

## SCIENCE:

A WEEKLY NEWSPAPER OF ALL THE ARTS AND SCIENCES

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Attention is called to the "Wants" column. All are invited to use it in soliciting information or seeking new positions. The name and address of applicants should be given in full, so that answers will go direct to them. The "Exchange" column is likewise open.

## THE DESTRUCTION OF THE WAVE THEORY.

At brief intervals of time the scientific world is startled by the announcement that some one of its favorite and supposed permanent and well-established theories in science is annihilated by a new genius in the field of research. On investigation, however, it has thus far invariably proved that the supposed iconoclast is slightly in error; and the theory usually stands firmly until another bold martyr appears to shake but not to overthrow it. The last of these brave but unknown and unknowing martyrs to science, as we fear, may be found quixotically attacking the wave theory of sound in the columns of the *Monthly Journal of the British Society of Musicians*, in the issues of March and April.

Mr. George Audsley supports the "substantial" theory of sound with courage, if not with knowledge and discretion, and puts to flight such advocates of the old notion of vibration as Professor Tyndall in Britain and Professor Mayer in America; at least, those gentlemen seem not to have remained on the field of battle. Mr. Audsley points out the fact that the stridulations of the locust affect the air for miles around, remaining audible even when reduced four thousand millions of times, and takes this as ample and positive proof of the folly of the accepted theory, a *reductio ad absurdum*, in some sense, certainly, beyond the suspicion of a question. Unfortunately he has no exact measurements and no accounts to give us of experimental research to sustain his onslaught; but that fact seems to him unimportant.

Scientific authority in the United States comes to the support of Mr. Audsley also. "Professor" E. J. Drake, presumably an authority, and accomplished in experimental investigation, — although we lament that we must confess our ignorance on this subject, never having heard of these "authorities" at such meetings of the learned societies as we have had the good fortune to attend, — gives Mr. Audsley the benefit of his victory over Professor Tyndall, and the "startling" results of experiments at the Pennsylvania Military Academy by Capt. Carter as related to Professor Tyndall, without, unfortunately, convincing that hard-headed "scientist," who replies only thus: "You may go

to rest with the assurance that the wave theory of sound is perfectly secure."

Mr. Sedley Taylor ventures to mildly uphold the endangered theory, however, and presents very admirably what little can be said in favor of the sound-wave; but both he and Tyndall, and presumably Mayer, are met by the somewhat intimidating accusation of "scientific cowardice," and, it is feared, may be driven from the field, leaving the sound-wave theory to stand as best it can.

Nevertheless, every one studying the physical sciences will be interested in learning who these bold soldiers of a forlorn hope be, and what is the experimental evidence on which they rely. Truth must in the end prevail; and it is only necessary to secure experimental evidence of the new ideas to insure their acceptance. Facts, not words, are needed. What man of science of known ability and experience in research will be the first to prove the material theory of energy-transmission through elastic substance? Messrs. Audsley and Drake are with him, and will bravely claim for him deserved honor.

If we may venture the suggestion, however, to such able and learned men as are engaged in this grand crusade, we would modestly intimate the possibility that the trouble is not so much with the wave or any other "theory" as with the facts; not that one or another explanation of the *modus operandi* is unsatisfactory, but that a minute insect can, by any natural process, shake such enormous masses. Is it not, after all, a miracle which our bold crusaders have discovered?

UNIVERSITY EXTENSION. — HISTORY OF THE PHILADELPHIA LOCAL MOVEMENT.<sup>1</sup>

THE success of the university extension movement in England has been closely watched by those interested in higher education in this country for a number of years; but, as the problems here presented were in many respects radically different, there has been a great feeling of hesitancy anent the initiation of the work in this country.

Before any general movement was attempted, it seemed advisable that an experiment should be made in some one place, and a thorough test had. To secure this end, an informal meeting was held in Philadelphia early in the spring of 1890, at the request of the provost of the University of Pennsylvania, to discuss the feasibility of transplanting the English system. It was seen at once that Philadelphia and its immediate vicinity offered, as a place in which to try the experiment, advantages possessed by no other. Here was a compact city made up of parts originally independent: here were in close proximity not only flourishing suburbs, but a large number of towns and villages; and last, but not by any means the least important, in this field, there were found more institutions for higher education with which it would be possible to co-operate than in any other section of the country.

Immediately it was resolved to make the experiment, and the first step was the organization of the society. The co-operation of the teaching bodies in and adjacent to the field was asked, and it became evident from the hearty responses received on all hands that there would be sufficient teaching force available for the work. The next step was to invite the co-operation of existing bodies interested in liberal culture. Again the hearty responses received, in a measure foreshadowed the successful inauguration of the work.

It was then resolved to send the secretary abroad to make a study of the movement at its fountain head. During his sojourn in England, he made a careful examination into the plans of organization and method of work of the Cambridge Syndicate, the Oxford Delegacy, the Victoria University, and The London Society for the Extension of University Teaching. Upon his return

<sup>1</sup> From Bulletin No. 1 of the American Society for the Extension of University Teaching.