Two Unusual Examples of Nineteenth-Century Harmonic Theory

RICHARD DEVORE

The interest of American musicians in the subject of harmony developed gradually during the first half of the nineteenth century. Before this time, the only American books titled "Harmony" were collections of sacred or secular tunes, usually prefaced by an introduction to the rudiments of music. This type of "tune-book" can still be seen today in publications such as Owel Denson's Sacred Harp.

The first works on the subject of harmony to be widely influential in the United States were two German books: Gottfried Weber's Versuch einer geordneten Theorie der Tonsetzkunst (1817-1821), an English translation of which was published in Boston beginning in 1841, and Adolf Bernhard Marx's Die Lehre von der musikalischen Komposition (1837-1847), of which a translation appeared in New York in 1852. The German origin of these books is not surprising, since American musical culture in the mid-nineteenth century was strongly shaped by the many German musicians who taught and performed in the United States.

Real popular demand for harmony textbooks, however, did not develop until increased American interest in art music led to the establishment of several conservatories of music during the 1860's. The German-influenced curricula of these schools normally included courses in harmony, and as the

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number of Americans studying music increased, so did the number of available harmony texts. Almost every significant German work on harmony written between 1850 and 1900 was quickly reprinted in an English translation by an American publisher. American musicians, almost always German-trained, also began to write their own harmony books during the mid-nineteenth century. In fact, by the end of the century, the number of texts by American authors far surpassed the number of foreign harmony books available in the United States. The most numerous and popular of these books, whether of German, British or American origin, were elementary textbooks with a practical rather than a speculative orientation. The best example of these more practical books is Ernst Friedrich Richter's Lehrbuch der Harmonie (1853) which appeared in three different English translations in the United States before 1900.

But not all the American books on harmony written during the second half of the nineteenth century were intended as beginning textbooks. A few American writers who had become familiar with the European tradition of speculative music theory published their solutions to some of the longstanding problems of harmonic theory.

One of the most interesting of these books is Harmonometry or Science of Music and Musical Composition (1867) by William O. Bateman, a very brief (36-page) work published in Philadelphia. Bateman was a lawyer by profession whose other books were legal ones such as The General Commercial Law (1860) and Political and Constitutional Law of the United States of America (1876). Harmonometry was his only venture into the field of music, and the preface shows that, as might be expected of a legal scholar, he was interested in the subject of harmony more as a philosophical problem than as a practical one. Bateman, like many other music theorists before him, was convinced that he could find the justification for harmony in nature. His preface states:

> Nature gives us nothing to invent but all things to discover. The discovery of a natural chain and connexion [sic] between phenomena, an immutable law or order, prevailing [sic] and alike sustaining both the mental and material worlds... had given to modern science a higher aim and nobler form. To bring all science, all truth and all things into perfect harmony, was thence to

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2 The only exception was Arthur von Oettingen's Harmonie-System in dualer Entwickelung (1886).
3 The translations were by John Paul Morgan, 1867; James Cutler Dunn Parker, 1873; and Oscar Coon, 1896.
become the common aim. The science of the harmony of sound was to accept the one yet threefold principle of being and life and so become the perfected symbol of a universal science of truth.  

This quote illustrates Bateman's lofty and mystical tone, much of which is retained in the main body of the work. Compare Bateman's rather philosophical intent with the goals set forth in the preface to Richter's *Lehrbuch der Harmonie*, or *Manual of Harmony*:

The book comprises, scientifically speaking, no theoretical treatise upon Harmonics, but although, like every system of Harmony it *sic* rests upon a firm foundation, it is devoted only to practical ends, which with the scanty means now accessible it might be difficult to reach upon abstractly scientific principles.  

This passage demonstrates the emphasis in Richter's book on rules of partwriting and the like, which is coupled with little attention to the theoretical underpinnings of the subject. This book was probably the most popular of all harmony books available in nineteenth-century America.

While some theorists, such as Matthew Shirlaw, would certainly argue with Richter's assertion that every system of harmony "rests upon a firm foundation," there is no doubt that Bateman, unlike Richter, does try to construct and justify an acoustical basis for his theories. He begins by dividing a string (he suggests a guitar string) so as to yield the first eight partials (see Example 1). These sounds are considered "basic," or "harmonic," and form, as he says, "the groundwork of a science of harmony as invulnerable as astronomy; as eternal as the heavens..." Bateman thus includes the flat seventh partial in his fundamental harmonic series. The ninth through thirteenth partials are next derived from string divisions, and these are labeled as the "melodic" series. The distinction between the harmonic and melodic groupings is fundamental to Bateman's theory, since it is used as the basis for every further concept of harmony in the book.

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4 William O. Bateman, *Harmonometry or Science of Music and Musical Composition* (Philadelphia: W.F. Duffy, 1867), p. 4. Both of the books discussed in this article can be found in the collection at the Library of Congress.


7 Ibid., pp. 7-8.
Example 1. Bateman's "Basic" Series.

A good example of this basis can be seen in his explanation of harmonic progression. All harmonic voices are expected to move by the interval of a fourth or fifth between each chord. A harmonic voice is any one that is included in the first eight partials of an overtone series based on the root of the chord—in other words, any note falling within Bateman's harmonic series. Thus the root, third, and fifth of any major or minor triad must move harmonically between chords. The same holds true of the seventh of any dominant seventh chord. The upper members of the harmony move in contrary motion by a fourth when the root moves by a fifth, and vice versa (see Example 2).

Example 2. Harmonic Progressions.

While this concept of progression works beautifully in certain circumstances, Bateman apparently realized that it is inadequate to explain much of the voice-leading that occurs in actual music. He therefore offers the previously-mentioned melodic series as a basis for linear

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8 Ibid., p. 12.
9 Ibid., p. 15.
This series includes (when built on F, the note he uses), the pitches G, A, B, C, and D in conjunct arrangement. The eleventh harmonic B is, of course, considerably out of tune. The fallacy in Bateman's use of the melodic series to explain voice resolution is shown in Example 3. The progression used to illustrate the melodic

Example 3. Comparison of Bateman's Melodic Series with the Twelfth through Sixteenth Harmonics above C.

The series is written in C major. The pitches given by Bateman, however, do not occur successively in an overtone series built on C, but instead in one built on F. The closest approximation of such a melodic grouping in an overtone series built on C is found in the twelfth through sixteenth harmonics.

The use of the harmonic series to distinguish consonances from dissonances is a time-honored theoretical tradition. Bateman likewise states that all chords containing notes not in his "harmonic" series are dissonances. This limits his consonances to major and minor triads, and dominant seventh chords. Special notice is taken here of the two chords that divide the octave symmetrically, the augmented triad and the diminished-seventh chord. The former, which is made up of three major thirds, he calls the major equidistant, while the latter, composed of four minor thirds, is termed the minor equidistant.

Undoubtedly the most interesting feature of this section is the inclusion of the chord F-A-C-D# as a dissonance after the dominant seventh has been described on the previous page as a fundamental consonance. This classification makes a clear distinction between the spellings F-A-C-b and F-A-C-D#. Such a distinction, taken together with his lack of

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10 Ibid., p. 19.
12 Ibid.
concern for the out-of-tune seventh and eleventh partials, might seem to indicate that Bateman favored a non-equal temperament. Later in the book, however, the dominant seventh chord in the key of D♭ major is spelled A♭-C-D♯-F♯, a spelling that clearly presumes equal temperaments. Nowhere does he directly address this question.

One other unique feature of Harmonometry is Bateman's theory of inversion. The generally accepted concept of a chord with its third in the bass as the first inversion and fifth in the bass as the second inversion is presented, but another approach to inversion based on the overtone series is also given. According to this system a chord is in root position when the fundamental harmonic is in the bass. The numbered inversions refer to the overtone number when an overtone replaces the fundamental in the bass. Thus a chord with the third partial in the bass is considered to be in first inversion, and a chord with the fourth partial in the bass is in second inversion (see Example 4). Inversions are used, according to Bateman, to change the classification of a note from the harmonic series to the melodic series. This, however, is not accurate. If the definition of a note as "harmonic" depends on its appearance as one of the first eight partials, it cannot be made "melodic" simply by changing the chord voicing. Still, Bateman's coupling of inversions to the overtone series is consistent with the emphasis on the concept of nature in his theory as a whole.

Given the limitations of American musical culture in 1867, Harmonometry is an impressive work of speculative music theory. Bateman was apparently familiar with the writings of eighteenth-century European theorists, for his

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13 Ibid., p. 28.
14 Ibid., p. 20.
15 Ibid., p. 21.
book shows certain resemblances to the writings of Marpurg, Sorge, and others. Even though several of the concepts he advances are logically inconsistent, the ideas are fresh and intriguing. Above all, it is significant that the author was an amateur musician. The professional musicians in America at the time were much more interested in teaching simple rules of voice-leading to their students in the style of Richter than they were in writing such abstract treatises.

The growing sophistication of American musicians in the late nineteenth century can be seen in Edward Morris Bowman's *Harmony*, published in Cincinnati in 1881. Bowman (1848–1913) was not an amateur musician, but one of the most prominent American music educators of the time. He was an organist and teacher who not only served five times as president of the Music Teachers' National Association, but also helped to found the American Guild of Organists in 1896. Bowman received the German training customary for an American musician at the time, and also studied in both Paris and London. His teachers included George Macfarren, Karl Weitzmann, and the American John P. Morgan. His solid training in the traditions of both British and German music theory is evident in his harmony book, the general character of which can be deduced from its subtitle, *Historical Points and Modern Methods of Instruction*.

Bowman's book contains the first major attempt at a history of music theory by an American author. It begins with a discussion of the writings of Isidore of Seville and Hucbald, the latter of whom he credits with writing *Enchiridion Musicae*, now known as the anonymous treatise *Musica enchiriadis*. Bowman next mentions the works of Guido of Arezzo and Franco of Cologne. Franco is given credit for naming the "discantus" style, as well as for dividing consonances into three categories: perfect, middle, and imperfect.

Marchettus of Padua and Johnnes de Muris are recognized as the first important non-ecclesiastical theorists. Bowman, in discussing them, continues to trace the development of concepts of consonance and dissonance, noting that Marchettus lists the fourth as a dissonance and that Johannes lists only two types of consonances, perfect and imperfect. Both of these points he regards as advances from

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18 Ibid., p. 5.
Franco's classifications.19

The remainder of Bowman's historical sketch follows much the same course, dealing with prominent theorists and some composers until the early seventeenth century. The concept of consonance is given special importance as a delineator of musical style, while topics such as tuning are ignored. Most of the facts presented are fundamentally accurate, although a hundred years of research have changed various details concerning attribution and chronology, as in the case of Musica enchiriadis listed above. One item especially interesting to twentieth-century minds is the judgmental nature of Bowman's prose in which the nineteenth century is used as a yardstick to classify "improvements" in musical style:

It is almost incredible to us of the present day that a series of fifths and octaves could ever have been regarded as an improvement on the unison.

But it evinces [these early musicians'] first flight after something—they knew not what, and it is more than probable that if the brilliancy of the present development of that something could have been flashed into their figuratively blind eyes and deaf ears, they would have been overwhelmed...20

After giving this history of the development of harmony, Bowman proceeds to a discussion of harmony instruction. This discussion is not merely a dogmatic method for learning scales, intervals, and the like, but rather a critique of contemporary practices in the teaching of harmony, with suggestions on how to improve them. Bowman appears to have been the first American writer to discuss theory pedagogy from this point of view. The flavor of Bowman's critique can best be seen through a pair of quotations. First, concerning intervals:

It would simplify matters greatly if we could reduce the number of kinds of interval, and I can discover no good reason why we may not discard the word "Perfect," altogether, and say in its place Major, Minor, Diminished, and Augmented...

There ought to be adopted in common, some simple, systematic formula of interval nomenclature which would do away with the confusing contradictions of the various methods now in existence. In

19Ibid., p. 6.
20Ibid., p. 4.
addition to the incongruity of the whole matter, it works positive injury to many students, those, for example, who cannot or do not complete their studies under one teacher...\(^{21}\)

And from the section on chord progression:

If the student is to readily grasp the idea of flowing chord-progression, he must begin with that idea set forth in his exercises.

To this end the first exercises should be upon those chords most intimately related, i.e., the chords having the greatest number of tones in common with each other.

How frequently do we meet with a bass like this for a first exercise:

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\begin{array}{c}
\text{E} \\
\text{C} \\
\text{F} \\
\text{G} \\
\text{C} \\
\end{array}
\]

What proportion of pupils write out the appropriate chords the first time without consecutive octaves and fifths between the second and third chords?

The difficulty is this: there are too many progressing voices.

Here is an exercise far more simple:

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\begin{array}{c}
\text{C} \\
\text{F} \\
\text{G} \\
\text{C} \\
\text{G} \\
\end{array}
\]

...The exercise presents comparative no difficulty, and the chances of mistakes are reduced to the minimum.\(^{22}\)

\(^{21}\)Ibid., p. 11.
\(^{22}\)Ibid., pp. 13-14.
What Bowman presents is, in effect, a plan for a beginning course in harmony organized so as to pose the fewest possible difficulties for the student. Some of his suggestions are derived from the theories of Weitzmann, his teacher in Berlin. These suggestions include his method of resolving dominant seventh chords by treating the seventh as a suspension, as well as that of naming triads and seventh chords by their intervals above the bass instead of as a first or second inversion. The rationale for this procedure, a conservative detail in a basically progressive theory, is that it is physically impossible actually to invert an object with more than two parts. 23

Although many of his ideas concerning the history and pedagogy of harmony have their origins in European sources, Bowman deserves credit for being the first American to discuss in print subjects such as the history and pedagogy of harmony. His aim was a perfect and universal method of teaching the subject that would place the student's needs in the forefront. Some of the suggestions he made a hundred years ago would not be out of place in textbooks written much more recently.

William Bateman and Edward Bowman were men of very different backgrounds, interested in very different aspects of the field of harmony. Still, pairing them in a study such as this is appropriate, because each went beyond the simple formula approach to harmony so prevalent in the more than 120 harmony books published in the United States during the nineteenth century. This is not to imply that no other innovative American harmony books appeared at this time—there were in fact several others—but they were vastly outnumbered by books, which, like Richter's, made no attempt at a real theory of harmony. Perhaps even more importantly, both Bateman's Harmonometry and Bowman's Harmony show not blind reliance on European models, but instead some of the originality too often associated only with twentieth-century American musical thought.

23Ibid., p. 13.