthongi, keys nervi.

Guido d'Arezzo, a man of exceptional learning, whom our age follows, reduced these keys into a regular order, into a ladder so to speak, according to the former Greek arrangement of strings, so that he placed the tone ut on the lowest step on a parallel line, together with Γ, the appointed third letter of the Greek alphabet, no doubt in order that we should not forget that this learning, as all others, comes from the Greeks. 14

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 too, the long-robbed Thracian priest matches their measures with the seven clear notes, striking them now with his fingers, now with his ivory quill.]

13"De clavibus," [Micrologus] I.iii; [Dowland, 10--modernized spelling.]

The first septenary.--

Now there are seven keys which are different by nature, and which are designated by the same number of letters: [a b c d e f g. However, by repetition they become twenty keys and] are represented by musicians with this distinction: the first seven [after ut] are indicated by capital letters, then the following seven are indicated by small letters. Furthermore, the last five are indicated by double letters.15

The gamut was the invention of Guido Aretinus16 about the year 960.17 For the Greeks and ancient musicians before him named the seven clefs and chords according to the order of their places: (1)18 hypate,

for the use of gamma is that it was the first letter in Guido's name.]

15Glareanus, Dodecachord[on] I.ii [(i.e., iii); Miller, I, 45.]

16See (14.28a) and (16.44d), [above.]

17Butler probably got this date from Morley, Introduction, p. "2" of annotations (Harman, 104). Guido's dates are now generally given as c. 990 or 995 to c. 1050. Baker's Biographical Dictionary of Musicians (5th ed., rev. by Nicolas Slonimsky; New York: G. Schirmer, 1971), p. 94 of the 1971 supplement, states that the putative birth date is 997, and the precise date of death, May 17, 1050, is without foundation. According to Oliver Strunk, Source Readings in Music History (New York: W. W. Norton, 1950), 103, "the Enchiridion [musices (c. 935), also called Dialogus de musica, of Odo of Cluny] contains the first systematic use of letters for pitches in the meaning that was to become standard for the Middle Ages--the full gamut extending from A to g, with the addition of the low ut and the high ut [i.e., aa]."

18The parenthesized numbers are cues for the "Notes upon the Note (f)," 19.14-21.22.
parhyme, lichanos, mese, paramese, paranete, (2) nete. Unto which perfect number they came thus by degrees. It is recorded by Homer that Mercury, finding a tortoise whose nerves, or chords, being dried and strained in the sun yielded with a touch a pleasing sound, did thereupon make an (3) instrument like unto it,¹⁹ which, after the name of the tortoise, he called "chelys" ("testudo") and strung it with four strings or chords of four distinct notes: the lowest "nete," the next "paranete"; the highest "hymete," and the next "parhyme," thus: [Figure 7a].²⁰

¹⁹ See (4) in "notes, [i.e., notes on the note (f), 20.28-34. Each line of the notes on the note (f) begins with a quotation mark, purely to set these lines off as sub-note material.]

²⁰ See commentary to 17.22-21.22, pp. 156-61.
Figure 7.] (4) Tetrachordon Mercury [and the Greek heptachordon]
(5) Betwixt these four Chorebus, the son of Attys, King of Lydia, did interpose a fifth, which of his middle place was called "mese." Hyagnis, a Phrygian, added a sixth, which, being placed next above mese, is fitly called "lichanos" ("index," that is, "the forefinger"), because as the forefinger is the fourth, beginning at the lowest, so is this string or note, beginning at nete. And last of all Terpander of Lesbos, finding yet another note differing from all the former in sound, perfected the single scale by adding a seventh chord, which, being placed next under mese, is "paramese." And so hath mese his middle place in the seven (as at the first in five), which it lost in the six because that hath no middle number. But lichanos by this means is raised to the fifth place, the place of anticheir or pollux, where yet it still holdeth the name lichanos. And so this is the form of the Greek heptachordon: [Figure 7b above].

Thus this first instrument obtained at the last his seven strings according to the full number of the seven distinct musical notes. But (6) Pythagoras, observing that the two extreme chords were discordant, and that neither diatessaron nor diapente did make so good a symphony with their ground (as if they were conjoined in a diapason),
assumed unto these seven chords an eighth—which is therefore called "proslambanomene"\textsuperscript{21}—to make a diapason to hypate, the seventh or highest, as we commonly assume FF fa ut below gam ut for a diapason to the signed P fa ut. And so the Greek heptachordon and the Latin septenary of letters with their notes being tripled according to the ordinary compass of voices, this will be the scheme, or figure of their and our scale in (7) twenty-two clefs: [Figure 8].\textsuperscript{22}

\textsuperscript{21}"Assumpta" ["assumed"], of προσλαμβάνω, "accipio praeterea" ["accept in addition"], "assume" ["assume"].

\textsuperscript{22}See commentary to 17.22-21.22, pp. 156-61.
Figure 6. The triple heptachordon and septenary
But if the right names of the notes were affixed to their keys in their natural order as they follow Mi in every of his three clefs, B, E, and A, then would this be the true form of the scale: [Figure 9].

[Figure 9.] Scala duralis, naturalis, mollaris
(see (21i) in notes)
In which you may note that what name the note of any
clef hath, the same name (8) properly hath his eighth: fa in
the mean c, and fa both in the treble and bass C; re in the
bass A, and re in the other two.

Unto this scale of a trisdiapason may be added for the
virginal and organ the rest of the four hypobolaean,23 or
double bass-clefs (EE la mi, DD sol re, and CC fa ut), with
the four hyperbolaean,24 or high treble clefs (gg, aa, bb,
cc) which make up a tetrakisdiapason, and for the organ, dd.
For the organ hath but this one key more than the virginal.
All the other transcendent notes, both grave and acute—even
unto pentakisdiapason, hexakisdiapason] and
heptakisdiapason]—are made by the stops.25

23 Of ὑποθάλλω, "subiicio" ["to place below"].
24 Of ὑπέρθάλλω, "superiniicio" ["to place above"].
25 See (b) in [I.ii.]1[ (9.25-10.5).]
Notes upon the Note (17.22f)

19-14

(1) Hypate, (2) Neto.--υπάτος of υπέρτατος, the superlative of υπέρ ("supra"), as υπατον ὄρος
("altissimus mons"), υπάτος Ζευς ("supremus Iupiter"), so υπατη χορή, and, simply, υπατη ("suprema chorda")--"the highest chord." Likewise νητος of νέατος, of νεώτατος
("novissimus," "ultimus," "imus"), whence νητη ("ulta" or "ima chorda")--"the lowest chord." So Stephanus, Aristotle in probl[emata] Vitruvius V.iv, Martianus Capella, Scholiastes, Plutarch, "De musica," and Boethius himself (see below). And yet the stream of

1Homer, Epigr[ammata] (i.e., "Hymn to Dionysius," Hymni i.8-9.)

2[Homer,] Iliad XIX.[258; Loeb, II, 354-55: "Be Zeus my witness first, highest [υπατος] and best of gods. . . ."
(Butler gave the equivalent entirely in Greek.)]

3See "index" in (c) in notes to [I.]ii.4, [28.4. This appears to be an error. Butler does not give a more specific reference for Aristotle.]

1032--discussion of νεατη--and III, 1746--discussion of υπατη; for Aristotle, Proble mata xix.7, 23, 24; for Martianus Capella, "De harmonia" 315G-316G; for Scholiastes,
neoteric musicians runneth an other way, making hypate the
lowest (as if they derived it from ὑπάτω, which yet hath no
such superlative) and mete, vice versa, the highest. Whereof
I can conceive no other ground but the mistaking of the
meaning of this word "gravissima" in Boethius where he
saith,

And what was gravest among these was called
"hypate."

For although among musicians "gravis" be generally taken for
"low" or "bass," as "acutus" for "high" (as where it is said,
Height of pitch is the result of tension, depth the
result of relaxation . . . when in tuning we
tighten a string or relax it),
yet is it manifest that our author in that chapter doth not
so understand it--partly by his exegesis of the word:

... as if greater and more honorable, whence they

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Stephanus, II, 1032—scholia on Sophocles; for Plutarch, "De
musica" 1138F; Vitruvius V.iv is also cited in Stephanus, II,
1032. The citation of "Scholiastes" may be, rather, a
reference to a commentary on Plutarch.

[5] A very common seventeenth-century word for a modern
author or writer.

[De musica] I.xx; [Migne, 1183; cf. Bower, 74.]

libri III (perhaps Venitijs: Apud Vincentium Valgrisium,
1562), i.e., Harmonic Elements I.[10-11; translation from
Henry S. Macran, trans. and ed., The Harmonics of
Aristoxenus (Oxford: Clarendon Press, 1902), 172.]
say "Jupiter hypatos," but specially for that in the same chapter (according to the true meaning of the words and the common acceptance of ancient authors) he nameth hypate the first of the four superiors (see (6) below) and nete the lowest of the inferiors (see (5)), as also in the diagram both of his heptachordon and octochordon, in the same chapter, is expressed.

(3) [An instrument like unto it (Mercury's tetrachordon).]—Which was the foundation of harp and lute, and other string-instruments. But whether this instrument did more resemble the lute or the harp is uncertain. The Poet speaketh for the harp where he calleth Mercury "curvae lyrae parentem" ("inventor of the curved lyre"), although "chelys" or "testudo" be commonly taken for the lute.

(4) Octochordon.—

All music existed in four strings; and this continued up to Orpheus in imitation of musica mundana, which consisted of four elements.

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[a] Boethius, De musica I.xx; Migne, 1183; cf. Bower, 74.

[b] For the interpretation of "nete" and "hypate," and the notes upon the note (f), in general, see commentary to 17.22-21.22, pp. 156-61.

Mercury is said to have been inventor of this *quadrichordon*.\(^{11}\) ... he found a tortoise there and gained endless delight. For it was Hermes who first made the tortoise a singer.\(^{12}\)

(5) [*Heptachordon.*]--

But the fifth string was added afterwards by Chorebus, son of Attys, king of the Lydians. Hyagnis the Phrygian added the sixth string to these. But the seventh string was added by Terpander of Lesbos, clearly in analogy to the seven planets. And truly that which was gravest among these was called "hypate."\(^{13}\) Then "parhypate," as it were, "in juxtaposition with hypate." Thirdly, "lichanos," because it is fourth from nete, as the index finger is from the furthest finger. The fourth is "mese," because it is always in the middle of the seven. The fifth is "paramese," because it is "next to the middle" in location. The seventh, however, is called "nete," as if from "neate," that is, "lowest."\(^{14}\) Between this nete and paramese is a sixth string which is called "paranete," as it were, "in juxtaposition to nete." Indeed paramese, since it is third from nete, is designated by this very word, "trite," that is "third."\(^{15}\)

(6) [*Octachordon.*]--

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\(^{11}\)Boethius, [*De musica*] I.xx; [Migne, 1183; cf. Bower, 72-73.]


\(^{13}\)See (1) and (2), [above.]

\(^{14}\)See (1) and (2), [above.]

\(^{15}\)Boethius, [*De musica*] I.xx; [Migne, 1184; cf. Bower, 74-75.]
It is said that Pythagoras was the first to
discover the harmonic logic and proportion of this
heptachordon. When he observed that the outermost
strings on it were completely out of tune
between themselves, he thought that these strings
not only ought to make consonance with the fourth
and fifth but also, on the other hand, should be
concordant with themselves. Therefore he added the
octave (which on that account was called
"proslambanomenos") and made the heptachordon into
an octochordon.\textsuperscript{16}

Boethius saith:

In the dispositions of the heptachordon and
octachordon the heptachordon is called
"syneumenon," that is, "conjunct." The
octochordon is indeed called "dizeugmenon," that
is, "disjunct." In the heptachordon one tetrachord
is made up of mese, paramese, paranete, and nete;
the other is hypate, parhypate, lichanos, and mese.
Because we count the string mese twice, the
tetrachords are joined by means of mese. In the
octachordon (since it has eight strings) the upper
four—hypate, parhypate, lichanos, mese—fill one
tetrachord. Paramese, disjunct in respect to this,
 begins the other, which progresses through paranete
and nete, and finishes at the last, or
proslamabanomenos.\textsuperscript{17}

(7) Twenty-two.--The number of twenty-two clefs in
the scale Franchinus requireth as necessary, although Guido

\textsuperscript{16}Giorgius Valla [(1450-1500), "De musica" I.i; De
expetendis et iugiendis rebvs (n.p.: Biblioteca Apostolica
Vaticana, 1965; microfilm facsimile of Venice, 1501 ed.;
earlier edition 1497 according to Eitner, Quellen-Lexikon,
X, 27), no page (fifth of I.i)].

\textsuperscript{17}[De musica] I.xx; [Migne, 1185; cf. Bower, 76-77. The
conclusion of Butler's quotation conflicts with the parallel
passages in both Migne and Bower, since the disjunct
tetrachord beginning with paramese progresses through trite
and paranete, not paranete and nete, and ends on nete, not
proslamabanomenos.]
set down but twenty.\[18\]

(8) Properly.--To wit, when the direct order of the notes is observed. For sometime it happeneth that Mi, having his certain clef appointed through all parts, is yet in this or that part for a note or two changed into fa. (See [I.]ii.5 [(35.32-33).])

\[18\]Gaffurius, Practica musicae] I.i; [cf. Miller, 23-24. Gaffurius implies, rather, that Guido required twenty-two: "But our ecclesiastics teach the tradition of Guido through the Guidonian hand. They distinguish between low, high, and highest, so that twenty-two pitches are placed on alternate lines and spaces. . . "; and the figure "Introductorium" of Guido gives twenty-two notes, from T to ee. But although the "hand" and the system of seven overlapping hexachords (both of which employ the twenty-two notes) are frequently associated with the name "Guido," in his Micrologus ii, ed. by Joseph Smits van Waesberghe, Corpus scriptorum de musica, Vol. IV [(Nijmegen, Netherlands:] American Institute of Musicology, 1955), 94-95, he required twenty-one (not twenty, as Butler suggests): " . . . thus, in all, they make twenty-one, as here: \Gamma, \textit{A}, \textit{B}, \textit{C}, \textit{D}, \textit{E}, \textit{F}, \textit{G}, \textit{a}, \textit{b}, \texttt{c}, \texttt{d}, \texttt{e}, \texttt{f}, \texttt{g}, \texttt{aa}, \texttt{bb}, \texttt{cc}, \texttt{dd}." According to Reese, Middle ages, 150n, Guido did not go beyond dd.
Three signed-clefs.--Which three are sufficient for song, though at the first were marked gam ut, also, and dd la sol (see (h)), as now they are in virginal and organ lessons of exorbitant compass.

The marks of the signed-clefs were at the first the characters of their letters—as in gam ut it is Γ, and in dd la sol, dd—which two, being little used, had little occasion to be changed, as the other, by often transcribing, had. The sign of F fa ut being at the first a plain F came in time, by degrees, to these figures [Figure 10a]; the sign of c sol fa ut being a plain C was changed by degrees into these [Figure 10b]; and the sign of g sol re ut being double G (gg), as of d la sol it is a double D (dd)—because all the treble clefs used to be written with double letters—in printed copies, into a capital Roman G. Likewise the flat and sharp (which are both in B fa B mi) are marked, the one

See (e), [(17.20).]
by a round $b$ [Figure 10d] which doth yet remain, the other by a square [Figure 10e], which by little and little is thus altered [Figure 10f].

[Figure 10. Marks of the signed-clefs]
(14.15i) Of the three Mi-clefs the scale is threefold:

| Duralis.          |
| Scala < Naturalis.|
| Mollaris.²        |

The dural, or sharp hath no flat marked, and his ut is in G; The natural hath one flat and his ut in C; The mollar, or flat hath two flats and his ut in F—As it is in the old verse:

In G Dural, in C Natural, F quoque Mollar. ²²-³

Although yet the mollar, which hath two flats marked in it, the one in B, the other in E, is no more flat indeed than the dural, which hath none; for the dural, which is sharp in both those clefs, hath yet two flats in one heptachord, C and F, and the mollar hath no more, because those two flats C and F, by the flatting of B and E, become whole notes, sol and ut. And though one would flat the third Mi-clef also (which some, professing to make an extraordinary flat song, have done) and so set Mi in d la sol re, re in c sol fa ut, and ut in b fa b mi—yea if he would go further and flat D too, yet all would be one. The song would prove no more flat with all these flats, than with none of them.

(14.25k) [Thrice seven on the fingers.]—Whether you learn the letters alone, or the notes with them, if, for the

²²-¹³

help of memory, you will account them (as the manner is) on the fingers, they are thus most fitly placed: Set gam ut in the first joint of the forefinger next the palm; thence ascending, set A re in the second, B mi in the third, and C fa ut in the top; then descending on the back-side, set D sol re in the third joint, E la mi in the second, and F fa ut in the first. And so have you done one septenary. In like manner place the second septenary on the middle finger and the third on the ring-finger. ³

³For an earlier reference to such an instructional aid, see commentary to 22.13-20, p. 165.
EDITORIAL COMMENTARY

I.ii.2: Solmization in Seven Different Syllables

A notable feature of this section is that the traditional figure of the scale based on hexachord solmization from the gamma ut to ee la (as it is presented by Bathe, the anonymous The Pathway, and Morley, as well as Gaffurius, Ornithoparcus, Zarlino, and others) is, in addition to being expanded (Figures 8 and 9 following 18.14 and 19.3: FF fa ut to ff fa), of secondary importance, being relegated as it is to the annotations; of prime concern, rather, is a system of seven-syllable solmization (Figure 5 following 12.16 and 13.2), with a seventh syllable "pha" which has its own spelling as well as, theoretically, its own pronunciation (since, in Butler's system of simplified spelling based on sound, it is not spelled "fa" as is the third syllable above ut), even though Butler wrote that
this syllable, "pha," is "fitly called by the same name" as the "fa" note (12.7-9).\(^1\) Playford and Simpson, after Butler's Principles, presented the scale, basically, in the traditional manner of the hexachord system dating from the time of Guido; although Playford expanded the compass to CC-"aa" (aaa), Simpson kept the older range of gamma ut to ee la for his diagram of the scale.

Butler's proposed solmization is actually a compromise between a system like that of Bathe--ut, re, mi, fa, sol, la, fa, ut--and the several systems using a different seventh syllable mentioned in 15.10-24: the "si" mentioned by Mersenne, the "bi" of Puteanus, and the "ni" of Bocedisation.\(^2\) Also close to Butler's pha is the "pa," or flattened seventh syllable of Bocedisation as exemplified in Sethus Calvisius' volume entitled Exercitationes musicae

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\(^1\)Boyd, Elizabethan Music, 252, transliterates "Pa" as "fa" rather than the "pha" which it should be according to the printer's preface. Boyd's table (Ibid.) showing this "fa" (which is actually "pha") as analogous to the modern "ti" is also in error; pha is a whole step beneath ut, not a half step as ti is beneath do.

\(^2\)According to W. S. Rockstro, "Solfization," Grove's Dictionary, VII, 881, an overwhelming majority of theorists decided to adopt "si" around the early seventeenth century, when Sethus Calvisius strongly advocated its use in his Exercitationes musicae tertia (1611). The syllable name came from "Sancte Ioannes," also from the Hymn to St. John the Baptist. After 1611, there were several attempts to supplant si by other open syllables, for example, "ca," "za," "ci," "be," and "te."
duae; however, although Butler frequently quoted from
Calvisius' Melopoeia in the latter parts of Book I, the
present writer finds no reason to suppose that he was
familiar with the Exercitationes.

3Lipsiae: Impensis Iacobi Apelij, 1600; xerox
copy, 123.
12.13-16: "Mi," the Principal, or Master Note

Although Butler first mentioned this concept in connection with his seven-syllable system (12.13-16), it is more clearly understood in connection with the four-syllable system (13.10-12), since here, while fa, sol and la occur twice within the octave, mi occurs only once, and is therefore the logical index or finder-note—hence "principal, or master note." Playford (Skill of Musick I.iv, p. 11 in 1674 ed.) used the same terminology in the following prescription: "First, observe that Mi is the principal or master Note, which leads you to know all the other. . . ."

The same idea can be seen in Thomas Walter's The Grounds and Rules of Musick of 1723: ¹

Mi is your Master Note; when you have found which Note . . . call the Notes above Fa, Sol, La, Fa, Sol, La, then the eighth note will be Mi, according to the Rule before mentioned that every Eighth is the same,"

and in John Tufts' An Introduction to the Singing of

Psalm-Tunes, first published in 1721:

Mi is the Principal Note, and the Notes rising gradually above Mi, are Fa, Sol, La, Fa, Sol, La, and then Mi again; And the Notes falling gradually below Mi, are La, Sol, Fa, La, Sol, Fa, and then comes Mi again, in every Eighth,

which are comparable to Butler's 13.10-12. It seems probable that the terms 'principal' and 'master' either originated with or were an outcome of the four-syllable system of solmization, and that Butler was simply codifying a verbal tradition.

The concept of the master note as the finder-note is amplified, in another way, by Playford's use of the term (Skill of Musick I.vii, p. 25 of 1674 ed.) in the rhythmic sense:

In Time, it [the semibreve] is called the Master-Note, being of one certain Measure by itself. All the other Notes, both of Augmentation and Diminution, are measured by or proportioned to its value. . . .

As to the musical function of the "master note," in Butler's system it was the leading tone only in the fa air (comparable to the major key). In the ut, re, and sol airs, the leading tone was sharped pha, sharped ut, and sharped fa, respectively, since an added sharp did not change the

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3Cf. Walter, Grounds and Rules, 12; and Tufts, Introduction, the method of solmization in the psalm tunes, for similar situations using the four-syllable system. For an interpretation of "master note" as leading tone, cf. Zimmerman's "Glossary" in Playford, Skill of Musick, 12th (1694) ed., 266.
Although Butler did not approve of this system, it had been in use for at least four decades before the *Principles of Music* was written. A feature of Bath's *Skill of Song* (1596?) had been the exemplary presentation of four-syllable solmization on an oversized page (at the conclusion of the book) entitled "A Table of the comparisons of Cliffes, how one followeth another for the naming of Notes: changing (Ut) into (Sol) and (Re) into (La.)"; furthermore, in his first section on note-naming (pp. "2-3" of text), after giving an example of a one-octave scale, ascending and descending, using the traditional hexachord syllables plus fa and ut for the seventh and eighth notes, he noted the following exception: "Change ut, into sol, change re, into la, when the next removing note is under." The use of ut and re only when they occur as the lowest two notes was also a feature of Morley's presentation of "four-syllable" solmization (*Introduction*, I, pp. 409; Harman, 13-18). In the preface to his *New Way*, Campion carried the same tetrachord
solfization to the point that ut and re were left out completely.\(^1\) This simplified concept was republished by both Simpson (Compendium I.ii, p. 5), who wrote that "Ut and Re, are superfluous, and therefore laid aside by most Modern Teachers,"\(^2\) and Playford (Skill of Music I.iv, pp. 11-18 in 1674 ed.), who included "A Table shewing the Comparison of the most usual Cliffs, how they agree together in the Naming the Notes"—a condensed version of Bathe's table of nearly the same name.

\(^1\)In another system, exemplified in Salomon de Caus, Institution harmonique (New York: Broude Brothers, 1969; facsimile of Frankfurt, 1615 ed.), II.vi, p. 4, the C major scale was represented by ut, re, my, fa, sol, re, my, fa ascending, and the reverse descending.

\(^2\)Cf. Burney, History, I, 477: "After the time of Butler, notwithstanding the censure just quoted [Principles, 13], which he supports by cogent reasons, the ut and re were rejected by all the English singing-masters."
15.16-17: the Greek Vowels as Names of Notes

According to Wolf's description, the matter of the application of the Greek vowels to musical notes is speculative:

If we let the vowels correspond to the compass of the seven-string lyre, we obtain the [following] series of tones as key to the successions of vowels handed down to us on a Berlin vase [and ] on Berlin, Leiden, Paris, London, and other enigmatic papyrus scrolls.¹

Following this statement, the series d'-e (descending) is applied to the Greek vowels as Butler presented them.

The solmization of the Greeks used the syllables τα, τη, τω, τε.² This is discussed by Wolf,³ as well as by Franz Ring in Archiv für Musikforschung.⁴

¹Translated from Johannes Wolf, Handbuch der Notationkunde, I, 27.

²Wolf (27-28) gives them as τε, τα, τη, τω, with an analogy to the four elements—earth, water, air, fire.

³Ibid., 27-29.

17.22-21.22 (Annotation (f) and the Notes upon It): the origin and Development of the Gamut, with Particular Emphasis on the Greek Terminology

A perusal of this section has left the present writer with several questions which he has not been able to resolve with any degree of completeness. First, the description of Homer's Hymn to Mercury (17.26-32) is not accurate; Mercury purposely killed the tortoise in order to make a musical instrument from its shell, which was strung with an unspecified number of strings. However, there is no doubt that Butler quoted directly from the Hymn (or from another author who did) in 20.31-32 of annotation (4). Butler's idea that Mercury found a dead tortoise is comparable to Lucian, Dialogues of the Gods xi (vii).4—"He picked up a dead tortoise somewhere. . . ."; in all other respects there is no comparison between the two versions. The idea that Mercury's instrument had four strings was derived either from

1Homer, "To Hermes," Hesiod, the Homeric Hymns, and Homerica, Loeb, 365-67.

Boethius (De musica I.xx) or from Georgius Valla ("De musica" I.i, p. "5").

A second point of disagreement is in Butler's representation of Mercury's tetrachordon (17.31-32 and Figure 6a) as hypate, parhypate, paranete, nete, with the apparent, but not specified, intervallic arrangement of semitonium, diapente, tonus (cf. Figure 6b, following 18.3). The representation given by Boethius (De musica I.xx, from which Butler quoted in 20.35-38 for the additional strings of Hyagnis, Chorebus, and Terpander) is, in the Migne edition,³ trite diezeugmenon, lichanos meson, parhypate meson, parhypate hypaton, with the intervallic arrangement of diatessaron, tonus, diatessaron;* the representation given

³The Migne edition, from which the present writer is drawing his information, is a reprint of the 1570 edition of Henrich Petri according to Rudolf Wagner, "Boethius," Die Musik in Geschichte und Gegenwart, II, 55.

*Zarlino, Istituzione harmoniche II.i, p. 70 in 1573 ed., gave a representation intervallically congruent with Boethius'; instead of parhypate hypaton he had hypate hypaton, which is incorrect. The Migne edition of Boethius De musica gives the notes as c, G, F, C (p. 1183); Oskar Paul, Die absolute Harmonik der Griechen (Leipzig: Alfred Dörfel, 1866), 3-4, gives e, B, A, E. Vincenzo Galilei, Dialogo della musica antica et moderna (Roma: Reale Accademia d'Italia, 1934; facsimile of Florence, 1581 ed.), 113, under "Essempio della Lira di Mercurio, temperata secondo diversi pareri" ("Example of Mercury's Lyre Tuned According to Different Opinions"), gave the following:
by Valla ("De musica" I.i, p. "5," from which Butler quoted in 21.1-6 for the addition of the eighth string by Pythagoras) in his figure of four strings likened to the four elements--fire, air, water, earth (as in the text of Boethius' De musica I.xx), is hypate, parhypate, paranete, nete, as is Butler's, but with the intervallic arrangement tonus, tonus, limma. Butler's representation is therefore similar in some respects to both Boethius' and Valla's, but does not agree completely with either of the two. His figure of the musical proportions (Figure 17a, following 31.27) and that of the triquetra (Figure 17b, following 31.29) are not at all problematic, since exact ratios of concords are given; the first figure is comparable to the one given by Boethius in De musica I.xii (Migne, 1178), while the second, the triquetra, derived from the description of Aristotle, has the proportions of the Boethian representation of Mercury's tetrachordon.

A third point of disagreement is in the representation

![Diagram](image)

(Boethius, Zarlino, Plutarch, and Briennius--fl. c. 1300); in examples which followed, he used the a-G-F-E arrangement of Briennius.
of the triple heptachordon (18.11-14, Figure 8). Concerning
the Greek terminology of the Greater and Lesser Perfect
Systems, Reese made the following observations:

The uppermost of the four tetrachords was called
the tetrachordon hyperbolaion ("extra tetrachord"); the lowest tetrachord was called the
tetrachordon hypaton ("highest tetrachord"),
owing to its physical position on the instrument
rather than to the pitch-level of its sounds: the
ancient lyre-player tilted his instrument in such a
way that, while he was playing, the high-pitched
strings were in a low position and the low-pitched
strings in a high one.5

However, he footnoted this remark as follows:

At least, so it is commonly claimed. But it
is possible that the nomenclature with respect to
"high" and "low" varied from that used later in the
Occident owing merely to a difference in mental
perception— to a difference in the attribution of
high and low qualities to musical ranges.

Butler (though not dealing specifically with the Greater
and Lesser Perfect Systems) interpreted the Greek terms
literally, in respect to sound rather than in respect to
position of strings. At least one of his contemporaries
agreed with him— namely, Alstedius, who, according to
Birchensha's translation of 1664,6 made the following
observations in 1610-11:

5Middle Ages, 22.
6Johannes Henricus Alstedius, Templvm mvsicvm, or The
Musical Synopsis, trans. by John Birchensha (New York:
Hypate hath to himself Bi. and soundeth acutely: Parhypate, la, and doth lullaby: Hypermese, sol, and doth sound sweetly: Mese, fa, and doth sound temperately: Paramese, mi, and doth delight pleasantly: Paranete, re, and doth grate tremulously: Nete, ut, and doth, as it were low hoarsly. Furthermore the Ancients did attribute the seven Planets to so many Chords of the Lyre, in this Order. To Saturn, Hypate: to Jupiter, Parhypate: to Mars, Hypermese: to Sol, Mese: to Venus, Paramese: to Mercury, Paranete: and to Luna, Nete. In which Comparation the acutenesse and gravity of the Chords and Planets do respond exactly. Although others invert the order, and attribute to Saturn Nete, and to Luna Hypate.

Morley (Introduction, "3-5" of annotations; Harman, 106-09) made a comparison between the chords and planets similar to the one of Alstedius; however, Morley's representation of what amounts to the Greek Lesser Perfect System is based on the interpretation of the words "high" and "low" as applied to the position of the strings rather than to the relative pitch of the strings. This interpretation, with proslambanomenos being the lowest sound, hypate hypaton the next lowest, and nete hyperbolaeon the highest, is also the basis of the representations given by Zarlino (Istituzione harmoniche II.x1, 1573 ed., p. 144) and Kepler (Harmonices mundi III.xi, p. 58), as well as Fogliano, Glareanus, and Galilei.

In 20.4 Butler cited Stephanus in support of his
interpretation of the words "hypate" and "nete" in terms of relative pitch; and it is obvious, indeed, that Butler drew heavily from Stephanus' articles on these words, for he used the same Latin and Greek examples and cited the same authors and sources. However, although Butler cited Vitruvius (De architecture) V.iv in support of his interpretation (20.4), and although he appears to have been quite familiar with Stephanus' definitions, he did not account for the fact that Stephanus (II, 1032) gave, from Vitruvius V.iv, the sequence "proslambanomenos, hypate hypaton, hypate meson, mese, nete synemmenon, paramese, nete diezeugmenon, nete hyperbolaeon." Alstedius did not include proslambanomenos in his description. Nor has the present writer observed the juxtaposition of proslambanomenos and nete by any author except Butler.

7In fact, both Butler (19.15, note) and Stephanus (III, 1572) cited an "Epigr." (Epigram) of Homer, which is actually the Homeric "Hymn to Dionysus" (Hymn 1.8-9).

8A similar discrepancy occurs in Butler's citing Capella, also in 20.4, for Capella gave the regular order—proslambanomenos as first ("Primus dicitur apud Graicos"), hypate hypaton as second ("Secundus"), parchypate hypaton third ("tertius . . . id est subprincipalis principalium"), and so on through nete hyperboleon ("ultima . . . excellentium")—in "De harmonia" 315G-316G.
As the terminology implies, the idea of three differently named "scales" is simply an extension of the Guidonian hexachord terminology. Although in Butler's representation of Figure 9 the idea of obtaining the different scales by simple transposition is not obvious, in the discussion of 22.3-12 it is made so clear that only the term "transposition" itself could make it more understandable to the modern reader. To be sure, as distinguished from five, rarely six airs (comparable to modes), Butler has only one "scale" (a sort of "Greater Perfect System"), with two transpositions, possibly four (which is one more than Christopher Simpson alluded to twenty years later). A different interpretation of the scale was given in

1Compendium I.ii: "A Rule for placing of Mi," similar to Butler's discussion; however, the emphasis on transposition and any reference to d-flat are lacking. As to songs containing a-flat, Simpson referred to them as irregular (cf. Butler 22.8-9), "being designed for Instruments rather than for Voyces." Playford, Skill of Musick I.iv, p. 15 in 1674 ed., stated: "I have seen some Songs with four flats . . . and such Songs may be termed irregular . . . (being rather intended for Instruments than Voices). . . ."
The _Pathway_ (pp. "6-8"). Prior to giving a figure for a "Sharpe Scale," range of gamma to aa la, and one for a "Flat Scale," range of gamma to aa la but with b-flat, The _Pathway_ described the two scales as follows:

The particular Scale is that which comprehendeth the principall sounds by degree, of one kinde, which are the Sharpes or Flats together with their naturalles, and it is of two sortes, Sharp or Flat: by observation of which Scales the learner may know where to finde his ut in each song for the true naming of his notes.

Interpreting The _Pathway_’s distinctions as comparable to major and minor scales is dubious; they seem more akin to the duralis-naturalis-mollaris idea, with the naturalis omitted. In fact, Butler himself never patently gave a distinction comparable to the major-minor dichotomy. He may possibly have been alluding to such a distinction in capitalizing all letters of the word "sol" in 63.33 and 83.8, the sol air being Dorian in makeup. He may also have been alluding to such a distinction in his presentation of a tuning for the re air (Aeolian mode) alongside that for the ut air (Mixolydian mode) in Figure 18 (34.3).

The duralis-naturalis-mollaris representation, similar to Butler’s Figure 9 (19.3), was carried by Playford (Skill 2Cf. Fludd, "De templo musicae," in _Utrius cosmi_ II.II.II.i, pp. 174-75.)
of Musick i.i, even in the Purcell edition of 1694); it does not occur in Simpson's Compendium.

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3The Purcell edition of 1697 (13th ed.) in Chapter vii, "Of the Several Keys of Musick" (reproduced in Zimmerman's edition of the 1694, 12th ed., p. 198) clearly distinguished between the cheerful "sharp key" (major) and the melancholy "flat key" (minor).
Jacques Chailley in his *La musique et le signe*\(^1\) cites such a method of solmization from Luscinius' *Musurgia* of 1536 (Figure 11).\(^2\) Luscinius' finger solmization ran from C to C, the Ionian mode; Butler's system runs from G to G, the Mixolydian mode, in accordance with his presentation of the triple septenary. In each case the manner of representing the seven notes is identical.

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\(^1\) (Lausanne: Éd. Rencontre, 1967), 35.

\(^2\) The present writer has examined two facsimiles of the 1536 *Musurgia* but has not found such a wood-cut therein.
Section 3

Of the Tune of Notes

Concerning the tune of notes, from Mi to fa, and likewise from la to pha, is but (23a) half a tone; between any other two notes is a whole tone—as from fa to sol, from sol to la; likewise from pha to ut, from ut to re, and from re to Mi—which thing is manifested in a lute, where from fret to fret is but half a tone, and [where] from any one fret to the next save one is a whole tone (or note). But in singing, how to tune each note and half note to his fellow cannot be declared by precept but is to be learned either by the lively voice of the teacher or by some instrument rightly tuned—as, if the first bass lute-string struck open be Mi, the same stopped at the first fret soundeth fa, at the third sol, at the fifth (which is all one with the second string open) la; at the first fret of the second string pha, at the third ut, at the fifth re, at the seventh, or the second of
the third string Mi again, and so on.¹

¹For example, the lowest string would be B mi, the next lowest E la mi, the third from the lowest a la mi re in scala duralis. See commentary to I.ii.3, pp. 171-73.
Annotations to Chapter II, Section 3

(22.22a) **Half a tone.**—These half-tones, whether they be equal or unequal, it is a question. Aristoxenus the musician (according to the judgment of the ear) teacheth them to be equal moieties of a tone.¹

Aristoxenus the musician, permitting the judgment of the ears in all matters, considers this semitone not to exist as a shortened half [as Pythagoras did] but clearly it is called a semitone because it is the halver of the tone.²

But Philolaus (as the same author hath) divideth the tone into two unequal parts, whereof the one is more than half—which he calleth "apotome," the other less than

¹ [Harmonic Elements II.56-57; Macran, 207-08. In his introduction (p. 89), Macran states that the concept of "a science of music which will accept its materials from the ear, and carry its analysis no further than the ear can follow [is one of] the two great contributions of Aristoxenus to the philosophy of Music."

² Boethius, [De musica] III.i; [Migne, 1223; cf. Bower, 171. Butler omits the bracketed phrase. See commentary to I.ii.3, pp. 174-76, for Aristoxenus' equal half-tones.]
half—which he calleth "diesis," which parts, with their parts and particles, he doth thus define:

**Apotome.**—A tone consists of two minor semitones and a comma. For if a whole tone consists of apotome and semitone (clearly minor), semitone indeed differs from apotome by a comma; apotome is nothing but a minor semitone and a comma.

**Diesis.**—Diesis is the interval by which the sesquiquartia proportion is greater than two tones,

both which he doth afterward describe by the number of commas:

**Minor semitone.**—The minor semitone is less than four commas, more than three.

**[Apotome.]**—Apotome is more than four commas, less than five.

**Diaschisma.**—Diaschisma is half a diesis, that is, a minor semitone.

**Comma.**—Comma is the interval by which the sesquioctava proportion is more than two dieses.

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3Ibid. [III.]v: [Migne, 1231; cf. Bower, 182. The preceding sentence, "But Philolaus . . . diesis," minus the parenthesized insertion, is Butler's translation of this passage in Boethius. Butler omitted at the conclusion of the quotation (and his translation) the phrase "which posterity called the 'minor semitone.'"]

4Boethius (i.e., Ibid.) III.vi: [Migne, 1231; cf. Bower, 183. The parenthesized phrase appears to have been added by Butler.]


6Ibid. [III.]xiv: [Migne, 1242; cf. Bower, 202.]

7Ibid. [III.]xv: [Migne, 1243; cf. Bower, 205.]
Schisma.—Schisma is half a comma.

Semitonium integrum.—A whole half a tone, that is a semitone, consists of two diachismata, which is one minor semitone, and a schisma.8

This opinion of Philolaus, concerning the unequal parts of a tone, Boethius taketh much pains, by his quaint arithmetical conclusions, to maintain. But that it is indeed a mere fancy, forged only by melancholic imaginations, there is no musician so simple that knoweth not—and that the just hemitone is that which naturally passeth in the order or series of the notes in the heptachords or septenaries of the scale—so that, according to Aristoxenus, the diatessaron consisteth of two tones, and the diapente of three, with one equal semitone; which, if it be raised or depressed from its just sound the quantity of a diatesis, or diachisma, or a comma or schisma, or less (if less may be), it is out of tune—and no good music or true concord can be made with it till it be rectified and brought to the perfect hemitonium.

I.ii.3 (22-21-35): Tuning the Voice and Tuning the Lute

During the sixteenth and seventeenth centuries the verb "to tune" was used in two senses: 1) to adjust into correct musical pitch, as to tune the strings of a lute; and 2) to sing or play in proper tune. The second meaning is exemplified in the definition of the word "modulation" (cf. 1.1-2), as it is given in Blount's *Glossographia* (n.p.):

... a pleasant tuning, a singing or playing by number or measure,

while the specific relationship to singing is exemplified in The Pathway's definition of the word "tuning" itself (p. "11"):

Tuning or tune keepeing is a lifting vp or letting downe of the voice, from one voice [vocable, syllable] to another.

Butler used the word both in the sense of tuning an
instrument, as in 22.30—"some instrument rightly tuned"—and
in the sense of singing in tune (that is, in terms of
relative pitches), as in 16.24-27:

... the strict observance of them [the
solfeggio syllables] in their proper places will
prove no small furtherance ... in singing, as to
a more speedy and true tuning of that which they
see pricked. ... .

The art of tuning the voice was to be acquired either by
imitating the voice of a teacher or by imitating the sound of
a properly tuned instrument (22.27-30). Bathe (Skill of
Song vi, p. "24") preferred the instrument as a guide.

Playford, in his chapter "Of Tuning the Voyce" (Skill of
Musick I.v, pp. 19-21), in the 1674 edition, made no strong
preference for either master's voice or learner's instrument;
in the 1694 edition, edited by Playford, the skilled voice is
8-12), while verbally expressing no preference, emphasized
the use of an instrumental guide through the nature of his
exemplary material (22.31-35); while Simpson, in his chapter
entitled "Of Tuning the Degrees of Sound," used the bass viol
and a figure of its fretting to aid his discussion, Butler
described the tuning and fretting of the lute for the same
purpose.

Butler's description of lute-tuning, though
incomplete, goes far enough (since it defines three consecutive open strings tuned in consecutive fourths) to indicate that he was not familiar with the new "French" tuning described in Galpin's *Old English Instruments* (32n):

The recognized tuning for the lute in sixteenth-century England appears to have been g' d' a f c g,[1] the three lowest courses being strung in octaves. . . . from 1625 onwards the new "French" lute became increasingly fashionable, largely due to the influence of the elder Gautier; its preferred tuning was f' d' a f d a. . . .

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1Cf. Robert Fludd, *Utriusque cosmi*, VI.i of *De templo musicae*, which is cited in Godwin "Instruments in Robert Fludd's *Utriusque Cosmi*," 2, as follows: "The Lute, says Fludd, is the Prince of Instruments, unmatched by any other, ancient or modern. . . . He gives the tuning as C D F G c f a d' g' (the lowest strings optional and variable) and explains both French and Italian tablature. . . ."
I.ii.3, Annotations (23.1-40): the Tone of Two Equal Half-Tones, Which If Altered from Their Equality Are Out of Tune

This conclusion, based on Aristoxenus, initially, is the main point of the annotations; the quotations from Boethius (except for the first, concerning Aristoxenus) are presented purely as a matter of historical curiosity. Butler's term "just hemitone" (23.33) is to be interpreted simply as a hemitone which is exactly half a tone, as can be seen from Aristoxenus' discussion of the fourth and the fifth which Butler referred to in 23.34-38:

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 (AB, as in Figure 12), and let us find the discord of two tones above its lower note (AC), and the same discord below its higher tone (BD). Evidently the complements will be equal (AD=BC), since they are remainders obtained by subtracting equals from equals. Next let us take the Fourth above the lower note of the higher ditone (DF), and the Fourth below the higher note of the lower ditone (CE). It will be seen that adjacent to each of the extreme notes of the scale thus obtained there will be two complements in juxtaposition (AE=BF), which must be equal for the reasons already given. This construction completed, we must refer the extreme notes thus determined to the judgment of the ear. If they prove discordant,
Figure 12. Aristoxenus’ proof of the fourth
plainly the Fourth will not be composed of two and a half tones; and just as plainly it will be so composed, if they form a Fifth (EF). For the lowest of the assumed notes (E) is, by construction, a Fourth of the higher boundary (C) of the lower ditone (AC); and it has now turned out that the highest of the assumed notes forms with the lowest of them the concord of the Fifth (EP). Now as the excess of the latter interval over the former is a tone, and as it is 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 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.¹

¹Macran, Harmonics of Aristoxenus, 207-08. The parenthesized letters and the figure to which they refer have been added to Macron's text by the present writer.
Section 4

Of the Time of Notes

Paragraph 1

Of Figures

The time of notes.--To signify the difference of time, the notes have (27a) eight different figures and names: a large, a long, a breve, a semibreve, a minim, a crotchet, a quaver, and a semiquaver. [See Figure 13 for the same order of figures, reading from left to right.]

The semibreve is the measure-note.--(28b) The

1See also commentary to I.ii.4.2, pp. 206-12.
principal time-note is the semibreve, by whose time the time of all notes is known; and it is measured by tactus, or the stroke of the hand, in a certain space or distance—the which, imitation and use will make you perfect in.

Thesis and arsis.—The parts of tactus are two: thesis and arsis, that is, the depression (or fall) and the elevation (or rise) of the hand.

This constant time of the measure-note doth contain two minims, four crotchets, eight quavers, and sixteen semiquavers. And on the other side, the breve containeth two of these times, the long four, and the large eight, as is here expressed: [Figure 13]. So that [thus], every greater comprehending his less two times, one large is as much as eight semibreves, or 128 semiquavers.

[Figure 13. The figures of the notes]
Paragraph 2

Of proportion

Proportions to the measure-note.—There belongeth to the measure-note proportion, which is fourfold: (28c) duple, triple, sextuple, and noncuple.

Dupla [and] the sign of duple.—Duple proportion is, when to a stroke, or semibreve-time, is sung two minims (or one semibreve which countervaileth them, and consequently four crotchetts, eight quavers, and sixteen semiquavers)—one to the thesis or fall, and the other to arsis or rise of the hand—`the sign whereof is this: [Figure 14a, uppermost staff, half circle with vertical bar].

Tripla [and] the sign of triple.—Triple proportion is when three minims (or a semibreve and a minim, and consequently six crotchets and twelve quavers) go to the semibreve-stroke: two to the fall, and the third to the rise
of the hand——(29d) the proper sign whereof is this: [Figure 14a, third staff from top, half circle with point]. Unto which three minims two in dupla are equivalent, and therefore may be sung to them by another part; for in both proportions, the hand falleth in the same instant, though it rise a little sooner in the dupla than in the tripla—in that when one half, in this when two thirds of the time is past.

Sextupla.—Sextupla is the triple of the minim in duple proportion: when to each minim in duple time is sung (29e) three black minims (or a black semibreve and a minim, and consequently six crotchets, which must have, for difference, the form of quavers)—three to the fall, and three to the rise of the hand (or, if you will keep minim-time,¹ three to one stroke, and three to another), which triple is therefore called sextupla because six of these black minims go to one semibreve-time.

Noncupla.—Noncupla is the triple of the minim in triple proportion: when to each minim in triple time is sung three black minims—six to the fall, and three to the rise of the hand, which triple is therefore called "noncupla" because nine of these black minims go to one semibreve-time.

The signs of sextuple and noncupla.—The sign of

¹See (b) in notes [(28.22-33).]
sextupla is, with the black notes, his figured number 6.1; and of the noncupla it is, with the like [nine] black notes, his figured number 9.1.

Because sextupla is the triple of minims in duple time, and noncupla the triple of minims in triple time, therefore we fall readily out of duple proportion, into sextupla—as in the King's masque (although in the medley, this sextupla doth immediately succeed the triple)—and out of triple into noncupla—as in the ground, which being set to the virginal, the right hand descanteth in noncuple upon the plain triple of the left hand.

[Figure 14. Examples of the four proportions, and a comparison of 6.1 and 3.1]
Note here [Figure 14a] that the black minim in sextuple proportion, being one third of a duple minim, and the crotchet in triple proportion, being one half of a triple minim, are both as of one form, so of one time, there going six of each sort to a semibreve-stroke. But there is this difference: that of the six black minims, the fourth beginneth the rise of the hand and is therefore more notably accented (as the first is, which beginneth the fall), and of the six crotchets, the fifth beginneth the rise and is therefore more notably accented (as likewise the first and third is), so that the black minims go jumping by threes and the crotchets by twos, whereby the melody of the same notes becometh divers—as in this example: [Figure 14b].

Proportion[s] of sounds.—Besides these useful and necessary proportions of time in musical notes, speculative musicians teach also (29f) proportions of sounds, specially in the three first-found concords: diapason, diapente, and diatessaron.
Annotations to Chapter II, Section 4, Paragraphs 1 and 2

Of Figures and Proportion[s]

(24.1a) [Eight figures.]—At the first, as in syllables so in notes, there were but two quantities—a long and a short, or breve; and then as syllaba brevis, so nota brevis was one tempus, longa two. But musicians, finding afterward that in that short time they might pass two notes, divided the short into two half shorts, or semibreves, joining also two longs into one figure which they called a "large" ("larga," or "maxima"). The form of the short, or breve was a square [Figure 15a]; the which having a shank added unto it (to signify his length) was the form of the long [Figure 15b]; and the square being doubled, with the like shank added, was the form of the large [Figure 15c]. The form of a semibreve, or half short was a triangle or half of a square (divided from angle to angle [diagonally]), which since, for quick and decent pricking, they have changed into
a rhombus, or diamond-square, thus: [Figure 15d].

[Figure 15. Development of the figures of the notes]
Philippus de Vitriaco not long since divided the semibreve also into two notes which he called "minims," or "least of all," persuading himself that this short or breve time could not contain a greater number of notes than four. The form of the minim was the form of the semibreve with a shank added unto it [Figure 12e]. These five figures are comprehended in this old pentameter, or five-footed verse:

Maxima, Longa, Brevis, Semibrevis, Minima.

All which Glareanus affirmeth to have been in use some seventy years before his time—who lived about the year of our Lord 1550.

The original of these five figures or time-notes Franch[inus] thus delivereth:

Poets and musicians based all measurement of the voice on short and long, ascribing one measure of time to the short syllable and a quantity of two measures of time, to be sure, to the long one. Thus one of the notes is a breve, the other a long; for naturally shortness and longness is recognized

[1]To the contrary, cf. Philippe de Vitry, Ars nova (c. 1316-25) xv; trans. and ed. by Gilbert Haneay, Andre Gilles, and Jean Maillard, Corpus scriptorum de musica, Vol. VIII ([n.p.]: American Institute of Musicology, 1964); trans. by Leon Plantinga, Journal of Music Theory, V (November, 1961), 214: "And it must be observed that more than six notes may not be substituted for an imperfect tempus unless semiminims are involved, as here: [example using minimas and semiminims]."

[2]Dodecachordon III.i. Glareanus' dates are 1488-1563; his Dodecachordon was published in 1547.
in regard to sounds themselves, just as it is in regard to syllables. Therefore musicians first devised the breve note with a quadrilateral body, as this: [Figure 15f]. The long was also made quadrilateral, [but] with a little staff on the right side, even upwards: [Figure 15g]. Then the breve was separated diametrically into two parts and the semibreve was devised, with half the quantity of a breve assigned to it, in this manner: [Figure 15h]. Finally the new generation gave one measure of time to the semibreve, thesis and arsis comprising every single sound of semibreve [length]. And they divided the semibreve itself, assigned to one measure of time, into two equal parts, to which the minimum length of voice is ascribed. These were thence called "minims." They gave the semibreve figure to the minim, with a little staff affixed to one or the other of the acute angles, as here: [Figure 15j]. Then the double long,\(^3\) containing four breve measures, was added by musicians in the tenors of motets: [Figure 15k].\(^4\)

But succeeding ages have gone far beyond Philip, who thought he was at the farthest. For they have moreover devised not only a less than the least, but also a less than the less than the least--yea, and a less than that, too. The first of these, which is a half minim, had the form of a minim with a crook added unto it [Figure 15m] whereof it hath the name "crotchet," a diminutive of the French "croc," "a

\(^3\) Or large.

\(^4\) [Gaffurius, Practica musicae] II.i [and iii; cf. Miller, 69-76. The first sentence is from II.i; the balance is from II.iii, with a large ellipsis occurring before the final sentence, and eleven smaller ellipses (ranging from a single word to two sentences) occurring at various places before this. Figure 15h was given by Gaffurius' Practica musicae as Figure 15l in the 1496 ed. and as 1511 in the 1512 ed. (Both 151 and 1511 are hand drawn, not facsimiles.)]
hook" or "crook," which name it still retaineth, though it have lost the form. For when the quaver (a half crotchet) and semiquaver (the quarter chrochet) were invented; they, for more expedite pricking, distinguished the crotchet from the minim only by blacking the square [Figure 15n], the guaver (which is not so frequent) from the crotchet by his crook [Figure 15o], and the semiquaver from them both by his double crook [Figure 15p]. [See Figure 13, above.]

And yet when all is done, they may seem to have done, in effect, as much as nothing. For in these new notes they are fain to keep minim-time, and that haply as long or longer than the old breve-time. And so the new quaver will be no swifter indeed than the old minim was; and where they will needs use semiquavers too, they can be content to protract the minim-time, specially in singing, that so those many notes may be contained in it. For, as Listenius saith, the three notes which were invented since the minim [figure of crotchet, quaver, and semiquaver] did serve rather for instrumental than for vocal music.

[5]According to Martin Ruhnke, "Mensuralnotation," Die Musik in Geschichte und Gegenwart, IX, 1637, the minim and semiminim (either as a red minim or as a minim with a crook) were found as new appearances above all in the treatises of Johannes de Muris and Philippe de Vitry. Morley, Introduction (p. "7" of "Annotations"; Harman, 116) recounted that some attribute the crotchet to de Vitry but concluded that "it is not to be found in his works..."
The three latter types [together with their rests], because of their rapidness, are more suitable for instrumental music than for vocal music.6

(24.5b) [Measure-note, or tactus.]—As in former time, when the semibreve and minim were the least notes, the breve was the measure-note, or principal time-note, by which, being measured by the stroke of the hand, the just time of all other notes was known. So since the inventing of the smaller notes, the breve growing by little and little out of use, the semibreve became measure-note in his stead—as now in quick time the minim beginneth to encroach upon the semibreve.7

The time-stroke of the breve, Listenius termeth "tactus major,"8 and of the semibreve "tactus minor"—the which he doth thus define:

Tactus major is when a breve is measured by the tactus; tactus minor is when a semibreve falls under the entire tactus.9

6[Nicolaus Listenius (b. c. 1500), Musica] II.i; [(Berlin: Martin Breslauer, 1927; facsimile of Nuremberg, 1549 ed.; first published as Reginamenta musica, 1533), no page.]

7See commentary to 28.22-33, pp. 211-12.

8This tactus major is the time that is meant in the canons of fugas—as Fuga in unisono, post duo tempora (that is, after four semibreves).

9Ibid. II.x.
But now the semibreve-time is our major tactus and the
minim-time our tactus minor.

28-34

(24.19c) These four proportions of 2, 3, 6, and 9 to 1
being peculiar to the measure-note as now they are in respect
to the semibreve-time, so were they formerly to the
breve-time when that was the measure-note, being then called
the four moods: the perfect and imperfect of the more [Figure
16a and b], and the perfect and imperfect of the less [Figure
16c and d].

[Figure 16. Signs of the four moods]
The perfect of the more was when three semibreves went to the breve-time and three minims to the time of the semibreve, like unto the proportion noncupla, in which nine black minims go to the semibreve-time.

The imperfect of the more, when two semibreves went to the breve-time and three minims to the semibreve, like unto our sextupla, in which six black minims go to the semibreve-time.

The perfect of the less, when three semibreves went to the breve-time and two minims to a semibreve, like unto the triple proportion, in which three minims go to the semibreve, the new measure-note, as three semibreves went to the breve when that was the measure-note.

And the imperfect of the less, when two semibreves went to the breve-time and two minims to the semibreve, which seemeth to be all one with the duple proportion, neither of them altering the natural and common value of the smaller notes, in respect of their integrals.

But now, the breve being no longer used for the measure-note, the moods are grown out of use with him. Nevertheless, our masters are pleased in honour of antiquity to continue the teaching of these four moods among the first
rules of their isagogic—as if the breve were still the
measure-note.

I read of sundry other strange proportions—as of 5 to
1, 7 to 1, 9 to 2, 10 to 1, and so on—the which either
having never been in use or being now out of use, because of
them, there is no use, but only to perplex the setter and
singer and to offend the hearer (whose ear to please is the
end of music); it is enough, if not too much, only to mention
them.10

(25.4d) Some use, for a mark of triple time, black
semibreves and minims; and then the white semibreve coming
among them taketh up the full semibreve-time; but this maketh
a confusion of the proportions. And some use black breves
and semibreves; but these are not so proper. They had indeed
their use when the breve was the measure-note; but now there
is no need of them at all. And some, to make sure work, use
the mood \( \text{C} \), the black notes, the figured number 3.1, and

in the Sixteenth Century*, 27, more complex rhythmic
relationships—for example, 4:3, 7:4, 5:4, 8:5, 10:8—were
recognized in theory "as a kind of mental gymnastic in the
training of singers and composers" but were seldom, if ever,
used in actual practice. For an example of the theoretical
application of the proportions 9:2, 5:1, 5:4, 7:4, as well as
the more common tripla, sextupla, and noncupla, cf. Morley,
*Introduction*, I, pp. 36-55 (Harman, 63-88), and "A table
containing all the usuall proportions," p. 33 (Harman, 57),
which is quite extensive.
all.

(25.11e) [Black minim and crotchet.]—The black minim in sextupla, the black minim in noncupla, the crotchet in dupla, and the crotchet in tripla, having no difference in form, are thus discerned: The crotchet is the half of the minim, which, whether it be duple or triple, is known by the mood ♩ or ♩. The black minim is a third part of his white minim and is known both by the black semibreve accompanying him and also by his figured number, which, if the black be the third of a duple minim, is 6.1, or if a triple, 9.1.

(26.14f) Arithmetical proportions of numbers.—This supposed musical proportion is borrowed of the arithmetical. Proportion in arithmetic is of great use, as being the ground of the "rule of three"—that "golden rule" by which even wonders are wrought. And it is threefold: superparticularis, superpartiens, and multiplex. The sign of the first is "sesqui-," of the second, "super-.

1. Superparticularis.—"Sesqui-," out of proportion, signifieth one and a half—as "sesquihora" one hour and a half, "sesquilibra" one pound and a half. But in proportion, being compounded with the denominator of any fraction, it signifieth one entire and also one for the numerator of the fraction—as "sesquitertia," one and one third part (1 1/3),
as 4 is to 3; but annexed to a multiplex only one (the
numerator of the fraction)—as "tripla sesquiseptima," three
and one seventh part (3 1/7), as 22 is to 7.

2. Superpartiens. — In like manner "super-,
compounded with a word of superpartient proportion,
signifieth only one entire, after which is expressed the
numerator of the fraction, and then the denominator
thereof—as "superbipartiens tertias," one and two third
parts (1 2/3), as 5 is to 3; but annexed to a multiplex it
signifieth nothing but serveth only as a copula to join the
two proportions in one—as "tripla superbipartiens tertias,
three and two third parts (3 2/3), like as 22 is to 6.

3. Multiplex.—Multiplex hath no common sign; but
every sort is expressed in its proper term—as "dupla,
twofold, twice so much, like as 4 is to 2, 24 to 12.

1. Each of these three sorts of proportion hath
infinite species. Superparticularis hath sesquialtera, 1
1/2, sesquitertia, 1 1/3, sesquiquarta, 1 1/4, sesquiquinta,
1 1/5, and so on, ad infinitum.

2. Superpartiens hath superbipartiens,
supertripartiens, superquadripartiens, and so on ad
infinitum; and every one of these hath also his infinite
parts, as superbipartiens tertias, superbipartiens quartas, quintas, sextas, septimas, and so on ad infinitum; so supertriplartiens quartas, quintas, and so on ad infinitum; and so superquadripartiens quintas, and so on ad infinitum.

3. And multiplex hath dupla, tripla, quadrupla, quintupla, and so on ad infinitum.

Musical proportions in sounds.—Some of these proportions Boethius applieth to his concords of music, where he saith,

Now this ought to be known: all musical consonance consists of either duple, triple, quadruple, sesquialter, or sesquiterian proportion. And that which will be called "sesquiterian" in number, will be "diatessaron" in sounds; [that which is sesquialtera in number is called "diapente" in pitches;] that which will be duple in proportions, will be diapason in consonances; the triple, diapason and diapente; the quadruple, bisdiapason.¹¹

By occasion whereof divers of our late writers, to show their wit, as Glareanus saith, have taken much pains in making large, tedious, and intricate discourses of sundry other proportions—which he, finding [them] to be fruitless and impertinent to music, doth thus reprehend:

¹¹[De musica] I.vii; [Migne, 1175 (vii misnumbered viii); Bower, 56. The clause enclosed by brackets has no correspondence in the Bower translation, but does in the Latin versions of both Butler and Migne.]
Art ought to be transmitted as art exists. But even the subject now proclaims that the observance of so many proportions is superfluous; no one, however much he is trained to sing, can bear these in mind, and none of the most learned musicians of our time has desired to adopt them, excepting a very few, in a composition, since there is greater trouble in learning them than there is sweetness or grace in singing them. . . . may I be allowed . . . to indicate . . . what things displease me because they seem to have been invented more for the ostentation of the talented than for the noble practise of music.\(^{12}\)

And therefore he retaineth only those few which are said to be in the concords, diapason, diapente, and diatessaron, the which he doth thus describe:

\[^{30-36}\]...

duple ratio . . . as 4 compared to 2. . . .

The second is called \textit{genus superparticulare}, in which the greater number contains the complete smaller number once, and a remaining part of it besides, [either \(1/2\) or \(1/3\) or \(1/4\), etc.] If \(1/2\), the ratio is \textit{sesquialtera}, which is also called \textit{sesquipla}, \textit{sescupla}, and \textit{hemiola}, from the Greek, as \(3:2\) and \(6:4\). If \(1/3\), the ratio is \textit{sesquitertia}, \textit{epitritos} [in Greek,] as \(4:3\) [and \(8:6\)].\(^{13}\)

\[^{30-38}\]The original of proportions musical.—These proportions Pythagoras is said first to have found in the smiths' hammers, distinguished by their weights: as if the second hammer, which sounded upon the anvil a diatessaron to the first, weighed so much as it and a third part; the third, which sounded a diapente to the first, weighed so much and

\[^{12}\textit{Dodecachordon} \text{[III.]}xii; [\text{Miller, II, 242.}]\]

\[^{13}\textit{Ibid.}; \text{Miller, II, 243.}\]
half so much; and the fourth, which sounded a diapason to the first, weighed twice so much—which thing Boethius doth thus deliver:

Pythagoras . . . sought a way to establish in his mind, by reason, firmly and consistently, the principles of consonances. In the meantime, by certain divine will, when he passed the workshops of blacksmiths, he overheard the beating hammers somehow resound one consonance from the diverse sounds. [Thus in the presence of that which he had long sought, he approached the work amazed.] And considering for a while, he thought the strength of the hammers caused the diversity of sounds. Thus, in order to test this theory more clearly, he commanded the men to exchange hammers among themselves. But the property of sounds was not contingent on the muscles of the men, but rather it followed the exchanged hammers. Thus when he observed this, he examined the weight of the hammers. [And since perchance there were five hammers,] one was found to weigh twice as much as another, and these two resounded a diapason consonance. The one which had weighed twice as much as a second formed the sesquitarian relation of a third, with which naturally it produced a diatessaron. He found the one which weighed twice as much as a second to be the sesquialter relation of a fourth, which was related to it by a diapente consonance. Those two, to which the above one of double weight was proved to be sesquitarian and sesquialter relation, were discovered in turn to be related by the sesquioctave proportion. [The fifth hammer, which was dissonant with all, was rejected.]

Therefore, since musical consonances before Pythagoras were called in part diapason, in part diapente, and in part diatessaron (which is the smallest consonance), Pythagoras first ascertained in this way by what proportion these consonances of sound were united. And in order that what was said might be clearer for the sake of discourse, the weights of the hammers were written underneath in numbers: 12, 9, 8, 6. Thus the hammers which
weighed 12 and 6 pounds resounded, in the duple proportion, the diapason consonance. The hammer of 12 pounds with that of 9, and the hammer of 8 pounds with that of 6 were united by a diatessaron consonance according to the epitrita proportion. Indeed the one of 9 pounds with that of 6, as well as those of 12 and 8 intermingled the diapente consonance. The one of 9 pounds with that of 8 resounded the tone according to the sesquioctave proportion.¹⁴

All which proportions, as they have relation one to another, are expressed in this figure: [Figure 17a].

¹⁴[De musica] I.x; [Migne, 1176; Bower, 60-62. In the translation, the bracketed portions represent parts of Bower's translation which have no counterpart in Butler's Latin.]
Figure 17. Musical proportions (a) and the *triguetra* (b)
These proportions in the weight of the hammers were afterward observed in the length of nerves, as Aristotle manifesteth in his triguerata [Figure 17b]. Saith he:

In the same way the interval of a fifth is made by an interval in the ratio of 3 to 2 and the fourth by an interval of 4 to 3. Moreover, in triangular harps with strings of equal tension an octave is produced when one string is double the other in length.\(^1\)

And after that in magnitude also, capacity, and crassitude, of other things, as Boethius noteth.\(^2\) Hence it is that concords are said to have proportions--diapason a dupla, diapente a sesquialtera, and diatessaron a sesquiteria--because the things that yield these concordant sounds have in them such proportions; so that the knowledge of these mysteries seemeth rather to concern the artificers that make instruments than the artists that use them, although it may be that they follow other rules and proportions in their work than these.

(He that desireth to know the true proportions in all sorts of instruments, both \textit{entata} and \textit{empneusta}, let him read the ingenious and elaborate work of Mersennus: \textit{De}


\(^{16}\text{[De musica] I.ii; [Migne, 1177.]}\)
harmonicis instrumentis,17 where he shall find the various forms of all instruments, with the proportions of their notes, most artificially typified and described.)

And this is the doctrine of concord-proportions received from antiquity. Unto which some of our neoterics have added proportions of the other concords, to wit, sesquiquarta of ditonus, sesquiquinta of semiditonus, superbipartiens tertias of tonus-diapente, and supertripartiens quintas of semitoniun-diapente,18 which haply they hammered out of the known difference between the proportions sesquitertia (1 1/3) and sesquialtera (1 1/2) which difference is 1/6—whereunto the distance between the concords diatessaron and diapente (which is a whole tone) doth answer. So that 1/6 in proportion answereth to a tone in sound, and 1/12 in proportion to a hemitonium.

By which thesis or maxim, as by a lydius lapis, all the proportions in an eighth may be found and tried.


For seeing that a diapason is of the dupla proportion,\textsuperscript{19} whatsoever is the number of any chord, the number of his diapason must be so much more—as if the mean ut be 12, the bass ut (his diapason) will be 24. Likewise, pha being accounted 12, the same ground ut hath unto it the proportion of 12 (which is one entire) and 5/6 of 12, or 22. So sol or re being 12, the ground hath the proportion, to the one, of 1 3/6 1/12 (or 1/2 1/12), which is 19, and, to the other, of 1 1/6, or 14—and so of the rest. A type of all the proportions of a common ground to the other notes in an eighth, both tones and semitones, followeth in two examples. Where note that the number set after any note is the proportion of the ground to the same note—as 1 2/6, or 16, set after Mi, is the proportion of ut to Mi, not of Mi to ut; and 1 2/6 1/12 [or 17] is the proportion of ut to fa, not of fa to ut. And likewise that 12 set after the ground, is the proportion of every note to the same ground [Figure 18].\textsuperscript{20}

\textsuperscript{19} Arist[otle,] Probl[emata] xix.35: "For nete is double of hypate, so, if nete is two, hypate is one, or, if hypate is two, nete is four. . . ." [Loeb, I, 399. Cf. Aristotle, Opera, VII, 56.]

\textsuperscript{20} See commentary to 33.18-35.27, pp. 213-15.
<table>
<thead>
<tr>
<th>Note</th>
<th>Diapente</th>
<th>S. a.</th>
<th>Distefanò</th>
<th>S. t.</th>
<th>Re:</th>
<th>Ut:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ut:</td>
<td>$1, \frac{6}{6}$ 24</td>
<td>Ut: $1, \frac{5}{6}$ 22</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pa:</td>
<td>$1, \frac{5}{6}$ 22</td>
<td>Pa: $1, \frac{4}{6}$ 20</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>La:</td>
<td>$1, \frac{4}{6}, \frac{1}{12}$ 11</td>
<td>La: $1, \frac{3}{6}, \frac{1}{12}$ 19</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Diapente</td>
<td>Sol: $-1, \frac{3}{6}, \frac{1}{12}$ 19</td>
<td>Sol: $-1, \frac{2}{6}, \frac{1}{12}$ 17</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S. a.</td>
<td></td>
<td></td>
<td>Distefanò</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Distefanò</td>
<td>Fa: $1, \frac{2}{6}, \frac{1}{12}$ 17</td>
<td>Fa: $1, \frac{1}{6}, \frac{1}{12}$ 15</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S. t.</td>
<td>Mi: $1, \frac{2}{6}$ 16</td>
<td>Mi: $1, \frac{1}{6}$ 14</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Re:</td>
<td>$1, \frac{1}{6}$ 14</td>
<td></td>
<td></td>
<td>Re: $12$</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ut:</td>
<td>$12$</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Figure 18. Proportions of all the notes in an eighth to a common ground**
By this it may appear that though the *intervallum*, or distance between diatessaron and diapente (which is 1/6) be right, yet the distance both of diatessaron and of diapente from the ground is not exactly calculated; for the proportion of diapente (which is of ut to sol) is a sesquialtera and 1/12, and the proportion of diatessaron (which is of ut to fa) is a sesquitertia and 1/12, so that the just sesquialtera is the half tone between diapente and diatessaron—an irksome discord—and the true sesquitertia is in Mi—a ditonus, or perfect third—half a tone under diatessaron.

And therefore although a diapente and a diatessaron do make a full diapason in sound, yet a sesquialtera and a sesquitertia will not make a dupla in proportion—which thing is evident by the forecited instance of our author, where 6 is the set number, 21 12 the dupla, 9 the sesquialtera (as containing 6 and 1/2 of 6), and 8 the sesquitertia (as containing 6 and 1/3 of 6). For seeing that the difference or excess of the sesquialtera (9) to 6 is but 3, and the difference of the sesquitertia (8) to 6 is but 2, these differences with the set number 6, being but 11, cannot make a dupla, which is 12—no more than 1/2 and 1/3 of a sum can

---

21 *Numerus propositus* [ ("proposed number") .]
make the whole. The proportion then answering to the concord diapente is not a sesquialtera, which is superparticularis, but a superpartient proportion: that is, supertripartiens sextas cum semisse [in this case, half a sixth], or superseptempartiens duodecimas. And likewise the proportion answering to diatessaron is not sesquitertia, but superbipartiens sextas cum semisse, or superquinqu[ue]partiens duodecimas. And thus the two differences above the set number (which are $7/12$ and $5/12$ of 6), being added to the set number 6, make the just dupla—12. The like judgment is of the proportions of the other four concords.

But imagine we these proportions to be not only in the instruments (as Boethius and Aristotle write from Pythagoras' experiments) but also in the sounds themselves, caused by the different proportions of instruments, and also that they are rightly examined and applied to the concords (sesquitertia to diatessaron, sesquialtera to diapente, and dupla to diapason), yet, unless our most skilful musicians (who are now grown to that perfection, that nothing necessary or useful to the art is hid from them) can find some use of these ideas, let them rest; and rest we contented with the

[22]Boethius, De musica I.x-xi; Aristotle, Problems xix.23.
proper proportions of music, so useful and necessary that without them (though there may be a kind of symphony) all grace and efficacy of the art is lost.

23 Proportions of time.
EDITORIAL COMMENTARY

I.ii.4.2: the Time Signatures

Butler listed four types of proportions, which were termed "dupla," "tripla," "sextupla," and "noncupla," and which were notated by six different signatures with the semibreve as measure-note; these were equated to the four moods of time with the breve as measure-note (28.34-29.10 in annotation (c)), which four moods were then out of use (29.11-12)—as in the following:

<table>
<thead>
<tr>
<th>Signature</th>
<th>Description</th>
<th>Perfect Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dupla</td>
<td>imperfect of the less</td>
<td>12</td>
</tr>
<tr>
<td>Tripla</td>
<td>perfect of the less</td>
<td>123</td>
</tr>
<tr>
<td>Sextupla</td>
<td>imperfect of the more</td>
<td>123456</td>
</tr>
<tr>
<td>Noncupla</td>
<td>perfect of the more</td>
<td>123456789</td>
</tr>
</tbody>
</table>

Morley's signs (Introduction I, pp. 18-19; Harman, 30-31) for the four moods are identical with Butler's except for the perfect of the more, given a "3," by Morley, at its
right side.\(^1\) Bathe (\textit{Skill of Song}, p. "21") gave the same signs for the "four Mo[o]des" but did not name them; The Pathway (p. "21") gave the same names but placed vertical slashes through the centers of the signs for the perfect and imperfect of the less (\(\Phi, \phi\)), the notated examples of which were identical with those of the perfect and imperfect of the more (respectively). Ravenscroft (\textit{Briefe Discourse}, 7-17) was meticulous in giving variants occurring in actual practice:

\(\frac{2}{3}\) perfect of the more;

\(\frac{2}{3}\) perfect of the less, in his opinion (p. 8), but in practice was variously \(O, \frac{2}{3}, \frac{3}{3}\);

imperfect of the more as approved by all "Theorickes," but sometimes written \(\frac{3}{3}\) or \(\frac{2}{3}\) (which he criticized on p. 11);

imperfect of the less as it is "truely Character'd" (p. 17).

Bevin (\textit{Art of Musicke}, pp. "2-4") gave examples of proportions only: dupla, tripla, quadrupla (41), sextupla (61), octupla (81), nonupla [noncupla] (91), sesquialtera (32), sesquitertia (43), tripla induction to nonupla (31 to 91), and sesquialtera induction to 92. He concluded this presentation with the comment (p. "4") that "divers other

\(^1\)Actually, Morley gave the figure both with and without the "3" in presenting his example. According to Harman (p. 30) the figure without the "3" is incorrect for Morley's context.
proportions there are, as Quintupla, Septupla, and such like, which are out of use." He also gave (p. "6") the signature \(\mathbb{C}\) for sextupla. Twenty-five years later (1656), a non-theoretical source, Blount's *Glossographia*, gave more picturesque descriptions of sextupla and noncupla:

Sextuple. . . . A time in Musick, containing six Crotchets to a Bar, appropriated chiefly to Sarabands.

Nonupla, a quick time in Musick peculiar to Gigs and such like; having nine Crotchets between Bar and Bar.

Simpson (*Compendium I.*vi, pp. 14-15) gave the same signs for the four moods as did Butler, except that the perfect and imperfect of the more and the perfect of the less each had a "3" to the right side, in the manner of Morley's perfect of the more; the 1674 edition of Playford's *Skill of Musick* (I.x, p. 37) printed the same signs as did Simpson, but with vertical slashes, through the signs of the less prolation, in the manner of *The Pathway*. The Purcell edition of Playford's treatise (pp. [75-77]) no longer dealt with the four moods but listed five types of "common time" and three types of "tripla time," with the indication that all types of time measurement were either common:

\[\mathbb{C}\] measured by a semibreve

\(\mathbb{C}\) a little faster
still faster
very brisk
or tripla:

\[ \begin{align*}
\frac{3}{2} & \text{ three minims to a semibreve, or bar} \\
3 & \text{ three crotchets to a pointed minim, or bar} \\
\frac{9}{6} & \text{ nine quavers or crotchets to a bar.}
\end{align*} \]

Simpson (Compendium I.vi, pp. 14-16) had previously indicated C and \( \Phi \) as imperfect of the less, or "common mood"; prior to this the 1633 Ravenscroft Psalter had used C and \( \Phi \) apparently interchangeably.² Butler implied a certain affinity of C for \( \Phi \) but did not use the term "common" in connection with either.

As for the use of numbers for signatures, Simpson (Compendium I.x, pp. 30-34: "Of Tripla Time") spoke of the use of the signature \( \mathfrak{f} \) for perfect of the less, or a measure of three semibreves, and "common tripla," or three minims to the measure (each minim about the length of a crotchet in

²All four parts having the same signature is uncommon in Ravenscroft, Psalms; combinations of three and one, and two and two are very frequent. Besides these two combinations, C in all parts is frequent. There is one instance of \( \Phi \mathfrak{f} \) (pp. 180-61, Psalm 104), similar to the signature recommended by Ravenscroft (Briefe Discourse, 8) for perfect of the less.
common time); the 1674 edition of Playford's *Skill of Musick* (I.x, pp. 33-34) used the sign 3 for swift "triple" time of three crotchets per measure.³ Neither of these two books by Playford and Simpson give signatures using other numbers alone—for example, 6.1 or 9.1.⁴

³A late example of the 3.1 signature is in Henry Playford, *Harmonia sacra* (Ridgewood, New Jersey: Gregg Press, 1966; facsimile of London, 1726 ed.)—for example, I, p. 7, within a piece, and II, p. 81, beginning a piece.

⁴6.1 is implied in Simpson, *Compendium I.x*, pp. 32-33, without use of the actual signature. An earlier use of the signature in a verticalized form is in Michael Praetorius, *Syntagma musicum* (Kassel: Bärenreiter, 1958; facsimile of Wolfenbüttel, 1619 ed.), III, 75. Andrews, *Byrd's Vocal Polyphony*, 42, includes 6.1 in his summary listing of the time-signatures used by Byrd (when the signatures of the parts are conflicting) and comments that "by the end of the sixteenth century the proportional system had lost most of its earlier significance, and was in decline almost everywhere."
28.22-33 (Annotation (b)): the Tactus, or Measure-Note

While Bathe (Skill of Song, p. "13") referred to a semibreve-time of either two or three minims and a minim-time which had a minim length to every whole stroke, Morley (Introduction I, p. 9; Harman, 19), in his "Definition of strokes," listed breve-time as the "more stroke" and semibreve-time as the "lesse." Ravenscroft (Briefe Discourse, 20-21) listed three types of "tact": the "greater," which is called "minime time," the semibreve divided by three; the "lesse," which is called "semi-breue time," the semibreve being divided by two; and the "proportionate," which he did not define. Judging from Butler's description of minim-time in 28.12-21, it is apparent that he used the term in the sense that Bathe used it forty years earlier, in that a minim received a whole stroke, or both arsis and thesis. In Simpson's Compendium (I.vii, p. 18) only the semibreve measure-note was discussed; Playford (Skill of Musick I.x, p. 33 in 1674 ed.) talked in terms of semibreve- and minim-times, but he did not use those terms specifically. Playford referred to the "master note,"
the semibreve, as "of one certain Measure by itself" (Skill of Musick I.vii, p. 25 in 1674 ed.).

Both Playford (I.ix, p. 30) and Simpson (I.vii, p. 18) illustrated a method of keeping semibreve-time (minim arsis, minim thesis) by counting in fours for crotchets.
Louis Chenette, in his study of seventeenth-century English music theory, concluded that Butler had equal temperament in mind.\textsuperscript{1} Certainly this would not be out of place for the period when the \textit{Principles of Music} was written. From the middle of the sixteenth century all the theorists agreed that equal temperament should be used for fretted instruments.\textsuperscript{2} The first "precise mathematical definition of equal temperament," was given by Salinas in 1577:

\begin{quote}
We judge this one thing must be observed by makers of viols, so that the placing of the frets may be made regular, namely that the octave must be divided into twelve parts equally proportional, which twelve will be the equal semitones.\textsuperscript{3}
\end{quote}

\textsuperscript{1}Louis Fred Chenette, "Music Theory in the British Isles during the Enlightenment" (unpublished Ph.D. dissertation, The Ohio State University, 1967), 121-22.

\textsuperscript{2}J. Murray Barbour, \textit{Tuning and Temperament} (East Lansing: Michigan State College Press, 1953), 11. According to Barbour (p. 11), after Pietro Aron (\textit{Toscanello in musica}, 1523) meantone temperament, or some similar system was generally used for organ and clavier.

\textsuperscript{3}Barbour, Tuning, 6; the translation is from Francisco de Salinas, \textit{De musica libri VII} (Salamanca, 1577), 173.
In 1581 the first practical approximation for equal temperament, based on a 18:17 half step (99 cents), had been presented by Galilei; calculations for the string lengths were given by Kepler in his 1619 Harmonices mundi (from which Butler quoted in his discussion of solmization), which also gave tables for just intonation.\(^5\) Mersenne's Harmonie universelle, published during the same year as Butler's Principles of Music, gave several different tables for equal temperament (which was zealously advocated by Mersenne) but also carefully presented tables for just intonation.\(^6\)

In attempting to understand Butler's proposed system of tuning it must be borne in mind that the term "proportion," from Butler's usage, can be interpreted in three different senses: 1) a comparison of two different lengths which have a common point of termination—as the 9:8 whole step, applicable anywhere on a given string; 2) a portion, or fixed-length measurement—as on a twelve-inch open string G, distance c-d, as the difference between a

\(^4\)Vincenzo Galilei, Dialogo della musica antica e moderna (Florence, 1581), 49. Cf. Barbour, Tuning, 7-8 and 57-58.

\(^5\)III.viii, p. 49 for equal temperament; for just intonation, III.viii, p. 49 (100000, 93750, etc.), and III.xi, p. 58. Cf. Barbour, Tuning, 7-8, 57-58, and 97-98.

\(^6\)Cf. Barbour, Tuning, 7, 79, and 98.
sesquialtera fifth and a sesquitertia fourth, is—which is true for no other whole step on the string—exactly one inch, or 1/6 of the six-inch octave G-g; 3) a portion in the sense of either per cent or cents—as within an octave of 1200 cents, each whole step in an equally tempered system is 200 cents, or 1/6 (16 2/3%) of the octave; each half step 100 cents, or 1/12 (8 1/3%) of the octave. It is only in the third sense that Figure 18 (34.3) is logical for equal temperament.
Section 5

Of the Notes' External Adjuncts

Notes' adjuncts.--There belong to notes, thus described by their number, names, tune, and time, these seven things: a flat, a sharp, a ligature, a repeat, a pause, a direct, and a close.

1. Flat.--A flat changeth Mi into fa, making him half a tone lower, and is thus marked: [Figure 19a].

2. Sharp.--A sharp raiseth fa or ut, half a tone higher, not changing their names, and is thus marked: [Figure 19b].

3. Ligature.--A (38a) ligature, devised for the ditty's sake, is when two or more notes are sung to one syllable. And it is either old--of the longer notes (long, breve)--or new--of the shorter (minim, crotchet, guaver, semiquaver).

(38b) Old ligature hath three sorts of rules: 1)
concerning initial notes, 2) of middle notes, and 3) of final notes.

[a] b     [b] M

[Figure 19. Sharp, flat, and examples of old ligature]
Rules of initial ligature, four [Figure 19c].

1. The first, lacking a tail, is a long if the second be suspended downward.

2. The first, lacking a tail, is a brief if the second ascends.

3. The first, with a downward tail on the left-hand side, is a brief.

4. With an upward tail, the first, as the second, is a semibrief.

Rules of middle ligature, two [Figure 19d].

1. Whatever is in the middle is a brief.

2. But the next to that having the rising tail is considered a semibreve.

Rules of final ligature, four [Figure 19e].

1. The final rising, whatever it is connected to, is a brief.

2. The final falling and quadrangular, let it be a long.

3. A final having an oblique form is always a brief.

4. A semibrief is adjacent to a first having an upward tail.

The ligature of the shorter notes is a semicircle, whose two ends point to the two notes conjoined—as [Figure 20a]. Sometime (specially when the notes be many to one

\[\text{[1]}\]For the following, three sets of rules, cf. Listenius, Musica II.III, and Ornithoparchus, Micrologus II.III; Dowland, 40-41. See also commentary, pp. 223-27.
syllable) this ligature is signified in the ditty only, by setting that syllable with a hyphen under the first note, and the following syllable after the last.

![Figure 20. New Ligature and the Other Adjuncts]
The middle and principal note (breve) is conjoined by both these ligatures. And when any note and his half note in the same place are conjoined for one syllable, the mark of the half note, and of the ligature too, is a point set by the note—as [Figure 20b]. For it is as much as if with the note his half note were expressed and conjoined by ligature.

4. **Repeat.**—A repeat is either of the same notes and ditty together, having this mark: (38c) [Figure 20c], or of ditty with other notes having this mark: [Figure 20d], or this: [Figure 20e], before which the first word of the repeated ditty is commonly placed under his note or notes—or of a whole strain, having at the end thereof two pricked bars through all the rules, thus: [Figure 20f].

5. **Pause.**—A pause is a mark of rest or silence in a song, for the time of some note whereof it hath his name.

A line depending from a superior rule, and not touching the rule below, is a semibreve rest; the like line rising from an inferior rule, and not touching the rule above, is a minim rest; the same with a crook to the right hand is a crotchet rest, and to the left hand, a quaver rest. Also, a line reaching from rule to rule is a breve rest, or a pause of two semibreves; a line from a rule to a third rule
is a long-pause, or of four semibreves; and two of them together make a large-pause, or of eight semibreves.

6. Direct.--A direct in the end of a line showeth where the note standeth in the beginning of the next line, and is marked thus: [Figure 20g], or thus: [Figure 20h].

7. Close.--A close is either perfect or imperfect. A perfect close is the end of a song, noted thus: [Figure 20j], or thus: [Figure 20k], or with two bars athwart all the rules—or both ways. An imperfect close is the end of a strain or any place in a song where all the parts meet and close before the end; and it is marked with a single bar.
Annotations to [Chapter II,] Section 5

(35.36a) **Ligature.**—Of "ligare," "to bind," or "tie," because it tieth many notes to one syllable of the ditty. Which adjunct Franchinus doth thus define:

> Every ligature, even though it be a composit of many notes, has only one pronounced syllable.¹

(36.4b) In the old ligatures the ligatured notes (a long, a breve, and a semibreve) have one form, being differed only by the rules—which though a man do know, yet in practice, upon the sudden, he may easily mistake. And therefore for more certainty and facility it were expedient that (as it is in the new ligatures) the notes here were distinguished by their proper forms. But the use of these antique ligatures is now well nigh antiquated.

(37.18c) This repeat [Figure 20c] is used also for notes alone, where there is no ditty.

¹[Gaffurius, *Practica musicae*] I.ii; [cf. Miller, 28.]
EDITORIAL COMMENTARY

36.4-37.4 and Figure 19c, d, e (36.6): Old Ligature

Butler's Latin rules for, and examples of, old ligatures are similar to those given by Listenius, Musica II.iii. One might easily imagine that when Butler wrote his study of ligatures he had in front of him a copy of Listenius' Musica, opened to the appropriate chapter, "De ligaturis." Of Butler's rules for initial ligature, the first two are a condensed but verbally nearly identical version of Listenius' first two "regulae initialium." Butler's first rule for middle ligature is exactly identical with Listenius' up to the point where Listenius' gives an exception dealing with semibreves; Butler gave the same exception (discussed below) with a different, more explicit wording. Of the rules for final ligature, Butler's first two are exactly identical with the first and third of Listenius'.

1Such a notion seems especially supportable since in 28.18-21 and in 70.17-18 Listenius was specified as the source of information dealing with rhythm.
"[regulae] ultimarum." As for Butler's and Listenius' notated examples, the manner of presentation in the two versions is nearly identical. Examples follow each of the three sets of rules (initial, middle, final); in some cases the examples of the two versions are identical. A feature included in Butler's examples but not in Listenius' are the figurations above the ligatures indicative of relative note values.

The most important difference between Butler's and Listenius' rules and examples of ligatures consists in the handling of the semibreve. Listenius appears to have agreed completely with Gaffurius, who, in his Practica musicae II.v (Miller, 80), stated that semibreves in ligature always occur in pairs. Likewise English theorists prior to Butler—Bathe, in his Briefe Introduction to the Skill of Song, the anonymous The Pathway to Musicke, Morley in his Plaine and Easie Introduction—gave examples entirely in agreement with Gaffurius' rule for semibreves in ligature.

2The examples for initial ligature are identical except for the last ligature of the fourth example, which is given in Listenius' Musica as an oblique, ascending, double-semibreve ligature; Butler, of course, could not give this with his fourth rule for initial ligature, since it would violate his third rule for final ligature. In the 1549 edition of Musica, the second ligature of the second example is incorrectly represented; it should ascend (as Butler's does) rather than descend.
Butler would seem to have agreed with it only in part. His second rule for middle ligature, according to the present writer's interpretation, stated: "But the next to that having the rising tail [clearly a semibreve] is considered a semibreve"\(^3\) (36.11-12). Yet the second of the two examples for middle ligature (Figure 19d) was presented with the figuration 1, 2, 2, 2, 4; in order to examplify the second rule for middle ligature it would have had to have been 1, 1, 2, 2, 4. The discrepancy might possibly have been due to a printer's error; there is certainly neither textual nor contextual suggestion of an altered semibreve.\(^4\) In Figure 19e, examples for final ligature, there is, in a two-note ligature, also a figuration 1, 2 for what was normally considered two semibreves; but the circumstances of this instance are different. Butler's third rule for final ligature stated that "a final having an oblique form is always a breve."\(^5\) The same rule was given earlier not by

\[^3\]"At proximae adhaerens sursum caudatae pro semibrevi reputatur."

\[^4\]An altered semibreve would give the figuration 1, 2 for the first two notes (semibreves), but the following figuration would most likely be 3, 3, 6. Cf. Adrianus Petit Coclico, *Compendium musices descriptiva* (Kassel: Bärenreiter, 1954; facsimile of Nuremberg, 1552 ed.) II.iii: "De ligaturis temporis perfecti & imperfecti" ("Of Ligatures in Perfect and Imperfect Time").

\[^5\]"Est obliqua brevis semper finalis habenda." That this is contrary to Gaffurius in *Practica musicae* II.v is clearly indicated in Gaffurius' examples (Miller, 87).
Listenius (who made the oblique, two-note ligature with a tail rising from the left side an exception to his rule for a final breve in ligature), but by Ornithoparcus, who, in his \textit{Micrologus II.iv} (twenty years prior to Listenius' first edition of \textit{Musica} of 1537), stated, according to Dowland's translation, that "Every crooked Finall whether it ascend or descend, is a Breefe." Ornithoparcus made no exceptions to this; and unfortunately his notated examples (lumped together at the end of all his rules—for initial, middle, and final ligature) have no superscribed, comparative note-value indications as included by Butler.

If Butler had Listenius' book in front of him when he wrote on ligatures, he probably had Ornithoparcus' there too. The apparent disparity between Listenius and Ornithoparcus regarding semibreves in ligature could account for Butler's acknowledging neither author in his discussion, and for his apparent reliance on his own experience and knowledge of musical practice in supplementing their material. However, since we do not know what editions of Ornithoparcus' and

\[\text{\textit{Regula] tertia, Omnis obligua finalis sive ascendat sive descendat est brevis.}}\]
Listenius' works were used by Butler, it is possible that other factors which could alter these conclusions may have been involved.

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"Åke Davidsson, Bibliographie der Musiktheoretischen Drucke des 16. Jahrhunderts (Baden-Baden: Verlag Heitz GmbH, 1962), lists six editions of Ornithoparcus' Micrologus (title varies) from 1517 to 1540 (p. 61), and forty editions of Listenius' Musica from 1537 to 1600 (pp. 50-53)."
Section 6

A Brief Synopsis of the Scale and Other Premises
Requisite to Singing, Which, with the Five Initial Lessons,
Are to Begin the Learners Book

[Figure 21. A brief synopsis]
The five initial lessons [(Figure 22)]¹—gradation and skipping.-- The five initial lessons show the progress or passing of the notes both ascending and descending per gradus et saltus, "by degrees and by skippings."

¹The resolutions of Figure 22a, b, c, and e are from Robert C. Dolbeer's transcription from microprint titled Charles Butler, Principles of Music (unpublished paper, The Ohio State University, 1965), 122-24.
[Figure 22. The learners' lessons]
Figure 22, continued (Dolbeer, Butler, Principles, 122-24)
[Figure 22, continued (Dolbeer, Butler, Principles, 122-24)]
The first lesson is the duple ut-re containing the gradation (or passing by degrees) of all the notes in a diapason, both upward and downward. [See Figure 22a.] The second lesson is the skippings of thirds, first upward and then downward. [See Figure 22b.] The third is the skippings, first of thirds downward and fourths upward, and then of thirds upward and fourths downward. [See Figure 22c.] These three lessons have each of them two parts in one, whereof every second cometh in upon two semibreve rests. All which may be sung round in six parts—the three leading parts beginning still together, as likewise the other three that second them.

The fourth is the proof of the usual skippings in two parts. [See Figure 22d.]

The fifth lesson is the triple ut-re in four parts. [See Figure 22e.]

[2] The first, second, and fourth lessons are much like those later printed by Playford (Skill of Musick I.v, p. 21 in 1674 ed.), except that Playford's were not specified as canonic.
CHAPTER III

OF SETTING

Section 1

Of the Parts of a Song

Setting is the framing of a song in parts, which, for the most part (specially in counterpoint), are four¹ -- (41a) bass, (41b) tenor, (41c) countertenor, (42d) mean--of which in some songs is wanting one or two, and in some, for a voice of an high pitch, is added (42e) a treble. Yea, and in some (specially of the Lydian mood, as in Tallis¹ and Bird's Cantiones sacrae), besides the other parts single, are two

¹See (f) in notes [(42.13).]

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basses or two trebles—or tenors or countertenors—and then there are six parts. Sometime two or three parts are doubles; and so there may be seven parts, as in Tallis' "Miserere"—or eight, as in Bird's "Deliges Dominum". And some, to show their exorbitant skill, will make (42f) many more [as in Tallis' forty-part "Spem in alium")]; but in these cases some parts must pause while other sing, or else they must needs coincide.

In this kind of songs the music doth more consist in reports and full harmony than in the melody of the several parts.

But a solemn anthem,² wherein a sweet melodious treble or countertenor singeth single and the full choir answereth, much more when two such single voices and two full choirs interchangeably reply one to another and at the last close all together, is that Hyperlydian music which, where the sobriety, decency, and piety of the singers concur with the art and sweetness of the song, maketh such a heavenly harmony as is pleasing unto god and man. (See II.ii.1, [subparagraph] III, and 2(f) in notes.)

All these parts set together (though for the deepest bass voice and the loftiest treble voice) are contained

²Greek ἀνθημα, of ἀνθέω, "floreo" ["to blossom;"]
within the compass of (42g) twenty-two notes, which is a trisdiapason, or the full extent of the gamut. But ordinarily they do not exceed the number of nineteen or twenty; and generally each part by itself is to be kept within his natural compass of (42h) eight notes, unless for a point or some other special cause you be sometime constrained to transgress these bounds a note or two, or three, at the most.

---

ἀνθός, "flos," "a flower," of ἀνυ θείνο, quod sursum ascendat dum crescit ("because the more it increaseth the more it ascendeth"). For this is that fair flower, that flos odorus, or rather florea corolla which with its sweet-smelling savor ascendeth from the ground of an humble heart unto the highest heavens—even to the mercy seat of the most high. [The accepted etymology indicates the origin of "anthem" from "antiphona" ("responding sound").]
Annotations to Section 1

(40.11a) Bass.--The bass is so called because it is the "basis," or foundation of the song, unto which all other parts be set; and it is to be sung with a deep, full, and pleasing voice.

(40.11b) Tenor.--The tenor is so called because it was commonly, in motets, the ditty part, or plainsong, which continued in the same kind of notes (usually breves) much after one plain fashion—upon which the other parts did descant in sundry sorts of figures, and after many different ways; or (if you will) because, neither ascending to any high or strained note nor descending very low, it continueth in one ordinary tenor of the voice, and therefore may be sung by an indifferent voice.

1"Tenor" of "teneo" ["to hold"] signifieth one continued order, or fashion of a thing, held on without change.
(40.11c) **Countertenor.**—The countertenor, or contratener, is so called because it answereth the tenor—though commonly in higher keys, and therefore is fittest for a man of a sweet, shrill voice. Which part, though it have little melody by itself (as consisting much of monotonies), yet in harmony it hath the greatest grace, specially when it is sung with a right voice—which is too rare.

(40.12d) **Mean.**—The mean is so called because it is a middling, or mean high part between the countertenor (the highest part of a man) and the treble (the highest part of a boy or woman), and therefore may be sung by a mean voice.

(40.13e) **Treble.**—The treble is so called because his notes are placed (for the most part) in the third septenary, or the treble clefs, and is to be sung with a high, clear, sweet voice.

(41.3f) **[Some will make] many more [parts].**—Parts or voices in harmony are used in twos, threes, fours, fives, sixes, sevens, eights, or more, for today even forty or sometimes fifty such parts or voices are found in only one song. But just the same, there are four principal voices.²

²Calvisius, [*Melopoeia*] ii, [p. "1."]
(41.20g) [Compass of voices] twenty-two notes.--This compass of twenty-two notes, or a trisdiapason, is for voices; for instruments it may be much larger. (See [I.]ii.2(f) and "index" [19.7] in notes.)

(41.23h) [Each part normally] eight notes.--Yet the parts of that Dial Song (which is contained in the ordinary compass of trisdiapason) do all exceed the ordinary limits of an eighth--the tenor reaching nine notes, the second treble and the countertenor eleven, the first treble and the bass twelve--as here you may see: [Figure 23].

[3] For John (?) Parsons' "In Nomine" see J. A. Fuller-Maitland and W. Barclay Squire, eds., The Fitzwilliam Virginal Book (Ann Arbor: J. W. Edwards, 1949; facsimile of Leipzig, 1949 ed.) II, 135. The resemblance between these two compositions is very strong, especially in the repeated-note motive and in the broken-triad groups. The composer of the dial song has not been identified.
[Figure 23.] A Dial Song composed by W. Syddael, in imitation of Parsons' "In nomine"
[Figure 23, continued]
[Figure 23, continued (Dolbeer, Butler, Principles, 125-31)]
[Figure 23, continued]
[Figure 23, continued]
Original - causes octave
with counter tenor

[Figure 23, continued]
Section 2

Of Melody

In setting are always to be observed (besides the rules requisite to singing) melody and harmony, with their four ornaments: consecution, syncope, fuga, and formality.

Melody.--(52a?) Melody is the sweet modulation, or tune of each part in itself.

As the parts of a song ought to be harmonious one to another, so should they be melodious each one in itself--specially in the meters of the Doric and Ionic moods. Such as are all the four parts of that "Oxford Tune," the mean and tenor whereof, in the psalms set out by Thomas

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1"Melody, "μελόδια ("carmen," "cantus," or "modulatio"), of μέλος and διό (see I.iii.3.1 and (a), [52.8-14,] in notes), though sometime it be used for harmony, or concent of many parts. (See II.i.2.)
East² are (for their melodies) made two several tunes (under the names of "Glastonbury" and "Kentish Tunes"), with other parts set unto them. [See Figure 24a.]


[³] The source of the settings presented in Figure 24 has not been identified.
[Figure 24. Psalm-tunes]
Unto which you may add these other psalm-tunes, set to the voices and capacity of young beginners. [See Figure 24b, c, d.]

But here one of the upper parts is necessarily to have a special melody above the rest (which is called the cantus or tune) such as may delight a musical ear, though it be sung alone by itself. Of this sort our skilful authors⁴ have devised infinite variety in the Ionic, or chromatic mood. The melody of which part consisteth much in report: sometime of fewer, sometime of more notes; sometime of half a strain, sometime of a whole strain, in the same verse, as in such tunes you may observe.⁵

Modulations in melody are more smooth, facile, and fluent by degrees than by skips; and therefore even in many parts the chief, as much as may be, should observe degrees. And skips are better to consonant than to dissonant intervals, as to a third, a fourth, a fifth, an eighth, and sometime a sixth,⁶ but seldom to a seventh or ninth (and

⁴Such as are Nicholas Laniere, Henry Lawes, John Lawes, Simon Ives, John Wilson, and others.


⁶Glareanus was the first theorist to include a rule forbidding the major sixth as a melodic leap, according to
that not without some special cause)—and to a tritonus or semidiapente never. Agreeable is the doctrine of Calvisius:

And yet it is especially to be observed that modulation proceeds rather through steps than through leaps, since in this manner harmony is generated more uniformly, more fluently, and more easily. Yet when and where this is not able to be done, when there is to be a progression involving a leap, a consonant interval is to be chosen rather than a dissonant one. Tritonus and semidiapente are to be completely avoided. Sometimes a seventh, rarely a ninth, is used—and not without justification.  

Lillian M. Ruff, "Adrian Willaert--The Man and His Music," The Consort, No. 27 (1971), 3. The minor sixth was allowed as a peculiarity of the Phrygian mode.

[Melopoeia] viii, [p. "2-3." The clause corresponding to "tritonus and semidiapente are to be completely avoided" does not appear in the 1630 ed. of Calvisius' Melopoeia.]
Section 3

Of Harmony

Paragraph 1

Of intervals

(52a) Harmony\(^1\) is a delightful congruity of all the parts of a song among themselves through the concordance of certain intervals which God in nature (not without a wonder) hath made to agree together—whereas others do sound so harshly one to another that no musical ear can endure them.

(52b) Intervals are the different distances of high and low sounds. And they are either simple or compound.

\(^1\) ["Harmony,"daemonia ("congruentia," "concentus") of ἀρμόξω ("congruo," ["to come together"])].
Intervals twelve.--(52c) Simple intervals are the distances of all the sounds, within the compass of a diapason from their ground, the which, increasing by half tones, are in number twelve: 1) semitonium, 2) tonus, 3) sesquitonium, or semiditonus, 4) ditonus, 5) diatessaron, 6) tritonus, or semidiapente, 7) diapente, 8) semitonium-diapente, 9) tonus-diapente, 10) semiditonus-diapente, 11) ditonus-diapente, or semidiapason, 12) diapason.

1. Semitonium is a second imperfect—that is, from mi to fa, or from la to pha.

2. Tonus is a second perfect—as from ut to re, from re to mi, from fa to sol, from sol to la, and from pha to ut.

3. Semiditonus is an imperfect third, consisting of a tone and a half tone—as from re to fa, from sol to pha, from mi to sol, and from la to ut.

4. Ditonus is a perfect (52d) third, consisting of a tone and a tone—as from ut to mi, from fa to la, and from pha to re.

5. Diatessaron is a (52d) fourth, of two tones and a hemitone—as from ut to fa, from re to sol, from mi to la,

[2] The manner of presentation of the twelve intervals which follows is similar to Ornithoparchus, Micrologus.
and so on.

6. Tritonus, or semidiapente is a fifth imperfect, consisting of three whole tones—as from pha to mi, or of two tones and two hemitones—as from mi to pha. But Calvisius (for doctrine's sake) doth distinguish them, calling the interval of pha to mi tritonus, and of mi to pha semidiapente.3 (See "Consecution of Discords," [61.10]).

7. Diapente is a perfect (52d) fifth, of three tones and a hemitone—as from ut to sol, from re to la, from fa to ut.

8. Semitonium-diapente is an imperfect sixth, of three tones and two hemitones—as from re to pha, from mi to ut.

9. Tonus-diapente is a perfect sixth, consisting of four tones and a hemitone—as from ut to la, from fa to re, and from pha to sol.

10. Semiditonus-diapente is a seventh imperfect, and four tones and two hemitones—as from ut to pha, from mi to re, from sol to fa, and from re to ut.

I.vii (Dowland, 17-22); Ornithoparchus follows a somewhat different order, includes compounds (i.e., in a similar format), and is more elaborate.

11. Ditonus-diapente, or semidiapason, is a seventh perfect, or eighth imperfect, consisting of five tones and a hemitone—as from pha to la, from fa to mi, and from B mi sharp to B fa flat in the eighth.

12. Diapason is a perfect eighth, containing (52e) a diapente and a diatessaron, or five whole tones and two hemitones (that is, all the seven natural sounds* or notes besides the ground), or briefly, all the twelve simple intervals (whereof it hath his name)⁵—as from ut to ut, from re to re, or from any note in any clef to the same note in the same clef in the next septenary.

Compound intervals.—(52f) Compound intervals are made of the simple and one or more diapasons—as a twelfth, or a diapason-fifth is compounded of a fifth and a diapason; a fourteenth, or a diapason-seventh of a seventh and a diapason, as their names import. Likewise an eighteenth, or a disdiapason-fourth of a fourth and a disdiapason; a twentieth, or a disdiapason-sixth of a sixth and a diapason. And so a trisdiapason-second or a trisdiapason-third of a second or third and a trisdiapason.

All which compounds, having the same clefs, the same

*See [I.] ii. 1 and (c) [(10.6-9).]

⁵"Diapason," "from all," or "through all" intervals. See (i) in notes.
names of notes, and, in effect, the same sounds (there being, no other difference in them but acumen and gravitas) with their simple intervals, are therefore in harmony used as the same, according to the common maxim of musicians: "De octavis idem est judicium" ["Of the octave the same judgment prevails"]. (See ii.1, [10.6].)
Of concords and discords

48-10

Of the twelve intervals seven are consonant and five dissonant; those are called, in one word, "concord," and these, "discords."

48-12

(52g) A concord is the mixture of a grave and acute sound sweetly falling to the ear.

48-14

(52h) A discord is a jarring noise of two permixed sounds offending the ear.

48-16

Concord.--The seven concords are first (52i) an eighth (which Glareanus, for perfection and chiefty, calleth consonantiarum regina ["queen of consonances"]),¹ a perfect and imperfect third, (53k) a fourth, a fifth, a perfect and imperfect sixth--all with their compounds. Unto

¹Dodecachord[on] I.viii.[14.]
these interval-concords is added the (541) unison, so called because, standing in the same clef that the ground doth, it yieldeth in an other part such a sound as seemeth one and the same with it. The which although it be no interval (as all other concords are), yet the ground and it being two individual concording sounds, it may well be called a concord; and because, like an eighth, it doth sweetly resound in harmony, and with its sweetness is oftentimes necessary in contexting of points and other melodious passages, it is justly reckoned among the chief of them.  

48-30

Of concords some are primary and some secondary.  

48-31

Primary concords.--(54m) Primary concords are an unison,\(^2\) or eighth, a perfect third, or ditonus,\(^3\) and a fifth, or diapente. The which, of themselves, without the help of any other, do make a sweet symphony. And therefore, as they are good in the beginnings and other places, so are they necessary in the closes—whence all secondaries are excluded.  

49-1

Secondary concords.--Secondary concords are an

\(^2\)See (561) in notes [below.]

\(^3\)Butler was apparently the only English theorist who classified the major third as a perfect concord. Morley, Bathe, Campion, the anonymous The Pathway, Bevin, Playford, and Simpson classified it as an imperfect concord; Coperario did not distinguish between perfect and imperfect concords.
imperfect third, or semiditonus, (55n) a fourth, or a
diatessaron, an imperfect sixth, or semitonium-diapente, and
a perfect sixth, or tonus-diapente. Which because they sound
not so sweetly as the primary do, nor satisfy the ear without
a sweeter following, therefore none of them is admitted into
the close, and a sixth or fourth scarce allowed in the
beginning.

Intervals are also differed by the number of the
seven sounds, whether they be tones or semitones, as they
follow one another in the scale. A second, a third, a
fourth, a fifth, a sixth, a seventh, and an eighth are
so-called because they contain so many several sounds. That
therefore which containeth four is called a diatessaron, or a
fourth; and that which containeth five is called a diapente,
or a fifth. But the four sounds of diatessaron are but two
tones and a semitone above the ground—as fa is above ut, or
sol above re; and the five sounds of diapente are three tones
and a semitone above his ground—as sol is to ut, or la to
re.

Tritonus, semidiapente, relatio non
harmonica.—Likewise from pha to mi above are four sounds,
as in a diatessaron; but they are three whole tones from the
ground, whereof that interval is called "tritonus." And from
mi to pha above are five distinct sounds, as in a diapente; but they are from the ground but two tones and two hemitones, whereof that interval is called "semidiapente." So that the tritonus is an excessive diatessaron, half a tone too much; and the semidiapente is a defective diapente, half a tone too little—which, in effect, is all one with tritonus. And therefore, as in the true diatessaron, the respect or relation of ut to fa, or of re to sol, and in a true diapente the relation of ut to sol, or of re to la, because they are concords, is harmonical; so in the excessive diatessaron the relation of pha to mi, and in the defective diapente the relation of mi to pha, because they are discords, is called "relatio non harmonica."

But these harsh discords, by the help of flats and sharps, are reduced to their true concords. For as the tritonus, either by flattening the sharp or sharpening the flat, is made a true diatessaron, so the semidiapente, by the same means, is made a true diapente.

"Semi-" in this word (as in "semiditonus" and "semidiapason") doth not signify "half of the whole," but "the whole save half a note."
## A Synopsis of the Concordi

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<thead>
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<th>Ut: Eigt.</th>
<th>Re Eigt.</th>
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<tbody>
<tr>
<td>L₄, 3 imperf.</td>
<td>L₄, 3 perf.</td>
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<tr>
<td>Sol, 4.</td>
<td>to Sol, 5.</td>
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<tr>
<td>F₃, 5.</td>
<td>to F₄, 6 imperf.</td>
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<tr>
<th>La: Sixt perf.</th>
<th>Fa: Sixt imperf.</th>
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<tr>
<td>L₃, 3 perf.</td>
<td>to Sol, 3 imperf.</td>
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<tr>
<td>Mi, 4.</td>
<td>to F₄, 4.</td>
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<td>to Mi, 3 imperf.</td>
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<table>
<thead>
<tr>
<th>Fa: Fowrt.</th>
<th>Fa: Third imperf.</th>
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<td>Mi: Third perf.</td>
<td>RE:</td>
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**[Figure 25.] A synopsis of the concords**
Affinity of concords.—Between the third and the sixth, and between the fifth and the fourth, is some affinity; for a third to the bass is a sixth to his eighth, and a sixth to the bass is a third to his eighth. Likewise a fifth to the bass is a fourth to his eighth, and a fourth to the bass is a fifth to his eighth.

The sixth and third must be like.—A sixth being joined with a third must be always such as the third is. If either be perfect, the other must not be imperfect—as because from re to fa sharp is a perfect third, therefore pha, which is a sixth [from re], must be likewise sharped, that it may also be perfect; because from sol to Mi is a perfect sixth, therefore pha, being to sol a third, must be sharped, that it may likewise be perfect.

(550) Although unisons and eighths are good in the beginnings and necessary in the closes, yet in other places of a song they are sparingly to be used in few parts unless some special cause as fuga, cadence, or melody require them—but then most conveniently when they meet in divers figures and not at the same instant,\(^5\) as [Figure 26].

\(^5\)See (a) in [I.]ii.4 [(24.1-4) for the figures (shapes and values) of the notes.]
Figure 26. Unisons and eighths in few parts
Concords do then sound most sweetly when they are set in their natural and proper places.

(55p) The proper places of an eighth, a fifth, and a fourth, are in the lower parts, and of thirds, both perfect and imperfect, above.

And therefore, when the parts stay together (specially at closes), the concords are most fitly placed in their natural order. But generally, in the composing of melodious harmony, they are variously intermedled, in all parts, according to the grounds and rules of art.

(Concerning the proportions of concords, see ii.4 (f) [29.34-35.27].)

Discords.--Discords are the perfect and imperfect second, the perfect and imperfect seventh, and the tritonus, or semidiapente.

As all parts must agree with the bass, so must they not disagree among themselves; and therefore if one part be a fourth, another may not be a third or a fifth, but a sixth; if one be a fifth, another may not be a sixth or a fourth, but a third, for then would they disagree among themselves in a second. Likewise if one be a sixth, another may not be a
twelfth (which is a compound fifth), for so will they disagree in the seventh—and so on.

Yet a discord (as in economy, so in music) is sometime allowable as making the concord following the sweeter; but neither in that nor in this is it to be held too long. And therefore in swift division it is best and most used, especially in gradation\(^6\) (which is a continued order of notes ascending or descending), where the discord doth better in the even than in the odd place—as in this example: [Figure 27].

\(^6\)See [I.iii.6, [39.1-3.]]
[Figure 27. Discord in gradation]
Also, a discord is good in binding (either in cadence or otherwise), where it is always the odd note, or the latter part of the syncopated measure-note. (See "Syncope" in [iii.]4.2.)

Likewise the melody of a part and the maintaining of a point may excuse a discord.
Annotations to [Chapter III,] Section 3, Paragraphs 1 and 2

(46.9a) (44.4a?) [Harmony.]

Harmony is the union of divers sounds rendered as concord. For not only simple modulation (melody of one voice), in acute sounds or in lower sounds, is allowed—proceeding from interval to interval either by faster or slower motion according to the time indicated in musical notation—but also several voices, singing in concord. From these, as from parts, harmony is put together.1

(46.15b) [Interval.]

An interval is the distance between an acute sound and a grave one. Consonance is a mixture of acute and grave sound which has a pleasant ring to the ear. Dissonance consists of two sounds mixed with each other in such a way that they come to the ear with an harsh and unpleasant percussion.2

(46.16c) Simple intervals.—

The simple intervals are diapason and those intervals contained anywhere within its range—as the second, the third, the fourth, the fifth, the

1Sethus [Calvisius, Melopoica] ii, [p. "1." The parenthesized phrase does not appear in the 1630 ed. of Calvisius.]

2Boethius, [De musica] I.viii; [Migne, 1175; cf. Bower, 57.]
sixth, and the seventh.

(46.33d) (47.3d) (47.12d) [Third, fourth, fifth.]—The praises here of music and of physic do accord, the numerals of both being understood inclusive. For as the physicians do say a tertian age, which yet cometh but every second day, and a quartan, whose access is every third day, because they count the first fit-day for one; so do the musicians call a third, a fourth, and a fifth, which yet are but two, three, and four notes from the ground, because they account the ground itself for one.

(47.26e) [Diapason: diapente and diatessaron.]—
The Pythagoreans hold that the diapente and diatessaron are the simple consonances, and from these they join together one diapason consonance.

(47.33f) Compound intervals.—
Compound intervals are greater than a diapason. They are made from whatever simple interval you will and any type of diapason—just as a tone, a third, or a fourth is added to a diapason producing a ninth, a tenth, or an eleventh, and so on with the others.

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Calvisius, [Melopoeia] iii, [p. "2." In the 1630 ed. the word "unisonus" immediately precedes "secunda" ("the second").

Boethius, [De musica] V.vi; [Migne, 1289; Bower, 304-05.]

Calvisius, Melopoeia iii, p. "2." A Latin
(48.12g) (48.14h) See (52.15b) above.

(48.16i) [First concord.] An eighth.--The diapason, or eighth, saith Sr. Francis, is in music the sweetest concord— in so much as it is, in effect, an unison. And Calvisius likewise:

The diapason is the first of all consonances—and the most perfect. It derives its name from the fact that it contains all simple intervals.

(48.18k) A fourth [is a concord].—This concord is one of the three so famous in all antiquity, with the symphony whereof the first musicians did content themselves, and for the inventing of whose proportions that most ancient and subtle philosopher hath been ever since so much renowned among all posterity. The joint doctrine of these three concords, though it be as ancient as music itself, [was] approved not only by Pythagoras, but also by Aristotle.

[was approved not only by Pythagoras, but also by Aristotle, equivalent for the word "simple" does not appear in the 1630 ed.]

6[Francis Bacon (1561-1626), 1st Baron Verulam, Viscount St. Albans, Sylva sylvarvm or a Naturall History,] Century II, N[o.] 110 [(i.e., 103) (Ann Arbor: University Microfilms, 1955; facsimile of London: 1627 ed.), no page. The reference to No. 103 is confirmed by the Haviland editions of 1629, 1631, 1635, and 1639.]

7Calvisius, [Melopoeia iv, p. "3."]

8Diatessaron, diapente, and diapason.

9Sesquiteria, sesquialtera, and dupla.

10Pythagoras.
Plato, Ptolemy, Euclid, and by Aristoxenus, Boethius, Franchinus, Glareanus, and all learned musicians. Yet some pregnant wits, of later times, have made no bones to teach the contrary; and now, forsooth, this diatessaron which for thousands of years hath been a special concord (without any the least impeachment or question) must needs upon the sudden be reckoned among the discords—and that, not only authority but reason also, and the very judgment of the ear, reclaiming.\textsuperscript{11} For he that listeth to try upon the organ or well-tuned virginal shall find that of itself it doth well accord with the ground, and better than either of the other secondary concords (the sixth or imperfect third); and with a sixth to yield as true a symphony as a third with a fifth, and more sweet than a third with a sixth; and with a sixth and an eighth to sound fully and harmoniously, in pleasing variety, among other symphonies. So that, although, being no primary concord, it be not set to the bass in a close (see before, "Primary concords," [48.31-36]), yet is it good in other places—even immediately before the close, and that in slow time, as in this example: [Figure 28].

\textsuperscript{11} As Ptolemy (I.v) expressly: "Indeed consonances are perceived by the sense—those which are called 'diatessaron' (that is, 'fourth') and 'diapente' (that is 'fifth')." See
[Figure 28. The fourth immediately before the close]
Moreover, albeit before the close a discord either with the bass or with another part be sometime allowed\(^{12}\) (the note being but of short time, and a sweetening concord presently succeeding), yet in the close (where all parts meet together), in a long-timed note, not without some pause upon it (so that the ear doth specially attend it), there is never any discord at all; but all the upper notes are concords of one sort or other, and those, as primary to the bass, so secondary among themselves. For example, where the close-note of the bass is in gamut (and consequently those of the other parts in B mi, D sol re, and G sol re ut, or their eighthths), B mi, being a perfect third to the bass, is an imperfect third to D sol re and a sixth to G sol re ut; and likewise, D sol re, being a fifth to gamut, is a third imperfect to B mi and a fourth to G sol re ut. Seeing then that in closes, which are simply harmonious, no discord is admitted, but all notes concord among themselves, it followeth that a fourth as well as a sixth or an imperfect

\(^{12}\)See soon "index." [This appears to be a general reference to I.iii.4.2: "Of Syncope," in which "cadence" is discussed (66.19-66.1).]
third must be a concord; and seeing that a ground and his
eighth are as it were all one (see in [1.]ii.1, [10.6]), how
can any man think that D sol re, which is a fifth unto gam ut
and a fourth unto G sol re ut (his eighth), should be the
sweetest concord unto the one and a discord unto the
other—and yet that B mi, which is but a third unto the
ground, should be a concord also to the eighth?

And therefore that honourable sage (whose general
knowledge and judgment in all kind of literature is generally
applauded by the learned), rejecting their novel fancy that
reject this ancient concord, professeth himself to be of
another mind. Saith he:

The concords in music between the unison and the
diapason are the fifth (which is the most perfect),
the third next, and the sixth (which is more
harsh), and (as the ancients esteemed, and so do
myself, and some others) the fourth, which they
call diatessaron.13

Among those "others" that singular musician (to whom the
students of this abstruse and mysterious faculty are more
beholding than to all that ever have written thereof) Sethus
Calvisius is one. His words are these:

The diatessaron is rejected from the number of
consonances by many musicians today, but

13The Lord Verulam [(Bacon), Naturreall History,]
Century II, and Nob[nber] 110 (i.e., 107). After the opening
phrase, "the concords of music," an omission of the phrase
"which are perfect or semiperfect" occurs.
incorrectly. For all ancient musicians, whether Greek or Latin, placed it among the consonances. Their writings testify to this. Secondly, it makes consonance when joined to other intervals, as [it makes] a diapason, when joined to a diapente. If added to a ditonus or trihemitonus, it makes a major or minor sixth [sexta major aut minor]. Besides, nothing which is consonant among the intervals of greater proportions is able to be dissonant per se. Thirdly, if the strings of a musical instrument are tuned exactly and according to true proportions no dissonance appears in the diatessaron;14 but both sounds enter the ears uniformly and with a certain smoothness. Thus in stringed instruments the lower strings are separated from each other by this interval; they are tuned logically to the diatessaron. Fourthly, no song of a rather large number of voices is able to exist without this consonance. It should therefore by no means be rejected, but accepted, according to the usage which is especially pertinent to melody (if skilfully applied).15

But whether this concord be perfect or imperfect, that is, primary or secondary, it is a question. (See below, (m) and (n).)

(48.201) **Unison.**

"Unison" is spoken in the sense of "one sound" and is so defined because it is the oneness of two or more sounds standing in the same key. However, the unison is not an interval, nor, strictly speaking, a consonance. This is true because an interval is the distance between a high and a low sound; but the unison does not admit of a diversity of sounds in respect to height and depth. Yet it is placed

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14See Ptolemy above [(53.16n).]

15[Melopoeia] iv, [pp. "4-5." The fact that a
among the consonances—and indeed the perfect consonances—since nothing is able to be more consonant nor more perfect than that which is one in respect to itself.16

(48.37m) [Perfect, imperfect.—Primary concords

Sethus calleth "perfect,"17 and secondary, "imperfect":18 but perfect and imperfect are differences of the intervals—as a perfect and imperfect second, a perfect and imperfect third, a perfect and imperfect sixth, a perfect and imperfect seventh.

Moreover he maketh the four old concords—diapason, diapente, diatessaron, and the unison—to be of the first sort, and the four new—the perfect and imperfect third, the

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diatessaron plus a diapente yield the diapason consonance is not a logical proof for the consonance of the diatessaron, since two consonant diapentes yield a dissonant ninth, a consonant diatessaron and a dissonant tonus yield a consonant diapente, and so on. What is meant in Calvisius' second argument, is that the specified combinations make consonance with all three tones sounding. Cf. Gioseffo Zarlino, Istitutioni harmoniche III.v, translated by Guy A. Marco and Claude V. Palisca in Gioseffo Zarlino, The Art of Counterpoint (New Haven: Yale University Press, 1968), 12-15.]


17 [Calvisius, Melopoeia] iv, [p. "1."]

18 [Ibid.] v, [p. "1."]
perfect and imperfect sixth—to be of the second sort—although ditonus, or a perfect third be found to be a perfect, that is, a primary concord, as admitted into the close; and a fourth, or diatessaron to be but a secondary (see (m)), and excluded.

(49.2n) A fourth, [its perfection].—Although Sethus, joining diatessaron with his old fellows diapente and diapason, do account it a perfect, that is, a primary concord yet doth he seem to extenuate its perfection, saying in one place, "quae aliquo modo perfecta censetur" ["which to some extent is considered perfect"],¹⁹ and in another place of the same chapter, "quae vix perfecta existimatur" ["which barely (or hardly) is considered perfect"].²⁰

(51.10) [Use of octaves and unisons.]—Octaves and unisons are not frequently employed in few voices. These intervals, admitting no variety of consonance, generate a harmony which is rather simple and almost wanting. Nevertheless, they do not need to be completely avoided because of this. For harmony, in order to form closes, and modulation, in order to proceed more elegantly and more fluently, often require their presence. However, they may be employed more agreeably if both [voices] do not occur in like figures nor in the same temporal moment, but if one voice occupies

¹⁹[Calvisius, Melopoiea] iv, [p. "2."]

²⁰Ibid., p. "6." The context is as follows: "the number of perfect consonances is therefore ten, if diatessaron, which is barely considered perfect, with its compounds, is added..."
the latter part of the other note.\textsuperscript{21}

(51.9p) \textit{Proper places of an eighth, a fifth, and a fourth.}\textsuperscript{22}

These three intervals occur naturally in the low sounds. And after a disdiapason, or fifteenth, a special place is given to the ditonus and the semiditonus, which are to occur rather infrequently in the low sounds. That these are the true and natural positions of these consonances is clearly shown by custom and the daily experience in musical instruments.\textsuperscript{22}

\textsuperscript{21}Seth\[us (Ibid.)\] ix, [pp. "10-11."

\textsuperscript{22}Sethus Calvis\[ius (Ibid.)\] x, [p. "17." There are several large ellipses, varying from a phrase to several sentences in length.]
53.4-54.31 (Annotation (k)): the Fourth as Consonance

The statement in 53.8-11 that the diatessaron, or fourth was considered consonant by Pythagoras, Aristotle, Plato, Ptolemy, Euclid, Aristoxenus, and Boethius cannot be disputed. In Charles W. L. Johnson's Musical Pitch and the Measurement of Intervals among the Ancient Greeks¹ the following summary statement is made:

... there are three intervals which are consonant to so marked a degree that they are classed as consonant in every [ancient Greek] musical system. They are the Octave, the Fifth, and the Fourth.

Butler's unqualified inclusion of Franchinus and Glareanus among these names is a mistake, strictly speaking. In Practica musicæ I.v, Franchinus classified the fourth as "a consonance of four tones containing two whole tones and one small semitone"; he stated that "it is required in the

natural movement of every tetrachord."2 His reference to the fourth as a harmonic interval occurs in III.v:

A dissonance formed from four conjunct tones, namely a fourth sounding as a consonance, is allowed in two places in counterpoint. First, when tenor and cantus sound an octave and the middle voice, the contratenor, sounds a fifth or three whole tones and one semitone above the tenor, a fourth is formed from the highest tone, which completes the equisonant octave, to the middle tone. . . .

In the second place in which a fourth is allowed, the tenor and cantus move together through one or more sixths, the middle voice or contratenor always staying a fourth under the cantus and a third above the tenor. Singers call such a counterpoint Faulxbourdon. . . .3

The title of III.vi reads "A Fourth between Middle and Upper Parts is Concordant, between Middle and Lower Parts is Dissonant."4 A portion of the explanation of the title reads as follows:

A sixth above the tenor, divided by a third in between, allows a concordant fourth between the middle and highest tones because the fourth is formed between two consonances, the third and the sixth (although they are imperfect). . . . Therefore, a dissonance of a fourth, weaker in a high tonal register, is hidden through its velocity. But when it is formed in lower sonority because of the slowness of its motion. . . . Therefore counterpoint does not allow such a dissonant fourth in the lower voice parts.

2Miller, 42.
3Ibid., 130-31.
4Ibid., 132.
Glareanus' *Dodechordon* I.ix lists the fourth as one of the consonances discussed by Boethius, but follows this with the statement that "the fourth is also rejected [in our time] unless it has either the fifth, the major third, or the minor third underneath it," which is followed by an example from Franchinus' *Practica musica* III.v. 

Glareanus later stated that "the dissonances [today] which strongly disturb and offend the hearing, are six: seconda, quarta, septima, nona, undecima, and decimaquarta." 

Morley, Bathe, the anonymous author of *The Pathway*, Coperario, Campion, Bevin, and Playford simply classed the fourth as dissonant. Simpson, in his *Compendium* (II.iii, p. 39; III.i, p. 79), likewise classed the fourth as a dissonance; in his *The Division-Viol* he made the following distinction: 

A Fourth, as it is an Intervall betwixt the Fifth

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5 Miller, II, 63-64.
6 Ibid., II, 66.


and Eight in the two upper parts, may in that sense be called a Consonant, but Computed with the Bass, it is a Discord.

Bacon similarly distinguished between dissonance in reference to the bass and dissonance in the upper parts, allowing the latter;9 nevertheless, he classed the fourth as a consonance, relying on the authority of antiquity, as Butler noted in 54.9-13. One of the most important eighteenth-century theorists, Rameau, also thought the fourth a consonance.10

Some aspects of the problem involved in classifying the fourth during the sixteenth-, seventeenth-century period are pointed out in the following summary translated from André Pirro's Descartes et la musique:11

Among the theorists, some, with Lefebvre d'Etaples (Musica libris quatuor demonstrata, 1551, fol. 21r), admitted the fourth to the number of consonances, others, with Aaron (Libri tres de institutione harmonica III.iv), Adrianus Petit Coclico (Compendium musices, 1552), and Galliculus (Libellus de compositione cantus, 1538), considered it as a dissonance as completely as the second or seventh, and they treated it as mala species. Zarlino brought the quarrel over the fourth to the boiling point by invoking in the discussion the testimony of antiquity, "which is

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9Naturall History, Century II, No. 109.


not to be scorned" (*Istituzione harmoniche
III.v*). Thanks to him, a solemn procession of
Greek and Latin authors appeared in the affair; and
it happened that the allegations of such masters
gave to this controversy of musicians some
brightness and, since the ancients were involved in
it, a sort of actuality. Boethius (*De musica
I.vii; V.xi*), Dionysius (XXXVII), Euclid
(*Isaacque*), Gaudentius (*Introductorium viii*),
Macrobius (II.i), Vitruvius (*De architectura iv*),
Censorinus (Ad Q. Cerlium) thus fired the cause,
aided by the famous "Ptolemy" (*Harmonicorum libri
I.v*). . . . To these venerable names Salinas, who
recalled all them, added the name of Aristotle
(*Problems xix*). Thus endowed with illustrious
patrons, this consonance, "the most unfortunate of
all," acknowledged Descartes, found a champion who
took its defense in hand and recovered, like a
knight, all the injuries which it had incurred,
calling it "his own," and fighting to reestablish
its honor. This loyal servant of the fourth,
Papius de Gand, published in 1581 a whole book (*De
consonantiiis, seu pro diatessaron libri duo*) to
confound the detractors of this interval. Since
its most dangerous enemies were the common
practitioners who refused to receive it into their
music, Papius by no means spared them, judging the
occasion good for admonishing these people of no
account, who, without knowing the Greek, had the
audacity to have any opinions. Yet if "too little
science" estranged the fourth, it is possible also
that "too much science" did not bring it back. We
have just cited Aaron among those who condemned it,
and yet one cannot accuse Aaron of ignorance.
Certain savants distrusted the fourth because of an
excess of erudition; their doubt had come from a
too complete study of the ancient texts.
Enumerating the consonances admitted by the
Pythagoreans, Boethius cited at the first the fifth
and the fourth, simple consonances, the union of
which found the octave, then the twelfth and the
nineteenth as composite consonances, but it was
declared that the eleventh was not of the same
category as these last. . . . The proportion of
this interval (8:3) was not acceptable to the
Pythagoreans. It was neither superparticular nor
multiplex, but multiplex superpartient. Ptolemy
disapproved of the judgment of the Pythagoreans who
thus rejected an interval formed from two consonances of which one, the octave "made such a conjoined voice [interval] seem as if one and the same string [interval] (Harmonicorum I.vi; cf. Boethius V.ix). By this remark, believing to save the eleventh, Ptolemy rendered suspect the fourth itself. In fact, the octave was evidently not at all the cause of the dissonance in the composite interval. It must be that the fourth itself was dubious, although the numbers [4:3] approved it. Thus someone came to the point of contesting the blind belief in a hierarchy of numbers as concerns the subject of the fourth.

In the milieu of these deceptive calculations, men of theory felt perhaps also, obscurely, that the fourth, heard alone, was not at all satisfying to the ear. It did not produce the impression of repose which the other consonances engendered. Thus, the apprehension of composers. The most favorable employed this interval only under determined conditions and with much reserve. Although Zarlino stated that the Greeks of his time used the fourth in two voices, and that the numbers authorized it, the author of an anonymous treatise published in 1602 and based on the works of Zarlino declared finally the exclusion of the fourth in simple counterpoint. . . .

Some audacious masters have nevertheless, since the seventeenth century, attempted to elevate themselves above the ordinary bias of common musicians. Zarlino mentioned (Istituzione harmoniche III.v), without producing it, a passage from the Kyrie of the L'homme armé mass, where Josquin used the fourth in two parts. Ambrose (Geschichte der Musik, III, 122) gave this example and pointed out another by Morales. In the mass Douce mémoire Lassus wrote, in two voices, successive fourths (Anthologie des maîtres religieux, I). Finally, Sethus Calvisius, in his bicinia (1602), sometimes allowed the fourth to resound openly, but in passages of syncope, after which a more authorized consonance resounded. Thus, in tolerating it, Calvisius followed--timidly, it is true--the precepts which he gave in his Melopoeia (1592) [iv, cf. Butler 54.16-29], where he affirmed that the musicians who
for the most part rejected this interval were sorry to have deprived themselves of it, and where he justly remarked that if one used the fourth in the tuning of the lute, it was because the fourth is not at all false. However, he admitted that it yielded to and followed the other consonances, and that it ought to be employed with address.
Section 4

Of the Ornaments of Melody and Harmony

Paragraph 1

Of consecution

Unto the perfection of melody and harmony, are required these four grades or ornaments: consecution, syncope, fuga, and formality.

Consecution.--Consecution is the following of intervals, consonant or dissonant, upon concords. In which, skilful artists have observed divers necessary cautions that may be reduced unto certain brief rules or canons.

Consecution of consonant intervals is either simple or mixed.

Simple consecution.--Simple consecution is of concords upon concords of their own kind. Concerning which there are these rules:

Of simple consecution.

Canon I: simple consecution of unisons, fifths, and eighths allowed.--The consecution of unisons upon unisons, of fifths upon fifths, and of eighths upon eighths, or of their compounds, not changing their keys, is good, and therefore allowed—as [Figure 29a].

Canon II: simple consecution of unisons, and so on, prohibited.—But the simple consecution of these three primary concords both in gradations and skippings is (63a) irksome to the ear, and therefore prohibited—as [Figure 29b].

Canon III.—(63b) These prohibited consecutions are of that force that they are not taken away by the interposition either of discords or of the smaller rests.

First, the consecution of unisons is not avoided by a second, nor of eighths by a ninth or a seventh, nor of fifths by a tritonus or semidiapente interposed—as [Figure 29c].
Secondly, neither are these consecutions avoided by interposing any rest less than a semibreve—as [Figure 29d]. But if the note answering the rest be of the same time and the note's fellow be moved into another key, the faulty consecution by that means is avoided. [See Figure 29e.]

Canon IV: the simple consecution of thirds and sixths allowed.—But the continued consecution of other concords is allowed, as well ascending and descending as immorant in the same place, especially of thirds and sixths in 1) gradation and 2) sometime in skipping; both which, being in different intervals,\(^2\) (63c) perfect and imperfect, do with their variety avoid that tediousness which the consecution of uniform primary concords doth incur (see (63a))—as [Figure 29f].

Canon V: simple consecution of fourths.—The consecution of fourths being uniform, that is, all of one interval, as the primary concords are, is not so good; yet because they be but secondary concords they are sometime continued, as the Musician did observe:

To be sure, fourths are hardly able to be avoided, so that two or three in a row are allowed. Yet in most cases this is usually done with a varied bass

\(^2\)See [I.iii.]3.1: ["Of Intervals," 46.9-48.9.]
and in certain forms of closes.\(^3\)

And, again, he showeth it to be the practice of most musicians to continue fourths in sixths, so that they begin with a primary concord and end with an eighth. Saith he:

Observe that many sixths (if, by mediation, they have a third in the lower place and a fourth in the upper) are used in succession by many musicians, especially descending; but they must begin in a perfect consonance and end in an octave,\(^4\)

as in these two examples of three parts [Figure 29q], where the upper part of the first example, and likewise of the second, hath four continued sixths to the bass, which are so many fourths to the thirds in the tenor.

And these consecutions are simple—of the several kinds of concords following themselves.

Mixed consecution. — Mixed consecution is of all sorts of concords variously intermeddled and interchangeably succeeding one another. This mixed consecution hath these rules:

Of mixed consecution.

Canon I.—(63d) The divers sorts of concords do best follow one another in degrees, and in contrary motion: one

\(^3\)Sethus [Calvisius, Melopoeia] x, [p. "16."]

\(^4\)Ibid., p. "14."
part ascending, while the other descendeth.

**Canon II: mutual consecution of primary concords.**—(63e) These three primary concords, unison, fifth, and eighth, do well follow one another if one part proceed by degrees and the other by skips.

**Canon III: consecution of other concords upon them.**—(64f) The consecution of the other concords, as thirds and sixths, perfect and imperfect, with their compounds, upon these primaries, unison, fifth, and eighth, both by degrees and skips, ascending and descending, is facile and familiar.

And these consecutions are upon the three prime concords—unisons, fifths, and eighths; those that follow are upon the rest—thirds, fourths, and sixths.

**Canon IV: consecution upon the third by unisons.**—(64g) The third, both perfect and imperfect, is followed by the unison: in 1) degrees, when the parts move contrarily; and in skipping, both upward and downward, 2) when one of them stayeth in his place; also 3) when both parts ascend together, the superior by degree and the inferior by skip. But when both parts do 4) descend, and when both parts 5) skip together, the consecution is not good. [See Figure
By a fifth.—Secondly, the third is followed by a fifth: in degrees, 1) when the parts move contrarily; and by skipping, both upward and downward, 2) when one of them stayeth in his place, as also when the parts descend or ascend both together, 3) the superior keeping degree in descending, and 4) the inferior in ascending; and so [*] the fifth may follow a tenth (which is a compound third), although the tenth do not ascend but descend, for a compound descending a fifth is as his simple ascending a fourth; lastly 5), when both descend by skipping, so that the superior fall the distance of a third. [See Figure 30b.]

The consecution in the first and last of these five ways is excepted against because of relatio non harmonica.⁵ But this happeneth seldom; for of all the seven relations of the seven notes, in both these ways, there is but one non harmonica; and that, when it happeneth, by flatting the sharp or sharpening the flat may be corrected. [See Figure 30c.]

⁵See "index" in [I.iii.3.2, [49.8.]}
[Figure 30. Mixed consecution]
By an eighth. — Thirdly, the third is followed by an eighth in contrary movings, 1) the inferior part descending and the superior ascending, and 2) sometime when the inferior stayeth—especially if the sixth to which the superior skippeth be imperfect and in the arsis or elevation; 3) but the ascending of both together is not good. [See Figure 30d.]

By a fourth. — Fourthly, the fourth followeth the third, when the inferior stayeth and the superior ascendeth by degree, or when the superior stayeth and the inferior descendeth. It may also follow a fifth, when the inferior stayeth and the superior descendeth, or when the superior stayeth and the inferior ascendeth. And as the fourth followeth a third and fifth, so is it followed by them; and when it is set to a bass-cadence (by reason that the binding note is sharped) it is followed by a semidiapente.

Note here that the fourth is commonly taken in the arsis, or elevation; if the note be syncopated, it is still taken in the thesis; and in simple consecution it is taken both ways. [See Figure 30e.]

This example [Figure 30e] being divided into twice

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See [in] "Cadence," [66.21 and (1).]
seven minims, besides the close-note, in the second minim of the first part the fourth in arsis\textsuperscript{7} followeth a third and is followed by a fifth; and then (a sixth interposed) the fourth in arsis followeth a fifth and is followed by a third. In the other part, begun with an unison, a semidiapente followeth the fourth in thesis; then the fourth in arsis followeth a third; and lastly, the fourth in thesis is followed by a third, with the close in an eighth.

By a sixth.---The third is also followed by a sixth, 1) when the parts move contrarily, and 2) when one of them keepeth his key. [See Figure 30f.]

The sixth by a third.---As the sixth followeth the third, so is it followed by the third--1) the one proceeding by degree the other by skip, or 2) one of them staying, or 3) both skipping. [See Figure 30g.]

The sixth by a fifth and an eighth.---The sixth is likewise followed by a fifth, 1) one of them staying, and by an eighth 2), in contrary moving--3) seldom when they ascend or descend together, the one by degree, the other by skip. [See Figure 30h.]

Consecution of discords.

\textsuperscript{7}See [I.]ii.4.1 [ (24.10-11)].
And such is the consecution of consonant intervals. There is also a consecution of the dissonant, (64h) the which, being rightly taken, not only are tolerable in harmony but also add a grace and ornament unto it—as whereby both the concords are made sweeter, and also [whereby] many musical points (which could not be without them) are sweetly maintained. Yea, the most harsh discords, tritonus and semidiapente, which, for their extreme jarring above others, are branded with relatio non harmonica, being ordered aright, become harmonical.

In this consecution these rules are to be observed:

First, that the notes, because they are discords, be of short time (minims, crotchets, quavers)—for so (64i) even relatio non harmonica will not offend.

Second, that they be used almost altogether in gradation, ascending or descending—in skipping seldom, and not above a note or two at once—whereas in gradation they may pass through a whole diapason or further, if need be.

Third, (64k) that they which are of the same time do

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*See "Discords," [51.28-52.7.]

*See "index" in [I.iii.]3.2 [(49.18-32)].

*See [I.]ii.6 [(39.1-3), for "gradation."
follow their leading concords in the even place, except in binding,\textsuperscript{11} where they are always taken in the odd, or, otherwise, sometime when for the continuing of a gradation the concord and discord be forced to change places—as where Mi [and] fa answer to fa below them. (See "Discords" in [I.iii.] 3, [51.28].)

Fourth, that they begin well upon a pointed note [Figure 31a].

\textit{Example of Trionum and Semidissente.}

\textit{[Figure 31. Consecution of discords]}

\textsuperscript{11} See "Syncope" [(I.iii.4.2) below.]
Here [Figure 31b] the two pha's set below are two tritones to the mi's above; and the same set above are two semidiapentes. Yet, being thus taken, they make good harmony—yea, though the minim pha be also a seventh to the bass. But to turn this discordant minim into a crotchet, with a point added to the minim precedent, is more usual, thus: [Figure 31c].

These consecutions both of consonant and dissonant intervals, though generally they are to be observed in harmony, yet must they sometimes give place to the greater graces—report and revert, the melody and formality of the parts—when they cannot be well effected without some violation of the rules of consecution. But he that would be thoroughly informed in these mysteries had need first to peruse the further directions of the most artful doctors (such as are Paduanius, Calvisius, and our countryman Mr. Thomas Morley) and then to examine the examples of the most skilful melopoeians [composers of music] for imitation.


Annotations to [Chapter III,] Section 4, Paragraph 1

(56.4a) [Movement in unisons, fifths, eighths] is irksome to the ear. — One cause hereof is the excelling sweetness of these concords, wherewith the ear being satisfied, the iterating thereof is tedious; for the sweetest things (as the Orator observeth in his own faculty) do soonest breed satiety.

... the things which must strongly gratify our senses [and excite them most vigorously at their first appearance], are the ones from which we are most speedily estranged by a feeling of disgust and satiety.1

Another cause is the want of variety in these concords, to prevent satiety. For all fifths have but one interval (of three notes and a half), and all eighths have likewise but one interval (of five notes and two half notes), whereas thirds and sixths have this pleasing variety in themselves. For one third consisteth of two notes, and another of a note

and a half; one sixth consisteth of four notes, and another of four and a half; so that these do follow one another without satiety,² which to avoid, the fifths, eighths, and likewise unisons had need of some other concord to come between them. And yet in multitude of voices, this fault, as others, being not easily observed, may be suffered. Else were the stop of twelfths in organs (which is added only for fulness of the music) imexcusable, seeing that thereby the simple consecution of fifths, as well moving as immorant, is perpetuated.³

(56.6b) [Unisones, fifths, eighths.]--

There is so much force in this consecution that neither by minor pauses nor by dissonances is it able to be borne.⁴

(57.7c) Perfect and imperfect [thirds and sixths].--The seven notes do make, in consecution, seven several thirds, whereof three are perfect, and four imperfect; also so many several sixths, whereof four are perfect, and three imperfect. For ut's third and sixth are both perfect; re's third and sixth are both imperfect; Mi's third and sixth are both imperfect; fa's third and sixth are

²See Canons IV and V [(60.26-61.5).]

³"Index." [One occasionally finds parallels even in the works of the most prominent composers of Butler's time.]

⁴Sethus [Calvisius, Melopoeia] ix, [p. "4."
both perfect; SOL's third is imperfect, and his sixth
perfect; la's third and sixth are both imperfect; and pha's
third and sixth both perfect. Of all these thirds only two
perfect immediately follow one another—namely, pha-re and
ut-mi. Which, though they be primary concords (as well as
unisons, fifths, and eighths), yet, seeing they are not of
themselves so sweet, they pass well enough among the rest
without satiety.

(58.13d) [In degrees and in contrary motion best.]

We shift from perfect consonances to imperfect
consonances, and vice versa, as much as is
possible, by steps and in contrary motion of voices
so that when one ascends, the other descends.5

(58.16e) [Unisons, fifths, and eighths follow one
another.]

Perfect consonances not of the same type may follow
themselves when one [voice] proceeds by steps while
the other by leap[s].6

But Morley will not allow rising from a fifth to an eighth,
nor from an eighth to a fifth, which he calleth "hitting the
eighth in the face"—as [Figure 32].7

5Calvis[ius (Ibid.)] x, [pp. "2-3."


7]Introduction II, pp. 75 and 77, and III, p. 145;
Harman 147-48 and 151-52.
Figure 32. Morley's restrictions on fifth-eighth and eighth-fifth consecutions
(58.19f) [Thirds and sixths with unisons, fifths, and eighths.]

Going from the perfect to the imperfect is facile, both by steps and by leaps, both ascending and descending. Thus a unison progresses to a minor third, and to a major third, and to a minor sixth—rarely to a major sixth. A fifth progresses to a major sixth or to a minor sixth, also to a ditonus and to a semiditonus. And so with the octave.10

(58.27g) Concerning these and the other consecutions upon thirds, see more in Calvisius.

(61.11h) [The dissonant rightly taken: a grace and ornament.]

If dissonances proceed in the harmony not by chance but by certain, definite standards,11 they are not only easily tolerated but are an especial embellishment to the harmony.12

(62.11) [Of short time relation non harmonica will not offend.]

Tritonus and semidiapente are quickly blotted out

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8Or "imperfect."

9Or "perfect."

10Ibid. [i.e., Calvisius, Melopoeia] x, [pp. "3-4."

11Namely, in consecution and syncope.

12Calvisius [Ibid.] xi, [p. "1."]
[passed over, if tritone progresses to semiditonus and semidiapente to a sixth, or even if semidiapente is placed exposed between a sixth, or another preceding consonance, and a following ditonus.]\textsuperscript{13}

(62.7k) \textit{Dissonance in notes of the same time.}\textsuperscript{14}\textsuperscript{15}

Those which are of one form\textsuperscript{14} may be alternately consonant. Thus when a consonance begins, a dissonance follows. Within the complete tactus, therefore, the first of two minims, the one that begins on the depression of the tactus, ought to be consonant; with four semiminims also the first, which is on the depression of the tactus, and the third, which is in the beginning of the elevation; with eight fusae the odd four (first, third, fifth, seventh).\textsuperscript{15}

\textsuperscript{13}Ib\textit{idem}, [pp. "3-4."]

\textsuperscript{14}Or figure—which clearly indicates time.

\textsuperscript{15}Ib\textit{id.}, p. "2."
This section is comparable in some respects to Campion's "Of the Taking of All Conords, Perfect and Imperfect" in his New Way (Davis, Campion, 349-56), which is also based on—in fact is largely a translation of—Calvisius' Melopoeia, as Campion acknowledged. ¹

¹Davis, Campion, 349: "Of all the latter writers in Musicke whom I have knowne, the best and most learned is Zethus Calvisius, a Germane; who, out of the choisest Authors, hath drawne into a perspicuous method the right and elegant manner of taking all Conords, perfect and imperfect, to whom I would referre our Musitions, but that his booke is scarce any where extant, and besides it is written in Latine, which language few or none of them understand. I am therefore content for their sakes to become a translator; yet so, that somewhat I wil adde, and somewhat I will alter." Davis footnotes this remark (Campion's opening paragraph) with a detailed analysis of this portion of the treatise, indicating which material had been taken from Calvisius (in the form of translation or of musical examples) and which was original.

summary remarks about the treatise:

As in the case of these works [Exercitationes duae and Exercitatio tertia], so did he base his Melopoëia, which preceded them, on Zarlino's Istitutione harmoniche, Books I to IV of which Calvisius here assimilated in an individual way and condensed into an extremely valuable and instructive form of course book. Titles and sequence of the twenty-one chapters show the methodical construction of this theory of composition, which, beside the Compositionsregeln of Sweelinck, which appeared only a little later (transmitted in MS), had fulfilled the historical task of presenting Zarlino's music theory to the Germans in comprehensible form... In the science of counterpoint problems of voice-leading [consecution], in particular, the question of leaps was more clearly handled by Calvisius than by Zarlino. It is worthwhile to note that here for the first time was undertaken the differentiation of the progressions of perfect and imperfect consonances [that is, the two categories were treated in two separate chapters, and sub-chapter divisions were made according to specific intervals]... .

In comparing the versions of consecution, the following variances have been noted. First, Campion gave no musical examples for parallel unisons, fifths, and eighths, whereas Butler did (Figure 29b, see Figure 33, below), perhaps following the lead of Calvisius' examples (Melopoëia ix, pp. "1-2"), though they are not identical; Campion merely stated that consecutives, that is unisons, fifths, or eighths, were forbidden "rising and falling
together."3 Nor did Campion give examples such as those
given by Butler (Figure 29c, d, e) -- which are comparable to
those given by Calvisius (Melopoeia ix, pp. "4-6") -- for
avoiding faulty parallels. As for mixed consecution of
perfect concords, Campion gave examples (Davis, Campion,
349); Butler disposed of the subject with a one-sentence rule
specifying conjunct motion in one voice with a skip in the
other (58.16-18), and annotated with a reference to Morley's
exceptions (64.1-3 and Figure 32): 1) rising from a fifth to
an eighth, 2) rising from an eighth to a compound fifth,
called "hitting the octave in the face" by Morley, and 3)
rising from an octave to a fifth. Campion allowed the third
of these exceptions, forbade the first,5 and gave no example
of the second. Calvisius (Melopoeia ix, p. "9") allowed
the first and third of these, one voice conjunct. John
(Giovanni) Coperario, in his Rules How to Compose (3v)

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3 Rules forbidding consecutive octaves and fifths
appeared as early as the late thirteenth century (cf.
Andrews, Byrd, 88-89, and Harman, Morley, Introduction,
143). Such consecutives occurred only rarely in
sixteenth-century polyphony according to Andrews, whose
discussion (pp. 88-95) points out several examples of
"violations" among prominent English composers (cf. also

4 Butler's Figure 29e is very similar to Calvisius' example on p. "6" of ix.

5 "The fourth way is onely excepted against, where the
fift riseth into the eight, and in few parts it cannot well
be admitted, but in songs of many voices it is oftentimes
necessary." (Davis, Campion, 350.)
disallowed twelfth-eighth, eighth-fifth, eighth-twelfth, and fifth-eighth consecutions—with the bass.
Figure 33. Transcriptions of Figures 29, 30, 31, 32
Figure 33, continued
Butler's example of parallel thirds (Figure 29f) appears to be an original touch, in that a similar example did not appear in Calvisius' discussion of consecution (nor did it appear in Campion's), after which Butler appears to have modelled his own. Butler's unqualified allowance of the "simple consecution of thirds and sixths" in gradation (57.3-9 and 63.28-38), even though at this point (judging from his example) he seems to have had quicker, embellishing thirds in mind primarily, conflicts with the idea in Campion and Calvisius that such consecution was excepted against a diagonally arising tritone, a type of non-harmonic relationship. Specifically to be avoided because of the diagonal tritone were the consecution of a major third upon a major third and its inversion, a minor sixth upon a minor sixth, a whole step distant (Calvisius, *Melopoeia* x, pp. "9" and "12"; Davis, *Campion*, 354-55). However, H. K. Andrews' statement shows that such theoretical prohibition differed from the practice:

Morris states that 'some writers lay stress

6Butler's concept of *relatio non harmonica* seems to have been limited strictly to the vertical tritone. The Campion-Calvisius concept (cf. Davis, *Campion*, 350-51) involved, as well as the diagonal tritone, the diagonal "false second," or cross relationship, as e is to e-flat (cf. Zarlino, *Istituzione harmoniche* III.xxx, pp. 208-10 in 1573 ed.; Marco, 65-68). Butler did not discuss cross relationship.
on the avoidance of consecutive major thirds on successive whole degrees of the scale. In two-part writing especially, it is said, the "tritonal" effect of such a progression is too strongly felt to be endurable. Palestrina, however, seems to have borne it with considerable fortitude; and in composition for more than two parts . . . the rule cannot possibly be maintained'. Byrd shows a like fortitude in writing for two or more voices, nor does he refrain from such progressions when brought about by the use of accidentals.7

Butler's one possible exception to consecution of consecutive thirds is contained in the disallowed version of Figure 35 (67.12-26) which appeared in a later and different context. However, he did not specifically state that the diagonal tritone arising from the consecutive thirds between the outer voices of the example was the reason for the disallowance, even though the corrected version eliminated this tritone. In fact, the disallowance seems to be based more on melodic (degree-inflexion) considerations.

Butler's examples of parallel first-inversion triads (Figure 29g) were taken literally, with the exception of Butler's addition of sharps to the penults of the middle voice,8 from Calvisius' Melopoeia (x, pp. "14-15")

7Byrd, 100; Andrews quotes from Morris, Contrapuntal Technique, 42.

8A similar type of apparent editorializing can be seen in Butler's presentation of canons (Figure 42b, c, ee, following 75.14) from Calvisius' Melopoeia. Butler may
Campion neither discussed nor gave examples of the parallel first-inversion technique.

Of the presentations of the third-fifth consecution, there is a notable difference in that Calvisius and Campion did not allow a minor third to move to a perfect fifth, the upper voice standing—as e–g to c–g. Calvisius (Melopoeia, p. "6") referred to this progression as "improbatus" ("disapproved," or "rejected"); Campion (Davis, Campion, 352) was quite emphatic in his disapproval, for besides the translation from Calvisius he added a "short aire" with his own commentary to illustrate the point:

In the last disallowance, which is when the upper part stands, and the lower part falls from a lesser third to a fift, many have been deceived, their eares not finding the absurdity of it: but as this way is immusicall, so is the fall of the greater third in the former manner, into a fift, passing harmonious; in so much that it is elegantly and with much grace taken in one part of a short aire foure times, whereas, had the fift beene halfe so often taken with the lesser third falling, it would have yeelded a most unpleasing harmony.

Judging from Campion's example, a two-voice, melody-bass framework, it would seem that he had only outer voices in mind. In Coperario's Rules the major third to fifth, upper voice standing, occurred occasionally in outer voices in a

have found some confidence, in doing this, in his quotation from Calvisius in 71.11–17—namely, that "it is natural for this interval to be sought in these places [clausulae, or cadences], and to elevate the sound in a certain way—even without writing the chromatic sign."
four-part context (for example, 5v and 29r); the minor third to fifth, in the same manner and context, was possibly purposely avoided for the most part, but occurred in inner voices (5v, alto and bass) and at least one time in outer voices (29r, with the minor third on thesis). Butler (Figure 30b, third consecution) gave the minor third to fifth progression as a legitimate one. Zarlino did not classify it; however, he listed what Campion referred to as the "fall of the greater third in the former manner, into a fift," and as "passing harmonious," among the mouimenti buoni—"good progressions" (Istituzioni harmoniche III.xxxviii, p. 218 in 1573 ed.; Marco, 80).

Among the third-octave consecutions, Butler (Figure 30d, last consecution) made only one exception: skipping in both parts from a tenth to an octave. This agrees with Zarlino's classification of the same progression among mouimenti vietati—"prohibited progressions" (Istituzioni harmoniche III.xxxvi, p. 215 in 1573 ed.; Marco, 76; cf. Morley Introduction III, p. 149; Harman, 253). Calvisius (Melopeia x, pp. "6-7") and Campion (Davis, Campion, 353) indicated that a minor third to an octave, upper part rising by degrees, was very seldom to occur;° Butler allowed

°Calvisius' example is actually in three voices: c-e-g (lowest to highest) moving to c-a-a (e moving down to a, causing crossed voices).
this as the first consecution of Figure 30e; Zarlino did not classify it. Both Campion (Davis, Campion, 353-54) and Zarlino (Istituzione harmoniche III.xxxviii, p. 218 in 1573 ed.; Marco, 80) allowed the major third passing to an octave (in the same manner) as a good progression.

Butler's insertion of a discussion of third-fourth, fourth-third, fourth-fifth, and fifth-fourth consecutions (60.7-17), with examples (Figure 30e), at this point, appears to be an original touch compared to the discussions of Calvisius and Campion. Calvisius included examples using similar progressions in his chapters "De syncope" and "De clausulis." Campion's study of consecution includes no comparable examples. Zarlino (Istituzione harmoniche III.xliii, p. 229 in 1573 ed.; Marco, 99) excepted the third-fourth-fifth progression, such as that which occurs at the beginning of Butler's Figure 30e, against the diagonal tritone; the first example in Figure 30e would thus have been disqualified by Zarlino had there been a return to the beginning c-e in the place of the fourth half note. However, as H. K. Andrews points out (Byrd, 100, "The Tritone Relationship"), both Byrd and Palestrina allowed the diagonal tritone in their works. The second example in Figure 30e,

10Cf. Melopeia xii, pp. "4-5"; xiii, pp. "5," "7" (bass and alto, end of first example), and "9."
involving a vertical tritone, would not have been disqualified by Zarlino, since the tritone is followed in contrary motion by a major third (Istituzione harmoniche III.xxx, p. 210 in 1573 ed.; Marco, 67).¹¹

In discussing third-sixth consecution, Calvisius and Campion (Davis, Campion, 353, from Melopoeia x, p. "7") indicated that the minor third should rarely pass to the major sixth; Butler made no similar exception.

Of the sixth-fifth and sixth-octave consecutions given by Butler (Figure 30h), compared with those given by Campion and Calvisius (Davis, Campion, 354-55, from Melopoeia x, pp. "11-12"), the similarities are close; however, Butler included an example of seldom-occurring sixth-eighth consecution, both voices skipping in descending (Figure 30h, sixth consecution), which Morley (Introduction III, p. 149; Harman, 253) would not have allowed:

. . . yet would not I use it [skipping from the tenth to the eighth, both parts ascending] no more than [than] many other things which are to be found in their works as skipping from the sixth to the eight, from the sixth to the unison from a tenth to an eight ascending or descending and infinite more faults which you shall find by excellent men committed. . . .

¹¹Actually, Zarlino's example of the allowed tritone differs from Butler's in that the dissonance occurs as a passing tone rather than as a lower neighbor.
Campion (Davis, Campion, 354-55, Campion's own example and commentary) made a point of not allowing the minor sixth to octave, both parts ascending, the lower by half step—specifically, f-sharp with d to the g octave; nor the lower by minor third—the same to the a octave. Coperario (Rules, 3v) gave the same (note-for-note identical) examples, but also in reverse (descending), and with a similar admonition that they were not good, in the words "you ought to shun for to rise with the Bass from a 6, unto an 8. . . ." Calvisius, Campion (in translating), and Butler—agreed that the variety of this progression which proceeded by an ascending half step in the lower voice or by a descending half step in the higher voice was to occur rarely; their examples are identical. Zarlino (Istituzione harmoniche III.xxxvi, p. 215 in 1573 ed.; Marco, 76) classified this type of sixth-octave progression—specifically, with the rising half step in the lower voice (e-c to f-f) or the falling half step in the upper voice (a-f to e-e)—as "sopportabili" ("tolerable").

Besides the exact borrowings by Butler from Calvisius already mentioned, several other comparisons may be made. In Figure 30a, consecutions one and three are identical to two adjacent consecutions in Melopoeia x, p. "5"; throughout 30a the order of presentation is reminiscent of that of
Melopoeia. In 30b the order of presentation is similarly reminiscent of Melopoeia (x, p. "6") except that the minor-third-to-fifth progression which occurred as forbidden at the end of Calvisius' example occurs nearer the beginning in Butler's (and, as mentioned, is allowed); there are also three non-adjacent, note-wise identical consecutions in the two versions. In 30f the order of presentation is similar to Melopoeia (x, pp. "9") in a very loose sense, and may be purely coincidental. In 30h, there are, including the one already mentioned, two pairs of exactly identical consecutions. However, in spite of the somewhat scattered borrowings from Calvisius, Butler's presentation of consecution would appear to be moderately eclectic and self-styled.
Paragraph 2

Of syncope

(70a) Syncope is (70b) the disjoining and conjoining of (70c) a measure-note—when (in respect of time) it is disjoined into two parts whereof the former is conjoined with the precedent half note in one time and the latter with his subsequent half note in another time. The conjoining of which latter with his half note following is called, by Sethus, "alligatio," and by Morley, "binding." In which, for distinction, the first of these two conjoined half notes is called the "bound note," and the second the "binding note"—unto which two there answereth (either in the bass or in some other part) one (70e) entire measure-note which is, as it were, the band that holdeth them both together—as [the lower part of Figure 34a] answereth to [the upper part of the same].

[1] The term "half note" in the rhythmic sense was used earlier by Coperario (cf. Bukofzer in Coperario's Rules How to Compose, 15n).
This ornament is (70f) very useful—not only because it graceth and sweeteneth the following concords, but also because it helpeth much to vary the harmony and to show the energy and efficacy of the ditty.

**Binding of concords.**—The notes that are bound in syncope are either discords or secondary concords.

**[Binding] of the fourth.**—Of secondary concords, the fourth is frequently bound with a third, seldom with a diapente, and yet sometime with (70g) a semidiapente.

In the first bar [Figure 34b] are three fourths bound with thirds; in the second and third, two fourths bound with semidiapentes; in the fourth, a fourth bound with a fifth.

**[Binding] of the third and of the sixth.**—The third is bound with a fifth or a fourth, and the sixth with a fifth.

In the first bar [Figure 34c] is a third bound with a fifth, and a fourth with a third; in the second, two thirds with fourths, and a second with a third; in the third, two sixths with fifths.

**Binding of discords.**—Such is the virtue of syncope that it maketh the secondary concords as sweet as the
primary—yea, and the very discords as good as any concords.

**Binding** of the second and of the seventh.--Of discords, the second is frequently bound with a third and sometime with an unison, and the seventh frequently with a sixth and sometime with an eighth.

In the first bar [Figure 34d] are three seconds bound with thirds; in the second is a second bound with a unison; in the third bar are three sevenths bound with sixths; and in the fourth is a seventh bound with an eighth, and a ninth with an eighth.

**Binding** of tritonus and semidiapente.--The tritonus is bound with a fifth, and the semidiapente with a sixth, and sometime with (70h) a third, but so the bound and binding notes will want the entire band,² which is necessary to a perfect alligation.

In the first bar [Figure 34e] is a tritonus with a fifth; in the second is a semidiapente with a sixth; in the third a semidiapente with a third and a second with a third.

**Binding single and continued.**—Alligation, or binding is either single or continued. If the binding (70i)

²See (e) above [ (64.31).]
concord be a single, or lone half note, the alligation is there ended single; but if it be the half of another measure-note, the alligation is (71k) continued, and that more or less, according to the number of such disjoined measure-notes immediately following one another.

Example of a single alligation you have in these notes [Figure 34f], where a fourth is bound with a third.

Cadence.--Most excellent in this kind is a cadence, which is an alligation whose binding semitone falleth into the next key--(71l) always sharp--of which falling the cadence hath his name; (71m) by which the harmony and some part of the ditty inclineth to rest. Cadence is either perfect or imperfect.

[Cadence] perfect.--(71n) A perfect cadence is that which to the disjoined measure-note and the binding concord addeth a third note, in the key of the disjoined, which must be either an eighth or an unison to the bass--as [Figure 35a].
[Figure 35. Cadences]
Resolution of cadences.—The two notes of syncope in this cadence (lest the often repetition of them in the same manner should wax tedious) are wont to be diversely resolved into notes of less figures, thus: [Figure 35b]. Also this cadence is sometime resolved by raising the bound note into the next key—as [Figure 35c].

Cadence imperfect.—(710) The imperfect cadence doth signify very little rest either of harmony or of ditty, but that they are both to proceed further; and it differeth from the perfect in the third, or last note, which either it silenceth—as [Figure 35d], or moveth from the proper key of an eighth or unison to some other—as [Figure 35e].

Sometime this change is made in the bass, the cadence remaining whole—which nevertheless is imperfect, because the last note, by this means, is neither unison nor eighth—as [Figure 35f].

Cadences require discords.—So proper is a discord to a cadence that if there be none in the cadence to the bass, yet is a discord well admitted in some other part to the cadence. Where note that if the note in a fourth part, answering the bound note and his discord, be a third to the bass, it is better imperfect than perfect—although the
perfect be a fifth to one part (counter[tenor]), and the
imperfect be neither fifth nor fourth but a discord
(semidiapente) of a half note between them both. And
therefore if that third be naturally flat, they will not
sharp it—so that the other parts standing thus: [Figure 35g,
bass, tenor, countertenor], the fourth part will be [Figure
35g, mean]; but contrariwise, if the third be naturally
sharp, they will flat it—so that if the other parts stand
thus: [Figure 35h, bass tenor, countertenor], the fourth part
shall not be [Figure 35h, mean I], but [mean II].

Continued alligation.—And hitherto of single
alligation. What continued binding is, see before, (66i) and
(66k) [66.11-16]. Examples thereof, Mr. Morley upon his
plain-song hath these two: [Figure 36].³

³Introduction II, p. 83 (Harman, 160): "Examples of
discorde wel taken. Wherein al the allowances be contained."
Figure 36. Continued alligation from Morley
In the first example are first a fourth bound with a third, and three sevenths bound with sixths; then, this continued binding being ended with a single half note, the next continued binding (caused by another odd half note before the disjoined measure-note) is of a sixth with a fifth, a fourth with a third, a sixth with a fifth, a sixth with a sixth, and two sevenths with sixths.

In the second are four fourths bound with thirds, a ninth with an eighth, and again four fourths with thirds.

Moreover, the first example singeth every note of the plainsong, and then conclueth with a minim-cadence. And the second example strangely descendeth from the highest place of the line to the lowest, concluding with two crotchets to even the time before the close-note.

Syncop is in semibreves and minims. -- And these syncopes are of semibreves. The syncopating (or disjoining and binding) of minims hath four special ways, which are wont to be taught among the rudiments of setting. In the three first ways the binding is single; and in the fourth, continued.

The first is when the binding note is a single crotchet, making even the latter part of the minim,
[a] \[\text{\textit{\textcopyright{} Crotchet g in Morley.}}\]

[b] \[\text{\textit{Figure 37. Syncope in quicker figures from Morley}}\]

[c]

[d] \[\&c.\]

[e] \[\text{\textit{\textcopyright{} Crotchet g in Morley.}}\]

[Figure 37. Syncope in quicker figures from Morley]
disjoined, in time, by a crotchet precedent; and so all three making up a just semibreve are often iterated without alteration—as in this example: [Figure 37a*].

The second is when, to all these three notes often iterated, you prefix one odd minim (in rest or note or both), by means whereof the semibreve will always end in the middle of the disjoined minims; and so will the notes never come even till at the last [when] you add to the crotchet-minim-crotchet a minim—the fellow of the prefixed minim that made the odds—thus: [Figure 37b].

The third way is when to every such three notes you prefix a minim, the which is not disjoined, as every second minim is. These four notes doubled make three just semibreves, thus: [Figure 37c], or, otherwise, when you set the minim after them; but then the form of the point is altered, thus: [Figure 37d].

The fourth is a continued binding, when after an odd crotchet there follow many syncopated minims before you come to another single crotchet to make the time even. For until then every semibreve-time and every minim-time endeth in the middle of a minim, thus: [Figure 37e].

Annotations to Chapter III, Section 4, Paragraph 2

(64.21a) Syncope.--Although σύν in this compound¹ may seem to add nothing to the sense of the simple, yet seeing that "syncope" doth here signify not only the disjoining of an integral into two parts but also the conjoining again of the parts into two integrals, as κοπή ("sectio" ["division"]) doth import the one, so may σύν ("simul" or "una" ["together"]) intimate the other; and so the notation of the name is a full definition of the thing.²

(64.21b) [Syncope:] disjoining and conjoining.--Agreeable hereunto is the definition of Sethus:

Syncope is the irregular application of the note to the tactus, done because of a minor figure [lesser note] preceding,

which he doth thus explain:

1Συνκοπή ("concisio," ["a cutting up"]).
2See [Charles Butler,] Orat[oriae] II.ii.5.[1.]
For a semibreve, when related to its own tactus, regularly begins on the depression of the tactus and ends on the elevation. However, when a minim note or rest is placed before a semibreve, and when this minim begins on the depression of the tactus, by necessity the semibreve begins on the other part of the tactus, namely, the elevation, and ends on the depression of the following tactus—its parts thus being separated and put in different tactus.

(64.22c) Measure-note (semibreve or minim).—For as anciently major tactus was of the breve, and minor of the semibreve, so now, we having quite forgotten to keep breve-time and learned (in quick figures) to keep the time of a minim, our major tactus must be semibreve-time, and our minor, minim-time. (See [I.]ii.4(b) in notes [28.22-33].)

(64.25d) [Syncope:] in another time.—So that the note, which regularly is measured by the thesis and arsis of one and the same tactus, being syncopated, hath the former part in the arsis of one and the latter in the thesis of another. For which cause a pointed semibreve [in thesis], and a pointed minim in arsis (whose points begin the thesis of a new tactus) are accounted syncopata ["syncopated"]—as [Figure 38a].

3[Calvisius, Melopoeia] xii, [p. "1."

4Listenius, [Musica II.x;] Calvisius, [Melopoeia] xii, [p. "1."
A semibreve and also a minim with a point, if placed on the elevation of the tactus, are considered syncopated.\(^5\)

\[\text{[Figure 38. Syncope and Bass Cadence]}\]

\(^5\)Sethus [Calvisius, \textit{Melopoeia}] xii, [pp. "1-2." ]
(64.31e) [The band: one] entire measure-note.--Entire
in respect of the tactus, though for the ditty's sake, it
may be parted into sundry figures, as [Figure 38b].

(65.1f) Syncope is very useful, not just because of the
great sweetness given to the succession of
consonances, but because it contributes much toward
varying the harmony and toward depicting an
energetic text.

(65.9g) [The fourth sometime bound with a
semidiapente.]--
A fourth resolves rather easily into a
semidiapente, which is then followed by a ditone.

(66.5h) [The tritonus sometime bound with a
third.]--
If a semidiapente is to be made a syncopated note,
it is conditional only on its resolving to a
ditone.

(66.12i) Whether the bound note be concord or discord,
the binding note is always a concord—save only that a fourth
may be bound, in a cadence, with a semidiapente. (See (g)

6See (a) in [I.ii.4 [(24.1-4).]]
7Calvisius [Melopoeia] ix [(i.e., xii) p. "9."]
8Sethus [(Ibid.)] xii, [p. "5."]
9Sethus [(Ibid.)] xii, [p. "5."
(66.14k) [continued binding.]--

Sometimes syncope is continuous and not only one note is applied irregularly to the tactus but several, until its power is returned to the note of the figure which showed the cause of the syncope in the beginning.10

(66.21l) [A cadence is always sharp.]--Yea, though the cadence be in the bass, and a flat in some upper part answer unto it, as [Figure 38c11]. Which example Morley doth thus defend:

As for the sharp in the bass for the flat in the treble, the bass being a cadence, the nature thereof requireth a sharp. Let the ear be judge. Sing it, and you will like the sharp much better than the flat.12

This is confirmed by Calvisius, where he describeth the nature of a cadence:

Every clausula, whether it be in the acute or in the grave [voices], consists of three notes, the penult of which descends, the ultima of which ascends. Both ascent and descent should be made through a semitone, whether it happens in the keys [claves] in which the semitone occurs naturally,


11 Morley, Introduction, ] Part II, p. 29 [ (i.e., p. 94; Harman, 174). Morley's example actually has three parts, the middle part (b, a, g, in semibreves) of which Butler omitted. ]

12 Morley, Introduction, ] Part II, p. 29 [ (i.e., p. ]
or in those in which through a chromatic sign\textsuperscript{13} the interval of the tone is able to be diminished and reduced to a semitone. In fact, it is natural for this interval to be sought in these places, and to elevate the sound in a certain way—even without the chromatic sign written.\textsuperscript{14}

(66.22m) \textit{[Cadence inclineth to rest.]—}

"Clausula," that is, "cadence," is what we call that act of modulation \textit{[progression of parts]} in which the harmony comes to rest and some segment of the text ends.\textsuperscript{15}

(66.24n)

Perfect cadences are those which are whole, that is, those which consist of the three said notes. They are terminated by the most perfect consonances, as by a unison or an octave.\textsuperscript{16}

(67.40)

Imperfect clausulae are those which lead their harmony less toward rest but somehow suspend it. They show that the modulation is to progress

\textit{[Figure of the chromatic sign, i.e., sharp, which did occur in the 1630 ed. of Calvisius' \textit{Melopoeia}, is given here as an addition. Brackets indicate insertions of the present editor.]}

\textsuperscript{13}\textit{[Melopoeia] xiii, [p. "3."]}

\textsuperscript{14}\textit{[Melopoeia] xiii, [p. "3."]}

\textsuperscript{15}\textit{Ibid., p. "2." Brackets indicate insertion of the present editor. "Cadentiam" ("cadence") does not appear in the 1630 ed. According to 86.12-18, "close" and "cadence" are not synonymous.}

\textsuperscript{16}\textit{Ibid., p. "4." "Cadentiae" does not appear in}
further. This happens when the final note either is moved from its customary place, or comes upon others in imperfect consonances.¹⁷

[¹⁷] Ibid., p. "12."
Of fuga

Fuga is the (80a) repeating of some modulation or point in (80b) melody and harmony, an ornament (80c) exceeded delightful, and without satiety; and therefore [with] musicians, the more they are exercised in setting, the more study and pains they bestow in this ornament.

A point.--A point is a certain number and order of observable notes in any one part iterated in the same or in divers parts within the time commonly of two semibreves in quick sonnets and of four or five in graver music.

The parts of fuga are (80d) two: the principal, which leadeth; the reply, which followeth. And the sorts likewise two: report and revert.

Report.--Report is the iterating or maintaining of a point in the like motion, per arsin aut thesin ["through
arsis or thesis"], the principal and reply both ascending or both descending.

Report is either direct, which iterateth the point in the same clefs and notes (unisons or eighths), or indirect, which iterateth the point in other clefs; for it may be taken at any distance from the first note of the point, but specially at a fourth or fifth.

Direct report, or in the same clefs, is commonly in divers parts; indirect, or in divers clefs, in the same part.

Revert.—Revert is the iterating of a point in contrary motion, per arsin et thesin ["through arsis and thesis"], the reply moving per thesin if the principal ascend and per arsin if the principal descend. Which kind of fuga is much (80e) more difficult than report.

Observations in fuga.

1. Fugas, as cadences, should keep within the air of the song, beginning and ending in one of the four (80f) air-notes—specially in the tone itself, whose cadence hath the power to reduce all wandering modulations to their proper air. (See (i) in [I.iii.4] [83.12-19].)

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1Κατ᾽ ἀρσιν καὶ θέσιν. [Textual reference (either asterisk or obelisk) to the marginal note is lacking.]
2. Fuga may come in well without a rest, though better upon a rest, so it be not above three or four semibreves, but best upon one odd minim rest or three.

3. Although a sixth may not begin a song, yet may it begin a fuga that beginneth a part after a rest.

4. Neither in report nor in revert do musicians always strictly tie themselves to the just number, figure, interval, or tactus of the notes in the point; and rising or falling a fourth for a fifth, or a fifth for a fourth is usual—as in these three examples of Mr. Morley's, one of treble-descant, and two of bass-descant upon his plainsong, in the second part of his book (where you may wonder to see how many other several descants he hath made for his several purposes upon that one ground). [See Figure 59.]

\[2\] Morley, Introduction II, pp. 85 and 88; Harman, 163 and 167. Morley presented these as three separate, two-part studies (the plainsong being common to all three).
[Figure 39. Examples of fuga from Morley]
In the first example [the complete, uppermost staff of Figure 39] the point consisteth of eight notes in four semibreves; which is reverted in a fifth with eleven notes in four semibreves; and then reported in a fourth (for of that distance are all the notes, except the first which is a fifth) in three semibreves and a half before the close-note.

In the second the point consisteth of ten notes in four semibreves and a half; of which there follow nine reverted in a fifth in three semibreves, the last note being omitted; and then eight notes reported in a second in three semibreves and a half, two notes before the cadence being omitted. For the last quavers and crotchets are but a breaking of the cadence, the which is a fourth to the first cadence.

In the third example the point consisteth of nine notes in four semibreves and a half; which are reverted in a second in less then four semibreves; the last note whereof beginneth a report of the four precedent notes in a second. But the last of the report rising to E la mi changeth the interval, the which, as well as number and figure, you may find not always kept in these and other reported and reverted points. (See above [72.26].)
5. The fifth and last observation is that all sorts of fugas—reports and reverts, of the same and of divers points, in the same and divers canons, and in the same and divers parts—are sometime most elegantly intermeddled, as in that inimitable lesson of Mr. Bird's [presented below in Figure 40] containing two parts in one upon a plainsong. Wherein, the first part beginneth with a point and then reverteth it, note for note, in a fourth or eleventh; and the second part first reverteth the point in the fourth as the first did, and then reporteth it in the unison. Before the end whereof, the first part, having rested three minims after his revert, singeth a second point and reverteth it in the eighth; and the second first reverteth the point in a fourth and then reporteth it in a fourth. Lastly, the first singeth a third point and reverteth it in the fifth, and then reporteth it in an unison, and so closeth with some annexed notes; and the second first reverteth it in a fifth, and then reporteth it in an unison, and so closeth with a second revert. Where, to make up the full harmony, unto these three parts is added a fourth, which very musically toucheth still upon the points reported and reverted. The lesson is this: [Figure 40].

[3] Morley, Introduction, 103-04, cited this same example by Byrd in his discussion of two parts in one "per arsin & thesin," an example of which is seen in the uppermost two parts. The transcription is from Harman's edition, 185-86.
Simultaneous false relation.

*Figure 40, continued (Harman, Morley, Introduction, 185-86)*
Fuga ligata.

Iterating of the (80g) whole modulation of a song, namely when two or more parts are made in one, is a kind of fuga which Calvisius calleth "fuga ligata" ["strict fugae"].

These parts, principal and reply, sometime they prick down severally by themselves, as in Mr. Morley's examples of two parts in one in (80h) epidiatessaron and epidiapente, both in counterpoint and descant. In counterpoint thus: [Figure 41a]. In descant thus: [Figure 41b].

Thus plain.

Thus divided.

[Figure 41. Morley's two parts in one]
Sometime they write only the principal and prefix a
(81i) title, declaring both the distance of the reply and the
time when it cometh in (adding afterward, in his due place,
the mark of his close)--which title the musicians call
"canon," as in this example of Calvisius: [Figure 42a].

[5]The example is actually taken by Calvisius
(Melopoeia xix, pp. "2-3") from Gioseffo Zarlino; cf. his
Istituzione harmoniche III.li (In Venetia: [issued by the
author], 1558; microprint copy by University of Rochester
(In Venetia: Appresso Francesco de i Franceschi Senese, 1573;
Cf. also Zarlino, Counterpoint, 129-30. (Calvisius
acknowledges his indebtedness to Zarlino in his version of
the canon: Fuga post duo tempora, in octava superiore.
I.2.) For a comparative evaluation, see commentary, pp. 375-
79.
Fuga in Epidiasmus, post Octaves superiores, post duas Tempora.

[a]

Fuga in Tertia superius post Tempus

[b]

Fuga in Hypodiasmus post Tempus.

[c]

Fuga in Vacuo in Tertia superius, post Tempus.

[d]

Fuga in Unius post duo Tempus, & per Contrarium Motum.

[e]

Resolution of de Repli princt as it is fung.

[Figure 42. Examples of fuga ligata from Calvisius, Gallus, Zarlino]
Figure 42, continued (Zarlino, *Counterpoint*, 129-30)
[Figure 42, continued (Zarlino, Counterpoint, 137-38)]
[Figure 42, continued (Dolbeer, Butler, Principles, 134)]
Figure 42, continued (Dolbeer, Butler, Principles, 135-37)
[Figure 42, continued]
[Figure 42, continued (Zarlino, Counterpoint, 138-39)]
The canon is "Fuga in Epidiapason, seu Octava superiore, post duo Tempora." Where, for more surety, the note in the principal upon which the reply cometh in is marked thus: [Figure 42c, for example, beneath the sixth (should be seventh) note].

But now they have found a more easy and surer way, showing the distance of the reply by the place of another signed clef prefixed, and the time of his coming in by the rest annexed; according to which clef the reply is to be sung, as if the first clef were not—as in these two examples of Calvisius: [Figures 42b and c]. The canon of the first is "Fuga in Tertia superiore Post Tempus." The canon of the second is "Fuga in Hypodiapente post Tempus." But where the second clef with his rest showeth the canon, the title with the mark of coming in may seem superfluous.

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6Breve, not semibreve. See (b) in notes to [1.]p.4 [ (26.22-28). ]

7Melopoeia xix, pp. "7-9." For the first of these,
If you make more parts, three, four, or five, in one, their canons also may be likewise signified by their clefs and rests, prefixed in order one to another—as in this example of Jacobus Gallus cited by Calvisius: [Figure 42d].

The canon is "Fuga 5 Vocum in Tertia superiore, post Tempus."

Fuga ligata per arsin et thesin.—As fuga soluta ["free fuga"], so likewise ligata may be reverted, iterating the principal as well by contrary as by like motion—as in the example alleged by Calvisius out of the great musician Joseph Zarlinus [Figure 42e], whose canon is "Fuga in Unisono post duo Tempora, & per Contrarium Motum."

Resolution of the reply pricked as it is sung [is Figure 42e].

[Catch.]—(81k) A catch is also a kind of fuga, when, upon a certain rest, the parts do follow one another

cf. Zarlinus, Istituzione harmoniche III.lii, pp. 218-19 in the Venice, 1558 ed.; III.LV, p. 264 in the Venice, 1573 ed.; Marco, 137-38. (Calvisius does not acknowledge Zarlinus in the canon.) For the second, the transcription presented in the continuation of Figure 42 is from Dolbeer, Butler, Principles, 134.

[8] Melopoeia xix, pp. "10-11." The present writer has not been able to verify the original authorship of this canon.

round in the unison. In which concise harmony there is much variety of pleasing concepts, the composers whereof assume unto themselves a special licence of breaking, sometimes, Priscian's head: in unlawful taking of discords and in special consecution of unisons and eighths when they help to the melody of a part.

77-1a

The knowledge of these mysteries is best obtained by observing and imitating the (811) best authors; and the practice thereof, as it serveth to exercise and sharpen the wit, so will it much avail you to skilful and ready composing.

Harmonia gemina.

78-1

There remaineth yet a kind of fuqa which the Italians call "contrapunto doppio" ("double counterpoint"), belike because it was at first practiced only in equal-timed notes; and the English, because it is now made in quicker figures also, do call it "double descant." But Calvisius more fitly termeth it "harmonia gemina," a general name, that comprehendeth both; and because they have gone so far in this strange invention as to invert a third part also, he addeth

[10]Priscian was a celebrated Roman grammian (c. 500-30). To "break Priscian's head" meant to violate the rules of grammar. Morley also used this expression (Introduction III, p. 120; Harman, 213-14), as did Shakespeare.
This quaint harmony he doth thus define:

Harmonia gemina or tergemina is that of which, with the voices inverted, a second or third arrangement is able to be sung, where always the one and the other are heard as harmonies.  

That which inverteth only two parts he describeth thus:

Harmonia gemina is made from two voices if the low one is raised and the high one is lowered, 

that is, when two parts, which are called the principal, are so composed that being both moved out of their keys--the superior downward, and the inferior upward--they do yet agree together in another harmony, which two parts thus inverted are called the reply.

Of harmonia gemina and tergemina there are many ways, both in like and contrary motion.

The first way of harmonia gemina is when the superior

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[12] Ibid.
falleth a fifth and the inferior riseth an eighth—as in this example of Zarlino, cited by Calvisius: [Figure 43,\textsuperscript{13} in which a is] \textit{Vox superior}, or the higher part of the principal; [b is] \textit{Vox inferior}, or the lower part of the principal; [c is] (81m) \textit{Resolutio Vocis superioris, quae descendit ad Quintam}; or the reply of the higher part in hypodiapente, or the fifth below; [and d is] \textit{Resolutio Vocis inferioris quae ascendit ad Octavam}; or the reply of the lower part in epidiapason, or the eighth above.

Vox superior,

\[ \text{Example of harmonia gemina from Zarlino} \]
Upper part of the principal

Middle part

Lower part

[a, b]

[Figure 43, continued (Zarlino, Counterpoint, 160-61)]
The second way is when the superior falleth a tenth and the inferior riseth an eighth.

The third is when the superior falleth an eighth and the inferior riseth a tenth.

The fourth is in contrary motion, when the superior descendeth to the ninth and the inferior ascendeth to the seventh.

But the sundry ways of gemina and tergmina harmonia, both in like and contrary motion, with pregnant examples and their resolutions, are taught by Calvisius in his twentieth chapter and by Mr. Morley in the end of his second part. 14 Unto whose subtle tractates I refer the curious reader that desireth to try and exercise his wit in these abstruse and quaint concepts.

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Annotations to [Chapter III,] Section 4, Paragraph 3

(71.27a) [Fuga.---]

Fuga is a resolved repetition of some modulation [melodic movement].¹

(71.28b) [Fuga] in melody and harmony.---Not only in the harmony of parts, where it hath a great grace, but also in the melody of each single part--there being scarce any tune (specially in the chromatic and Doric moods) worth the hearing, wherein a whole strain, or half a strain, or some part is not once or often repeated.

(71.28c) [Fuga exceeding delightful.---]

Repetitions of modulations [melodic movement], however disjointed by interval of time, by gravity and acuteness of sound, likewise by fastness and slowness of numbers, affect the human mind in a strange way when first heard, and carry away nearly all [minds] in consideration of themselves. They are also durable; for the more often they are heard by one, the more delightful they become to him. And the more practiced musicians are in composing harmonies, the more they are occupied in producing fugas.²

¹Calvisius, [Melopoeia] xv, [p. "2."]

²Calv[isius (Ibid.)] xv, [p. "2", except for the last
There are two parts to fuga. The first is the voice which precedes; the other is that which follows, whether there is one or several. The voice which precedes functions in the office of dux ("leader"); it is therefore given the name "dux." The follower is called "comes." 3

The two parts of fuga which Morley calleth "principal" and "reply" are here called "dux" and "comes." 4

A more difficult way is when the comes follows its dux in contrary motions: it descends by how much the dux ascends, and vice versa. This fuga is said to be made per contrarium, or per argin et thesin. However, it occurs only in some forms—as in semiditus or seventh. 5

Air-notes.—That is, the final notes of one of the four cadences proper to the air. (See h in [I.iii.4.]4[87.10-11].)

3Ibid., [p. "3."]

4But Morley appears to restrict the use of these terms to double counterpoint (Introduction II, pp. 705-15; Harman, 188-203). His definitions (p. 105; Harman, 188) read as follows: "the principal (that is the thing as it is first made) and the replie (that is it which the principal hauing the partes changed dooth make)." In his discussion of simple canon (pp. 96-104) the terms are not used.Calvisius' "dux" and "comes" seem to be paralleled more closely by Zarlino's "guide" and "consequente."

5Calvis[ius, Melopeeia] xix, [p. "3."]
(75.1g) [Fuga ligata]--

Fuga occurs either through the whole song or only in a part. That which occurs through the whole song is called "fuga ligata"--where it is necessary that all the song's incidentals [notations] with respect to time and figures be observed.6

(75.6h) Epidiatessaron.--The interval of the reply from the principal is sometime above it and sometime beneath, and is therefore called superior or inferior. But the three old concords, diatessaron, diapente, and diapason, are commonly distinguished by the prepositions ἐπί and ἐμπε--as "epidiatessaron," "epidiapente," and "epidiapason," when the reply is in the diatessaron, diapente, or diapason above the principal; and "hypodiatessaron," "hypodiapente," and "hypodiapason," when the reply is in such distance beneath.7

(75.11i) A title, [or canon].--

Fuga ligata is inscribed with a certain title which musicians call "canon," whereby both the interval of time in which the comes follows the dux and the manner [interval] of singing are indicated,8 as in the examples there following.

(77.10k) A catch.--


"Calvisius, Melopeia xii [(i.e., xix), p. "1."]"
And there is a type of fuga where several voices, after a certain time, sing at the unison in a circle, returning to the beginning at the end.\footnote{\textit{Ibid.}, p. "11."}

Of this kind he hath three examples, and we infinite, whereof one hath collected, and set fourth a great part.\footnote{\textit{Introduction II}, pp. 96-104; Harman, 177-87.}

\footnote{The collector was Ravenscroft; his printed catch books are \textit{Pammelia} (1609), \textit{Deuteromelia} (1609), and \textit{Melismata} (1611). The round "Three Blind Mice" first appeared in the second of these collections.}


\footnote{Published as \textit{Divers and sundry waies to two parts}}
famous musicians, Bird and Alfonso, who in a loving
contention (as Mr. Morley speaketh) made upon the plain-
song of Misere, forty several ways. But Mr. George
Waterhouse hath in this kind far surpassed all—who (as
Mr. Morley there testifieth), upon the same plainsong, hath
made above a thousand, every one different from another.16

(76.24m) Resolutio.—That which Calvisius calleth
resolution of vox superior and vox inferior, the two
concordant parts which are inverted, Mr. Morley calleth the
higher and the lower part of the reply to the higher and

in one to the number of fortie uppon one playn song by
Thomas Este in 1591. Cf. A. W. Pollard and G. R. Redgrave,
A Short-Title Catalogue of Books Printed in England,
Scotland, & Ireland, and of English Books Printed Abroad,
1475-1640 (London: By Arrangement with the Bibliographical
Society, 1926), 233.

14In the end of the second part [(p. 115) of
Introduction (Harman, 201-02).]

New York: W. W. Norton, 1959), 869, refers to these
compositions of Bird and Perrabosco, reporting that East may
have printed them in 1603 under the title Medulla, which is
not extant. However, Reese believes that the nineteen
settings of Byrd reprinted in Edmund Horace Fellowes, ed.,
The Collected Works of William Byrd (London: Stainer and
Bell, 1937-50), XVI, 78-95, and possibly the two rounds,
104-05, may represent Byrd's contributions to the contest.
Harmon, Morley, Introduction, 202n, states without
reservation that they were printed in Medulla.

[16]Waterhouse (d. 1601) wrote 1,163 of these, which are
in manuscript at Cambridge, according to Percy Alfred
Scholes, "Canon," The Oxford Companion to Music, ed. by
lower part of the principal.\textsuperscript{17}
EDITORIAL COMMENTARY

I.iii.4.3 (71.27-81.25): the Concept of Fuga

One of the important features of this section is the recognition of the fact that the report (imitation of a point) could be taken "at any distance from the first note of the point, but specially at the fourth or fifth" (72.6-8); and the fact that in the imitative process, "rising or falling a fourth for a fifth, or a fifth for a fourth is usual" (72.28-29; cf. also analysis of the first example of Figure 39, an example of tonal answer, in 73.1-5). The implication that the emphasis was to be on keeping within the air by emphasizing primary concords and the air note (72.16-20), even if intervallic alteration occurred in doing so, was perhaps stated more precisely by Simpson (Compendium IV.viii, "Of Puga or Fuge," p. 131) in his discussion of license in fuga:

Likewise take notice that you are not so strictly obliged to imitate the Notes of the
leading Part, but that you may use a longer Note in stead of a shorter, or the contrary, when occasion shall require. Also, you may rise or fall a 4th. or 5th. either in stead of other; which is oftentimes requisite for better maintaining the Air of the Musick.

However, Imogene Horsley's statement that during the early history of fugue "only two [English] theorists [named as Simpson and Purcell (Playford, Skill of Musick, 1694 ed., 157)] . . . described the tonal type of answer" might be amended to include Butler's description.

Butler's concept of fuga had undergone some changes since the time of Zarlino, who had given the following definitions for "fugue and imitation" in his *Istitutione harmoniche*:

Let us say first that Fugue is the copy or repetition by one or more parts of the voice-complex of a section or of a whole melody sung [first] by one part, high or low, of the composition. The parts may proceed one after the other at any distance of time, using the same intervals, singing at the unison, the octave, the fifth, or the fourth below or above. Next, we shall call Imitation that copy or repetition which is like what I have already described for the Fugue, except that it does not proceed by the same but by quite different intervals, the rhythmic and melodic figures of the two parts being nonetheless

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2III.liv, p. 257 in 1573 ed.; translation from James Haar's article "Zarlino's Definition of Fugue and Imitation," *Journal of the American Musicological Society*, XXIV, No. 2 (Summer, 1971), 228-29. The brackets are Haar's.
similar.

Zarlino would have referred to the answering of the fifth by fourth, and vice versa, as imitation, not "fugue," or fuga; in his definition of "fugue" the emphasis is on exact intervallic relationship rather than on tonal orientation. The example (Figure 42b following 76.10) which Butler referred to as "Fuga in Tertia superiore Post Tempus" and which Calvisius referred to as "Fuga in Ditono superiore post tempus" was accordingly referred to by Zarlino not as a type of fuga legata but as "prima maniera di Imitatione legata"—"the first manner of strict imitation"—since the opening minor third of the principal, or dux was answered by a major third in the reply, or comes.

In comparing Butler's versions of fuga legata and harmonia gemina (Figures 40 (75.16) and 43 (78.24) to the examples in Calvisius' Melopoeia from which they were derived, referring specifically to the 1630 edition of Melopoeia, the following differences may be noted. First, the Haviland edition of Butler's Principles consistently gave the final note as a breve rather than the long which is

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3Cf. Ibid., 226-27. However, Zarlino was of course aware of the principles of "tonal" answer, as Haar-points out.

4Istitutione harmoniche III.1v, pp. 263-64 in 1573 ed.
peculiar to the editions of Calvisius and Zarlino. Secondly, in Figure 42a and b of the Haviland edition, the *coronata* (fermata) is misplaced; in 42a it should be beneath the seventh note before the final, in 42b the fifth note before the final. In 42a the *prese* (indication of the reply's point of entry) was omitted for purposes of illustration, that is, since it was introduced as a modern addition in the paragraph which followed (76.3-14). Thirdly, several sharps made their appearance, apparently for the first time, in the Haviland edition: 42b, the sharp before the second note of the second system; 42c, the sharp before the third note from the end of the first system; 42e, the sharped penult. Each of these additions occurs in a cadence progression; had Butler felt the need to justify the additions verbally, undoubtedly he would have quoted from Calvisius' *Melopoeia* xiii, as he did in 71.11-17, to the effect that the sharped cadence occurred naturally even if the sharp were not specified in the notation. Finally, as mentioned in the preceding paragraph in connection with Figure 42b, there are slight differences in the wording of the canons for the examples of fuga legata; these differences consist primarily in the use of synonymous words for names of intervals—for example, Butler's "epidiapason" for Calvisius' "octava superiore"—and the manner of acknowledging the author of the example—Butler in
the text, Calvisius in the canon (cf. footnote material to Figure 42, p. 351).
Paragraph 4

Of formality

81-26

The last and chiefest ornament is formality, which is the maintaining of the (86a) air, or tone of the song, in his parts.

81-29

This is ornamentum ornamentorum, "the ornament of ornaments," with which the parts are sweetly conformed one to another, and each of them to itself; and without which not only the other ornaments lose their virtue and cease to be ornaments, but also both melody and harmony themselves lose their grace, and will be neither good melody nor good harmony—the whole song being nothing else but a formless chaos of confused sounds.

81-37

What the air or tone is.--The proper tone of each song is (86b) the close-note of the bass in his final key, which should ever be such as best suiteth with (86c) the
entrance and progress of the subjectum—cantus, or plain-song\(^1\)—and also agreeeth with the close-note thereof, in the same interval, or at least in some other primary concord.
(See (m) in [I.]iii.3 [48.31-36].)

Tones six.\(^2\)—Of tones there are six several sorts, defined and distinguished by the six servile notes: (\(86\)) ut, re, fa, sol, la, and pha.\(^3\) The seventh, which is the master note [Mi], will not be subject to his subjects, nor, in that low place, agree with them.

Of these six airs the third, second, fourth, and first (fa, re, sol, and ut) are frequent; pha is rare, and la more rare.

The air, or tone, being thus deduced from the subject or otherwise (without a subject) chosen and constituted by the author, is to be maintained in all places: entrance, 

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\(^1\)See "index" in [I.]iii.2 [(45.1-9).]

\(^2\)Discussed in commentary to 82.3-10, pp. 406-08.

\(^3\)See [I.]ii.2, (b) [(12.6-12).]

[17]At the end of Introduction III, pp. 173-77; Harman, 283-89, Morley used the term "resolution" for more complex canons, generally, such as riddle canons and, in one instance, a canon involving retrograde. He did not use the term in his discussion (II, pp. 96-114; Harman, 177-200) of simple canon and double counterpoint.
progress, and close of the song. The first two are manifest.

A close (clausula).—The close is a formal meeting of all parts in primary concords, commonly with a cadence, and not without some preparation and prolation unto it, for the concluding either of the whole song or of some principal part thereof (verse or other period). The which, as epilogus orationis ["the orator's epilogue"], should be sweetest and most pathetic, and therefore requireth most art.

Of closes, some are simple, without any additament to the close-note; such are fit for counterpoint. And some are extended, or augmented with an appendix in which the three means of maintaining the air (see below) are or may be sweetly intermeddled; such are fit for descant, especially in the Lydian mood. Of both which sorts many formal examples, with cadences and without, both for grave and light music in four, five, and six parts (collected, as I suppose, out of the best authors) are particularized by Mr. Morley in the third Part of his Introduction. The which are worthy to be diligently examined and imitated of all students and practitioners.

The air maintained by three means.—The means

[▲]Pp. 127-44; Harman, 223-42. The evidence seems to
whereby the air in these three places is maintained are
three: cadences, fugas, and certain, single observable notes.

Proper cadences.--Cadences, in respect of the air,
are either proper or improper; and proper, primary or
secondary.

The primary cadence is formed (87h) in the tone
itself—unison or eighth.

The secondary cadences are three—formed in the three
consonant intervals of the tone: the first in the mediety of
the diapason, which is the highest note of the diapente; the
second in the mediety of diapente, which is the third; and
the third in the middle between the fifth and the third,
which is the diatessaron. So that [i.e., thus], all the
proper cadences, one primary and three secondary, are
contained in the tones diapente. As if, the tone being
SOL, the diapason be [Figure 44a], the primary cadence will

indicate that these examples (over one hundred) were taken
from Orazio Tigrini's Il Compendio della musica (New York:
Broude Brothers, [1966]; facsimile of Venice, 1588 ed.), or
at least from the same source (whatever it may have been).
Harman (Morley, Introduction, 241-42) gives comparative
tables which point up the close relationship between the two
authors in this respect.

[5] In the Haviland ed., the word "sol" is printed in the
form of three capitals ("SOL"). Cf. 66.33.
[Figure 44. Examples of cadences]
be [Figure 44b], the fifth-cadence [Figure 44c], the
fourth-cadence [Figure 44d], and the third-cadence [Figure 44e].

The air maintained by cadences. ⁶— The primary
cadence only is used in closes, though not in the closes
only, but in all other passages also of the song—and that
more frequently than any of the secondary cadences, which are
taken in those places only. In which it hath (67i) this
peculiar power above the rest: that when through improper
either cadences or points or great figures the harmony
seemeth to digress into any other air, it only can cover the
informality and reduce the harmony to its proper air again.

Of secondary cadences the fifth is chief, as most
pleasing and best maintaining the air; the third, being the
mediety between the tone and his diapente, is counted next in
use and in affinity to the tone. But because in true
cadences the binding half note must ever be sharp,⁷
therefore in the first and third tone (ut and fa) the third
[cadence, on b in ut, on e in fa,] is excluded; and in the
second and fifth tone (re and la) the fifth [cadence, on e in

[⁶]See also commentary to 62.35-83.36, pp. 409-11.
[⁷]See (1) in notes to [I.iv.]2 [(71.5-17).]
re, on b in la,] is excluded, because their binding half notes [a and d] are (87k) neither sharp nor apt to be sharped. But (87l) the fourth (whose binding half note, in all airs, either is or may be sharped) is never excluded; nevertheless it is chiefly used in those airs where either the third or fifth is wanting—for where they are, they are preferred.

**Improper cadences.**—Improper cadences are likewise three: the sixth, the second, and the seventh. The which, because they are strange and informal to the air, are therefore (87m) sparingly to be used; and when, upon occasion, any such are admitted, they are to be qualified by the principal cadence fitly succeeding. (See (i) above.)

Fugas likewise, and observable notes, are (in respect of the air) either proper or improper; and proper, primary or secondary. The primary (as primary cadences) are formed in the tone, the secondary in the tone's three concords (fifth, fourth, and third), and the improper in all other intervals.

[The air maintained] by fugas.—The air is maintained, in all places, by these proper fugas when the points begin (87n) in the tone itself (simple or compound) or in any of his three concords—especially those that are found in the subject. It is also formally maintained when any
point of the subject is iterated.

By single notes.—The observable note whereby the air is maintained in the entrance is the first note of the bass or lowest part formed unto the first note of the subject, after these directions:

I. (87o) In what interval soever from the tone the subject doth begin, the bass may begin in the same key with him, but so that he repair as soon as may be to the tone.

II. (87p) If the subject begin in the same key (simple or compound) with the tone (which is most formal, and therefore most usual), take none but the tone for the bass.

III. (88g) If in the fifth or third to the tone, take likewise the tone, or, to the fifth, the third.

If the subject begin in any other interval, the bass may take any such concord as is consonant to the tone:

I. (88r) As if it begin in the compound second, the bass may take the tone's fifth, which will be the second's fifth also; and if in a simple second, the bass must take the hypodiatessaron, or fourth below the tone, which is the same key with the fifth above.

II. (88s) If in the seventh, the bass may take the
tone's fifth, which will be the subject's third, or the
tone's third, which will be the subject's fifth.

III. (88t) If the subject begin in the sixth, take the
fourth to the tone, which is his third.

IV. If in the fourth, because neither the tone nor any
of the tone's concords can be set unto it, the bass must be
content to take his eighth or unison—as it may do in what
interval soever the subject doth begin. (See (o) above.) His
other concords are not formal, as having no kind of
concordance with the tone.

The observable notes maintaining the air in the
progress and close are likewise first the tone itself (simple
or compound) then the three special concords (whereof the
fifth is the chief): namely, when in the bass or other part
of the song they are insisted upon in some greater figure (or
his divided parts) containing twice, or thrice, or oftener
the time of the measure-note.

Unto such a great figure many quick notes (which are
commonly (88u) quickest towards the end) do usually answer,
together with iterated points of like time. And sometime
after the simple close (especially in motets) the tone is
(88x) insisted upon in one part while the other do descant
upon it, until, at the last, they meet all together again in the same close final. 

These greater figures, here and there interposed, are usual and graceful. In Tallis' "Absterge" (the second motet of Cautiones sacrae), the bass hath six breve figures and a pointed semibreve in unison, four breve figures in diapente, one in diatessaron, and one in semiditonus.

The tenor hath one breve figure in diapason; and five in diapente, whereof three are pointed and one hath a minim annexed; also one long with a semibreve.

The first counter hath three breves, one pointed breve, one breve with a minim, and one long in diapason; two pointed breves with a pointed semibreve, and one breve in diapente; also one breve in semiditonus.

The second counter hath three breves, a minim with a breve, a breve with a semibreve, and a semibreve with a minim in diapente; also one breve in semiditonus, and one in ditonus.

[8] A reference to the so-called "plagal cadence."

The mean hath four breves and two pointed longs in diapason, two breves in diapente, and one in semiditonus.

These greater figures are proper to the air. But as improper cadences, so improper figures (seconds, sixts, and sevenths) may sometime, for variety, be inserted among the proper--by which (as well as by proper cadences) they are suddenly to be qualified, lest by that means the air should seem to be changed.
Annotations to [Chapter III,] Section 4, Paragraph 4

(81.27a) Air, or tone.--In this word is a large metalepsis: "Air," of "aer," for "percussio aeris" ["beating of the air"], metonymy of subject; "percussio" for "sonus," metonymy of cause; "sonus" for "tonus," synecdoche of genus; and "tonus" for final bass tone, the same synecdoche.

(81.37b) [The proper tone.] the close-note. . . .--
According to the general rule of musicians, "In the end will be seen of what tone."¹

(81.39c) [The close-note suited to] the entrance and progress. . . .--

In this choral song, let the person devoted to this art consider diligently what are the progressions of the modulation throughout, what beginning and what end, that he may know what mode [modus] the song is related to. For then he will be able to determine both the primary and the secondary clausulae of this mode and to note their proper

¹Calvisius, Melopoeia] xvii, [p. "4." The phrase is in italics in the 1630 ed. of Melopoeia.]
Note here that by "modus" (the proper name of a mood) Calvis[ius] meaneth the air, or tone, in which sense Boethius also hath taken it. (See below, end of (d).) But Boet[ius] (to avoid the ambiguity) doth there explain himself by two other known terms, "tropus" and "tonus." Moreover by "clausula," the proper name of a close, he here meaneth a cadence; and yet there is so much difference between them—that a cadence may be without a close, and a close without a cadence. But it is meet, for facile and speedy instruction, that different things should have different names. Both these words, in these acceptions, see again in (e).

(62.4d) [Tones six:] ut, re, fa, sol...—The distinction of the airs by the keys (which Calvis[ius] seemeth to allow) is uncertain, because in the same key are many different tones: as in D may be la or sol or re; in C may be sol or fa or ut; and so on. So that [i.e., thus], if


3See (e) in [I.]i [1.7-8].

[4] Cf. the over one hundred examples of closes in Morley, Introduction III, pp. 127-44 (Harman, 223-42), in which the presence of the sharp cadence has no bearing on determining the degree of finality of the close—that is, whether it is "passing" or "full." However, the cadence appears in about ninety per cent of these examples.
we say the tone is in D la sol re, C sol fa ut, or G sol re ut, and so on, we are yet to seek which of the three notes in any of these keys to take for the tone. But the distinction of the airs by the notes [syllables] is certain and constant, in what keys so ever they stand. It is true that every of the six tones hath three several keys (according to the number of the Mi-clefs) in which it may indifferently be set; but wheresoever it be set, all cometh to one. For example, if re be the tone, or air-note, whether it stand in A re (the Mi-clef being B) or in D sol re (the Mi-clef being E) or in gam ut (the Mi-clef being A), there is no difference at all, either in the song or in any part of the song or in any note of a part. Likewise, if sol be the tone, it maketh no matter whether it stand in D sol re or gam ut or C fa ut, and so on. If you object that, albeit the order of the notes, both in name and sound, be still the same, yet one of these keys is higher than another, that is not material; for whether the key be high or low, it resteth in the discretion of the cantor to set the tunes according to the ambitus, or compass of his voices. This in effect doth Boethius teach where he distinguisheth the tones not by the keys but by the

5See (i) in [I.ii.2 [(14.14-17)..]]

6[De musica] IV. See below.
several diapasons which are grounded upon the several tones--every one whereof, consisting of his two parts, diatessaron and diapente,\textsuperscript{7} containeth in the diapente, or lower part, not only the tone itself but also his three proper concords (fifth, fourth, and third):

From the diapason species of consonances, therefore, there exist what are called "modes"--which some call "tropes" or "tones."\textsuperscript{8}

\textbf{(82.17e) [Close is] for the concluding either.} \textsuperscript{87-1}

The primary clausula, while it may occur anywhere in whatever harmony you wish, indeed in the beginning, middle, and end (that now this, now that mode not be brought about through other clausulae, but that everywhere the true mode be observed), still is customarily made nowhere with so much preparation, selection, and endeavor as in the end of either the entire song or of [its] periods.\textsuperscript{9}

\textbf{(82.19f) [Close should be] sweetest.} \textsuperscript{87-6}

Although the trope of the harmony ought to be everywhere apparent, yet this is especially true of the end, whence all its goodness, elegance, and perfection are judged.\textsuperscript{10}

\textsuperscript{7}See [I.]iii.3 and (e) in notes [(52.29-31).]

\textsuperscript{8}[\textit{De musica} IV.xiv; [Migne, 1278; cf. Bower, IV.xv, pp. 275-76.]

\textsuperscript{9}Sethus [Calvisius, \textit{Melopoeia} xviii, [pp. "4-5."

Calvisius says "proper," not "primary" cadence.]

\textsuperscript{10}Sethus [(\textit{Ibid.})] xvii, [p. "4."
The primary clausula (that is, cadence) is formed in the final key itself, which is the lowest in the diapente.

This peculiar power [of the primary cadence].--

Primary clausulae are used in the beginning and the end of songs. They are used even when the song seems to be inclined to and led to another trope through other, assumed clausulae. For through this proper cadence it is recalled and returned to order.

Nevertheless the la-cadence is sometime admitted, as in these examples: [Figure 45]. In the first whereof a seventh is bound with a sixth. In the second a ninth is bound with an eighth. In the third, a fourth with a third.

[Figure 45. La-Cadence]

11See above, (c) [(86.15-20). The phrase "that is, cadence" is possibly Butler's.]

12Calv[isius (Ibid.)] xiv, [p. "5."]

Some, to make this like other cadences, take upon them to sharp sol; but this is unnatural and unapt to be sung: howsoever, by the help of the inordinate half tones it may be played.

(83.281) The fourth [cadence].—The fourths, in all airs, are absolute of themselves, save only the fourth of pha, which is a tritonus; but by flatting the master note it becometh a perfect diatessaron.

(83.34m) [Improper cadences used] sparingly, with judgment.—

If besides, that is beyond the proper primary and secondary clausulae, others, that is improper clausulae, are appropriated by musicians, they do it as an extraordinary thing, and with judgment and by choice.14

(84.7n) [Air maintained by fuga] in the tone itself.—

When the beginning of the subject is in the final key of that trope, if he intends to introduce fuga soluta, let him establish the note of the last [infimae] voice in unison or in octave with the subject, or also he may raise or lower the voices, which he adds, to the diapente, or diatessaron, or third (consonances of the tone).15

(84.14o) [First base note any note]—See "index" in

14Sethus [Ibid.] xiv, [p. "5." The "that is" clause appears to have been added by Butler.

15Calvisius [Ibid.] xvii, [pp. "2-3."]
The trope and final key known, let the composer direct his attention to the beginning of the subject—whether it is in the proper key of that trope. Let him establish the note of the lowest voice in unison or in octave with the subject, lest, if another key is taken under the subject, another trope might seem to be implied. He will be able to place the remaining superior voices anywhere he wishes so long as they are consonant.

However, when the subject takes its beginning in a foreign key, often indeed the other voices are begun in that key in which the subject begins, but so that it withdraw into the proper clausula of its tone as soon as possible.

But when the first note of the subject sounds consonantly at the proper key, in that some lower, added voice\(^{16}\) lays the foundation of the subject, so that immediately in the beginning the harmony of the trope not seem obscure.\(^{17}\)

\(^{16}\)Namely, the proper key.

\(^{17}\)Calvisius, Melopoetia xvii, pp. "2-3." In the quote in Butler's annotation ")" just above, the words "infima vocis . . . constitutit" ("Let him establish . . . subject") also occur, but the words "Cognito Trope . . . fuerit" ("The trope . . . trope.") , which precede, are omitted.

\(^{18}\)Cf. Sternhold and Hopkins, The Whole Booke of Psalms, ed. by Ravenscroft, and others (London: T. Harper, 1633; this version first printed 1621) 12-13, transcribed in Figure 46. (The source is hereafter referred to as Ravenscroft, Psalms.)
the close-note of the cantus, or church-tune is re in G sol re ut and the tone answering thereto is re in gam ut, unto which the first note of the cantus, mi in A la mi re, is a compound second; and therefore the first note of the bass is la in D sol re, which, being a fifth unto the tone, is also a fifth unto the compound second, or first note of the cantus.

(84-29s) *If in the seventh.*—In that ancient "Scottish Tune" the last note of the cantus is sol in G sol re ut, and the tone answering to it sol in gam ut, unto which the first note of the cantus, fa in P fa ut, is a seventh. And therefore the first note of the bass is re in D sol re, which is a fifth to the tone and a third to the seventh.

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19See *[I.iii.] 2 [(p. 44, i.e., Figure 24b).]
Magnificat.

To the chief of ministers, true according to his mind;
And all his anointed King,
As yee in Scripture knde.
As by his holy Prophets all
Oft times he did declare.
The which were since the world began
His ways for to prepare;
What ever might be delivered
From those that make debate.
Our enemies, and from the hands
Of all that doe us hate.

Benedictus.

1. The mercy which he promised
Our Fathers to fulfill:
And shew his covenant made
According to his will.
And also to perform the oath
Which he before had sworn
To Abraham our father Isaac,
For ye that were fore Loren.
That he would give himselfe for us
And us from bondage bring.
Out of the hands of all our foes
To turne our heavy King.

Magnificat.

2. VVorthy is the Day spring from high,
Incomparable to shine.
VVich doth it in darkness sit,
To lighten those that dwell in night:
VVe shall for our God and the oppreoss:
And also for to guide our feet the way to peace and rest.

Benedictus.

3. To guide the knowledge how that their
Salvation is near:
And the remembrance of their times
Is through his mercy.
VVe shall for our God and the oppreoss:
And also for to guide our feet the way to peace and rest.

Magnificat.

4. And that without all manner fear,
And eke in righteousness.
And also for to lead our lives
In deathfull blessing:
And shew the Prophet of the highest
His ways for to direct:
For thou shalt goe before his face,
For to prepare his ways:
And also for to teach his will,
And pleasure all days.

Benedictus.

5. That he might goe and let the mighty goe.
For now behold all nations,
And generation all.
From this time forth for evermore,
Shall me right hand call.
Because he hath me magnified,
VVe shall see his face.
VVithout all generation,
Known at first his name.
He sheweth strength with his great name
And made the proud to nasse:
VVe shall all imaginations
That they bare in these harts.

Benedictus.
My soul doth magnify the Lord, my spirit exalteth more,
rejoiceth to the Lord my God, which is my saviour:
And why? because he did regard, and gave respect unto
so base estate of his handmaid, and let the mighty goe.

[Figure 46, continued]
This tune hath been set in four parts one way by Mr. Thomas Ravenscroft, bachelor of music, in the name of "Oxford Tune" [editor's Figure 47], and an other way by J. Dowland, b[chelor] of music, and another way many years ago (above sixty in my memory)--all keeping the same cantus and the same tone. During which time (and I know not how long before) it hath been frequented in our churches, with approbation. And therefore it may seem strange that any man (especially a professed musician) should adventure, without any ground, to charge the true music of it with informality, and the skilful artists, through whose hands it hath passed, with neglect or ignorance.

[20] Cf. Ravenscroft, Psalms, 134-35, transcribed in Figure 47.


Why art thou Lord so long from us in all this danger deep?

Why dost thin anger kindle thus at thine own pasture sheeps?
(84.32t) **If in the sixth.**—In "Da pacem," set by Mr. Ravenscroft [editor's Figure 48], the last note of the cantus, or church-tune, is ut in G sol re ut, and the tone answering to it is ut in gam ut, unto which the first note of the cantus, la in E la mi, is a sixth; and therefore the first note of the bass is fa in C fa ut, which, being a fourth to the tone, is a third unto the sixth.

(85.11u) **Quickest toward the end.**—This practice is observed by Calvisius where he saith

> Around the end, the motion of the harmony is made somehow more excited than in the beginning, so that as greatly as possible it initiates natural motion—which likewise is slower in the beginning and faster in the end.²⁴

[²³]Cf. Ravenscroft, *Psalms*, 266-69, transcribed in Figure 48.

[²⁴][*Melopoeia*] xvii, [p. "4."]
[Editorial Figure 48. Ravenscroft’s "Da pacem"]
(85.13x) [After the simple close the tone] is insisted upon. — This grace of extending the close is likewise remembered by Calvisius in the same place:

After that proper and final clausula, a short appendix is customarily added, but with this reason: that the voice which occurs in the chief key (whether this happens in middle or acute sounds) remain ἀκιντός — "immobile," and finally the bass be either elevated into the same [key] or lowered into its diapason or disdiapason. 25

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[25] Ibid., pp. "4-5."
EDITORIAL COMMENTARY

82.3-10, 86.21-46 (Annotation (d)): the Six Tones, or Airs

The la air, the rarest of the airs (82.9-10), corresponds to the Phrygian mode—for example, E la mi to e la mi in scala duralis (no sharps or flats); the pha air corresponds to the Lydian, and is next rarest (82.9-10). Of the four common airs, the ut and fa correspond to Mixolydian and Ionian, respectively; while the Ionian is comparable to the modern major, likewise is the Mixolydian when the seventh degree is consistently sharped. The re and sol airs correspond to the Aeolian and Dorian modes, respectively, forerunners of the modern minor tonality.

In the Ravenscroft Psalter (1633 ed.) only four airs occur: fa, 77 times; ut, 20 times; re, 48 times; sol, 39 times. Butler's statement that "pha is rare and la more rare" (82.9-10), would thus seem to be vindicated, at least in this source. In attempting to justify this statement of
Butler's with H. K. Andrews' tabulated analysis of William Byrd's choice of modality,¹ the results are not as convincing, since there is a high percentage of Phrygian (la) in comparison to Dorian, and a very low percentage of Lydian (pha)² in comparison with Phrygian. The percentages given by Andrews, based on an analysis of 411 items, are as follows: Dorian (sol) 9.2%, Phrygian (la) 7.3%, Lydian (pha) 0.5%, Mixolydian (ut) 16%, Aeolian (re) 40%, Ionian (fa) 27%.

The psalms (bass and tune only given) of Playford's "Rules and Directions for Singing the Psalms" (Skill of Musick I, pp. 71-89 of 1674 ed.) are in the following airs: 7 fa and 8 ut; 2 re and 8 sol; 2 la (one of which is questionable because of accidentals). In the 1694, Purcell edition of Playford's treatise (pp. 96-103 in Zimmerman edition), which reproduced some of these tunes with some alteration both as to keys and as to titles, there are (according to Butler's system of analysis) 2 fa and 4 ut, and 6 re. Tufts' Introduction of 1726, thirty-one of the thirty-seven tunes of which can be traced either to

¹Byrd's Vocal Polyphony, 19.

²Cf. Ibid., 13: "... the need to flatten the B to avoid the vertical diminished fifth above it if it occurred in the lowest voice, in addition to the melodic reasons for this alteration, tended to destroy the individuality of this mode and equate it in interval series, diapente and diatessarion, with the Ionian mode transposed." Cf. also 87.26-28.
Playford's *Whole Book of Psalms* (London, 1677) or to Thomas Walter's *Grounds and Rules of Musick Explained* (Boston, 1721)—the major contributor not being conclusively determinable—contain the following airs: 20 fa, and 1 sol and 16 re. In the 1727 edition of Playford's Psalter the airs are represented as follows: 64 fa and 10 ut; 80 re and 3 sol.

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4 Re was written "la" in the four-syllable system used by Tufts. In terms of the major-minor system, one would say that of Tufts' thirty-seven tunes twenty were major, mi being the leading-tone, and seventeen were minor, sharpened ut (sharpened fa in the sol air), that is sharpened sol (fa in the sol air) in the four-syllable system being the leading tone.

Although Butler never mentioned Thomas Campion's name in his treatise, there is a sufficient amount of circumstantial evidence to indicate that he may have been familiar with Campion's New Way of Making Powre Parts. First, as noted in the discussion "I.iv.1 (55.22-64.20): consecution," (pp. 308-09) both Butler and Campion drew from Calvisius' Melopoeia in their discussions of consecution; however, since Campion's version of Calvisius' rules took the form of a simple translation, primarily, with some additions of his own which did not show up in Butler's discussion, attempting to link Butler with Campion on these grounds alone is rather insubstantial.

Secondly, the reference in 88.15-23 to "a professed musician" who had charged "the true music of it [the 'Oxford Tune'] with informality, and the skilful artists through whose hands it hath passed with neglect or ignorance" could be construed as a criticism of Campion's censure of George
Kirbye's setting¹ of the "Oxford Tune" (cf. 88.23n). The wording of Butler's criticism is not pointed enough to conclude beyond a doubt that he did indeed have Campion in mind.

Thirdly, the discussion of proper and improper cadences is very similar to Campion's chapter "Of the Tones of Musicke" (Davis, Campion, 343-48); in fact, if Butler was inspired by any English source for this discussion, Campion's New Way would be the only logical one.

Of proper closes (in Butler's case, cadences)² both Butler and Campion gave first that on the air note itself, second the one on the fifth above the air note, and third the third above the air note. According to Butler, the next choice was the fourth-cadence, the "mediety" between the

¹Sternhold and Hopkins, The Whole Booke of Psalms (1592 ed. by East), Psalm 10; cf. Davis, Campion 346n. Campion (1567-1620) was a physician, poet, composer, and dramatist, and studied at Cambridge. His poetry was primarily lyric; his music primarily airs and music for the masque. His criticism of Kirbye's setting (Davis, 346-47) was followed by his own, corrected setting of the same tune.

²Butler pointed out (86.15-16) that "close" and "cadence" were not necessarily synonymous. In the word "close" the emphasis was on the concluding vertical structure; "cadence" referred to the melodic formula composed of two adjacent half steps (sometimes whole steps), the first descending, the second ascending—as c-b-c. Since Campion's model examples of closes (Davis, Campion, 344-45) included cadences identifiable by the same note by which the close was identified (i.e., the final, or the air note), the following discussion and comparison, above, seems justified.
third and fifth above the air note; the fourth-cadence was the substitute for an informal, or improper third-cadence on either b or e[^3] (83.23-25), and was allowed in each of the six airs (83.20-31 and 87.26-28). The second-cadence was classified as "improper," "strange," and "informal," and was "sparsely to be used" (83.32-36). Campion's next choice, to the contrary, was the second-close, which was the substitute for an informal, or improper third-close, "as also," he added, "the fourth key above the final key [is, i.e., such a substitute]" (Davis, Campion, 345-46).

Thus, in each of these three instances in which a possible connection between the treatises of Butler and Campion may be conjectured there is a major point of disagreement between the two authors. These disagreements, especially the one concerning the propriety of Kirbye's setting of the "Oxford Tune," could have placed Butler in a position in which he disdained to disclose to his reader the author of the source of his information. It is also possible that Butler had come in contact with Campion's treatise at some time but remembered it imperfectly.

[^3] The b cadence, for example, would have included a-sharp in the cadence and d-sharp in the closing harmony, neither of which were usually considered normal; the normally available accidentals at this time were f-sharp, c-sharp, g-sharp, b-flat, and e-flat.
85.10-32 and Figure 53 (91.25): Butler's Analysis of Tallis' "Absterge Domine"

In attempting to bring Butler's analysis into alignment with a similar analysis made by the present author, based on the edition given in Tudor Church Music (reproduced below), several discrepancies will be noticed, although in a general sense Butler's meaning is clear. The Tudor Church Music version is based on the following sources according to Buck, Tallis, xix: Cantiones, 1575, No. ii; Bodleian MSS. Mus. Sch. e. 1-5. ff. 61v, 61, 61, 59v, 55; B.M. Add. M.S. 29247. f. 10v. Variants noted at the bottoms of the pages in Buck's edition do not account for any of the peculiarities of Butler's analysis.

In the following comparison, Butler's descriptions appear at the left; the results of the analysis based on Buck's edition appear to the right of these, and include measure numbers and type of note or notes found. Note types are abbreviated as follows: L=long, B=breve, S=semibreve, M=minim, s=semiminim, p=point—as pS=pointed semibreve. These abbreviations are used only in the case of a conflict
between the two analyses or in order to avoid ambiguity.

When no abbreviation is noted, the analyses are assumed to be in agreement.

Bass (Bassus)

six breve figures and 6, 8, 11, 30, 34, 38, 66, a pointed semibreve in 18 (pS),
unison [G],
four breve figures in 44, 52, 58, 63,
diapente [D],
one in diatessaron, and 10,
one in semiditus

Tenor (Tenor)

one breve figure in 6;
diapason: and 7 (B), 11 (BMM), 43 (BS) 47 (BM), 66 (B):
five in diapente, whereof three are pointed and one hath 18-19 (SB),
a minim annexed; also
one long with a
semibreve.

First Counter (Countertenor)

three breves, 7 (B), 10-11 (BSMM),
one pointed breve, 47 (B), 22 (SpMM=pB),
one breve with a minim, and one long in 66 (SSB);
diapason; 18-19 (SMBB),
two pointed breves with a pointed semibreve, 37-38 (SB), 51-52 (MS);
and one breve in also one breve in
diapente;
semiditus.
Second Counter (Discantus)

three breves, a minim with a breve, a breve with a semibreve, and a semibreve with a minim in diapente; also one breve in semiditonus, and one in ditonus [B].

Mean (Superius)

four breves and two pointed longs in diapason, two breves in diapente, and one in semiditonus.
Figure 49. The Tudor Church Music edition of Tallis' "Absterge Domine"
Figure 49, continued
Figure 49, continued
Figure 49, continued
Figure 49, continued
Figure 49, continued
Figure 49, continued
Chapter IV

Of the Two Ways of Setting

Section 1

Of Setting in Counterpoint

Counterpoint.--Setting is either in (90a) counterpoint or descant. Counterpoint is when the notes of all the parts, being of equal time and number, go jointly together. If sometime, by reason of binding and disjoining, the notes do happen to be odd, they are presently made even again; and if for the music's sake a note be sometime divided, the parts being in divers places are tied by ligature unto one syllable, as if they were one note.

Counterpoint is used in rhythmical verse, as psalms in
meter and other tunes measured by a set number of syllables, unto which the like number of notes doth answer.

Setting in counterpoint is after this manner. Having ready the melodious part\(^1\) of your own or of another's invention, first draw so many (90b) lines (or rows of rules) as you mean to make parts (four in this kind is best); then, if this certain part shall be a mean, prick it down in the fourth line\(^2\)---if a tenor, in the second; and divide every strain with a double cross-bar drawn straight through all the four lines; and subdivide them in the middle with a single bar. Then, according to the rules of art, study to set a formal bass unto the mean or tenor; and after that make the other two parts as formal likewise and melodious as you may; and consider still how they all agree, not only to the bass, but also among themselves. The bars will direct you to a present synopsis of all the notes answering one another, that you may the sooner and surer espy the faults (if any be)---as in this example: [Figure 50].

\(^{1}\)See [I.iii.2 (pp. 44-46).

\(^{2}\)Butler probably meant third line.
Figure 50. Setting in counterpoint, with bars
Annotations to Chapter IV, Section 1

(89.1a) **Counterpoint.**—In Latin

"contrapunctum"—so-called because in the beginning (when there was no variety of times and figures of notes) they marked out their songs by pricks, or points, which, in framing the parts, they set one against another; so that "contrapunctum," or "counterpoint" is the proper term for setting of plainsong, as "descant" (which signifies division in singing) is of figured music.

When because of equal quantities divers figures are not necessary, it is agreeable to compose the song through points alone; and when point is thus placed opposite point, this art is called "counterpoint."¹

The most ancient Latin songs were plain—of equal-timed notes in counterpoint; the curious, sundry-timed descant is the invention of later days. That of the plainsong sort is called by musicians "musica plana," "vetus," "Gregoriana"; this, "figurata," "nova," "Ambrosiana."

But now, as the equal-timed notes are sometime used in

figured music (see "index" in [I.iv.]2, [90.30]) so are the sundry-timed notes of figured music sometime inserted into plainsong. But a little community doth not confound the species, which have their denomination from the greater part.

(89.14b) A music-line is five parallel rules,² with their spaces, devised for the distinguishing of tones, drawn out to the length of a ditty-line, whereof it is so called. For as "song" is a name common both to the music and ditty, so are the parts of song: so much music as answereth to a verse,³ a strain, a line of the ditty, is likewise called a "verse," a "strain," a "line."

²Instruments which reach a greater compass require more. See (b) [i.e., (d)] in [I.ii.1 [(11.21-28).]]

³Otherwise a stanza or staff.
Section 2

Of Setting in Descant

Descant. — Descant is when unto integral notes of longer time in one part are sung equivalent particles, or notes of shorter time in another (as to one semibreve [are sung] two minims, four crotchetts, or eight quavers), the parts following one another in melodious points, reported or reverted or both (with other harmony interposed), until at the last they meet all together in the close.

Here note that slow-timed music, now and then interposed, doth grace the quick, and that the most artificial running descant, if it be continued too long, will at the last wax tedious, even to the vulgar— as Tully did well observe:

In singing, how much more delightful and charming are trills and flourishes than notes firmly held! and yet the former meet with protest not only from persons of severe taste but, if used too often,
even from the general public.¹

Sometime one part singeth plainsong and the rest do
descant upon it, as in Dr. Bull's Ground [editor's Figure
51], the which, upon but four² plain semibreves (the first
in C fa ut, the second in F fa ut, the third in G sol re ut,
and the fourth in C fa ut), hath twenty-one several descants
all conjoined in one sweet lesson; and in the excellent music
of the "In nomines" of Parsons, Taverner, Dr. Tye, and

¹[ (Cicero,) De oratore III.[xxv.98; Loeb, II, 79.]

²See John Bull, Keyboard Music: II, Musica britannica, Vol. XIX, ed. by Thurston Dart (London: Stainer and Bell, 1963), 101-03, facsimile of first page in Figure 51. Dart verifies in his commentary (232-33) that this is the ground of which Butler was speaking.
[Editorial Figure 51. Beginning of "Dr. Bull's Ground"]
But commonly all parts do sing plainsong: sometime one, sometime another, sometime more, sometime less; and all do likewise descant upon the plain notes, in their turns, as shall seem good to the composer.

In descant sometime the parts begin together as in counterpoint—example the eight motet of Mr. Tallis [editor's Figure 52], but most commonly one after another; and then the first beginneth with a point, which itself and others do maintain (as afterward they do other points) interchangeably—example the second motet of Mr. Tallis

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³ This is undoubtedly a reference to the instrumental ensemble "In nomines." According to the listing of keyboard "In nomines" in John Caldwell, "Keyboard Plainsong Settings in England, 1500-1660," *Musica disciplina*, XIX (1956), 129-53, we know of no keyboard "In nomines" by Tye, only one (two MS versions) by Taverner, and, as to Parsons, there are only the two arrangements of a five-part instrumental "In nomine," even though there were many keyboard settings of the "In nomine" tune (the "in nomine Domine" melody from Taverner's *Gloria tibi Trinitas* Mass) during the Elizabethan period. According to Denis Stevens ("Tye," *Die Musik in Geschichte und Gegenwart*, XIII, 1008) Tye wrote twenty-one instrumental "In nomines": nineteen five-part, one four-part, and one six-part. The same author indicates ("Taverner," *Die Musik*, XIII, 154) that Taverner wrote only one instrumental "In nomine." Parsons, according to Margaret E. Lyon ("Parsons," *Die Musik*, X, 843) wrote three four-part, one five-part, and two seven-part instrumental "In nomines."

⁴ The eighth motet of the 1575 *Cantiones sacrae* is "O nata lux de lumine," ed. in Buck, *Tallis*, 209-10, reproduced in Figure 52.
[Editorial Figure 52. The eighth motet of Tallis]

[5] Buck, Tallis, 180-86. Cf. 85.18 above. See also commentary, pp. 412-21, wherein Buck's edition of the motet is reproduced.
[Figure 52, continued]
[Figure 53.] Example the fore-cited motet, [the second motet of Mr. Tallis]
In setting of descant (whether it be upon a plainsong or otherwise), first, at every two or three semibreves, draw the bars through all the lines, or parts of your song that you may the more easily see, in true music, to contrive your points together; and afterward espy and correct your errors, if any be in the points or concords; then consider what point to begin with and how it may be best maintained. And so proceed from point to point till you conclude all with a full, harmonious close.
The foundation of these rudiments being laid, you may begin to build your practice thereon. But he that affecteth perfection in this rare faculty, and the honour of a good composer, let him first see that he be furnished with nature's gifts: aptness, and ability of wit and memory; then let him thoroughly peruse and study the learned and exquisite precepts of that prime doctor Mr. Thomas Morley (concerning the setting of two, three, four, five, and six parts) in the second and third Parts of his Introduction; and lastly let him heedfully examine, observe, and imitate the artificial works of the best authors—such as are Clemens non Papa, Horatio Vecchi, Orlando di Lasso, Olfonso Parabosco [Alfonso Ferrabosco], Luca Marenz[i]o, I. Croce, Dr. Fayrfax, Dr. Tye, Mr. Taverner, Mr. Parsons, Dr. Bull, Mr. Dowland, Mr. Tallis, Mr. BIRD, Mr. White, Mr. Morley, and now excelling, Mr. Tho[mas] and I. [John] Tomkins (that aureum par musicorum ["golden pair of musicians"]), with many other of admirable, divine, unsearchable skill in this mystery. For as in
oratory so in music are necessarily required to perfection 1) nature, 2) art, and 3) exercitation according to art and examples.¹

And yet when all is done, so full of difficulties and hidden mysteries is this faculty of setting that all these helps concurring will not suffice to the framing of a good lesson (especially in the Lydian mood) unless the author, at the time of composing, be transported, as it were, with some musical fury, so that himself scarce knoweth what he doth, nor can presently give a reason of his doing—even so as it is with those that play voluntary—of whom, therefore, the Frenchman saith, "Leur esprit est en le boute des doits" ("Their soul is in their fingers' ends").

¹See [Butler,] Orat[oriae], p. "1" of ] "Epilog[us] at end of Book II.]

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BOOK II

OF THE USES OF MUSIC

CHAPTER I

(OP OF THE THREE SortS OF MUSIC:
Vocal, instrumental, and mixed)

Section 1

Of Instruments

To the essence of an art two things are requisite: a
systema, or constitution of rules and precepts, and some

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profitable uses or ends whereunto they are referred.  

Two general uses of music.--The principles and precepts of this art in singing and setting being declared, come we now to the profitable uses thereof, which though they be many, may be all reduced unto two: one ecclesiastical, for the service of god; the other civil, for the solace of men.

These two uses are diversely performed, by voice or by instrument or by both, whereof music is divided into vocal, instrumental, and mixed.

Instruments.--Instruments are of two sorts: (94a) entata and (94b) empneusta--string and wind instruments.

Of both these sorts the pregnant wits of industrious artists have devised (94c) many different kinds: as, of entata, harp, lute, bandora, orpharion, cittern, gittern, cymbal, psaltery, dulcimer, viol, virginal, and so on; and,

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of *empneusta*, pipe, (94d) organ, shalm, sagbut, cornet, recorder, flute, waits or hobois,³ trumpet, and so on. And these latter curious times have conjoined two or more in one, making the organ and the virginal to go both together with the same keys*—yea, and with the same keys to sound divers pipes of the organ, grave and acute, by reason of the new-invented, divers stops.

Consort.—The several kinds of instruments are commonly used severally by themselves—as a set of viols, a set of waits, or the like—but sometime, upon some special occasion, many of both sorts are most sweetly joined in consort.

³So also do the French sound it, though they write it "haulthbois" ("big," or "loud-sounding wooden instrument").

[*]Cf. Francis W. Galpin, *Old English Instruments of Music*, ed. by Thurston Dart (rev. ed.; London: Methuen, 1965), 172-74, in which the history (from 1480) of this combination (then generally called the claviorganum) is discussed. On page 173 the following comment on Athanasius Kircher's clavicymbal (the same instrument) is made: "Kircher, in the second volume [i.e., II.IX.V.6, p. 341] of his *Musurgia universalis* (1650), gives a large illustration of a wonderful Clavicymbal in which strings and pipes were combined: he considers it new and unheard of; in fact, each succeeding century produces it as a novelty." Cf. also in Kircher I.VI.I.I, pp. 454-55.
Annotations to [Book II, Chapter I,] Section 1

(93.13a) "Entata" of ἐντείων, "intendo"
["stretch," "tighten"], since they sound by means of cords or strings; they are also called "pselapheta" of ψάλλω and ἀφάω, both signifying the same thing—to pluck, to strike lightly—except that ψάλλω is more properly used for the plucking and pulsation of strings. In hebrew they are called "neginoth." ¹

(93.13b) "Empneusta" of ἐμπνεύω, "inspiero,"
"inflo" ["blow into"], since they sound by means of the breath injected into pipes. In hebrew "nehiloth." ²

¹ As in Psalms 61:1; cf. Rabbi Davidis Kimchi, Radicum liber, sive hebraeum bibliorum lexicon, ed. by Jo. H. R. Biesenthal and P. Lebrecht (Berolini: Impensis G. Bethge, 1847), 207 (col. 413).

² As in Psalms 5:1; cf. Kimchi, Radicum liber, 214 (cols. 428-29).
also in Kircher I.VI.i.1, pp. 454-55.
These two general sorts of instruments doth Athenaeus observe, the which Tremellius showeth to be understood by two of their special kinds, organ and harp, in that place where Jubal is said to be the author and inventor of them both.

In another place the pipe and harp are named as the two chief species—which are so used in profane authors, as in Plutarch:

Then first did Pericles, so fond of honour was he, get a decree passed that a musical contest be held as part of the Panathenaic festival. He himself was elected manager, and prescribed how the contestants must blow the flute, or sing, or pluck.

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3Deipnosophistae IV. [174c-d; Loeb, II, 290-91,] sub persona Aristoxenus. [The terms ἐντασσόμενων and ἐμπνευστῶν are used in discussing the water-organ—as to its classification as a string instrument or a wind instrument. Percussion instruments (καθοπτρα) are also mentioned.]

4John Immanuel Tremellius (1510-80), whose great work was the translation of the Bible from Hebrew and Syriac into Latin.

5Synecdoche of species.

6Gen[esis] 4:21. ["And his [Jabal's] brother's name was Jubal: he was the father of all such as handle the harp and organ."]

7I Cor[inthians] 14:7. ["And even things without life giving sound, whether pipe or harp, except they give a distinction in the sounds, how shall it be known what is piped or harped?"

8Who first established the contests.
the zither,\textsuperscript{9} \hfill 94-22

and in Ovid: \hfill 94-23

Nor were they entertained by sound of cithern, nor
by the voice of song, nor by the long flute of
boxwood pierced with many holes; \ldots \textsuperscript{10} \hfill 94-25

Symphona and asymphona.--In which examples the vocal
music is joined with the instrumental of both sorts. Of both
sorts some are symphona, that have a symphony or harmony of
parts in themselves--as organ, harp, lute; some are
asymphona, that play but one part--as the cornet. \hfill 94-29

(93.16c) The many different kinds of all instruments,
both entata and empneusta, are copiously declared, and
curiously described by Mersennus in his exact treatise De
harmonicis instrumentis. (See [I.]ii.4, 33.[13].) \hfill 94-33

(93.19d) "Organ," synecdoche of genus.--Of the Greek
\omicron\gamma\nu\omicron\nu, properly "instrumentum", and by synecdoche
"instrumentum musicum"--as Plut[arch], \hfill 94-34

They enjoy the pleasing sounds of instruments
[\omicron\gamma\nu\omicron\nu].\textsuperscript{11} \hfill 

\textsuperscript{9}In "vita Pericles" [xiii.6; translation from
III, Loeb Classical Library (Cambridge, Massachusetts:
Harvard University Press, 1967; first printed 1916) III, 43.]

\textsuperscript{10}\textit{Metamorphoses} XII.[157-58; Loeb, II, 191.]

\textsuperscript{11}The passage was given entirely in Greek by Butler
and the source was cited as "Plut. Sympos. 9." Exact
location has not been found.
and I Chron[icles] 23:5:

Four thousand praised the Lord with the instruments which David made,¹² which, because they were used in the service of God, are elsewhere called the instruments of God; and by a metalepsis of the same synecdoche this polyaulon organon, this grand wind instrument is signified—as Job 21:12¹³ and Psal[mes] 153:4¹⁴—being so-called κατ' ἐξίλητον, "per excellentiam," because it is the most excellent musical instrument of all.

[¹²] This is Butler's version. More fully, the verse reads: "Moreover four thousand were porters; and four thousand praised the Lord with the instruments which I made, said David, to praise therewith."

[¹³] "They take the timbrel and harp, and rejoice at the sound of the organ."

[¹⁴] "Praise him with the timbrel and dance: praise him with stringed instruments and organs."
Section 2

Of the Voice

The voice. — But the voice, which is the work of nature, doth far exceed all these works of art.

Ditty-music. — Good voices alone, sounding only the notes, are sufficient, by their melody and harmony, to delight the ear; but being furnished with some laudable ditty, they become yet more excellent—[as Peter Martyr:]

Song, although able through itself to delight the minds of men, is much more attractive, nevertheless, when words are added to it—words which are rhythmical and bound to certain meters (as we understand verse to be),¹

and Calvis[ius]:

Although mere harmony, as seen in the case of instrumental music handled expertly and skilfully by the artists, exercises a very great potential toward exciting the affections because of the ["De musica et carminibus,"] loc[i] com[muses] III. [xiii.]25.
rational of numbers and proportions by which it penetrates human minds; nevertheless, if the human voice is added—the human voice which at the same time sings of the remarkable sentiment expressed in harmonical numbers—because of the doubleness of the delectation (which any clear voice bears by both harmony and sentiment), the music is much more wonderful and majestic, and much more acceptable to the ears and to the mind alike.2

This numerous ditty or rhyme applied to the note the Philosopher equalizeth to the melody itself for resembling and moving manners and affections:

... but rhythms and melodies contain representations of anger and mildness, and also of courage and temperance and all their opposites and the other moral qualities, that most closely correspond to the true natures of these qualities (and this is clear from the facts of what occurs—when we listen to such representations we change in our soul) ... .3

And afterward he maketh it a part of music, showing that music is made as well by poesy as by melody:

... (inasmuch as we see that the factors in music are melody and rhythm it is important to notice what influence each of these has upon education), and whether we are to prefer music with a good melody or music with a good rhythm.4

Poesy and harmony equal parts of music—both professed by the ancient musicians.—and therefore it is

2[Melopoeia] xviii, [p. "2.”]
4Ibid. vii.[2-3; 669; 307G-H.]
that the most powerful musicians (such as were Orpheus and Arion—yea, such as was that Divine Psalmist) were also poets. And such should our musicians be if they will be complete; for he that knoweth both can best fit his poesy to his own music and his music to his own poesy. And, moreover, he is enabled to judge of such verses as are brought unto him, and, for a need, somewhat to alter them, that the words may be the more consonant to his present vein. To this effect speaketh Calvisius:

Although today melopoeians are free either to form or shape the text to be harmonically embellished, or to acquire it from others, still it is necessary that they compose harmony suitable for whatever text is involved. However, the ancient poets splendidly illustrated, with elegance of words comprehended in meter, and of figures and meanings, the material which they undertook to handle; and at the same time they added harmony appropriate to the proposed argument.5

Observations in ditty song, concerning setters.—The things to be observed in a ditty-song do either concern the setter or the singer. Concerning the setter, he must have a special care that the note agree to the nature of the ditty. Plain and slow music is fit for grave and sad matter; quick notes or triple time, for mirth and rejoicing. A manly, hard, angry, or cruel matter is to be expressed by hard and harsh, short tones, quick bindings, and concording cadences,

5[ Melopoeia, ] in the end of chapter i.
and that with the ordinary or unaltered notes of the scale; but words of effeminate lamentations, sorrowful passions, and complaints are fitly expressed by the inordinate half notes (such as are the small keys of the virginals) which change the direct order of the scale—flattening the notes naturally sharp, and sharping them which are naturally flat—and those in longer time with slow bindings and discording cadences.

Also words importing the circumstances of time and place are to be fitted with notes agreeable—as those that signify running, or speedy motions, also the short syllables of any words, with short notes, and the contrary with the contrary; likewise those that signify height and ascending with high notes, and depth or descending with low. Which things may be done in descant, by many parts—to wit, in a point successively iterated; but in counterpoint (where all the parts sing the same words of the ditty together) it is enough that they be done in the cantus, or tune, the most melodious and observable part. Franchinus' direction is this:

Moreover, the composer of a song should take care that words are set in an appropriate way to music, so that [sentiments of love,] longing for death, or any lamentation, will be set with and sung to doleful sounds. . . . But when words represent anger and admonishment, it is fitting to produce sharper and harsher sounds. . . . Words of praise and moderation in a certain way require

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6See "Syncope," [I.iii.4.2 (pp. 64-71).]
moderate sounds. . . .

But Calvisius is more punctual:

Harmony will be more vigorous if the chromatic sign\(^8\) is absent and, contrarily, more prone to compassion, love, supplications, and so on, if frequently intermingled. It will be more violent with celerity of meter, more gentle with slowness,\(^9\)

and again,

A profound matter, difficulty, silence, descent, fear, wailing, sighs, a funereal matter, bitterness, and so on require a harmony consisting of grave (low) sounds; on the contrary, it is to be rendered in the acute (high) sounds for happiness, laughter, ascent, height, clamor, and so on. In ruin or silence sometimes all voices are silent.\(^10\)

Reports require repeats, that if the point's ditty be not apprehended at the first, yet, in the iterating thereof it may.

Such repeats should be emphatical, importing some special matter; and which, in divine uses, may help both to excite and to express due zeal and devotion.

\[\text{[7]}\text{Gaffurius, Practica musicae III.xv; Miller, 149-50.}\]
\[\text{The bracketed portions have no correspondence with Butler's Latin.}\]

\[\text{[9]}\text{Melopoeia xviii, p. "3."}\]

\[\text{[10]}\text{Ibid.} \text{ xviii, [p. "4."}\]
Ligatures obscure the ditty and therefore are to be avoided as much as may be, and some part of the ditty rather to be iterated if it may be conveniently done.

Directions both for ditty and harmony.--As the ditty is distinguished with points--period, colon, semicolon, and comma--so is the harmony answering unto it, with pauses and cadences.

Semibreve rests, one or more, answer to a period or to a colon (which also is of perfect sense). (See Gram[mar], 11iv.3.1.) Minim and crotchet rests [answer] to semicolons, commas, breathings, and sighs.

So likewise primary cadences perfect, which close the harmony, answer fitly to periods ending the ditty or some principal part of it, and secondary to colons or interrogations. But improper and imperfect cadences answer to points of imperfect sense--commas and semicolons.

These directions, being observed (with discretion) in the harmony, help not a little to the manifesting and understanding of the ditty.

Observations concerning singers.--Concerning the singers, their first care should be to sit with a decent,

erect posture of the body, without all ridiculous and uncomely gesticulations of head or hands or any other part; then, that the ditty (which is half the grace of the song) may be known and understood, to sing as plainly as they would speak, pronouncing every syllable and letter (specially the vowels) distinctly and treatably, and in their great variety of tones, to keep still an equal sound\textsuperscript{12} (except in a point), that one voice drown not another. Thus doth that expert musician advise:

Finally, we decided that the following should be stated for the instruction and counsel of new singers: they should not produce musical tones with a mouth gaping wide in a distorted fashion or with an absurdly powerful bellowing, [especially when singing at the divine mysteries; moreover] they should avoid tones having a wide and ringing vibrato, [since these tones do not maintain a true pitch and because of their continuous wobble cannot form a balanced concord with other voices.]

It is also necessary that one voice adjust itself to another, [as tenor to cantus,] so that the one is not confused and overwhelmed by the other's excessively strong tone.

Further, exaggerated and unbecoming movements of the head and hands proclaim a foolish singer.\textsuperscript{13}

\textsuperscript{12}See [Charles Butler,] \textit{Rhetoricae} II.ii.

\textsuperscript{13}Franchinus [Gaffurius, \textit{Practica musice}e] III.XV; [Miller, 148-49. Equivalents of the bracketed portions of Miller's translation are absent from the Latin given by Butler.]
Section 3

Of Mixed Music

Voice and instruments conjoined.—The voice, thus fitted with ditty (either in parts or single) is delightful of itself; but instruments added make the music more acceptable.

... the melody of the voice is most pleasing when accompanied by the lyre. . . .

And therefore the Lord himself compareth the sweet speech of an eloquent preacher unto the music of voice and instrument together. Saith he,

And loe thou art unto them as a very lovely song, of one that hath a sweet voice, and can play well on an instrument.

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1 Quint[ilian, Institutiones oratoriae] V.x (at the end). [124; Loeb, II, 271.]

2 Ezekiel 33:32. [Butler's version.]
In ditty-mixed music is always to be observed that the instruments do either sound submissly or by turns, that the ditty be not obscured. For though the singers can sometime content themselves with the music of the note, yet the hearers are not so well satisfied without the ditty, if it be good.
EVALUATION
In attempting to assess the value of the theoretical portion of Charles Butler's *Principles of Music*, primary importance has been attached to the following considerations: 1) the nature of Butler's authority as a theorist, 2) the accuracy of his documentation, and 3) the nature of the material presented by him.

**Butler's authority as a theorist.**--Among Morley's, Playford's and Simpson's qualifications as theorists is the fact that they were actively involved in the composition and publishing of music. This is not the case with Butler, whose primary role in life was that of Rector of the church in Wootton. Butler's having written the "Melismelos, or Bees' Madrigal" (see Appendix C, pp. 510-18) nevertheless seems to indicate that he was a practiced amateur composer of sorts. For this reason it is perhaps fitting to explore the
possibility that some of the musical materials presented in the Principles of Music may have been written by him. Specifically, no source is cited in connection with the canonic singing lessons of I.ii.6 (Figure 22, following 39.1). Nor is any source cited in connection with the psalm settings of I.iii.2 (Figure 24, following 44.12).¹

The possibility of Butler's having written some of these musical examples seems lessened somewhat by the fact that he simply did not always acknowledge his sources. A prominent example of this lack of acknowledgement occurs in his presentation of rules, in Latin, for the interpretation of ligatures (I.ii.5, 36.4-37.4). Although Butler cited no source in connection with these rules, a large portion of them appear to have been derived—verbatim—from Lusinius, a smaller portion from Ornithoparchus (see commentary, pp. 223-27). It is therefore possible that the musical materials in question were not composed by Butler but were simply presented by him without documentation. The singing lessons quite conceivably represent a part of Butler's codification of a tradition passed down by English singing masters. The psalm settings could have been taken from some

¹None of the settings have been located in either the 1592 Este Psalter (actually the Rimbault edition) or the 1621 Ravenscroft Psalter (actually the 1633 edition)—the only psalters specifically named by Butler.
unnamed psalter (perhaps some manuscript) which Butler acquired while at Oxford, or which was available in the church where he was Rector for many years. Butler's description of one of these settings, the "Oxford Tune," in 44.6-12, seems to indicate for it a date prior to Este's Psalter of 1592— in fact, that two of the Este Psalter settings were melodically indebted to it.

A plausible case for Butlerian authorship can be conjectured in reference to the "Dial Song" presented in the annotations of I.iii.1 (Figure 23, following 42.20). The alleged composer of the "Dial Song," W. Syddael, has not been identified. In fact "Syddael" may be a pseudonym and play on the term "sundial," since the "fifth part" of the "Dial Song" is notated in the cryptic form of a sundial. To stretch a point (which may be what Butler did), the "W." may represent the symmetrical form of the sundial, or the two uts which occur as the first and last hours on the dial. Although "W. Syddael," if not a legitimate name, might be a pseudonym of some composer other than Butler, it can be argued that the association with nature seen in the sundial of the composition is reminiscent of Butler's "Bees' Madrigal," and that the "fifth part" also employs Butler's seventh solmization syllable, pha (derived, in 15.17-24, from the Greek "pharos," a typically Butlerian concept).
Based on sources available to the present writer, the extent to which Butler was qualified as a theorist through active participation in music making is also somewhat conjectural. In 5.31-37, as a spectator Butler recalled a performance of Thomas Tomkins' "When David Heard" which took place, as he worded it, "in the music school." Nowhere did Butler in a comparable manner represent himself as an active participant. Yet in view of his clear and concise exposition of the fundamentals of music—an individually unique expression with occasional, strongly expressed personal opinions—it seems credible that he was actively involved in music making—as a chorister, for example, as indicated by Bloxam's Register (see dissertation Introduction, p. 4). Again, in view of the nature of some of his discussions, for example the detailed discussion of solmization in 1.ii.2 and the presentation of singing lessons in 1.ii.6, it seems credible that Butler was at some time a teacher of music—perhaps in Basingstoke's Holy Ghost School, where he is known to have been Master for at least five years (see p. 4). Perhaps this is what Foster Watson had in mind when he referred to Butler as "Master of Music in the Song School in connexion with Magdalen College" (see p. 4).

The degree to which Butler was involved as a spectator
and commentator on things musical is much more apparent and definable than the extent to which he was involved as either composer or active participant. As expressed in the *Principles of Music*, his knowledge of music seems to have been greatly limited to that of English composers. Only six of the composers cited by him were not English: Clemens non Papa, Lassus, Croce, Marenzio, Vecchi, and Gallus. These six were mentioned only in passing. Gallus alone is represented in Butler's musical examples—though in an indirect manner, since Butler was really quoting from Calvisius (see Figure 42d, following 77.2, a canon).

Of the twenty-five English composers cited by Butler, by far the greatest prominence was given to Byrd, whose name is the only one printed entirely in upper-case letters on page 92 of the Haviland edition, and to Tallis. A lesser degree of prominence was given to Thomas Tomkins, Ravenscroft, the elder Ferrabosco, Farmer, Dowland, Bull, and Waterhouse; the remaining sixteen English composers were mentioned only in passing. Thomas Morley occupies a prominent position in the *Principles of Music* only in relation to his *Plain and Easy Introduction*; his compositions are not brought into consideration at all. The

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2See Appendix B, pp. 502-09, for a detailed listing of composers and compositions cited by Butler.
famous Orlando Gibbons, whose reputation is due largely to his compositions for the Anglican Church, was never mentioned by Butler; neither were the madrigalists Weelkes and Wilbye, whose names did appear among the composers mentioned by Henry Peacham in his short essay on music\textsuperscript{3} published fourteen years before Butler's treatise.

Butler's citations of actual compositions (as opposed to purely didactic materials) lean heavily towards sacred music, namely psalm settings and motets. Yet the secular music is occasionally brought into play; in fact, the largest musical example in the book is Syddael's "Dial Song, in imitation of Parsons' "In nomine,"" clearly a secular composition (in spite of the reference to the sacred cantus firmus). Apparently Butler had a continuing interest in sacred music, for he cited the younger masque composers Henry Lawes (1596-1660), Simon Ives (1600-1662), Nicholas Laniere (1588-1666), John Wilson (1595-1674), as well as the older secular composers John Bull (c. 1562-1628) and the elder Alfonso Ferrabosco (1543-1588), the "In nomine" composers Taverner, Tye, and Parsons, and the Italian madrigalists Croce, Vecchi, and Marenzio.

The nature of Butler's authority also concerns his

\textsuperscript{3}In his \textit{The Compleat Gentleman} (London: For Francis Constable, 1622), 103.
familiarity with music-theoretical texts. Of these the writings of Calvisius, Boethius, Gaffurius, and Glareanus are most frequently represented in the quotations in the *Principles of Music*. A smaller degree of prominence is given to Aristoxenus, St. Augustine, Bacon, Listenius, and Ornithoparchus. Mersenne is represented as a prominent theorist (33.15); his treatise on instruments was enthusiastically endorsed but never directly quoted by Butler (as far as the present writer has been able to determine). Similarly, Zarlino, one of the most important of the sixteenth-century theorists, was referred to as a great musician (77.6) but never directly quoted. This may be due to the fact (if indeed Butler had access to Zarlino's text) that Zarlino's treatise is in Italian, a language with which Butler showed no apparent familiarity, for all his quoted material (with the exception of the brief French passage in 92.27-28) was taken from Latin, Greek, and English sources. Zarlino is nevertheless abundantly represented through the intermediary Calvisius, whose *Melopoeia* (the title of which was never specified by Butler) was quoted directly by Butler more, by far, than any other theoretical work—in all fifty-five quotations, as compared to fourteen from Boethius, the next most frequently quoted.

Of the English theorists, Morley was quoted textually
only once, but is abundantly represented in Butler's musical examples. Since no English theorists other than Morley and Bacon were directly quoted—nor even mentioned by name—it is difficult to determine to what extent Butler was familiar with or borrowed from their works. It is possible that he borrowed indirectly from Campion, since his description of proper and improper cadences is similar to Campion's and since both Butler and Campion quoted (actually translated in Campion's case) extensively from Calvisius' *Melopoeia* in their discussions of consecution (see commentary, pp. 409-11). It is also possible that Butler was familiar with The *Praise of Musicke*. Both Butler and The *Praise of Musicke's* anonymous author included lengthy and somewhat similar discussions of the psychological effects of music; and both included somewhat similar apologias, or defenses of music.

**Butler's documentation.**—In spite of a few instances to the contrary already noted, Butler usually openly acknowledged his sources. Furthermore, his citing of sources, though much abbreviated, is generally very accurate. However, Butler's presentations of quoted materials frequently contain ellipses and occasionally instances of alteration, without any editorial indication on the part of
Butler of the existence of alterations and ellipses. This editorializing appears to have been performed with the best intentions in mind; nor can the present writer see any reason to suggest that there is a general tendency toward distortion of quoted materials. Nevertheless, a few instances of apparent misrepresentation can be cited.

In his zeal in attempting to prove the consonant nature of the fourth, Butler seems to have incorrectly implied that Gaffurius and Glareanus considered the fourth a consonance only (53.8-16). In the discussion of the gamut is the statement that Guido required twenty notes and that Gaffurius required twenty-two (21.17-18), whereas the fact of the matter is that Gaffurius represented Guido as having required twenty-two notes (gamma to ee), and that Guido's Micrologus, specifies twenty-one notes (gamma to dd). In discussing the parts of fuga (80.25-26) Butler appears to have "reinterpreted" Morley's terms "principal" and "reply"; so far as the present writer can determine Morley did not use

The extent of these alterations and ellipses is not exactly determinable with the sources at hand for the present study. Some of the peculiarities of Butler's quoted materials might possibly be due to particular editions he used as sources. In quoting from Morley's Introduction, for example, Butler always cited the source as if each part had separate pagination. Such an edition is not known to the present writer.
these terms in the sense of "dux" and "comes" as suggested by Butler, but only in the sense of the original and the inversion of a double counterpoint.

Two instances of misinformation can probably be traced to Butler's sources rather than to Butler himself. The first occurs in 17.22-23 in the statement, probably gotten from Morley, that Guido lived around 960. Guido's dates are now generally given as c. 990 or 995 to c. 1050. The second instance occurs in 27.14-17 and 28.1-3: the statement, again probably gotten from Morley (less directly in this case), that Philippe de Vitry did not use notes shorter than a minim. To the contrary, de Vitry's *Ars nova* included semiminims.

Butler's interpretation of Greek terminology in 19.14-20.22 does not involve misrepresentation in the same sense as that indicated in the instances cited above. This is particularly true since Butler alerted his reader to contrary opinion; for although he interpreted "hypate" and "nete" in terms of pitch ("hypate," high sound; "nete," low sound) rather than string position, he informed his reader that "the stream of neoteric musicians runneth an other way, making hypate the lowest . . . and nete, vice versa, the highest." In fact, the opinion of the "neoteric musicians,"
which appears to have been overwhelmingly the opinion during Butler's time, is generally accepted today. However, what is disturbing to a logical understanding of Butler's position is the fact that he cited Stephanus, Martianus Capella, and Vitruvius in support of his interpretation, and at the same time juxtaposed nete and proslambanomenos. Such a juxtaposition is contrary to what is found in the writings of these three authors (see commentary, pp. 156-61). Butler's interpretation of "hypate" and "nete," purely from the etymological standpoint, as terms isolated from the musical context (in fact Butler was not representing the Greek Greater or Lesser Perfect Systems), is of course verifiable, as indeed are nearly all of his etymological discussions. (The present writer has found only two instances of apparently conjectured word origin: "motet" from "motus" instead of the French "mot," "word," in 5.14; and "anthem" from the Greek "anthos," "flower," rather than "antiphona," "resounding sound," in 41.9n.)

Butler's interpretation of "hypate" and "nete" is an example of the occasional tendency on the part of the author to express a strong personal conviction about a theoretical matter. This expression of personal conviction is often accompanied by a reference to contrary opinion, as in the
instance of the "stream of neoteric musicians." Similar instances occur in 13.3-12, concerning the then current practice of four-syllable solmization (mi, fa, sol, la), which Butler defined but rejected in favor of seven syllables; in 23.1-40, where Boethius' intricate calculations of various divisions of the tone are tossed aside as "mere fancy, forged only by melancholic imaginations," and where half tones, instead, are equal parts of the tone, as Aristoxenus taught; also in 53.4-54.31, a reference to the vague "those" who rejected the diatessaron from their list of consonances while Butler classed it as a secondary concord; and in 88.15-23, the reference to the unnamed "professed musician" (Thomas Campion?) who ventured without any justification to charge the "Oxford Tune" settings of skilled artists (in Campion's case, the setting by George Kirbye) with informality, and to charge the setters of the tune with neglect and ignorance.

However, occasionally reference to existing contrary practice or opinion does not appear in Butler's text and annotations; consequently, such a conflict is brought to light only by comparing Butler's statements with those of other writers. Butler's lack of citing sources for his presentation of rules for ligatures conceals the fact that he disagreed with his probable source, Listenius, concerning the
interpretation of semibreves in ligature. Nor does Butler's reader, from his text alone, have any hint that the theorist also disagreed with his English predecessors concerning the interpretation of semibreves in ligature; in short, there is no indication in Butler's text that he was the only English theorist of his time to allow an initial semibreve in ligature to be followed by a breve (see commentary, pp. 223-27). A similar situation occurs in the comparison of Butler's classification of cadences with a similar classification by Campion (whose name and treatise, which predates Butler's by some twenty years, were never mentioned specifically in any part of Butler's treatise). The comparison shows that while Butler considered the second-cadence (that on d in the c tonality) an improper rather than a proper cadence, Campion considered both proper.

The nature of the material presented.--It can be said that for whatever there is in the contents of Butler's treatise that is questionable, or even inaccurate, there is much more that is informative and of a constructive nature. There are in fact discussions of several theoretical concepts which in their completeness, if not in their novelty of expression, cannot be found in other English treatises of the period. Probably the most important of these is Butler's explanation of pitch organization in terms of tonal center.
In the first Chapter of the Principles of Music (Haviland pp. 1-9), the English concept of "mood" is elaborately detailed. Of prime importance in the discussion is the fact that the moods are distinguished purely by their psychological effects, or by the character of the music which they represent: Doric, sober; Lydian, solemn; Aeolic, pacifying; Phrygian, warlike; and Ionic, effeminate and mirthful (Butler's order). Pitch relationship in connection with these moods is specified as unnecessary (2.22-28); in short, any mood may be associated with any tonal center and any (legitimate) octave scale species.

Tonal centers and octave species are properly associated with a system of six airs, according to Butler. In 82.8-10 the order of the most frequent airs is given as fa, re, sol, and ut; purely in terms of unaltered octave species (ut being g, no accidentals), these four airs correspond to the Ionian, Aeolian, Dorian, and Mixolydian modes, respectively (although Butler never made such specific comparisons). If the other two airs, pha, corresponding to Lydian, is rare; la, the Phrygian, is more

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5 Butler's order of the airs might be considered an emphasis on the Ionian and Aeolian--synonymous, as octave species, with our major and minor scales. If this is indeed what Butler intended, it may appear peculiar to the modern reader that the singing lessons of I.ii.6 are entirely in the ut air.
rare (82.8-10).

The air note itself is synonymous with the final bass tone. In fact the bass is the foundation to which the other parts have a subordinate relationship, as indicated in 41.26-28, 51.20, and 81.37-85.15. The importance of the bass is also seen in Butler's description of setting in counterpoint, in I. iv. 1 (89.1-26), in which, once the melodious part is set down, the next step in completing the four-part complex is setting a formal bass.

The air is maintained by emphasizing not only the air note itself but also its three concords: its upper perfect fifth, its upper perfect (i.e., major) third, and its upper perfect fourth. The means of emphasis are proper cadences, proper fugas, and single observable notes (82.32-85.36). Cadences are defined as either perfect or imperfect (66.19-67.11). The perfect cadence (exemplified in two voices: bass 1-5-1, upper voice 8-7-8 syncopated melodic cadence creating 4-3 suspension) maintains the air when it occurs on the air note ("primary proper cadence") or when it occurs on any of the three concords ("secondary proper cadence"), the order of importance being: fifth, third, and fourth. However, third-cadences on b and e, which would involve unavailable a-sharp and d-sharp, are not permitted
Proper fugas are described in 84.6-10 as those which begin on the tone, or air note itself, or on any of the air's three concords. Indirect report (imitation not at the unison or octave) occurs especially at the fourth or fifth—though commonly in the same part (72.4-8). In 72.26-34 under "Observations in Fuga" rising a fourth for a fifth and vice versa is declared usual—an embryonic concept of "tonal answer" (and probably the first for English theory, as noted in the commentary, pp. 375-79).

Obsorable notes are of two kinds: 1) the first note of the bass or lower part, which, if not the air note, is to be followed by the air note as soon as possible (84.11-85.2, a detailed set of rules): and 2) the air note or any of its three concords occurring as longer notes in any voice through the progress and in the close of a composition (85.3-38). Proper beginnings are exemplified by citing specific psalm settings from the Ravenscroft Psalter (88.4-28). The second kind of observable note is exemplified in the analysis of Tallis' "Absterge Domine" (85.16-38). (Modern theorists might profit from an examination of Butler's analyses as an approach to the understanding of tonality relationships in English church music during his time.)
Pitch relationships are also carefully described in the Principles of Music in terms of consonance and dissonance and in terms of the progressions of vertical combinations. The classification of concords and discords is both logical and, for English theory, unique. This classification is based on the occurrence and positioning of intervals in the final harmony of the close--namely, the major triad (to use a non-Butlerian term). Specifically, the primary concords—unison or eighth, major third, perfect fifth—are so-called because they exist in the final harmony as computed from the bass; the secondary concords—perfect fourth, minor third, and the two sixths—cannot similarly be computed from the bass but occur among the upper voices of the final harmony (48.31-49.7 and 53.27-54.5). Under the heading "Affinity of Concords" (50.1-5), Butler's discussion of concords and discords also includes a brief recognition of invertibility of intervals. 6

The discussion of the progression of vertical

6According to Joel Lester, "Root-Position and Inverted Triads in Theory around 1600," Journal of the American Musicological Society, XXXVI, No. 1 (Spring, 1974), 114, "the first recognition of octave inversion as used to generate intervals" was by Johannes Lippius in his Disputatio musica tertia of 1610.
structures is almost completely confined to what Butler termed "consecution," namely, the progression of dyads. (The harmonic approach peculiar to the treatises of Campion and Coperario is not found in Butler's Principles of Music; nor did Butler generally express himself in terms of vertical structures of greater complexity than dyads.) In this discussion of consecution (55.22-64.20), although Butler borrowed heavily from Calvisius (whose text is largely based on Zarlino's) and to a lesser extent from Morley, he did not accept their discussions at face value. Unlike Calvisius (and Campion's translation of Calvisius), Butler listed no restrictions against diagonal tritones and false seconds (cross relation, or false relation), and allowed parallel thirds and sixths without qualification (57.3-9 and 63.28-38)—an approach more closely bound to practical considerations. Other instances of Butler's individuality are noted in the commentary (pp. 308-21).

Butler also described pitch-relationships in terms of tuning and solmization. The description of tuning is, again, unique for English theoretical writing. In the annotations of I.ii.3 (23.1-40) Butler's comments leave no doubt in the mind of his reader that, as a true follower of Aristoxenian principles, he preferred to think in terms of equal half tones (perhaps a reaction against the Oxford lecture on
Boethius). This concept is amplified in the annotations of I.ii.4.1 and 2 (33.18-35.27), which, under the discussion of proportions, contains what might best be described as a very detailed attempt to explain equal temperament in layman's terms (as opposed to the exactitudes of Kepler's treatise, to which Butler had access): each half tone being 1/12 in proportion; each whole tone being 1/6 in proportion.

Complete sets of proportions based on these two are given for two octave species, the ut and re airs (the idea of major and minor?), in Figure 18 (following 34.3).

In the discussion of solmization (12.1-13.12, 14.28-16.43) there is an emphasis on the necessity for a different syllable for each of the seven notes—although the similarity between fa and fa (i.e., pha) is not considered a hindrance (16.39-43). Butler believed in seven-syllable solmization so strongly that he not only specifically rejected four-syllable solmization but also suggested a new first syllable for those who found ut to be not as fluent as the other Guidonian syllables. Namely, by metathesis, he suggested "tu" for ut; later during the seventeenth century "do" became ut's replacement.

Primarily because of its emphasis on four "proportions" rather than four moods, Butler's discussion of
rhythmic relationships likewise separates his treatise from other English treatises of the same and earlier period. In I.ii.4.2 (24.18-26.16) the four proportions (as presented, comparable to the present concept of meter) are declared to be dupla, tripla, sextupla, and noncupla. (In 1631 Bevin also placed the emphasis on proportions—in fact, didn't discuss moods at all—but did not limit his discussion to four basic proportions.) In Figure 14 (following 25.33) in which these four proportions are illustrated in comparative manner, the semibreve measure-note is constant in length but is divided into two, three, six, or nine parts, depending on the proportion exemplified. The rise and fall of the tactus is detailed in each case and is related to the rise and fall of the hand: the rise being on two in dupla, on three in tripla, on four in sextupla, and on seven in noncupla. Thus Butler's statement in 25.26-33 that in the King's masque "we fall readily out of duple proportion into sextupla [1 2 = 1 2 3 4 5 6] . . . although in the medley this sextupla doth immediately succeed the tripla [1 2 3 4 5 6 = 1 2 3 4 5 6], and out of triple into noncupla, as in the ground, which being set to the virginal, the right hand discanteth in noncuple upon the plain triple of the left hand [1 2 3 = 1 2 3 4 5 6 7 8 9]."

While in Figure 14 the barring is regular, the
explanation of barring in 89.17-19 does not indicate any preference for regularity of barring, for each strain, according to Butler's prescriptions, was simply first divided by a double cross bar, then subdivided in the middle with a single bar. The purpose of barring in this latter case was purely to aid in vertical alignment (89.24-26).

Of particular interest in the annotations to the discussion of proportions in I.iv.4.2 is the definition of three types of tactus: the breve which had fallen into obsolescence, the semibreve which was currently in use, and the minim which was beginning to encroach on the semibreve (28.22-33). Also in the annotations (28.34-29.14), the four proportions are compared to the four rhythmic moods.

While the presentation of the still quadrilateral and diamond shaped figures of the notes is fairly routine, the presentation of rules for the interpretation of ligatures in the following I.ii.5 has the peculiarity previously mentioned: namely, the allowance of a single semibreve at the beginning of a ligature (not allowed by other English theorists of the period). Butler's attitude toward ligatures might best be summed up in recalling the term he applied to them, namely, "old ligature," as though indicative of a practice that had fallen into disuse. In the "Brief
Synopsis" which follows in I.ii.6 (Figure 21, preceding 39.1) all notation previously discussed is summarized except for "old ligature." In fact ligatures are encountered in no portion of the treatise other than the section in which they are explained. Instead, one comes across the more familiar ties ("new ligature") and dotted notes.

Besides purely theoretical discussions, the theoretical portion of the Principles of Music contains a few items of historical interest. In 9.33-10.5 and 19.7-13 the range of the organ is exactly described as consisting of fifty-one natural notes and twenty (from the standpoint of the keyboard) extraordinary hmitones—a range of C C to d 5. In 9.27-33 and 19.7-10 the range of the virginal is described as four octaves and a minor third with short octave in the bass—AA to c 3. In 93.20-94.2 is a brief description of a sort of claviorganum, a combination of organ and virginal operated from the same keyboard. In 5.31-37 is a reference to the use of instruments in a performance of Thomas Tomkins' "When David Heard," a proof, according to Denis Stevens (Tomkins, 36), of the common use of mixed consorts in spite of the lack of any manuscript indication in the instance of Tomkins' composition.

Insofar as the performance of Elizabethan music is
concerned, Butler's treatise also includes some items of interest to the modern choir director. In 97.36-98.13 are listed several attributes of a good singer: correct posture, without ridiculous and excessive motions of the head, arms, and body; clear enunciation, especially of the vowels; and "a still and equal sound (except in a point [of imitation]) that one voice drown not an other." In the same section are comments (96.14-97.11) on the proper relationship between the character of the text and the character of the music (supplemented by quoted materials from Gaffurius and Calvisius). These comments—for example, "plain and slow music is fit for grave and sad matter; quick notes or triple time for mirth and rejoicing"—might well be considered in conjunction with Butler's concept of moods in I.i.

It should be recalled that, in some ways, Butler's Principles of Music most likely served significantly as a model for the later treatises of Playford and Simpson. The treatises of both these writers resemble Butler's in method of chapter organization and, exclusive of Butler's scholarly annotations, in manner of presentation. The link between Butler and Playford is easily proved (in fact Playford openly acknowledged it) because of verbatim borrowing on the part of Playford in his discussion of the Grecian moods, or modes (see commentary, pp. 93-95). Playford (and several
American editors of psalters as well, through Playford) also seems to have derived his concept of "master note" from Butler (see commentary, pp. 150-52). Nor are these borrowings surprising; during the two decades prior to the printings of Playford's and Simpson's treatises of the 1650's, Butler's Principles of Music was the most up to date, well-rounded English theoretical treatise of an introductory nature available.
APPENDIX A

LATIN AND GREEK QUOTATIONS

OF THE 1636 HAVILAND EDITION
APPENDIX A

In the Haviland edition of Butler's Principles, as a matter of typographical contrast with the normal lettering of the English text all Latin quotations were printed in italics; for the emphasis of certain words within such italicized quotations normal lettering was again used. In the following appendix material this process has been reversed; quoted material is reproduced in the normal manner while certain words are underlined (italicized) for emphasis.

Editorial braces have been used to delineate Butler's marginal notes, which have been placed within the latin text in the present appendix. Aside from this, all punctuation (including brackets), as well as capitalization and spelling, is reproduced as it appeared in the Haviland edition.
Veteres inter Disciplinas Musicam collocaverunt, ex
eo quod Natura quaerit non solum in negotio recte,
verum etiam in otio laudabiliter posse versari.

Cùm sint quátuor Mathesios disciplinae; caeterae
quidem ad investigationem veritatis laborant:
Musica verò non modò speculationi, verum etiam
moralitati conjuncta est.

Musica est scientia bene modulandi.

Modulatio potest ad solam Musicam pertinere;
quâvis modus, unde flexum verbum est, possit etiam
in aliis rebus esse.

Sonus triplex est: aut in voce animantis aut in eo
quod flatus in Organis faceret, aut in eo quod
pulsu ederetur.

Assentior ego Platonii, nihil tam facile in animos
tereros atq; molles influere; quam varios canendi
modos: quorum dici vix potest, quanta sit vis in
utrag; partem. Nam & incitat lanquentes, &
lauglacit excitatos; & tum remittit animos, tum
contrahit: civitatumq; hoc multarum in Graecia
interfuit, antiquum vocum servare modum; quarrum
mores lapsi ad mollitiem, pariter sunt immutati cum
cantibus.

In melodijs ipsis sunt imitationes morum: & hoc est
manifesta: stãtim enim harmoniarum {i. Modorum}
distincta est natura; ita ut qui audient aliter
disponantur, nec eodem modo se habeant ad
unamquâq; ipsarum: sed ad eudam flebitèr &
contractè magis, ad quasdam mollius secundum
mentem: ad aliam vero mediocrer & composite
plurimum: ut videtur Dorica facere sola omnium
harmoniarum {Seu modorum}.

Omnis habitus animi, cantibus quernatur: nam dat
cantus somnos, adimitq.; nec non curas immitit, &
retrahit: iram suggerit, & clementiam suadet: &c.

Omnis affectus nostri, pro sonorum diversitate, vel
novitate (nescio qua occultta familiaritate)
excitatur magis, cum suavi & artificiosa voce
cantatur.

Musica cum de secreto Naturae, tanquam sensuum Regina, tropis suis ornata processerit, reliqua cogitationes exiliunt; omniaq; facit ejici, ut ipsam solummodo delectet audiri. Tristitia noxiam jucundat: tumidos furores attenuat cruentam saevitiam efficit blandam: excitat ignaviam, soporantemq; languorem: vigilantibus reddit saluberrimam quietem: vitiatam turpi amore, ad bonestum studium revocat, castitatem: sanat mentis taedium bonis cogitationibus semper adversum: perniciosas odia convertit ad auxiliatricem gratiam: & (quod beatum genus curationis est) per dulcissimas voluptates expellit animi passiones: incorpoream animam corporaliter mulcet, & solo auditu ad quod vult deducit.


Quidam in harmoniis posuerunt duas species, [unam Doricam, alteram Phrygiam:] caeteras omnes vel ad Doricam, vel ad Phrygiam referunt.

Hoc totum quinque modis agitur: qui singuli provindiarum, ubi reperti sunt, nominibus vocitantur:

Modi Musici Gentium vocabulo designati sunt. Quo enim unaquaeg; gens gaudet, eodem Modus ipse vocabulo nuncupatur.

Nostra aetate Ionum mores deliciis sunt per
ditissimi: eorumq; itidem Cantus ab illo vetusto multum diversus

Vtinam extarent illa carmina quae multis seclis ante suam aetatem in epulis esse cantitata à singulis convivis, de clarorum virorum laudibus, in Originibus scriptum reliquit Cato.

Gravissimus author in Originibus dixit Cato, Morem apud Majores hunc epularum fuisse, ut deinceps qui accubarent, canerent ad tibia clarorum virorum laudes.

Manifestum (inquit) quòd Doricam praeceteris decens est juniores addiscere.

Neq; verò illud mon eruditorum temporum argumentum est, quòd in Deorum pulvinaribus, & epulis Magistratum, fides praecinunt.

Honoratorum virorum laudes in Concione memorantur: easq; etiam ad cantum tibicinis prosequuntur, cui nomen naenia: quo vocabulo etiam Graeci cantus lugubres nominant.

Prima lydii modi constitutio fletus lamentationisq; causà facta est. Nam Aristoxenus in primo de Musica, Olympum tradit in Pythonis sepultura cecinisse tibià, secundum Lydium modum, funeralia.

Lydia maximè omnium Harmoniarum ornatum simul, doctrinamq; affert.

Populus Antiochenus Theodosi Imperatoris iram metuens ob seditionem exortam, Deo melodiis quibusdam lugubribus supplicabat. Palvianus quoq; episcopus, cùm pro civibus apud Imperatorem adhuc offensum intercederet, persuadet adolescentibus, qui ad mensam Imperatoris canere soletant, ut psalmodias canerent quae in Supplicationibus Antiochenorum usurpabantur. Quo facto, ferunt Imperatorem misericordià superatum, confestim iram posuisse & urbi reconciliatum.

Ostendens enim Musicam multis in rebus esse conducibilem, introduxit Achillem, qui iram adversus Agamemnonem suam concoqueret Musicae operà, quam didicerat à sapientissimo Chirone, Musicae simul, & justitiae, ac Medicinae Doctore.
Qui cum somnum peterent, ad Lyram prius lenire mentes soletem; ut, siguid fuisset turbidiorum cogitationum, componenter.

Mentes suus Pythagorei à cogitationum intentione, cantu fidibusq; ad tranquillitatem traducebant.

Phrygia distrahit ac rapit animam, & quasi extra se ponit.

Habet eadem vim Phrygia in Harmoniis, quam habet tibia in Instrumentis: ambae enim concitant animos, & in affectus impellunt.

Timotheum aiunt Tibia ludentem suis Carminibus adeo perturbasse Alexandrum, ut inter audiendum ad Arma confessiam corripieret: Timotheum vero dixisse, Talia oportere esse Regia Tibiarum carmina.

In bellis suis tibua utuntur Hetrusci, fistulâ Arcaës, Siculi Pycticibus [Fidiculis], Cretenses lyrâ, Lacedaemonii tibia, Cornu Traces, Tympano Ægyptii, & Arabes cymbalo, ac Troes lituo:

Misenum Aeolidem, quo non praestantior alter Aere ciere viros, Martemq; accendere cantu: Et lituo pugnas insignis obibat, & bastâ.

Exercitus Lacedaemoniorum Musicis fuisset accensos modis traditum. Quid autem aliud in nostris legionibus Cornua ac tubae faciunt? Quorum concentus quanto est vehemensior, tantâ Romana in bellis gloria caeteris praestat.

Cantantes ibant ad bellum.

Pythagoreis certè moris fuit, ut cum evigilassent, animos ad lyram excitarent, quò essent ad agendum erectores.

Sponsas autem ex thalamis, tedis subaccensis, Ducebant per urbem: Multusq; Hymeneus excitatus fuerat. Iuvenes autem saltatores in orbem agebant: interq; hos Tibiae citharae?; sonum edebant.
Nec dubitari debet, quin fuerint ante Homerum Poetae: quod ex eis Carminibus intelligi potest, quae apud illum in Procorum epulis canuntur.

Cum vinolenti adolescentes, tibiarium etiam cantu, ut sit, instincti, pudicae mulieris fores frangerent; admonuisse Tibicinam ut Spondaeum caneret, Pythagoras dicitur: quod cum illa fecisset; tarditate Modorum & gravitate canentis, illorum furentem petulantiam consedisse. Inde Chromaticum, quod adolescentum remollescerent eo genere animi, Lacedaemones improbasse feruntur.

Omnia haec (si moderatè ac tempestivè agantur) & ferri & commendari possunt. Nam huc tria bonorum genera concurrent, [Honestum, Vitile, ac Iucundum.]

Summam eruditionem Graeci sitam censebant in Nervorum vocumq; cantibus. Igitur Epaminondas, princeps meo judicio Graeciae, fidibus praeclarè cecinisse dicitur: Themistoclesq; aliquot antè annis, cum in epulis recusasset Lyram, habitus est indoctior. Ergo in Graecia Musici floruerunt, discebantq; id omnes: nec qui nesciebat satis excultus doctrina putabatur.

Non solum qui sunt habitu cultiores, verum universe quod barbarae Nationes, cantus, quibus vel ad ardorem virtutis animentur, vel ad mollitiem voluptatis resolvantur, exercent: & ita delineomentis canticis occupantur, ut nullum sit tam immitè, tam asperum pectus, quod non oblectamentorum talium teneatur affectu.

Ad exercendam acuendamq; mentem confert & Musica: quocirca apud singulas Nationes tum Graecorum tum Barbarorum, quorum nobis notuerunt leges ac instituta, in pretio est. Itaq; (ut non inscitè Damon Atheniensis dixit) agitato prorsus animo, cantiones atq; saltationes fieri necessarium est: liberales ac speciosas ab animis ejusmodi; contrarias ab iis quibus animus diversus est.

Epaminondas fidibus praeclarè cecinisse dicitur.

Imitabere Pana canendo.
Structis cantat avenis.

Musicorum ac Cantorum magna est differentia: illi sciant & dictant; isti faciant quod dictatur. Est itaq; Musicus ad Cantorem, quod Praetor ad Praeconem.

Mira est quaedam natura a vocis: cujus quidem est tribus omnino Sonis [Inflexo, Acuto, Gravi] tanta sit & tam suavis varietas perfecta in Cantibus.

Musicorum etiamsi alii spectent, Manus tamen ipsa consuetudine, ad Graves, Acutos, Medios; sonos fertur.

Pars pedibus plaudunt choreas, & carmina dicunt
Nec non Threicius, longa cum veste, sacerdos obloquitur numeris sependam discrimina vocum:
Iamq; eadem digitis, jarn pectine pulsat eburna.

Guido Aretinus, Musicus acutissimus, post Boetium solus apud Latinos, Musicam illustravit, voces reperit, claves ordinavit, ac ex mirâ quaedam industria, facillimum quendam praeclamping modum invent.

Guido Aretinus, divinâ inspiratione ductus, Hymnum divi Ioannis Baptistae devote examinans, versuum sex capitales Syllabas, [scilicet, Ut, re, mi, fa, sol, la] Musicis consonantiiis convenire perpendit.
Quaere eas in Introductorii sui chordis applicavit.
Quod Ioannes 22, Romanae urbis Pontifex, approbavit.

VT queant laxis RESonare fibris,
MIRA gestorum FAmuli tuorum;
SOLve polluti LAbij reatum.

dum tollitur, Alicus inquit:
dum cadit, alter ait.

Septem tantum essentiales chordae septenis literis a Gregorio descriptae sunt.

Graeca littera in graviori Introductorii parte locatur, ad Graecorum reverentiam; à quibus Musica defluxit ad nos. Inquit enim Berno lib. I. Musicae suae, Graecam literam maluerunt ponere moderni, quàm Latinam; ut Graeci innuantur hujus Artis
Veteres Musici Voces pthongos, Claves Chordas seu nervos appellabant. Hae claves in ordinem, tanquam in Scalam quandam, ad Graecam olim chordarum dispositionem, redegit Guido Aretnius, [eximiae eruditionis vir:] quem nostra aetas sequitur: ita ut in infimo gradu in linea parallela poneret vocem Ut, praescripta tertia Graecorum litera T: nempe ut haud immemores esseamus hanc disciplinam, ut alias omnes, a Graecis esse.

Sunt Claves natura distinctae septem, totidem literis notatae, hoc discrimine à Musicis pictae: [majusculis formis primae septem, sequentes 7 tenuibus, & supremae geminatis.]

Ing; his quae gravissima erat, vocata est Hypate.

Acumen est quod conficitur per Intensionem, Gravitas quae per Remissionem: quando Chordas, ut congruae sint, Intendimus aut Remittimus)

[quasi major atq; honorabilior: unde Jovem etiam Hypaton vocant]

Musica quatuor nervis tota constabat: idq; usq; ad Orpheum duravit, ad imitationem Musicae Mundanae, quae ex quatuor constat elementis. Cujuus Quadrichordi Mercurius dicitur Inventor.

Intus testudinem inveniens possedit infinitas opes
Mercurius: utiq; primam Testudinem fabricatus est canoram.

Quintam vero Chordam post Chorebus, Athis filius, adjunxit, qui fuit Lydorum rex. Hyagnis Phryx sextum his opposuit Nervum. Sed septimum Nervus a Terpandro Lesbio aadjunctus est, secundum septem scilicet Planetarum similitudinem. Ing; his quae gravissima erat vocata est Hypate: Parhypate secunda, quasi Iuxta Hypaten: Lichanos tertia, quae est quarta a Netè, ut Index ab imo digito: quarta Mese, quoniam inter septem semper est medius: Quinta est Parameise,
quasi Iuxta medium collocata; septima autem dicitur 
Nete quasi Neate, id est infima inter quam & 
Paramesen est sexta, quae vocatur Paramete, 
quasi Iuxta Neten locata; Paramese vero, 
quoniam tertia est à Nete, eodem quoq; vocabulo 
Trite, i. tertia nuncupatur.

Hujus Lyrae heptachordae Pythagoras 
concertus rationem & proportionem excoitasse 
primus fertur. Is cum intuerentur, in septem 
nervorum Lyra, extremus nervos prorsus inter se 
esse ecmeles; existimavit non modo quarto & 
quinto, nervos ipsos esse consonos efficiendos; sed 
etiam inter se invicem componendos: proinde octavum 
adjecit: (qui ideo dicitur Proslambanomenos) atq; 
ex Heptachordo fecit Octochordon. In Heptachordi & 
Octochordi dispositionibus, (inquit Boetius) 
Heptachordum quidem dicitur Synemmenon, quod est 
conjunctum; Octochordum verò Diazeugmenon, quod 
est disjunctum. In Heptachordo est unum 
Tetrachordon, [Hypate, Parhypate, Lichanos, 
Mese;] aliud verò Mese, Paramese, Parane te, 
Nete: dum Mesen chordam secundò numeramus; atq; 
adeo Tetrachorda per Mesen conjuguntur. In 
Octochordo autem (quoniam octo sunt chordae) 
superiores quatuor [Hypate, Parhypate, 
Lichanos, Mese] unum Tetrachordum explent: ab 
hoc vero disjunctum inchoat à Paramese, 
progrediturq; per Parameten, & Neten, ac 
finitur ad ultimam, seu Proslambanomenen.

Aristoxenus Musicus, judicio aurium cuncta 
permitens, haec Semitionia non arbitrantur esse, 
contractiora Dimidio; sed sicut Semitionia dicuntur, 
ita esse Dimidietates Tonorum.

Philolaus duas efficit partes: unam quae dimidio 
sit major, eamq; Apotomen vocat; reliquam quae 
dimidio sit minor, eamq; Diesin dicit.

Tonus duobus Semitoniis minoribus & Commate 
constat. Nam si totus Tonus ex Apotome constat ac 
Semitonio; [scilicet Minore:] Semitionium verò ab 
Apotome differt Commate; nihil est aliud Apotome, 
nisi Semitionium minus, & Comma.
Diesis (inquit Philolaus) est spatium, quo major est Sesquiquartia proportio duobus Tonis.

Minus Semitonium minus est quàm quatuor Commata, majus quàm tria.

Apotome major est quàm quatuor Commata, minor quàm quing; Díaschisma est dimidium Diesios. i. Semitonii minoris. Comma est spatium quàm major est Sesquioctava proportio duobus Diesibus.

Schisma est dimidium Commatis.

Integrum verò dimidium Toni (quod est Semitonium) constat ex duabus Díaschismatibus (quod est unum Semitonium minus) & Schismate.


Tres posteriores species magis Musicis instrumentis, propter nimiam celeritatem, quam humanae vocis competunt.

Tactus major est, quàm Brevis Tactu mensuratur:
Minor est, cum Semibrevis sub Tactum cadit integrum.

Ille tamen esse cognitum debet, quod omnes Musica Consonantiae, aut in Dupla, aut in Tripla, aut in quadrupla, aut in Sesquialtera, aut in Sesquitertia, proportione consistunt. Et vocabitur quidem quae in numeris sesquitertia est, Diatessaron in sonis: quae in numeris sesquialtera est, Diapente appellatur in vocabus: quae in Numeris Dupla est, Diapason in Consonantiis: Tripla, Diapente ac Diapason: Quadrupla autem, Disdiapason.

Ars ut ars est tradit debet. At res ipsa nunc clamat, superfluum esse tot proportionum observationes: quam Wemo, quamlibet cantu exercitatus, meminisse queat: quasq; nullus ex doctissimis nostrae aetatis Musicis dignatus est (praeter pauculas) in Symphoniam assiscere: ut in quibus major labor in addiscendo, quam suavitates gratiae in cantando esse constet. Testor itaq; disdiscere, quod magis haec ad ostentanda ingenia, quam ad Musices usum inventa videantur.

Dupla ut 4 ad 2. Superparticularis vocatur, quoties major numerus minorem in se habet totum semel, & praeterea unam aliquam ejus partem. Si dimidiam; proportio est Sesquialtera: quae etiam sesquipla, & Graecè hemiola vocatur: ut 3 ad 2, 6 ad 4. Si tertiam partem; sesquitertia dicitur: ut 4 ad 3.

Pythagoras dum inquirebat, quanam ratione firmiter & constanter Consonantiarum momenta perdiscebat; praeteriens fortæ Pabrorum officinas, pulsos Malleos exaudivit, ex diversis sonis unam quodammodo Concinentiam personare: diuque considerans, arbitratus est diversitatem sonorum ferientium vires efficere: atque ut id apertius colliqueret, mutarent inter se Malleos imperavit. Sed sonorum proprietas non in hominum lacertis haerebat, sed mutatos Malleos comitabatur. Vbi igitur id animadvertit; malleorum pondus examinat. Et duplici reperti sunt pondere, qui sibi secundum Diapason Consonantiam respondebant. Eundem etiam, qui Duplus esset uni, Sesquitertium alterius esse comprehendit: ad quem scilicet Diatessaron sonabat.
Ad alium vero quendam (qui eodem, Diapente consonantia, jungebatur) eundem superioris Duplum, reperit esse Sesquialterum. Duo vero hi, (ad guos superioris Duplex, Sesquitertius & Sesquialter esse probatus est) ad se invicem Sesquioctavam {Quia 9 continent 8, & 1/8} proportionem perpensi sunt custodire. Quum igitur, ante Pythagoram, Consonantiae Musicae partim Diapason, partim Diapente, partim Diatessaron (quae est consonantia minima {Nam Tertia perfecta & imperfecta, (ut item Sexta) tunc temporis ignotae erant}) vocarentur; primus Pythagoras hoc modo reperit, qua proportione sibimet haec sonorum chorda jungeretur. Et ut sit clarius quod dictum est, sint, verbi gratia, Malleorum quatuor pondera, quae subter scriptis numeris continentur: [12, 9, 8, 6.] Hi igitur Mallei, qui 12 & 6 ponderibus vergebant, Diapason in Duplo Concinentiam personabant. Malleus vero 12 ponderum ad malleum 9, & Malleus 8 ponderum ad malleum 6 ponderum (secundum Epitritam Proportionem) Diatessaron consonantiam jungebatur. Novem vero ponderum ad 6, & 12 ad 8, Diapente consonantiam permiscabant. Novem vero ad 8, in Sesquioctava proportione, resonabant Tonum.

Et in Triquetris Nervi, quorum alter longitudine Dupla, alter subdupla est, aequi intenti, Diapason Consonantiam reddunt: genus autem concinendi, quod Diapente nominatur, Sesquialterâ constat: quod vero Diatessaron vocamus, intervallo Sesquitertio continentur.

Cum Netes Dupla ad Hypaten sit; quocunque in genere Netes duo tenuerit, Hypate unum habebit: & ubi Hypate duo, Netes quatuor resonabit.

1 Longa est. Pendente secundâ.
Prima carens cauda <
2 Brevis est, scandente secundâ.
3 Prima manu laevâ Brevis est, caudata deorum.
4 Semibrevis prima est, sursum caudata || sequensq:.
1 Quaelibet in medio Brevis est: 2 || at proxime adhaerens
2 Sursum caudatae pro Semibrevi reputatur.
1 Ultima conscendens Brevis est quaecung: ligata.
2 Ultima dependens quadrangula sit tibi Longa.
3 Est abliqua Brevis semper finalis habenda.
4 || Semibrevis, sursum caudatae proxima primae est.

Omnis Ligatura, quanquam multas complexa est notulas, unicam subtrahit syllabam pronunciandam.

Partes aut voces in Harmonia, vel duae, vel tres, 4, 5, 6, 7, 8, vel plures adhibentur: (nam hodie etiam vel quadriginta, vel interdum quinquaginta tales Partes & voces in unica Cantilena inveniuntur) Principales tamen tantum quatuor sunt.

Etsi maxime in id incumbendum est, ut Modulatio potius per Gradus, quam per Saltus procedat; (propterea quod Harmonia inde generetur aequabilior, volubilior, & facilior) tamen cum id ubiq; fieri non possit; quando per Saltus progresendum est, eligenda sunt potius intervalla Consona, quam Dissona. Tritonus & Semidiapente prorsus vitanda sunt: interdum Septima, rarius Nona adhibetur: & non nisi certis de causis.

Diapason ex omnibus aut per omnia Intervalla.

Harmonia est diversorum sonorum unio, reducata ad concentum. Non enim tantum simplicem, in acutioribus aut remissioribus sonis, Modulationem (hoc est singularis vocis Melodiam) admissit, & ab intervallo ad intervalum, vel velociorum vel tardiorum motu, secundum Tempus in Figuris Musicis praescriptum, procedit; sed etiam alias voces, quae concentum faciunt, accinentes habet: ex quibus, tantum ex Partibus, Harmonia componitur.

Intervallum est soni acuti gravisq; distantia. Consonantia est acuti soni gravisq; mixtura suaviter auribus accident. Dissonantia est duorum sonorum sibimet permixtorum ad aurem veniens aspera atq; injucunda percussio.

Intervalla Simplicia sunt Diapason, & quae in qualibet ejus specie continentur: ut sunt secunda,
Tertia, Quarta, Quinta, Sexta, Septima.

Pythagoricī Consonantiae Diapente ac Diatessaron, simplices arbitrantur: atq; ex his unam Diapason Consonantiam jungunt.

Composita Intervalla sunt majora quàm Diapason: & fiunt ex quolibet Intervallo simplici cum aliqua Diapason specie: ut si Tonus ad Diapason addatur, vel Tertia, vel Quarta; oritur Nona, Decima, Vndecima: & sic de aliis.

Diapason prima est omnium Consonantiarum, & perfectissima: Nomen inde duxit, quod omnia intervalla simplicia complectatur.

Consonantias sensus guidem percipit: & eam quae Diatessaron i. Quarta, dicitur, & eam quae Diapente i. Quinta.

Rejicitur hodie à plerisq; Musicis, ex numero Consonantiarum, Diatessaron: sed minus recte. Nam omnes Musici veteres, tam Graeci quàm Latini, eam inter Consonantias collocarunt: id quod monumenta ipsorum testantur. Deinde quia conjuncta cum aliis Intervallis, parit Consonantiam: ut si addatur ad Diapente, fit Diapason: si ad Ditonon, vel Trihemitonion, fit Sexta major aut minor. Nihil autem quod in Intervallis plurium proportionum consonat, per se dissonare potest. Tertio, si chordae in Instrumentis Musicis exacte juxta proportiones veras intendantur; nulla dissonantia in Diatessaron apparat; sed ambo soni uniformiter & cum suavitate quadam aures ingrediuntur: sic in Testudinibus chordae graviores hoc intervallo inter se distant, & ratione Diatessaron intendentur. Quartò nulla cantilena plurium vocum haberī potest, quae careat hac Consonantia. Nequaquam igitur est rejicienda; sed, propter usum, quæ in Melopoeia (si dextrè adhibeatur) habet maximum, recipienda.

Unisonus dicitur quasi unus sonus: & definitur, quod sit unio duorum aut plurium sonorum in eadem Clave consistentiūm. Intervallum autem Unisonus
nos est, nec proprie Consonantia: idq; vel inde patet, quod Intervallum distantia sit acuti soni gravissq;: Vnisonus autem distantiam sonorum, quod acumen & gravitatem, non admittat. Adjungitur autem Consonantiiis, & quidem perfectis; propterea quod nihil magis consonum aut perfectum esse possit; quam quod respectu sui usum est.


(p) Haec tria Intervalla versantur naturaliter in gravibus sonis: atg; post Disdiapason, seu Quintam decimam, Ditono ac Semiditono proprius locus attribuitur, qui in gravibus minus sonorae sunt. Has esse veras & naturales harum Consonantiarum sedes, usus & quotidiana, in Instrumentis Musicis, experientia liquidò ostendunt.

Vix quidem Quartae ita vitari possunt, ut duae vel tres continuae non admittantur: tamen id plerumq; variât Basi, & in certa forma Clausularum fieri consuevit.

Observetur (inquit) quòd plures Sextae (si mediatione, Tertiam inferiore loco habeant, & Quartam superiore) continuantur à plerisq; Musicis: maximè descendo: tantùm, modo in perfecta Consonantia inchoent, & in Octava finiantur:

quae maximè sensus nostros impellunt voluptate, ab iis celerrimè fastidio quodam & satietate abalienamur.

Tanta vis est hujus consecutionis, ut neq;
Pausis minoribus, nec; Dissonantiis tolli possit.

Ex Consonantiis perfectis ad imperfectas, et contrà, transimus (quantum fieri potest) in Gradibus, et in motu vocum contrario: ita ut is altera ascendat, reliqua descendat.

Consonantiae perfectae non ejusdem generis, sese sequi possunt; si altera procedat Gradibus, altera vero Saltu.

Ex perfectis ad imperfectas facilis est transitus, tam per Gradus, quam per Saltus: tam ascendencies, quam descendendo. Sic Unisonus transit in Tertiam minorem {seu imperfectam}, ac majorem {seu perfectam}: et in Sextam minorem, rariùs in majorem. Quinta vero in Sextam majorem ac minorem: item in Ditonum ac Semiditonum. Atq; ita de Octavis.

Dissonantiae, si non temere, sed certis quibusdam modis Harmoniam {Nempe in Consecutione, & Syncope} ingrediantur; non tantùm facilè tolerantur; sed concentum etiam magnopere exornant.

Tritonus etiam & Semidiapente celeritate obliteratorur.

Quae unius formae {seu figurae, quae scilicet tempus indicat} sunt, alternatim consonent: ita ut Consona inchoet, Dissona sequatur. In integro itaq; Tactus consonare debet ex duabus Minimis prima, quae Tactua in Depressione inchoat: ex quatuor Semiminimis, etiam prima, quae est in Depressione Tactus; & tertia quae est in principio Elevationis: & ex octo Pusis impares quatuor [prima, tertia, quinta, septima.]

Syncope est irregularis applicatio Notulae ad Tactus, facta propter minorem Figuram praecedentem.

Semibrevis enim, cum Tactu suo absolvatur,
Regulariter in Depressione Tactus inchoatur, & in Elevat...
modulationis actum, in quo Harmonia ad quietem inclinat; Parsq; aliqua Textus finitur.

Perfectae Cadentiae sunt, quae integrae [i. quae dictis tribus constant notulis,] & in perfectissimis Consonantiis terminantur: ut in unisono aut octava,

Imperfectae Clausulae sunt, quae Harmoniam minus ad quietem deducunt, sed eam aliquo modo suspendunt, & ulterior modulando progresciendum esse designant: quod fit cum ultima notula vel ex propria sede mota sit, vel alius in imperfectam Consonantium incidit.

Harmonia Gemina aut Tergemina est, quae vocibus inversis, secundâ aut tertiâ vice canit potest: ubi semper alius atq; alius concentus exauditur.

Gemina harmonia fit ex duabus vocibus, si Gravis exaltetur, Acuta vero deprimatur:

Fuga est certa alicujus modulationis Repetitio.

Modulationum Repetitiones (disjunctae tamen intervallo temporis, sonorum gravitate & acumine, numerorum item celeritate ac tarditate) non tantum, quando primum audiuntur, mirum in modum mentes humanas afficiunt, atq; in considerationem sui fere totas abripiunt; sed etiam aetatem ferunt, & quo saepius audiuntur, eo plus afferunt delectionis. Musici itaq; quo sunt exercitatores in condendis Harmoniis, eò magis sunt in Fugis effingendis occupati.


Difficilior modus est, si Comes Ducem suum

Fuga est vel per totam Cantilenam, vel in Parte tantum. Quae est per Cantilenam totam, Fuga ligata dicitur: ubi necesse est, omnia accidentia Cantus quoad Tempus ac Figuras observari.

Fuga ligata inscribitur certo Titulo, (quem Canone Musici vocant) quo, & Temporis Intervallum, in quo Comites Duce sequuntur, & modus canendi indicatur.

Fugae etiam species est, quando voces aliquot, post certum tempus, in Unisono in orbem cantunt, & a fine ad Principium redeunt.

In fine videbitur cujus Toni,

In hoc chorali cantu, diligentissime consideret huic Arti deditus, qui sint ubiq; Modulationis Progressus, quod Exordium, & quis Finis: ut cognoscat ad quem Modum referatur. Inde enim tam Primariam illius Modi clausulam, quam Secundariam, eruere, & convenientibus locis annotare, & inserere poterit.

Ex Diapason igitur Consonantiae speciebus, existunt qui appellantur Modi: quos eosdem Tropos vel Tonos nominant.

Primaria Clausula, cum ubiq; guidem [Principio, medio & fine] cujuslibet Harmoniae locum habeat; (ne per alias clausulas, in alium atq; alium Modum deducatur, sed ut ubiq; versus Modus conspicuus sit) tanto tamen cum apparatu, προαναγώ, ac conatu nullibi fieri solet; ac in fine vel totius Cantilenae, vel Periodorum.

Cum ubiq; Tropus Harmoniae ostendendus sit; maxime tamen in fine: unde omnis ejus bonitas, elegantia, & perfectio judicatur.

Primariam Clausulam [i. Cadentiam] formant in ipsa Clave finali, quae est infima in Diapente.
Primariae Clausulae usus est in Principio & fine
Cantilenarum: tum etiam quando, per assumptas alias
Clausulas, Cantilenad ad alium Tropum inclinare &
traüci videtur. Per hanc enim propriam Clausulam
revocatur, & in ordinem redigitur.

Si praeterea, i. Praeter Proprias, [Primarias &
Secundarias] alias, i. Improprias, assumunt
Musici; extra ordinem hoc faciunt, atq; cum judicio
& delectu.

Quando exordium Subjecti in finali illius Tropi
clave fuerit; si Fugam solutam instituere cogitat,
infimae vocis notulam, cum Subjecto, in Unisono
vel in Octava constituat: aut etiam ad Diapente,
vel Diatessaron: vel Tertiam [Toni Consonantias]
Voces quas adjungit, vel elevare vel deprimere
poterit.

Cognito Tropo & Clave finali, accedat
Melopoeus ad exordium Subjecti: id si in Propria
illius Tropi clave fuerit; infimae Vocis notulam
cum Subjecto in Unisono vel in Octava constituat:
ne, si aliam Clavem sub Subjecto sumpserit, alium
Tropum miscere videatur: reliquas superiores (si
tantum consonent) ubicunq; vel eit, collocet.

Quando autem Subjectum in aliena Clave
exordium sumpserit, saepe quidem in ea, qua
Subjectum inchoat, Clave, reliquae Voces
incipiuntur: ita tamen ut quam primum in Clausulam
ejus Toni Propria concedat.

Quando tamen ad Propriae Clavem Prima
Subjecti notula consonat; in illa inferior aliqua
Vox addita [Nempe propria Clave] fundamentum
Subjecto Substruat: ut ita, statim in principio,
Harmoniae Tropum non obscure ostendat.

Circa finem motus Harmoniae sit aliquo modo
concitator, quàm in principio; ut ita quàm maxime
Naturalem imitetur motum, qui similiter in
principio tardior, in fine velocior est.

Post Clausulam illam propriam & finalem, brevis
Appendix annecti solet: sed hac ratione, ut vox
quae est in Clave Primaria (sive fiat in mediis, sive in acutis sonus) άκίνετος, i. immobiles relinquatur: & Bassus tandem, vel in eandem elevetur, vel in ejus Diapason, aut Disdiapason deprimatur.

Cum ob pares quantitates, diversitas Figurarum necessaria non esset, per Puncta tantùm libuit Cantum componere: & cum Punctum ita Puncto opponeretur; Contrapunctum haec ars vocata est.

Quanto moliores sunt & delicatiores in Cantu flexiones, & falsae voculae, quàm certæ & severæ? quibus tamen, si saepius fiunt, non modo austeri, sed multitudo ipsa reclamat.

Ars est comprehensio praecceptionum coeercitatarum; ad aliquem in vita Finem utilem.

quia, intentis nermis seu fidibus sonant:

utrumq; idem significat, [tango, leniter percutio:] nisi quod ψαλλω magis propriè de chordarum tactu & pulsatione dicitur.

quia, spiritu tibiis immisso, sonant.

Tunc primum in genti studio Pericles tulit, ut certamen Musicorum Panathenaeo celebraretur: digestit; id ipse, creatus Athlothes {Qui praemium certaminis statuit}, quemadmodum certantes, Tibià, vel Voce, vel Ciahara, carent:

Non illos Citharae, non illos carmina vocum, Longaq; multifori delectat tibia buxi.

Ὁργάνων χαίρουσι τοῖς ἐπιτερπέσ ς ἥχοις.

Cantus, etsi per se hominum animos oblectet; attamen cum illi oratio subjicitur, quae sit Numerosa, & pedibus quibusdam alligetur, (ut Versus esse cernimus) suavior multitù redditur.

Etsi Harmonia nuda (ut videre est in Instrumentis Musicis, sciente & periti ab Artificibus tractatis) propter Numerorum ac Proportionum
rationem, quibus sese humanis mentibus insinuat, plurinam in Affectibus excitandis exercet potentiam; tamen si accesserit humana vox, quae sententiam insignem numeris Harmonicis expressam, simul accinit; propter duplicem, quam & Harmonia & Sententia aliqua praeclera gignit, delectationem, Musica multò est mirabilior, augustior, auribusq; pariter atq; animo acceptabilior.

Sunt autem in Rhythmis & Melodiis similitudines, maxime penes veras naturas irae, & mansuetudinis, ac fortitudinis, & temperantiae, & contrariorum his, & aliorum omnium quae ad mores pertinent. Patet id ex effectu: Mutaus enim animum talia audientes.

Quoniam videmus Musicam esse per Melodiam, & Rhythmos; horum utrumq; latère non debet quam vim habeat ad Doctrinam: utrum praeferenās sit ea Pars quae in Melodii consistit, an ea quae in Rhythmis.

Etsi hodie Melopoeiis liberum relinquitur ut Textum Harmoniae exornandum vel ipsi fingunt & forment, vel ab aliis sumant; tamen necesse est ut convenientem cuilibet Textui Harmoniam condant. Poetae autem veteres simul materiam, quam tractandam susceperunt, verborum Metro comprehensorum elegantia, ac figurarum sententiarumq; splendore illustraverunt; & Harmoniam proposito argumento accommodatam addiderunt.

Studeat insuper cantilenae Compositor, Cantus suavitatem Cantilenae verbis congruere: ut cum de mortis petitione, aut quavis lamentatione fuerint verba, flebiles pro posse sonos pronuntiet: cum verò verba indignationem & increpationem dicunt, asperos decet sonos & duriores emittere: verùm laudis & modestiae verba medios quodammodo sonos expetunt.

Vegetior erit Harmonia, si absint signa Chromatica: & contrà pronior ad misericordiam, amorem, preces, &c. si crebro misceantur. Violentior erit ex pedum celeritate, mansuetior ex tarditate.

Res profunda, difficilis, silentium, descensus, timor, planctus, suspiria, materia funebris,

Postremò novis Cantoribus, institutionis admonitionisq; causâ, duximus proponendum, ne insolito & inhonesto oris hiatu, aut ridicule fortè cachinno, voces proferant modulando: rejiciant voces tremebundas, atq; perstrepentes. Decet autem alterum alteri vocem accommodare, ne alter alterius clamoris excessu confundatur. Insolens quoq; & indecorus capitis mannumve motus Cantorem declarat insanum.

Cantum Vocis plurimum juvat sociata Nervorum concordia.
APPENDIX B

AUTHORS, COMPOSERS, AND SOURCES

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APPENDIX B

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Waterhouse, George, above a thousand upon the same plainsong, 81.19-21
White, [Robert,] 92.14

Wilson, Jo[hn], 45.4n

Zarlinus, Joseph, Figure 42a, b, c, e (75.16, fugas); Figure 43 (78.24, harmonia gemina)
APPENDIX C

BUTLER'S "MELISSOMELOS, OR BEES' MADRIGAL"
APPENDIX C

Although Charles Butler's idea of recording the sounds of bees through musical notation made a brief appearance (three short staves) in the first edition of The Feminine Monarchy of 1609, it is only in the 1634 edition of the same work that the "Melissomelos, or Bees' Madrigal" appeared. This madrigal was inserted into the text in such a manner as to become an integral part of it, and was introduced (pp. 75-77) in the following manner:

The signs of after-swarms are more certain. For whereas the rising of the prime swarm is appointed by the vulgar, whose chief rule is the fulness of the hive, the hive being now well emptied, for other swarms there needeth some other direction, which the rulers themselves do give by their voices. . . .

When the prime swarm is gone . . . the next prince, when she perceiveth a competent number to be fledgè and ready, beginneth to tune, in her treble voice, a mournful and begging note, as if she did pray her queen mother to let them go. Unto which voice, if the queen vouchsafe to reply, tuning her bass to the young prince's treble (as commonly she will, though sometime scarcely entreated in a day or two) then doth she consent. . . . And as the queen's voice is a grant, so her silence is a flat denial . . . for without this consent there is no consent.

This song being contained with the compass of an eighth—from c sol fa ut to cc sol fa, the
prince cometh her part within the four upper clefs—g, aa, bb, and cc—usually in triple mood, beginning with an odd minim in g sol re ut, and tuning the rest of her notes, whereof the first is a semibreve, in aa la mi re. Sometime she taketh a higher key, sounding the odd minim in aa la mi re, and the rest in bb fa b mi. Sometime, specially toward their coming forth, she riseth yet higher, to cc fa sol fa, holding the time of three or four semibreves, more or less. Now and then she beginneth in duple time, some two or three semibreves, but always endeth with minim of the triple mood.

The queen's part, contained with the four lower clefs, consisteth of minims, altogether in triple mood, commonly in f fa ut, sometime in c sol fa ut, sometime in the other two clefs between them, continuing her tune the time of nine or ten semibreves, more or less.

Sometime a third princess imitating the queen's voice in time, though differing haply in tune, joineth with them—the more with their full noise to incite the swarm to go, that her turn may come the sooner. And sometime a fourth also interposeth her minims to fill up the choir. But none dare counterfeit the voice of the chief prince, for that were treason to her person; and yet sometime one of them, in hope to part the swarm, will steal out with her—which, if the swarm be not parted, or being parted be put together, costeth her her life, as well as the lives of some of her followers. Notwithstanding, each of these, when her elder sister is gone and her turn next, changeth her note, begging in Orithyian tune leave to be gone too—which, as sometime the queen granteth unasked, beginning first herself, so sometime by her silence she denieth, though mournfully entreated; and then the swarm tarrieth, and the poor lady must die.

With these various and harmonious notes answering one another and some pause between, they go solemnly round about the hive, so to give warning unto all the company. This they continue daily until their swarming, but you may hear them best evenings and mornings. Which music, as it
cannot but please and delight them that listen to
it, so must it be most sweet and pleasant to the
young prince herself, but of the kingdom also—both
which otherwise she were sure to lose.

In this "Melissomelos," or bees' madrigal,
musicians may see the grounds of their art: first
their moods, sometime the triple or imperfect of
the more, sometime the duple or imperfect of the
less; then the tunes of the six notes—ut, re, mi,
fa, sol, la—whereof the queen soundeth the first
four and the prince the other two together with the
doubling of fa, sol in two higher clefs to make up
the full eighth; and lastly the six concords—an
imperfect third, a perfect third, a diatessaron, a
diapente, a sixth, and a diapason. And if any man
dislike the harshness of the seconds and sevenths,
which now and then hit among them, he showeth
himself no experienced artist, which knoweth not
that as well in music as [in] economy there must
 sometime be discords—yea, and that in either they
have their laudable use, as serving to make sweet
conords the sweeter.

So that [thus] if music were lost it might
be found with the Muses birds. . . .

The several parts of whose song, comprising
these mentioned notes, with pauses interposed (as I
have at several times by a wind instrument, whose
notes can neither rise nor fall, attentively
observed) I thought good here to prick down, that
you may see in them all these particulars of their
natural art. Only I cannot altogether warrant the
conclusion, because in that confused noise which
the buzzing bees in the busy time of their
departing do make, my dull hearing could not
perfectly apprehend it, so that I was fain to make
up that as I could. But I am sure if I miss I miss
but a little.

In the following transcription of the madrigal, the
sections with text (transliterated by the dissertation
writer) are based on an incomplete transcription of these
sections which appear in James Pruett's article in The
Musical Quarterly¹ entitled "Charles Butler--Musician, Grammarian, Apiarist"; the sections without text are reproduced directly from Pruett's article.

¹XLIX, No. 4 (October, 1963), 500-02. Pruett's reference to the first section as "pedestrian" seems apt due to the conventional manner of the setting. Morley would have criticized the frequent large span between the upper voices--which Butler may have used for effect.
As of all states the mon-arch-y is best;

So of all mon-arch-ies that fem-i-nine, Of fa-mous

am-zons ex-cels the rest, That on this earth-y sphere have

ev-er been. Whose lit-tle hearts in weak-er sex (so great in

field) No pow-er of the might-est males can make to yield.
They living ay, most sober and most chaste. Their

They work in common for the common weal;
Their labor's restless to maintain their state.
Their hexagonia no Bezaleel
For curious art may pass or imitate.
One sovereign, and but one, commands
This people loyal,
The great marquess with plenty blest
Ges issue royal.
Antiope and Orithyia fair,
With other princes her infants are.

When so increased in this prudent nation,
That their own limits cannot suffice;
To seek new cities for new habitation,
They send abroad their numerous colonies.
Antiope the prime prince gone,
Orithyia soon
Of her queen mother making moan
Begs the like boon,
That with her train her fortune she may seek;
And this she sings in measures mournful sweet.

In whose grave accents if her princely grace
Vouchsafe, with timely aspect, reply to make;
In sweetest treble tuning, sweeter bass.
This mournful suit a joyful end doth take.
And then when fit time they eapy,
Some thousands strong,
This army royal gallantly
Both march along.
Hark, hark, me thinks I hear in notes of choice
This fairest lady's sweetest mournful voice.
But all this while she doth chant it alone, Most humbly begging in her Doric strains, Of her dear liege leave to be gone; But comfort none she yet obtains.

Her mother's silence makes her much to doubt Her Grace unto her will this grace deny; But still her suit she doth hold out In hope at last to move pity.

Importunate Orithya now hath won Her stern queen mother's grant to her desire; For joy her sisters all as one With cheerful tones fill up the choir.

These ladies' musical consort assures The prince her much-desired sovereignty; Her vulgar, when occasion serves (This watch-word past), abroad do his.

Where treading the hay right nimbly they prance Thus waiting their prince, in and out they trace; Who come, these maids the morris dance, Along unto their resting-place.
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