

his chosen field of work, who was so broadly sympathetic in his views, and who endeared himself to so many by his personal character and attainments.

F. L. O. WADSWORTH.

ALLEGHENY OBSERVATORY,
May 1, 1901.

THE LARYNX AS AN INSTRUMENT OF MUSIC.

I SEE in the last number (April) of the *American Journal of Science* an excellent paper by Professor Scripture on the 'Nature of Vowels.' After a graphic analysis of these sounds, he criticizes with much acuteness the views of other writers. Of this I have nothing to say, except that I have been greatly interested. But in the last paragraph he concludes that the so-called vocal cords cannot vibrate in the manner of strings nor of tongues of reed-pipes, but must vibrate *compressively* in the manner of *elastic cushions*.

Now I write this to say that somewhat similar views have been expressed by me in my class lectures on comparative physiology for 25 years, although not published until last year in my book on 'Comparative Physiology and Morphology of Animals.'

On p. 210 of that work, speaking of the *larynx as a musical instrument*, after showing that it cannot be likened to a stringed instrument nor to a reed-pipe, I say: "It is strange that no one has thought to liken it to an ordinary *horn*—a stage horn, or better, a *French horn*. In this instrument the sound is modulated exactly as in the larynx, viz., by the *tension* and the *pressing together* of the *lips of the performer*. The edges of the *rima glottidis* ought to be called the *vocal lips*—as indeed they are, and not the *vocal cords*—which they are not in any sense. The analogy between the two instruments is perfect. The performer on the horn presses his lips together tighter, makes them tenser and the opening between them smaller, in proportion as he desires a higher note. He then drives the air between the tense lips so as to set their edges in vibration. This vibration, by alternate partial closing and opening of the aperture, gives rise to *successive jets or pulses of the out driven air*, and this in its turn gives corresponding pulses to the air in

the sounding cavity of the horn. Precisely the same, as we have seen, takes place in the larynx. The only wonder is that so small an instrument as the larynx and the mouth-cavity should be capable of such marvelous effects."

It is true I do not say anything about '*compressive vibrations*,' but I think there can be no doubt that the nature of the vibrations in the two cases is identical.'

JOSEPH LE CONTE.

BERKELEY CAL., April 24, 1901.

THE PHOTOGRAPHY OF FOSSILS.

TO THE EDITOR OF SCIENCE: In the current issue of SCIENCE (May 3, 1901), p. 710, report is given of a paper read before the New York Academy of Science by Mr. Gilbert van Ingen, on 'A method of facilitating Photography of Fossils.'

It may be of interest to your readers to know that a patent covering the process there described was issued in December 1899, and a company, the 'Scientific Photograph Company,' under the business management of Roger H. Williams (Address 28 East 28th St., New York) has been formed to execute orders for the preparation of illustrations by this patented process. The results obtained are successful in reproducing the most delicate details of the form of opaque objects of all kinds in which accuracy is demanded. The process eliminates both the interpretation of the artist and the distorting effects of color and uneven reflection of natural surfaces, and is proving of great value as a means of reproducing, in publications, the exact form of fossils and other objects.

HENRY S. WILLIAMS.

YALE UNIVERSITY,
May 7, 1901.

SHORTER ARTICLES.

VARIATION IN LIGHT OF EROS.

THE range of variation in the light of Eros, which has been diminishing during the spring, has now become zero. In February, 1901, it was found by European astronomers to amount to 2.0 magn. Observations by Professor O. C. Wendell, with the Harvard Equatorial, showed that the range on March 12, 1901, was 1.13