scale of G

Ramsay

The various raisings and lowerings of notes in advancing keys, major and minor. - In each fifth of the majors ascending the top of the dominant is raised a comma. A40 in the key of C becomes A40 1/2 in the key of G; E60 in the **scale of G** is E60 3/4 in the scale of D; B90 in the scale of D is B91 1/8 in the scale of A. This alteration of the top of the dominant major goes on through all the twelve scales. Similarly, by the Law of Duality, each fifth in the minors descending has the root of the subdominant lowered a comma. D54 in the key of E minor is D53 1/2 in the key of A; G72 in the scale of A is G71 1/9 in the scale of D; C48 in the scale of D is C47 11/27 in the scale of G. This alteration of the root of the subdominant goes on through all the twelve minor scales. [Scientific Basis and Build of Music, page 62]

There are two octaves in the key of C, as it is called. Now for the scale of a fifth higher than C, that is G, multiply the top of the dominant, that is the highest note of the chord-scale, by 3 and by 5, and the two new notes for the **scale of G** will be found; the rest of the notes are the same mathematically as those of C. [Scientific Basis and Build of Music, page 82]

N.B. - The sharp comes here by the prime 5, and the comma by the prime 3. Now we have the key of G provided for;-

G	9	٨,	8	в	5	C	9	D	8	E	9	F	5	G
36		40	5	45		48		54		60		674		72
72		81		90		96		108		120		185		144
						(click	to e	nlarge	⊡)					

These are two octaves of the **scale of G**. G A B, which in the scale of C was an 8-9-comma third, must now take the place of C D E, which in C was a 9-6-comma [Scientific Basis and Build of Music, page 82]

third; and in order to do so, A has been mathematically raised a comma, which makes G A B now a 9-8 comma third. E F G, which in the scale of C was a 5-9 comma third, must now take the place of A B C in the scale of C, which was a 9-5 comma third; and in order to do so, F is mathematically raised 4 commas, and must be marked F#; and now the interval is right for the **scale of G**. E F# G is a 9-5 comma interval. This mathematical process, in the majors, puts every scale in its original form as to vibration-numbers; but since the same letters are kept for the naming of the notes, they must be marked with commas or sharps, as the case may be. In the Sol Fa notation such marks would not be necessary, as Do is always the key-note, Ray always the second, and Te always the seventh. [Scientific Basis and Build of Music, page 83]

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

Hughes

In the development of the key-notes, the sharp or flat is written to each note, but not to the keys. The reversal of the three and four notes of each seven of the twelve key-notes and their trinities meeting by fifths having been traced, we will now examine the twelve scales meeting by fifths, and the results arising from the reversal of the three and four notes of each fifth lower scale in the fifth higher. Take as an example the scale of C: C D E F G A B, and that of **G**: G A B C D E F#. The four lowest notes of the seven of C are the four highest, an octave higher, in G; F, the central and isolated note of the seven of C, having risen a tone higher than the octave in the **scale of G**. The twelve scales thus modulate into each other by fifths, which sound the same harmonies as the keynotes and their trinities. Refer to the twelve scales written in musical clef ascending by fifths, and strike them, beginning at the lowest C in the bass clef; this scale sounds no intermediate tones, but these must be struck as required for all the scales to run on in fifths. After striking the seven and octave of C, and fall back four, repeating them and striking the next four, the four last notes of each scale will be found to be always in the harmony of the four first of the fifth higher scale. When the twelve scales ascending have been thus gained, as we trace them also on the table, they may be struck descending by following them as written in musical clef upwards, and [Harmonies of Tones and Colours, Diagram VII - The Modulating Gamut of the Twelve Keys2, page 30]

See Also

key of G