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On the Melodic Relativity of Tones

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INTRODUCTION

Melody, in its broadest connotation, means any succession of single tones. Such a definition includes many examples of tonal combinations not considered melody by the musician, layman, or by the psychologist. The inclusion is necessary, however, in order to explain certain reactions to tones.

The definition usually given (we find it in various forms in the works of Stumpf, Mach, Bingham, and others) demands the existence of some finality, cadence, law of return, or acceptance of the melody by peoples at large. To some extent these attributes are the result of the operation of more basic psychological laws, and to a further extent they involve the operation of other musical, but non-melodic elements such as harmony, tonality, and rhythm. So long as we treat melody in connection with harmony and rhythm we cannot isolate any purely melodic factors. The striking effect of these attributes may be seen if we change the rhythm of familiar melodies. The following example, Fig. 1, of which only the rhythm has been changed in a simple manner (it remains in uniform meter [4/4] throughout), will be recognized with some difficulty as "America," and its acceptance as a desirable melody, in the form here given, is doubtful. The effect of harmony is no less pronounced. The following tonal sequences, Fig. 2, seem to be lacking in finality, coherence and musical value. Yet if they be harmonized, let us say as in Fig. 3, these attributes and some esthetic satisfaction appear. Similar, though perhaps less pronounced, effects are present in all artistic and folk-tune melody, and unless we exclude these attributes, we cannot use either the art-song or the folk-song as a basis for an analysis of the purely melodic relationship of tones.

Melody is motion in the pitch-series. This motion results from a succession of pitch distances or interval, in which the repeated tone counts as a zero interval. The problem here is not to seek the causes of the acceptance of some and the rejection of other forms of pitch-motion as desirable, but to seek the melodic relationships existing among the tones of any melody, regardless

Fig. 1

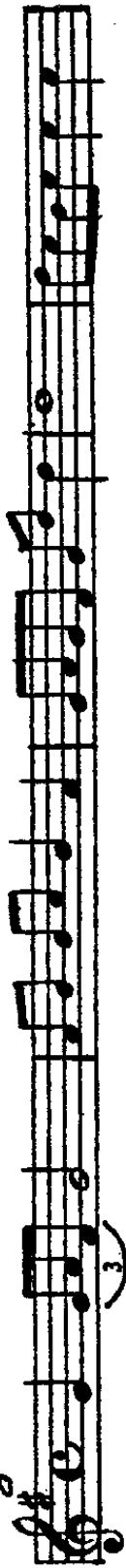
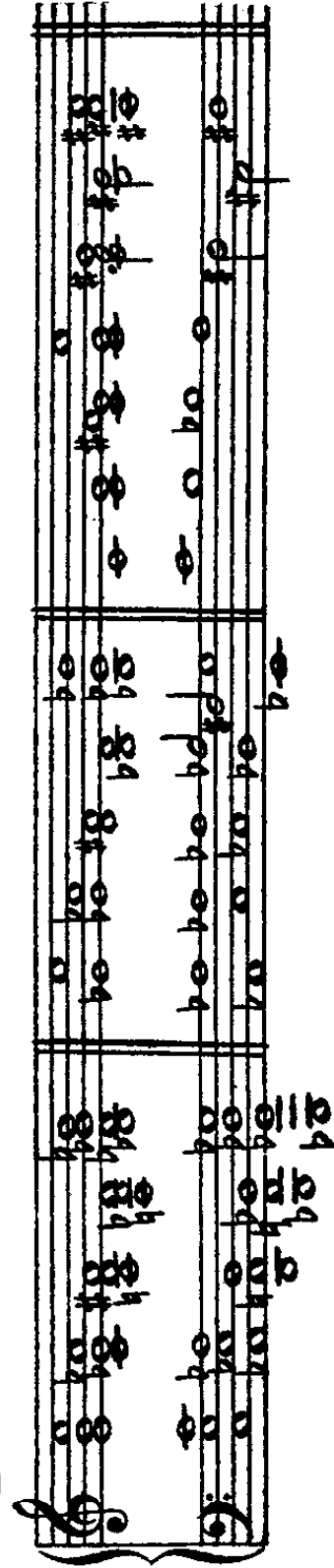


Fig. 2



Fig. 3



of its esthetic or form value. Melodic-relativity thus becomes the equivalent of pitch-relativity, and our problem is not the consideration of the melody as a whole, a musical or artistic unit, but of the pitch-relationship of each tone to all the other tones of the tonal sequence selected.

Since melody is pitch-motion, the attributes of the pitch-series will form the basis of the investigation. Chief among these is continuity. The pitch-series is a continuous stretch of sensory material, unbroken by any periodicity. Between C and C \sharp , for example, lies a short stretch of this series, which may contain any number of intermediate pitch-points. This is best illustrated by instruments such as the siren, the sliding intonation of which eliminates all pitch-points. Any "slide" thus produced (the natural example of which is the howling of the wind, and the musical example of which is the "portamento" of the voice or that of the violin) is an example of pure melody; pure because it is free from rhythmic and harmonic associations. In such a case, there is a continuous passage from one arbitrary end-point to another; and both ends may be so shifted as to cover the entire pitch-range or any portion thereof. As we reach 435 vibrations, for example, we call the tone A, but we shall also call 433, 434, 436, 437, and more vibrations, A. And so on until a stretch is reached over which we are in doubt as to whether the pitch is A or B \flat . As we approach 460 we are certain of B \flat , and A has vanished; but the change has been gradual, not abrupt. This means that our tone-names are merely convenient points along a continuous dimension, any point of which shades imperceptibly into its immediate neighbors. Our tones are not separated by empty spaces, they are not even clearly defined as points, for each has its "fringe."

With this view in mind, we may profitably proceed to an enumeration of the most important absolute factors governing the melodic relativity of tones.

CONCLUSIONS

1. The psychological status of any tone in any melody is determined by its tonal environment, and by its absolute position in the pitch and in the time series.

2. No one tone of any melody can be changed without thereby changing, to a great or small extent, the status of every other tone in the melody.

3. No two tones, in any melody, have the same psychological status.

4. Whenever two or more types of emphasis coincide upon a tone, that tone "stands out" from the rest. When the types of emphasis do not coincide, or, when one type is in conflict with another, that tone is obscured by its environment.

5. The psychological status of any tone in a melody is not a constant. It changes as each new tone of the melody is heard.

6. The melodic relationship of tones is based upon pitch-proximity, with which it varies directly.

7. Any succession of tones, as used in music, is never reacted to purely melodically. Harmonic and rhythmic relationships, either expressed or implied, are always present to modify the purely melodic effects.

8. When a test is given as herein described, a melodic memory of only two tones may be considered very inferior; one of four tones, normal, and one of six tones, superior.

9. The number of tones in a melody is not in itself a complete determinant of the memory-span. Melodies with equal numbers of tones may still differ in the ease with which they are retained.

10. Melodic memory is one element of musical talent, and may be sufficiently isolated to permit separate grading.