

which was refused publication was one from Mr. Bailey discussing the fitness of certain gentlemen for the various classes of membership. As Mr. Bailey declined to omit this personal matter his letter was returned.]

### Graphic Representation of Bird Song.

[At Mr. Moore's special request 'The Auk' publishes his letter, below. With his permission a copy was sent to Mr. Saunders whose rejoinder follows. These contributions will close this discussion.—Ed.]

EDITOR OF 'THE AUK,'

Dear Sir:—

In the January issue of 'The Auk' Mr. Saunders complains that "many of the faults" I found with his system "are the result of misunderstanding." If I misunderstood him, I regret it. My purpose was to point out kindly to one who is just beginning to record bird-songs scientifically, the limitations of his methods, so plain to those who have devoted years to the same study. I assumed that when he elected to employ technical terms, he would wish to use them with the "scientific" precision musicians employ. Now that he admits attaching to them the various and often contradictory meanings found in large family dictionaries, the reason for our misunderstanding is apparent. I am no longer astounded by his careless use of such technical terms as, "duration," "time" and "rhythm," and his most serious confusion of the "trill" with the "repeated note." When he *has* "recorded enough songs" even of the few species he has worked on, he will have to revise his wild assumption that the "shake must be rare in bird music." The shake or trill is not rare! Indeed, it is employed by the *very* birds whose songs he records! It is not uncommon in songs of Field Sparrow, Song Sparrow and Purple Finch, and in a form of wide range is *characteristic* of the Vesper Sparrow.<sup>1</sup> If Mr. Saunders really cares to be as "scientific" as musicians, he will find this factor decidedly "worth bothering" his "head about!"

Mr. Saunders casts many aspersions at the methods of musicians. Among others, he charges them with artificially *changing* bird songs "in both pitch and time to fit the method." It is possible he did this when he used the musical method, but I know of none who have. Our field methods are just as scientifically accurate as his, for some of us discovered the stopwatch long ago and use both it and the more valuable metronome. Personally I do not "decide on some key the bird is supposed to sing!" I do *not* record the key in the field *at all* and if none exists, leave the song as it is. As to pitch, I record every note that is off the pitch with its approximate variation, which is all that Mr. Saunders does. As to time I use for a unit

<sup>1</sup>See Schuyler Matthews' "Field Book of Wild Birds and Their Music, pp. 106-122-123-87.



the  $1/64$  note, which is often a smaller unit than Mr. Saunder's  $1/10$ . It is just exactly as accurate to measure a song by  $1/64$  notes as by  $1/10$ s, even if the song is *not* rhythmical. If it is rhythmical (which is true of 95 songs out of 100) the use of the musical unit permits a clear indication of the rhythm, which is vitally important! Mr. Saunder's records do *not* indicate the rhythm clearly, for in six of his songs, whose authors invariably sing rhythmically, the rhythm is absolutely obscured by his failure to mark the *accented notes*. In his Robin's record it is possible to show it *existed*, only because the pauses *happen* to be all of the same length and come at regular intervals.

I agree with Mr. Saunders it is "absolutely ludicrous" to play bird-songs on the piano and expect them to sound like the bird. I regret that the old system is so "intricate" and "unintelligible" to him, but hundreds of thousands of people do understand it and thousands of *children* from six to fourteen years of age readily grasp it. The vital difference between the two systems is this: The new method is most efficient for exploitation of such obvious things as the "duration of the songs"; the old system is most efficient for recording the really important factors,— the harmonical relations of the song and its rhythmical beat, which latter for most songs is the "specific character."

ROBERT THOMAS MOORE.

Haddonfield, N. J.

EDITOR OF 'THE AUK,'

Dear Sir:—

Replying to Mr. Moore's latest remarks concerning methods of recording bird songs, it might not be irrelevant to the subject to say that musicians are as a rule artists and not scientists. The science necessary for the student of bird songs consists almost entirely of the physics of sound, not the use of technical musical terms. The student of bird songs is working primarily for the ornithologist, not the musician. So why use an obscure, musical definition of a trill or cast slurs at the "large family dictionary" when the small pocket dictionary is, as far as my examination of it goes, equally to blame?

It would throw much light on the subject, and remove some serious objections to the old method, if Mr. Moore would explain how he is able to record certain bird songs on the musical scale without artificially changing them to fit the method. How, for instance would he write a note pitched half way between A and A flat? How can he record in  $1/64$  notes and multiples of it, notes whose relative durations are incommensurable?

The old system is not unintelligible to me. I began its study myself when somewhere between six and fourteen years of age, and have considerable use for it at the present time. But I still believe that it is too intricate and mechanical to be of the highest utility in recording bird songs. That my original records did not show accent, which is simply a variation in



intensity of notes, does not weaken the graphic system in any way, for I have mentioned more than once how variations in intensity may be represented by this method, and have recorded this factor in the field in many of my more recent records.

"The proof of the pudding is in the eating." If either method proves to be unworthy in the light of the other, it will sooner or later be discarded, regardless of either Mr. Moore's or my opinions on the subject at the present time. I only ask that the future student of bird songs give both methods a fair and unprejudiced trial in the field, and then use that method which he truly finds to be most accurate, comprehensive, scientific and simple.

ARETAS A. SAUNDERS.

New Haven, Conn.

Mar. 9, 1916.

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## NOTES AND NEWS.

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THE American Ornithologists' Union has sustained one of the greatest losses in its history in the death of Daniel Giraud Elliot on December 22, 1915. Dr. Elliot was one of the founders of the Union and its second president while his deep interest in the society and its welfare was maintained until the time of his death. His name and his scientific publications are familiar wherever ornithology and mammalogy are studied, but those who were privileged to know him personally will appreciate far more the loss that we have sustained. Possessed of a striking personality, dignity and kindness of manner Dr. Elliot left a lasting impression upon all with whom he came in contact, and inspired with love and respect those with whom he was familiarly associated.

In accordance with custom the president of the Union has appointed one of the Fellows to prepare a biographical notice to be read at the Meeting in November and published in the January number of 'The Auk.' Dr. Frank M. Chapman has been his choice and has accepted the appointment. It will therefore be only necessary in this connection to mention briefly some of the principal events in Dr. Elliot's life.

Daniel Giraud Elliot was born in New York City, March 7, 1835. In early life he travelled for some years in southern Europe, the West Indies and Brazil. Returning to New York he pursued the study of ornithology which seems to have always been his chief interest. Much of his time was spent at the Academy of Natural Sciences at Philadelphia, which was then.



Moore, Robert Thomas and Saunders, Aretas A. 1916. "Graphic Representation of Bird Song." *The Auk* 33, 228–230.

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