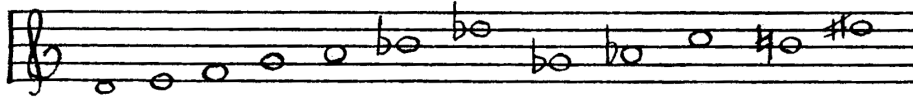


tailed study, we realize that the important musical events all arise from the following twelve-tone series:



Here we have a fine example of an artistic attitude that finds in the economic shaping of given material the highest goal and the incentive for achieving mastery. Even the figure of the twelve-tone series given above shows itself suitable for a song form to be developed in a cantabile line which may be considered as an "aria." The scale-like course of the first half furthers the construction of such lines and the building up of chords in thirds. An absence of augmented and diminished intervals heightens the singability of the work, which makes unusual demands of dramatic and emotional skill on the singer. The *Aria* is dedicated to its first interpreter, Madam Ruzena Herlinger, who commissioned the artist to write it.

We see in this lovely work, developed with perfect artistic control, not merely a successful revival of an old art form but a promising preparation for Alban Berg's next opera, which will set to music the *Lulu-Tragedy* of Frank Wedekind.

Willi Reich

NEW MUSICAL RESOURCES

HENRY COWELL has been doing much laboratory research and making interesting experiments with *materia musica*. The results are to be found within the covers of a recent Alfred A. Knopf publication, rightly named *New Musical Resources*. Mr. Cowell, who "wants to see the wheels go round," has been experimenting with the piano's percussive and acoustical properties, dissecting the overtone series of the scale, finding logical reasons for new chord formations, discovering new relationships between sound and movement, and pointing out the inadequacy of our present system of notation. His speculation may open the way to an extension and explanation of the harmonic, melodic, and rhythmical boundaries of music. He challenges the past and encourages the future. He makes provocative statements, sets forth his arguments with conviction

and succeeds in stirring his readers to think, whether or not they agree with his point of view.

The purpose of the book is to organize materials formerly considered unusable into a unified system; the theory expounded might be termed "musical relativity." His interest in the theory underlying these new materials developed from an effort to convince himself that certain musical experiments made by him had genuine scientific and logical foundation.

Everything with him is based on the system of the overtone series. This is applied not only to tone-combinations and chord-formation, but also to rhythm, metre, form, and dynamics. New facts are revealed and the contemporary importance of what we already know about tone-combinations is stated. In a discussion on overtones and undertones, it is shown that consonance, dissonance, and discords have no fixed boundaries but depend on the relative capacity of the listener. Logical reasons are given for his opinion that quarter-tones are misnamed. In a study of "polyharmony" he explains polytonality scientifically, basing it on the principle of the overtone series and showing its value as a means of simplification. Polyharmony, however, is usually confused with other types of harmonies because composers lack definite knowledge of acoustical law, although scientific combinations are practically limitless.

Tone-quality varies in different epochs: today it is not a matter of performance but an essential element of the composition itself. Bach tended to reject the more obvious consonant intervals because they had been over-used; are contemporary composers then too radical if they follow the principle employed in early contrapuntal days, and thus achieve dissonant counterpoint? Schönberg, Ruggles, Hindemith and Webern, according to Mr. Cowell, are working out such a procedure.

Mr. Cowell treats the subject of rhythm arbitrarily. Proof of the relation of metre, dynamics, rhythm and form to the ratio of the overtone series is not made sufficiently convincing, but it is the most original and most radical part of the book. His claim is that "through this relationship and the application of overtone ratios, the building of ordered systems of harmony and

counterpoint in rhythms have an exact relationship to tonal harmony and counterpoint."

Another arbitrary suggestion, entertaining in its possibilities, is for a rhythmical notation with new shapes of notes to make possible the use of other values than halves, quarters, eighths, etc., such as third notes, fifth notes, ninth notes, etc. Thus we could have a 2-6 metre, an 8-15 metre, a 4-7 metre, etc.

In applying the principle of the series of partials to musical metre one would "combine metres by mathematical ratios into metrical harmonies just as tones are combined into tonal harmonies." This would create contrapuntal metres. To the average musical mind Mr. Cowell's metrical mathematics though interesting, is still pure speculation.

He also suggests a system of related ratios based on the principle of overtones by means of which "dynamic shadings might become formulated into a well-ordered scale system and be a more definite element of musical composition."

The mathematician in Mr. Cowell has enabled him to reduce these ideas to tables of speed rates, rhythm scales, chromatic time-scales, rhythmic expressions of tone ratios, rhythmic and metrical expressions in ratio lengths of quarter notes, etc.

He applies the overtone principle to chord building, including the next overtones after those related in thirds—from the seventh overtone upward—cleverly co-ordinating contemporary usage and scientific explanation. The first of three suggested systems of chord building would be the ancient system of fifths, revived recently by Schönberg and Rudhyar; the second, the usual proceeding of thirds, and the last, the well-known Cowell "tone-clusters" in seconds. The possibilities of the tone-clusters and their notation are explained in detail.

Mr. Cowell grants that his discussion of the formalization and co-ordination of different contemporary musical resources, relies entirely on the use of the overtone series as a mathematical, acoustical, and historical gauge. But he believes that this is not merely a pedantic, arithmetical theory but a basic preparation for the perfection of music as a living essence from which musicality springs.

Marion Bauer