



XXIII. On the beats of Mr. Hawke's douzeave, or common system of twelve musical notes

J. B.

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it join the knowledge of the architect with that of the joiner and the apothecary? it may surcharge its list of repetitions, and will have seen but a part of what it searches; for the arts are far from embracing all the objects of nature. It will overstep its measure in certain cases, while that in others it will not have done enough to attain it; that is to say, it will totally fail of its end.

But what shall we say is the utility of philosophy, if the arts can exist without it? What are its functions? and why this scaffolding of principles when empiricism alone can suffice our wants?

It is in stripping truth of the deceptive cover under which ignorance has disguised it, that philosophy renders it recognisable. If it goes to consult in their workshops those who have lived only with the immediate objects of their labour; if it questions them on all the advantages which may be derived, and on the process which they employ to incline them to the good of society; if it passes to those who conceive that the universe finishes where their art finds no more resources, or with those who seek the materials which they require in a more extended world, it is in order to collect all that is scattered among one and another; it is to prune what is superfluous, and to determine what is worthy to be preserved. It is philosophy which illumines the mind, and gives brilliancy to the true light which should guide its progress. It marks to the imagination the true point where the judgement stops, and beyond which illusions mislead it; and if among the phantoms of an exalted mind it perceives some real beings, it assigns to the latter the place which is destined for them in the catalogue of human knowledge.

It is thus that philosophy has elevated some arts to the rank of sciences, that it has perfected some others, and that it protects all against the oversights of ignorance, the attacks of barbarism, and the lapse of ages. The art which has deposited its principles in the archives of philosophy will not perish but with it.

XXIII. *On the Beats of Mr. Hawke's Douzeave, or common System of Twelve musical Notes.* By a CORRESPONDENT.

To Mr. Tilloch.

SIR, SINCE I find that the Rev. C. J. Smyth is engaged in calculating and sending you the beats of different Systems of Tuning, I am desirous of contributing my mite in sending

ing you the lengths of strings, vibrations and beats, of the irregular douzeave system of the Rev. William Hawke, which has been treated of, or referred to, in four places in your Magazine (viz. vol. xxvi. p. 171, vol. xxviii. p. 304, vol. xxx. p. 5, and vol. xxxvi. p. 47), without these important particulars having been published; the last of which, the beats, are particularly useful in showing the proportionate effect or annoyance which the ear will receive from every false concord in the scale; at the same time that they furnish an almost infinite number of ways of tuning this system, or of checking the tuning as it proceeds.

I am, sir,

Your obedient servant,

J. B.

London, Feb. 9, 1811.

TABLE OF BEATS.

1.	2.	3.	4.	5.	6.	7.	8.	9.
C	5000-000	480.						
B	5333-333	450.	13-377	36-891	4-478	3-350	8-933	16-833
bB	5597-118	428-7922	54-049	5-333	—	3-192	63-712	10-680
A	5970-259	400-9925	11-956	5-000	4-000	2-993	7-981	10-012
*G	6352-475	377-8055	16-833	30-972	—	*10-029	14-981	35-748
G	6685-250	359-1066	10-680	4-466	3-573	2-674	14-240	8-944
*F	7128-801	336-6625	10-012	31-856	3-350	2-506	6-688	31-856
F	7481-390	320-7960	35-748	3-990	3-192	2-388	47-664	7-990
E	7980-149	300-7463	8-944	7-491	2-993	2-239	5-970	7-491
bE	8395-679	285-8614	31-856	7-120	b10-029	—	36-891	10-693
D	8933-168	268-6623	7-990	3-341	2-674	2-000	5-333	6-669
*C	9528-710	251-8704	7-491	23-832	2-506	—	5-000	27-024
C	10000-000	240.	10-693	2-985	2-388	1-787	30-972	5-978
Notes.	Lengths of Strings.	Vibration in 1s	b3d.	*11fd.	*4th.	bVth.	b6th.	*Vlth.
Beats made in one Second.								

The beatings are all *flat* or *sharp*, as expressed in the titles at the bottom of each column, except the 4th on bE, and the Vth on *G, which are otherwise expressed.

XXIV. *Communication on Water-Pressure Engines.* By Mr. JOHN TAYLOR.

To Mr. Tilloch.

SIR, IN your Magazine for January, I have just seen the remark of Mr. John Farey on a passage in a former Number relative to an improvement of mine in Water-pressure Engines. He conceives that he has discovered a mistake in Vol. 37. No. 154. Feb. 1811. I the