Ramsay - EXPLANATION OF PLATES

Six Octaves required for the Birth of the Scale

EXPLANATION OF PLATES. [BY THE EDITOR.] PLATE I. "NATURE'S GRAND FUGUE."

THIS plate is a Pendulum illustration of the System of musical vibrations. The circular lines represent Octaves in music. The thick are the octave lines of the fundamental note; and the thin lines between them are lines of the other six notes of the octave. The notes are all on lines only, not lines and spaces. The black dots arranged in these lines are not notes, but pendulum oscillations, which have the same ratios in their slow way as the vibrations of sounding instruments in the much quicker region where they exist. The center circle is the Root of the System; it represents F1, the root of the subdominant chord; the second thick line is F2, its octave; and all the thick lines are the rising octaves of F, namely 4, 8, 16, 32, and 64. In the second octave on the fifth line are dots for the three oscillations which represent the note C3, the Fifth to F2, standing in the ratio of 3 to 2; and the corresponding lines in the four succeeding Octaves are the Octaves of C3, namely 6, 12, 24, and 48. On the third line in the third Octave are 5 dots, which are the 5 oscillations of a pendulum tuned to swing 5 to 4 of the F close below; and it represents A5, which is the Third of F4 among musical vibrations. On the first line in the fourth Octave are 9 dots. These again represent G9, which stands related to C3 as C3 stands to F1. On the seventh line of the same octave are 15 dots; these represent the vibrations of E15, which stands related to C3 as A5 stands to F1. On the sixth line of the fifth Octave are 27 dots, representing D27, which stands related to G9 as G9 stands to C3, and C3 also to F1; it is the Fifth to G. And last of all, on the fourth line of the sixth Octave are 45 dots, representing B45, which, lastly, stands related to G9 as E15 stands to C3, and A5 to F1; it is the Third to this third chord - G, B, D. The notes which arise in each octave coming outward from the center are repeated in a double number of dots in the following Octaves; A5 appears as 10, 20, and 40; G9 appears as 18 and 36; E15 appears as 30 and 60; D27 appears as 54; and last of all B45 only appears this once. This we have represented by pendulum oscillations, which we can follow with the eye, the three chords of the musical system, F, A, C; C, E, G; and G, B, D. C3 is from F1 multiplied by 3; G9 is from C3 multiplied by 3; these are the three Roots of the three Chords. Their Middles, that is their Thirds, are similarly developed; A is from F1 multiplied by 5; E15 is from C3 multiplied by 5; B45 is from G9 multiplied by 5. The primes 3 and 5 beget all the new notes, the Fifths and the Thirds; and the prime 2 repeats them all in Octaves to any extent.

When these representative dots are arranged on these six Octaves of lines, at regular distances marked out by the proportionate degrees of the circle, they present to the eye this beautiful symmetrical picture of the Diatonic System of Musical Vibrations. They represent all that mathematically belongs to Music. When the notes are strung

page 102

<- GO PREVIOUS PAGE | GO NEXT PAGE -> [RETURN to Scientific Basis and Build of Music]