

## Ratio Keyboard

A model of the keyboard in a six- $2/1$  extent, full size but without action or sound, has been completed. Five-finger patterns of the hands determine the placing of the keys. Therefore, the left half of the keyboard is the exact reverse of the right. The pattern is duplicated eight times, making 40 tones, the 40th being the  $2/1$ , *all within a normal piano octave span.* The same four more complex ratios used in the staff are represented by keys, while four ratios,  $12/11$ - $11/10$  and  $20/11$ - $11/6$ , because they are approximate and surrounded by very small intervals, are allotted only two keys. A pedal may be devised to allow one key to play either of two ratios. The key for each successive finger in the pattern is raised, so that there are five tiers, each  $3/8$  inch above the other. Further, the black keys and the white fundamentals are raised  $3/16$  inch more. Playing is simplified by the ordered arrangement of raised keys.

A 39-tone scale becomes a five-finger exercise thruout the keyboard. Other scales of 20, 12, 10 and eight degrees of somewhat equal divisions may be played easily by using parts of the described pattern and still another. Fingerings for the 12 diatonic scales may be worked out by comparing the tables of scales with the design.

Because the eye more quickly identifies color than numbers a color on half of a key replaces the number of a ratio. The analogy is:

White--Fundamental

Red--3rd overtone or undertone

Yellow--5th

Blue-Green--7th

Blue--9th

Violet--11th

Black--Those ratios approaching the fundamental from both directions that are the result of two ratios within 11.

THE SPOKEN WORD IN SONG

The essential physical attribute of human speech is that it is tonal. Words further musicalized by accompaniment of instruments have been a constant source of joy to man thruout history.

The degree to which the integrity of words has been preserved in music varies. There has been every sort of formula for union of the two from recitation with musical background physically separate from the words to song texts that are the merest excuse for their music.

The songs that to the present have been the only music written thru the system of Monophony are recitative, but recited in tones that are physically part of the instrumental accompaniment. 37 tones instead of 12 to the 2/1 are naturally a more <sup>flexible</sup> ~~stable~~ medium for registering inflections of spoken words.

There are two principles upon which the songs are created,

First, the line of the spoken inflection determines the melody for the words;

Second, the rhythm of the words is the intrinsic rhythm of the music.

The words are meant to flow in about the spoken tempo, without inordinate sustaining of a single syllable.

At psychological points melodies are introduced without words with pre-accepted meanings; to be sung in pure vowels and other syllables. These conform to a notated rhythm.

The musical idea is completed by accompaniment of the adapted viola.

The lines of drama in both ancient Greece and China were declaimed in tones. The tone to be used was indicated with the word in both cultures. The Chinese

Gray--The four more complex ratios described above.

Two keys,  $4/3$  and  $3/2$ , have four colors each since each has four possibilities,  $4/3-12/9$  and  $3/2-9/6$ . Two others,  $12/11-11/10$  and  $20/11-11/6$ , have four colors because each represents two ratios.

After the color analogy is learned the relation of each ratio to its two tonalities is instantly recognized.

### Voice

It has been satisfactorily demonstrated by two sopranos, Rudolphine Radil of Oakland, California, and Calista Rogers of Pasadena, California, the voice is capable of singing 37 true-interval tones to the  $2/1$ . The previous experience of each had been confined to the tempered scale. Their work had the support of the adapted viola, in harmony or counterpoint, not in unison. Voice possibilities in the system are therefore highly important.