

MUSICOLOGICAL STUDIES AND DOCUMENTS

24

THE THEORY OF HEXACHORDS,
SOLMIZATION AND THE
MODAL SYSTEM

A Practical Application

by

GASTON G. ALLAIRE



AMERICAN INSTITUTE OF MUSICOLOGY

1972

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INTRODUCTION

The theory expounded here is neither the product of the imagination, nor the invention of a single man; in fact it is a reconstruction of the theory of hexachords and the technique of solmization based upon the analysis of music contained in the writings of medieval and renaissance theorists. This book does not pretend to give ready-made answers to all the problems involved in a production of music that spanned more than seven centuries. We have good reason to believe that the possibilities of the hexachord system were exploited differently from period to period, and varied according to the type of music composed and the locality in which it was produced.

Since this theory deals with music it is logical to support it with musical examples, and with contemporary theoretical evidence. Therefore, in order that the reader may get a complete analytical picture of the hexachordal interlockings and the modulations that take place, complete musical examples are given wherever it is possible to do so. The signs preceding the notes were copied faithfully from the manuscripts or the prints; those above the notes were inserted in accordance with the theory expounded here—they have the same meaning as in modern music, and the author's interpolations in quoted material are enclosed in brackets. All the sharps and the flats indicated and discussed in this study fall within the framework of the diatonic hexachordal system in which the modulatory transpositions are integrated, and for that reason the raised leading tones and chromaticism of pre-1600 music are not discussed here; the investigation and the discussion of those two topics form part of a subsequent work already in preparation on the evolution of the hexachord system in the late Renaissance.

The elaboration of a theory, and its presentation in book-form is not possible without the cooperation of many institutions and persons. To many friends, colleagues, librarians, and scholars, I extend my gratitude for their suggestions, their assistance in translation, and their stylistic criticism. In particular, I am grateful to *Le Conseil des Arts du Canada* for a generous research award that made possible a full year of research in Europe. I am also grateful to my dear friend and former professor of music history, Egon F. Kenton, for his unfailing moral support and confidence in my endeavor, for his patient reading, his criticism, and his enlightened advice. Finally, I am most indebted to Professor Marvin Duchow of the Music History Department of McGill University at Montreal, who has so graciously undertaken the final revision of this book.

THE PROBLEM

When Dom Anselm Hughes wrote that “we have to recover and formulate the rules from a mass of practice... and from theorists whose agreement with one another is not always apparent even when their meaning is clear”,¹ he indicated the only sure way of reaching a solution to the problem of *musica ficta* and of the so-called accidental signs in medieval and renaissance music. The important question that has remained unanswered is: What were the rules that medieval and renaissance singers followed, when singing out of partbooks, in order to prevent occasional conflict between certain notes sung in the several parts? Or, were music theory and composition, good singing and correct interpretation, left to chance and preference?

It is obvious to anyone opening a medieval or a renaissance treatise on music that there was a theory of hexachords—that there were rules for modal analysis and for solmization. Neither the theory of hexachords nor the basic rules of interpretation and procedure pertaining to it were vitiated by exceptions to the rules of solmization, local idiosyncracies, differing interpretations or polemics between medieval and renaissance theorists of music. The tritone may have been sung occasionally, notwithstanding its proscription (see page 58), but this does not indicate an absence of theory, system or rules. Likewise, the practice of raising the leading tone, apparently popular in certain localities, does not mean that singers could improvise chromatically as they fancied.

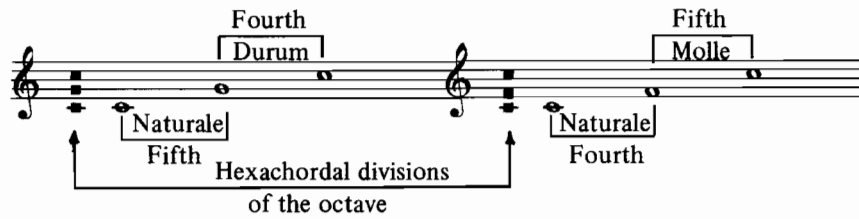
A proper solution to the problem of *musica ficta* and the accidental signs in the music composed before 1600 must disregard the chaos engendered by prejudice, bias, subjective emotional feelings, myths and partisan individual theories. We must first, in the light of modal analysis, study and rationally reconstruct the theory of hexachords and acquire a working knowledge of the rules of proper solmization. Only after such a reconstruction has been accomplished will it be logical to identify and analyse such exceptional practices as the raised leading tone tolerance, chromatic infiltrations of the diatonic system, the singing of melodic tritones, the use of melodic and harmonic diminished fifths, improvisations by virtuosi, etc. Moreover, an intelligent understanding of the early musical treatises is conditional upon the formulation of the theory of music before 1600. We cannot expect the medieval and renaissance theorists to have used our language, our logic, and our methods of explanation and illustration. Of the musicologist who writes:

Les traités, qui sont incapables de nous dire avec précision si, dans une oeuvre

¹. Dom A. Hughes, ed., *The New Oxford History of Music*, (Oxford, 1954), II, p. 369.

THE DIVISIONS OF THE OCTAVE

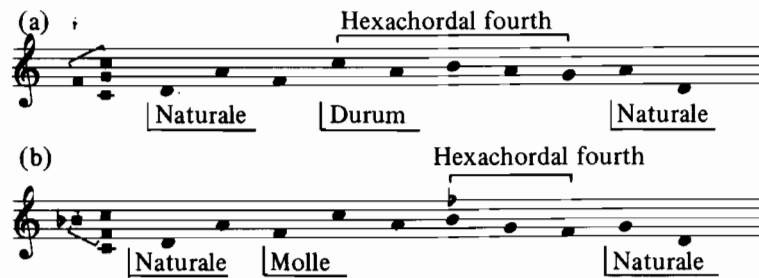
Medieval and renaissance theorists recognized two divisions of the octave: the *harmonic* (a fifth followed by a fourth), and the *arithmetic* (a fourth followed by a fifth):



These divisions have been illustrated by Odo of Cluny as follows:¹⁶

Diapason				
	Diapente			
	Diapente		Diapente	
Formula	Diatessaron		Diatessaron	
I	A	D	E	a
II	D	G	a	d
III	C	F	G	c
IV	E	a	h	e
V	F	b	c	f
VI	G	c	d	g

As can be seen in the following examples, the harmonic division of the octave corresponds to our disjunct hexachord-order (De Muris' *Tetrachorda disiuncta*), while the arithmetic division of the octave corresponds to our conjunct hexachord-order (De Muris' *Tetrachorda coniuncta*):



¹⁶ *Op. cit.*, p. 271.

IN MONOPHONIC MEDIEVAL MUSIC

Comparison of the same musical works in different manuscripts and prints from tenth to sixteenth centuries, leads to the inescapable conclusion that, in the absence of a system of clearly-defined rules and of a prevalent mastery of these rules on the part of singers, medieval and renaissance music could have been performed neither with accuracy nor uniformity, especially when two or more persons sang together. In confronting a page of music, a singer was in need of more information than meets the eye. In addition to a knowledge of the modes, their characteristic intervals, the cadences, the reciting tones, the hexachord-orders of the respective modes in their regular position, the singer had to be familiar with the modal transpositions in current use, unless he were to rely completely on either his colleagues or the choirmaster for guidance in his singing. For it was only through analysis that musicians could reconcile the transposed versions of the same chants. The hymn, *Jesu (Christe) Redemptor* (Ex. 17), showing different hexachord-orders in two different sources, is a case in point.

Since, as we have seen in the foregoing chapters, the hexachordal system functions in the same way as does our modern movable do system, transposition has no effect on either the modal tetrachords of a musical work or the characteristic intervals of a mode, when analysis and solmization are employed. In their own right, the modes adhere to no particular hexachord-

Example 17

Three versions of the hymn *Jesu (Christe) Redemptor omnium*

(a) *Naturale - durum* *Liber Usualis p. 365*

(b) *Molle - naturale* *Plate VII*