

INTRODUCTION
TO THE
Theory of Music

HOWARD BOATWRIGHT

DEAN OF THE SCHOOL OF MUSIC
SYRACUSE UNIVERSITY



W · W · NORTON & COMPANY · INC · *New York*

COPYRIGHT © 1956 BY W. W. NORTON & COMPANY, INC.

Library of Congress Catalog Card No. 56-11456

PRINTED IN THE UNITED STATES OF AMERICA FOR THE
PUBLISHERS BY THE VAIL-BALLOU PRESS

6789



Preface

This book is a general introduction to the technical aspects of music. Beginning with the assumption that the student has had no previous training, it prepares him for the more advanced subjects of theory, such as harmony, counterpoint, and orchestration. It deals with basic terminologies and problems of notation (the "rudiments of music"), it supplies material for developing the fundamental skills of performance ("ear-training," "sight-singing," etc.), and through the study of scales and melody it builds a foundation for harmony and counterpoint. The appendixes introduce some of the principles of abstract acoustical theory, discuss the instruments of the orchestra from the point of view of the score-reader, and provide for reference a glossary of foreign terms and lists of miscellaneous signs and abbreviations. Although it has been conceived mainly as a text for classroom use, this book may also be used profitably by the general reader who wishes to learn about the elements of music; and its glossary and index may be used as convenient references on rudimentary technical matters.

Like many other texts, this book was originally developed in the classroom. It is not, however, simply a written-out course; for the book has broader and more general lines than the class material from which it grew. It covers the whole area of introductory theory more thoroughly than the original outlines, and it should therefore be adaptable to the varying demands of other teachers and students.

The body of the text contains enough material for a full year's course. Yet the author was not unaware that many teachers, especially in liberal arts programs, cannot devote a whole year to introductory matters, since they cannot count on having a second

full year for harmony, which is nearly always the subject closest to the core of the student's interest in music theory. Nevertheless, most teachers need introductory material, as college students are seldom ready at the beginning to study harmony; and this text will serve them well if its procedures are shortened whenever necessary. On the other hand, in a program for music majors a full year could be devoted to the performance problems of Part I alone, leaving the material on scales and melody to the first months of a second year course. In organizing this book, the author tried to take into account the different kinds of demands likely to be made upon it; and the book is so arranged that it may be shortened by omitting some of the written work, or expanded by increasing the number of exercises, according to the needs of the particular course. The teacher should not feel that any required sequence is imposed upon him; he is free to use the book as a whole or only in part, and in any sequence his own ingenuity may suggest.

Every book has its idiosyncrasies; and one which may be observed in this text is the juxtaposition of purely practical matters (how to recognize an interval, how to perform a rhythm) with historical or abstract theoretical discussions (early chant, troubadours, equal temperament, etc.). This juxtaposition results to some extent from concurrent use of the same material for two quite different groups: a first year class in the Yale School of Music (a professional school) and an introductory theory class in Yale College (a liberal arts college). It seemed to the author that each of these groups might benefit from the approach more usual for the other. Ordinarily the professional student is interested in developing his practical skills, and pays little attention to the historical background or the theoretical horizons of his subject. The liberal arts student, on the other hand, is likely to read, think, and talk about all aspects of a subject, but fall short in actual practice. An approach combining practical, theoretical, and historical information, emphasized in that order, will both broaden the background of the professional student and anchor the roving inquisitiveness of the undergraduate to a practical base.

Here again, the teacher is free to emphasize or reduce the importance of any element. He may, for instance, use the brief his-

torical sections as starting points for more thorough discussions, with assigned reading in appropriate sources. Or, he may expand the abstract theoretical sections into more detailed investigations, which could, in some cases, lead to discussions of the trends of contemporary music. Or, should he so desire, he may give all of these matters a minimum of attention, and concentrate on the development of practical musicianship.

A book ought to have a better reason for existence than the mere repetition of material which has already been presented many times before. But the more familiar the subject, the less likely that anything new can be added, although old material can sometimes be advantageously rearranged. What can be new in the elementary facts of music? and what material can be advantageously rearranged now?

In some aspects of theory—notation, for example—there are no particularly new points of view, and rearrangement may not necessarily produce better results than have been previously obtained. But the manner in which present day composers handle tonal and rhythmical material does indicate the need at this time for new theoretical formulations and for new treatments of some subjects which have long been approached in standardized ways. These new formulations and treatments ought to result naturally from the sifting down of advanced composition practices to the lower level of elementary theory—a process which so far has occurred in only negligible proportions.

Consider, for instance, the subject of scales. Elementary theory usually presents only the system of major and minor keys, and even that without regard to its particular origin, or its limitations. But for more than half a century now, leading composers have written a kind of music which by no means stays within the bounds of the major and minor scale system. Furthermore, the recent growth of interest in the music of composers earlier than Bach, brought about to a large extent by recordings, has made regular listening fare of music based on tonal systems which preceded major and minor. For these reasons, it would seem plainly necessary nowadays to give scales a much broader treatment than they have usually received in elementary books. Adequate treatment of scales would lay the foun-

dation for an approach to contemporary theory and develop even in students not expecting to proceed further a flexible and unprejudiced perceptivity, enabling them to respond more readily to musical styles which do not conform exactly to the major and minor system.

Other aspects of the thinking of contemporary composers also suggest changes in procedure at lower levels. The freer attitude of our time with regard to scales is accompanied by an approach to harmony which is quite different from the previous fixed conception of chord-building in thirds. The simplest definition of a chord which is in keeping with contemporary usage is that it is three or more tones in vertical order—any tones in any order, selected by the composer according to his desire for greater or lesser dissonance and his over-all conception of harmonic organization. Although we would not deal with the problems of harmony in an elementary book, old or new in approach, our attitude about harmony will determine how we treat the study of intervals, which is one of the regular parts of elementary theory.

In the conventional approach, chords and scales are considered as pre-existing, inviolate units. Intervals, therefore can be derived from them and learned after the more complex units have been presented. But if we wish to prepare the student for melodies which do more than crawl safely up and down the well-known ladders, or for chords which freely use the wide variety of possible tone combinations, we must realize that intervals are the only constant tonal units, and we must, therefore, begin at the earliest stages to develop an independent sense for them. Intervals must have a more thorough treatment than they can possibly receive when they are inserted between discussions of scales and chords at relatively late stages of theory training. Furthermore, to approach intervals before scales or chords has a certain innate logic, as scales and chords are and always have been derivations from intervals.

Just as the interval is the common tonal unit for all forms of scales and chords, so is the "beat," or metric unit, the common element for all forms of measures and higher rhythmical structures. Contemporary composers exercise the utmost freedom with regard to meter—no longer caring to fit whole movements into any one scheme—and in matters of higher rhythmical thinking (phrases, etc.) they are

given to no regular system, such as counting bars in groups of four, eight, or sixteen. (Again, the same points of view are apparent in early music.) If we apply these attitudes to an elementary study of rhythm, we will see that the first thing the student must learn is not the $\frac{3}{4}$ or $\frac{4}{4}$ measure, which he then fills in with notes, but a feeling for the beat itself and the many kinds of rhythmic patterns which may fill the beat. He can, after achieving this, easily deal with the arrangements of the beats into groups of three, four, five, or any other metrical schemes. As for the phraseology of the measures themselves, nothing has to be done, as this is a very unclear area in music theory, and will most likely remain so. But at least the implication that there is a normal and fixed length for higher rhythmical units can be avoided by omitting the usual discussions of phrase organization by four or its multiples.

The article on Music Theory in the *Harvard Dictionary of Music* lists the commonly taught subjects and points out that "at least one important study is missing, that of melody." This condition is simply a reflection of the attitudes of composers who in styles of the fairly recent past failed to treat melody as an independent entity because of their greater interest in the expressive and constructive force of harmony. Melody, in fact, often became a mere derivation from chords, the more ancient and subtle element being overpowered by the younger and more dynamic one.

In our own time, however, harmony has become a more flexible element, perhaps less able to serve as a frame for the construction of melodies, but better able than ever to underscore independent melodic flights. And a melody (like a chord) may be simply but inclusively defined as: a chain of intervals in horizontal succession—any intervals in any order, according to the composer's desire for height or depth in the melodic curve and his over-all conception of tonal organization.

If melody is now free from the direct influence of harmony, as it was in the distant past, then the study of melody need no longer be delayed until after the study of harmony, when in any case, it is likely to be overshadowed. If a melodic line is a chain of intervals, why not study melody in connection with learning intervals? If melodic lines have rhythmic shape, why not at this stage bring up

questions of musical form, since these questions can then be discussed in the simplest and clearest way, without the distraction of harmony? If a knowledge of scales is a prerequisite for advanced study, why not acquire this knowledge by using scales for melody-writing? All of these things can be done if it is once agreed that melody need not wait upon harmony.

The question is, what sort of melodic study should be attempted—an abstract examination of the nature of melody without regard to style, or one based entirely on stylistic imitation? This question and a proposed solution are discussed at some length in Chapter 10. The treatment of pure nonchordal melody in a beginning text, of course, can be neither profound nor exhaustive. But the fact that any kind of treatment is offered has some significance; it indicates a radical shift of emphasis, derived from the application of a contemporary point of view to elementary study.

If we accept the arguments presented above, we will agree that the study of elementary theory can and should be affected by changes in the practice of composition. Also, if the approach to basic matters is adjusted to conform to the contemporary outlook, it also comes into better focus with the music of earlier times, which by coincidence (if nothing more than this) is enjoying a new popularity. But would a reshuffling of the order of presentation, and various shifts in emphasis, cause elementary theory to lose its connection with the music of common practice—the music of the classical and romantic periods?

It would not; simply because the vital element in the theoretical background for the music of the familiar period is the subject of harmony, and this subject will still come after the early stages of training. The modification of harmony's influence upon early training, and an intensification of the study of intervals and scales, as well as rhythm, cannot but have a beneficial effect upon later study, as they impose upon the pre-harmony student a higher than usual level of achievement in basic matters before he faces the complexities of harmony. And it is also true that rudimentary definitions given entirely within the narrow frame of traditional practice set up artificial barriers which must later be removed; while definitions given within the wider scope of both ancient and contemporary

practice keep the way open from the start for steady and uninterrupted progress.

This elementary text cannot pretend to make a grand entrance into the vast and almost completely empty arena of contemporary theory. But the author hopes that by establishing a broader point of view at the start, the book will, within its limits, contribute something toward that reconciliation of theory and practice which is now so long overdue.

Howard Boatwright

Yale University
New Haven, Connecticut



Acknowledgements

The author wishes to extend grateful acknowledgement to his friends and colleagues at Yale University and in the Yale School of Music who have helped in various ways with this book. Dr. George Lam, literary historian and musician as well, gave invaluable assistance with several early mimeographed versions of the manuscript. Dean Luther Noss and Professors Richard Donovan and Quincy Porter read the manuscript at a later stage and made a number of helpful suggestions. Special assistance with Appendix II was provided by Professor Keith Wilson, and with Appendix IV by Professor Luigi Silva. Professor James F. M. Stephens of the Department of French kindly supplied the unrhymed translations of the medieval French song texts in Chapter XIII. For other helpful favors, the author also wishes to thank Professors William G. Waite and Norman H. Pearson.

The drawings of the stringed instruments, woodwinds, brass instruments, timpani, and drums are by Paul M. Boatwright.

Maxwell Weaner autographed all the musical examples except the score pages in Appendix III.

Mr. Ezra Pound gave his kind permission for the use of two translated poems from *The Spirit of Romance* (London, J. W. Dent, 1932), on pages 163-164.

Finally, the author wishes to express his thanks to the staff of W. W. Norton—especially Mr. Robert Farlow and Mrs. Richard Fried—for many suggestions which led to improvements, and for their uncompromising perfectionism in the production of the book.

H.B.



Contents

PART ONE

Intervals and Rhythms

PROBLEMS OF PERFORMANCE, PERCEPTION AND NOTATION

CHAPTER 1. Intervals	3
STEPS	4
TONAL ORDERS ON THE KEYBOARD	4
THE OCTAVE	5
DEFINITIONS OF PENTATONIC, DIATONIC, AND CHROMATIC	6
THE GAMUT	7
OTHER INTERVALS	8
INTERVAL PRACTICE	14
CHAPTER 2. Rhythmic Patterns	18
THE METRICAL ELEMENT: BEAT, TEMPO	18
THE RHYTHMICAL ELEMENT: MULTIPLICATION, DIVISION	19
RHYTHMIC PRACTICE	20
CHAPTER 3. Staff Notation	22
THE STAFF, LEDGER LINES	22
CLEFS, BRACES	23
CLEF READING	25
STAFF-NOTATION PRACTICE	26
CHAPTER 4. Note-values	29
DUPE NOTE-VALUES	30
RESTS	32
STEMS, FLAGS, AND BEAMS: NOTATION PRINCIPLES	33
TRIPLE NOTE-VALUES: THE AUGMENTATION DOT	35
METRIC UNITS: THE RELATIVITY OF NOTE-VALUES	36
RHYTHMIC-NOTATION PRACTICE	39

CHAPTER 5. Meters	51
ACCENT	51
SIMPLE METERS, CONDUCTING PATTERNS	56
COMPOUND METERS, CONDUCTING PATTERNS	59
RHYTHMIC-NOTATION PRACTICE	61
IRREGULAR METERS, CONDUCTING PATTERNS	64
CHAPTER 6. Foreign Patterns	70
CHAPTER 7. Syncopation	74
DEFINITION	74
CLASSIFICATION	75
EXAMPLES USING DUPEL VALUES	76
EXAMPLES USING TRIPLE VALUES	79
CHAPTER 8. Phrases in Rhythmic Outline	83
THE PROBLEM OF FORM TERMINOLOGY	83
THE PHRASING SLUR	85
RHYTHMIC PHRASES: NOTATION, PROCEDURE	87
RHYTHMIC PRACTICE	90

PART TWO
Scales and Melody
 PROJECTS IN MELODY WRITING

CHAPTER 9. Scales in General: Melodic Successions	99
SCALE DERIVATION	99
TONAL ORDERS	101
SCALE POSSIBILITIES	103
MELODIC SUCCESSIONS: NOTATION, PROCEDURE	104
MELODIC PRACTICE	106
EXAMPLES OF PENTATONIC, DIATONIC, AND CHROMATIC MELODIES	110
CHAPTER 10. Church Modes. Melody-Writing Modeled on Gregorian Chant	115
PRELIMINARY: TWO APPROACHES TO COMPOSITION TECHNIQUE	115
THE MODEL: GREGORIAN CHANT	117
MODES	119
MELODIC MOTION	121
ACCIDENTALS	122
DECLAMATION	124
FORM	125
CHANT MELODIES: NOTATION, PROCEDURE	126

Contents

ix

TEXTS FOR CHANT MELODY	129
MELODY: SOME GENERAL CONSIDERATIONS	130
EXAMPLES OF CHANT MELODIES	132

CHAPTER 11. Early Use of Major and Minor Scales. Troubadour and Trouvère Songs 137

THE MODEL: MELODIES OF THE TROUBADOURS AND TROUVÈRES	137
EARLY USE OF THE MAJOR SCALE	138
EARLY USE OF THE MINOR SCALE	141

CHAPTER 12. Chromaticism 143

CHROMATICISM IN THE MINOR SCALE	143
CHROMATIC INTERVALS: ENHARMONIC SPELLING	144
CHROMATIC FORMULAS	149

CHAPTER 13. Melody-Writing Modeled on Troubadour and Trouvère Songs 154

SCALES FOR SECULAR MELODY	154
MELODIC MOTION	156
RHYTHM	157
FORMS	159
SECULAR MELODIES: NOTATION, PROCEDURE	160
TEXTS FOR SECULAR MELODY	163
EXAMPLES OF TROUBADOUR AND TROUVÈRE MELODIES	165

CHAPTER 14. Major and Minor Keys: Background and Terminology 174

FROM MODES TO KEYS	174
EQUAL TEMPERAMENT: KEYBOARD TUNING	178
TERMINOLOGY (1): KEYS, THE NEW MEANING OF "MODE"	180
TERMINOLOGY (2): PITCH DESIGNATIONS	181
MAJOR KEYS, THE CIRCLE OF FIFTHS, KEY SIGNATURES	183
MINOR KEYS, THE CIRCLE OF FIFTHS, ACCIDENTALS	186
DOUBLE ACCIDENTALS: CHROMATIC INTERVALS	188
VARIOUS FORMS OF THE MINOR SCALE	189

CHAPTER 15. Major and Minor Keys: Melody-Writing Without Text, as though for Instruments 192

IMPORTANCE OF HARMONY IN TRADITIONAL MELODY	192
MAJOR AND MINOR MELODIES: PROCEDURE (FORM AND RHYTHM), NOTATION	194
MELODIC MOTION, TONAL ORGANIZATION	197
CONCLUSION	201

APPENDIX 1 Notes on the Physics of Music 205

CHARACTERISTICS OF TONE	205
THE VIBRATING STRING	207

INTERVAL PROPORTIONS, THE PARTIAL SERIES	209
EDGE-TONE	210
REEDS	212
AIR COLUMNS	213
MEMBRANES AND PLATES	215
APPENDIX 2 Instruments of the Orchestra: Some Features of Notation and Technique	217
STRINGED INSTRUMENTS	218
BOWING	218
FINGERING	223
SPECIAL EFFECTS	226
OTHER TERMS	227
THE HARP	227
WOODWIND INSTRUMENTS, NONTRANSPOSING	229
WOODWIND INSTRUMENTS, TRANSPOSING	234
BRASS INSTRUMENTS	235
PERCUSSION INSTRUMENTS	243
APPENDIX 3 Examples from Orchestral Scores	252
BEETHOVEN, SYMPHONY NO. 7 IN A MAJOR	253
FRANCK, SYMPHONY IN D MINOR	254
RIMSKY-KORSAKOV, <i>Scheherazade</i>	255
HINDEMITH, <i>Philharmonic Variations</i>	256
APPENDIX 4 Foreign Musical Terms	257
GLOSSARY OF FOREIGN TERMS RELATING TO PERFORMANCE	259
MISCELLANEOUS SIGNS AND ABBREVIATIONS	269
FOREIGN NAMES FOR TONES, ACCIDENTALS, MODES, AND NOTE-VALUES	274
INDEX	277

P A R T O N E



Intervals and Rhythms

PROBLEMS OF PERFORMANCE,
PERCEPTION, AND NOTATION

