

scale of E

Ramsay

G# as it occurs in the scales of A, E, and B major, and A? as it occurs in the scales of F and B? minor, are only distant the *apotome minor*, and are well represented by one key of the piano. It is only G# as it occurs in the scale of F six sharps major, and A? as it occurs in the **scale of E** six flats minor, that is not represented on the piano. These two extreme notes F# and E? minor are at the distance of fifteenth fifths and a minor third from each other. This supplies notes for 13 major and 13 minor mathematical scales; but as this is not required for our musical world of twelve scales, so these far-distant G# and A? are not required. The piano is only responsible for the amount of tempering which twelve fifths require, and that is never more than one comma and the *apotome minor*. [Scientific Basis and Build of Music, page 80]

The Plate shows the Twelve Major and Minor Scales, with the three chords of their harmony - subdominant, tonic, and dominant; the tonic chord being always the center one. The straight lines of the three squares inside the *stave* embrace the chords of the major scales, which are read toward the right; e.g., F, C, G - these are the roots of the three chords F A C, C E G, G B D. The tonic chord of the scale of C becomes the subdominant chord of the scale of G, etc., all round. The curved lines of the ellipse embrace the three chords of the successive scales; e.g., D, A, E - these are the roots of the three chords D F A, A C E, E G B. The tonic chord of the scale of A becomes the **subdominant of the scale of E**, etc., all round. The sixth scale of the Majors may be written B with 5 sharps, and then is followed by F with 6 sharps, and this by C with 7 sharps, and so on all in sharps; and in this case the twelfth key would be E with 11 sharps; but, to simplify the signature, at B we can change the writing into C, this would be followed by G with 6 flats, and then the signature dropping one flat at every new key becomes a simpler expression; and at the twelfth key, instead of E with 11 sharps we have F with only one flat. Similarly, the Minors make a change from sharps to flats; and at the twelfth key, instead of C with 11 sharps we have D with one flat. The young student, for whose help these pictorial illustrations are chiefly prepared, must observe, however, that this is only a matter of *musical orthography*, and does not practically affect the music itself. When he comes to the study of the mathematical scales, he will be brought in sight of the exact very small difference between this B and C?, or this F# and G?; but meanwhile there is no difference for him. [Scientific Basis and Build of Music, page 108]

See Also

key of E