

to a reed-pipe,' and suggests the resemblance between the vocal band action and the lip action in blowing a horn. Whether the lips in blowing a horn vibrate laterally as reeds or by compression as cushions, I am unable to say; they may quite possibly vibrate in a manner different from that assumed by Helmholtz.*

E. W. SCRIPTURE.

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PHYSIOLOGY IN THE SCHOOLS.

TO THE EDITOR OF SCIENCE: Judging from the letter of S. W. Williston in your issue of May 24th, people must acquire their mental growth much more rapidly in Kansas than they do in the East. If I were confronted in an examination for the degree of doctor of philosophy with the question 'Why does the human body cease to grow about the twenty-fifth year?' I should think there were strong grounds for suspecting the examiner of endeavoring to show what I did not know, even at the price of asking questions whose answers I could not know. Yet we are told that this question has been asked of candidates for the State teacher's certificate. The theory of accelerated mental development is furthermore strongly supported by the apparent fact that children are expected, by the time they finish with the grammar school, to know about pleurisy, the respiratory center, residual air, appendicitis, *meatus auditorius* and the *motores oculi*.

If mental development is anywhere as rapid as these facts would suggest, there can, of course, be no criticism with regard to the con-

* Misunderstanding the point under discussion and supposing that Professor Le Conte was speaking of lateral vibrations of the lips and vocal cords, Professor Webster (Clark Univ.), replies to him in SCIENCE for May 24, N. S., Vol. XIII., p. 827, that the action of the lips and the vocal cords had already been explained by Helmholtz and that his description of 1862 'has never needed any improvement or correction.' Professor Webster asserts that he regards the simple *model* of a membranous reed pipe with a sheet of rubber in lateral vibration as 'a very convincing demonstration of the mode of action of the larynx.' He also classifies elastic cushions as 'reeds.'

sideration of these questions in physiology at the time indicated.

If, however, children generally show about the same rate of mental development as I have observed in the East, the writer would like to suggest that if less time were consumed in the contemplation of useless details of anatomy, relieved by worse than useless rambles into pathology, and more in the plain, common sense, practical study of the conditions of healthy living, teachers would no longer learn in examination papers that 'the body should be bathed frequently, should be bathed at least once a year.' There is, in fact, a horrible suspicion in the mind of the writer that something else than the text-book is at fault.

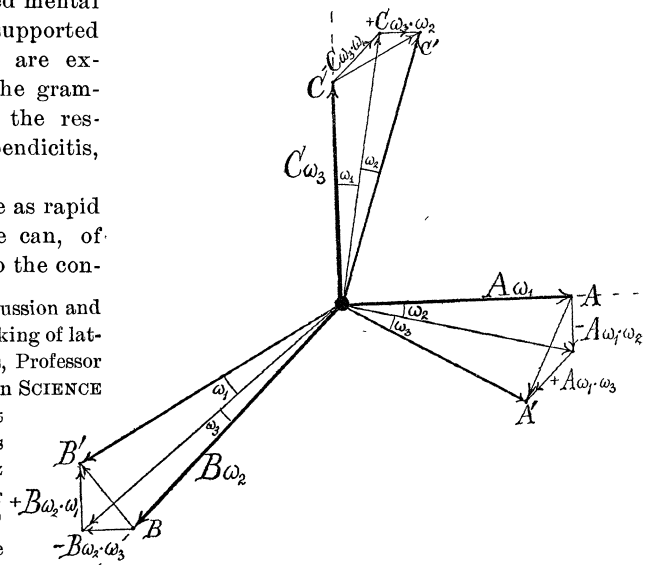
THEODORE HOUGH.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY,
May 25, 1901.

SHORTER ARTICLES.

THE GENERAL EQUATIONS OF ROTATION OF A RIGID BODY.

AFTER writing my brief note on the top,* it occurred to me that the same method might be



used to derive the Eulerian equations of rotation briefly and at once, in a way almost pic-

* This Journal, May 31, 1901.