



L. On the stanhope and other temperaments of the Musical scale

Mr. John Farey

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L. *On the Stanhope and other Temperaments of the Musical Scale.* By Mr. JOHN FAREY.

To Mr. Tilloch.

SIR,

THE Table of Musical Intervals which you have done me the favour to engrave for your 112th number, (vol. xxviii. p. 143,) after I had left Town, and could not therefore attend to the proof which the engraver obligingly sent me, unfortunately contains three errors, which I beg here to correct, viz. the *minor THIRD* should be 161Σ &c., instead of 191. The numerator of the ratio of the *DIEZE minimum* should be 19,683, instead of 16,983; and that of the *COMMA and HALF* should be 1953 instead of 1593. At page 142, vol. xxviii., the temperament or difference of the *equal temperament V*, from the *Diatonic V*, should also be corrected and made $-\Sigma - \frac{1}{12} m$, instead of $-1\frac{1}{2} \Sigma - \frac{1}{12} m$.

Such of your readers as are in the habit of attending at the Royal Institution, and of noticing the pamphlets on their library tables, can scarcely be unacquainted, and it is perhaps proper that your readers in general should be informed, that in the beginning of July last, a pamphlet entitled "*Plain Statement of Earl Stanhope's Temperament, by Dr. Callcott,*" was exhibited for sale, for a day or two, in the shops of Mr. Birchall, Mr. Byfield, and perhaps of others, and then disappeared therefrom, in consequence, as I have been told, either of a *legal* interposition or the threat of such, both against that pamphlet, and the one which you did Dr. Callcott and me the favour to reprint, at p. 143 of your last volume; and that a great number of copies of another "*Plain Statement of Earl Stanhope's Temperament, by Dr. Callcott,*" printed some weeks prior to that offered for sale as above mentioned, have since been stitched up with the "*Plain Statement*" and "*Letter to the Duke of Cumberland*" above mentioned, (which two are said to have been printed under Lord Stanhope's directions,) and these three pamphlets in one cover, were, and I believe still continue to be, privately circulated. The reason for which extraordinary proceedings

proceedings I did expect (when I left Town in August last) would quickly appear to the public, from the proof of the first sheet of a printed *Narrative* of transactions, between certain persons relative to the *Stanhope Temperament*, which was shown to me at the Institution; and as this “*Narrative*” promised to throw some additional light upon the Letter to the Duke of Cumberland, relating to me, (vol. xxviii. p. 143,) I abstained from replying thereto before I went out of Town. Since my return, which was but a short time before Christmas, I have not been able to learn anything concerning the progress of the “*Narrative*,” but hear, that the public may very shortly expect some further remarks from his Lordship on his Temperament, and which it were much to be wished (for the interests of science) that his Lordship would communicate through the medium of your Magazine. On these accounts, I shall further defer my observations on his Lordship’s Letter, and on the merits or defects of his system, since the appeal to mathematical writings and truths which I meditate, may perhaps apply at once to the whole of his Lordship’s case, if he really has anything further to advance, and save me and your readers much trouble: in the mean time, as a great part of his Lordship’s Plain Statement is made to turn on a comparison of his system with three others, viz. the *Isotonic* or equal temperament, *M. Prinz’s* system, and that of *M. Kirnberger*, I beg to present your readers with the notes of these three systems, expressed in the small intervals Σ , f and m , as has been done for his Lordship’s system, in my table, vol. xxviii. p. 141, column 6.

A Table of the Relations which the several Notes in an Octave bear to the fundamental Note C, when tuned according to three different Systems of Temperament.

1.	2.	3.	4.	5.	6.	
12	c	VIII	612 Σ +	612 Σ +	612 Σ +	612 Σ +
11	B	VII	561 Σ +	555 Σ +	555 Σ +	555 Σ +
10	bB	7th	510 Σ +	508 Σ +	508 Σ +	508 Σ +
9	A	VI	459 Σ +	453 $\frac{3}{4}$ Σ +	456 $\frac{1}{2}$ Σ +	456 $\frac{1}{2}$ Σ +
8	bA	6th	408 Σ +	404 Σ +	404 Σ +	404 Σ +
7	G	V	357 Σ +	355 $\frac{1}{4}$ Σ +	358 Σ +	358 Σ +
6	bG	IV	306 Σ +	300 Σ +	301 Σ +	301 Σ +
5	F	4th	255 Σ +	254 Σ +	254 Σ +	254 Σ +
4	E	III	204 Σ +	197 Σ +	197 Σ +	197 Σ +
3	bE	3d	153 Σ +	150 Σ +	150 Σ +	150 Σ +
2	D	II	102 Σ +	98 $\frac{1}{2}$ Σ +	104 Σ +	104 Σ +
1	bD	2d	51 Σ +	46 Σ +	46 Σ +	46 Σ +
	C	Key	f +	f +	f +	f +
			53 m	53 m	53 m	53 m
			48 $\frac{7}{8}$ m	48 m	48 m	48 m
			44 $\frac{1}{2}$ m	44 m	44 m	44 m
			39 $\frac{1}{4}$ m	39 $\frac{1}{4}$ m	39 $\frac{1}{4}$ m	39 $\frac{1}{4}$ m
			35 $\frac{1}{2}$ m	35 m	35 m	35 m
			30 $\frac{1}{2}$ m	30 $\frac{3}{4}$ m	30 $\frac{3}{4}$ m	30 $\frac{3}{4}$ m
			26 $\frac{1}{4}$ m	26 m	26 m	26 m
			22 $\frac{1}{2}$ m	22 m	22 m	22 m
			17 $\frac{3}{4}$ m	17 m	17 m	17 m
			13 $\frac{1}{4}$ m	13 m	13 m	13 m
			8 $\frac{3}{8}$ m	8 $\frac{1}{2}$ m	8 $\frac{1}{2}$ m	8 $\frac{1}{2}$ m
			4 $\frac{5}{8}$ m	4 m	4 m	4 m
			Isotonic System.	M. Prinz's System.	M. Kirnberger's System.	
	Letters.	Marks.				
	Intervals in half notes.					

In column 4 of the preceding table, the 2nd ($= 51 \Sigma + f + 4\frac{5}{8} m$) will be found to be the difference or interval between each adjoining note, and consequently every 3rd, III, 4th, V, 6th or VI, as well as VIII in this system are equal, in whatever part of the scale the same are taken; and if VIII ($612 \Sigma + 12 f + 53 m$) be added to the 2nd, II, 3rd, III, &c., in order to obtain a second octave above the one in the table, this will at once appear, by subtracting the value of any note from the value of another, situate the proper number of half-notes above it.

A superior octave being in like manner supplied to each of the other systems, in columns 5 and 6, and column 6, vol. xxviii. p. 141, if the 12 several *minor thirds* (3rds) in each system be taken out, and if the difference between each of these and a true or perfect 3rd ($161 \Sigma + 3 f + 14 m$) be found and placed in order in a table, with the sign + to every *sharp* temperament or interval larger than a 3rd, and the sign - to every *flat* temperament or interval smaller than a true 3rd, then these several *temperaments* will be found very unequal among themselves, except in the *Isotonic* (where each is $8 \Sigma + \frac{3}{4} m$); but on adding up the whole of them, paying proper attention to the signs + and -, it will be found, that the sum of the temperaments of all the 3rds, in each system, is $96 \Sigma + 9 m$, or 3 *Semitones minimum*, as mentioned in my engraved table, vol. xxviii. In like manner, if all the *major thirds* (III) in each of the four systems be taken out, and their temperaments or imperfections (or difference from $197 \Sigma + 4 f + 17 m$) are found, the sum of all these will in each system be found equal to $84 \Sigma + 8 m$, or 4 *Enharmonic Diesis*; also if all the temperaments of the 4ths, (or differences from $254 \Sigma + 5 f + 22 m$) be summed up, they will in each system amount to $12 \Sigma + m$, or the *Diaschisma*: the sum of the temperaments of the Vths (or differences from $358 \Sigma + 7 f + 31 m$) will be found $12 \Sigma + m$; of the 6ths (or differences from $415 \Sigma + 8 f + 36 m$) $84 \Sigma + 8 m$; and of the VIths (or differences from $451 \Sigma + 9 f + 39 m$) $96 \Sigma + 9 m$, as mentioned in the engraved table above referred to.

With such tables as these before us, calculated for each and every

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every system, between which and his own Lord Stanhope has drawn or may draw a comparison, referring also to the number of *beats* made per 1" by each tempered conchord, throughout the whole scale, we shall ultimately be able to bring his Lordship's loud pretensions to pre-eminence over every other system, to a more scientific and competent test, than the *opinion* of 60 or 70 *anonymous persons*, who heard an instrument played upon, which, Lord Stanhope says, (vol. xxv. p. 306) was tuned according to his system. See *Monthly Magazine*, vol. xxii. p. 114.

I am, sir, yours, &c.

JOHN FAREY.

12, Upper Crown-Street, Westminster,
January 15, 1808.

LI. *Report of Surgical Cases in the City and Finsbury Dispensaries for August 1807.* By JOHN TAUNTON, Esq.

IN the month of August there were admitted on the books of the City and Finsbury Dispensaries 188 surgical patients.

Cured or relieved	-	-	171
Died	-	-	1
Under cure	-	-	16
			<hr/> 188 <hr/>

Mrs. A. C. æt. 53, of a thin spare habit of body and of a very delicate constitution, has been afflicted with hernia in the left thigh upwards of 20 years : it first appeared subsequent to a difficult labour, and was much aggravated by a second labour about two years afterwards : she suffered much from carrying heavy burthens, and was frequently confined to the house for some days. For about the first eight years it could be easily returned by placing the body in a horizontal position ; but from that time it has been irreducible, and occasionally attended with great pain, sickness, vomiting, and constipation of the bowels ; for which, however, she had not any surgical assistance till the present attack, which