

**A THEORY OF HARMONY
FOUNDED ON THE TEMPERED
SCALE: WITH QUESTIONS AND
EXERCISES FOR THE USE OF
STUDENTS**

Published @ 2017 Trieste Publishing Pty Ltd

ISBN 9780649148172

A theory of harmony founded on the tempered scale: with questions and exercises for the use of students by John Stainer

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JOHN STAINER

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Arthur Nettles

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WITH

QUESTIONS AND EXERCISES FOR THE USE OF
STUDENTS

BY JOHN STAINER, MUS. DOC., MA.,

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"The whole structure of modern music is founded on the possibility of educating the ear not merely to tolerate or ignore, but even in some degree to take pleasure in slight deviations from the perfection of the diatonic scale."
—W. F. DEXTER. *Acoustics*, § 39, p. 25.

SECOND EDITION.

RIVINGTONS
London, Oxford, and Cambridge

1872

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RIVINGTONS

London	<i>Waterloo Place.</i>
Oxford	<i>High Street.</i>
Cambridge	<i>Trinity Street.</i>



Dedicated

TO

PROFESSOR MAX MÜLLER,

WHO,

THOUGH UNABLE TO DEVOTE HIMSELF TO THE

ART OF MUSIC,

OWING TO THE CLAIMS MADE ON HIS TIME

BY OTHER FIELDS OF LABOUR,

FORGETS NOT TO ENCOURAGE BY HIS SYMPATHY AND KINDNESS

THOSE WHO ARE PRESSING FORWARD

IN ITS PATHS.



PREFACE.

MODERN music owes much of its beauty to the use of "doubtful chords;" that is, chords which belong equally to more than one key. Now, if an enharmonic scale were feasible, such chords could not exist, because mathematical correctness of ratio would make every chord strictly in tune in one key, instead of allowing it to be somewhat out of tune in several keys. The whole of our musical literature, from the works of Bach to those of Wagner, would therefore be unavailable for instruments with an enharmonic scale.

It is said voices and instruments of the violin class, not only can, but do make use of an enharmonic scale. This is tantamount to saying that singers and violinists, when reading from a separate part, know whether a note they are sounding is used by the composer according to its apparent notation, or as part of a chord of a different nature, or as both interchangeably; and not only this, but are also aware in each case what the fundamental sound is, from which the ratios of vibrations are calculated, and what is the exact ratio of the note they are sounding, and in defiance of notation are altering the pitch of the sound, or in other words are making two or more notes out of the one before them, so as to adapt it to its various combinations. Such a statement may be taken for what it is worth, although it should be said that many practised musicians who believe themselves endowed with an instinct leading to such marvellous results, will be found on examination to have formed for themselves

this so-called instinct from the harmonic laws of the tempered scale.

Musicians, therefore, have evidently this dilemma before them, either they must adopt an enharmonic scale and sacrifice the existing musical literature, or, if they wish to retain the literature, they must give up the theory of an enharmonic scale. Those who accept the former of these alternatives, are only consistent when they say, "Is it credible the composer intended the gibberish resulting from making one sound serve for what he has so painfully distinguished?"* This kind of music, consisting largely of doubtful chords, which the clever musical mathematician has termed, not very elegantly, gibberish, is the music of Bach, Haydn, Mozart, Beethoven, Spohr, Mendelssohn, and their followers. No apology is needed for saying that the second alternative has been chosen as the basis of this work, though not without very careful consideration.

It has been pointed out that the alternatives on which a system of harmony can be founded are mutually destructive, it will therefore surprise many to find that, as a rule, modern theorists attempt to draw their laws of harmony from both sources, by taking a series of natural harmonics and thence evolving laws which shall govern the progression of chords made up of tempered intervals. It is interesting to watch the process by which this is accomplished, and as it is identical in a long list of authors, it shall be given. From a few natural harmonics exhibited in a diagram, about a dozen of the hundreds of chords in use are constructed; the insufficiency of the number of the chords being then too apparent, Nature is taxed with being out of tune, and tempered intervals are introduced to allow of the construction of some of the most ordinary chords in music. This is sufficiently inconsistent, but this is not all; for while some harmonics high in the series are selected for use, others, such as the seventh and

* Ferronet Thompson ("Principles of Just Intonation"); speaking of Spohr's music. Notes, § 114.