

plane trigonometry, and, indeed, in some few cases, in analytical geometry, though these last may be omitted without serious lack of continuity.

Part I of the work, which is before us, contains 246 pages. It gives in its introductory matter, concise, illustrated descriptions of apparatus used in the measurements of space and time. Chapter I, treats of the Mechanics of Masses. Chapter II, of Universal Attraction. Chapter III, of Molecular Mechanics, and Chapter IV, of the Mechanics of Fluids. This chapter completes Book I.

Book II which completes this part of the work, is devoted to the consideration of the production and nature of Heat. In it will be found full explanations of the modern ideas of heat. The closing chapter on Thermodynamics is especially to be commended.

Part II will include the subjects, Electricity and Magnetism, Acoustics and Optics.

We regret that the value of this book should have been impaired by the absence of an index. We believe, however, that the authors intend placing an index at the end of the completed work.

E. J. H.

Franklin Institute.

[*Proceedings of the Stated Meeting, held Wednesday, December 17, 1884.*]

HALL OF THE INSTITUTE, December 17, 1884.

MR. WILLIAM P. TATHAM, President, in the Chair.

Present, 138 members, and 11 visitors.

Twenty-one (21) persons were elected members of the Institute since the November meeting.

The following nominations for officers, to be chosen at the annual meeting in January, were made:

For President (to serve one year), William P. Tatham.

For Vice-President (to serve three years), Joseph E. Mitchell.

For Secretary (to serve one year), William H. Wahl.

For Treasurer (to serve one year), Samuel Sartain.

For Managers (to serve three years; eight to be chosen), William Sellers, J. Vaughan Merrick, Hector Orr, William D. Marks, Cyrus Chambers, Jr., Charles J. Shain, Henry R. Heyl, Hugo Bilgram, G. Morgan Eldridge, Charles E. Ronaldson, M. B. Snyder.

For Auditor (to serve three years), William B. Cooper.

For Representative in the Pennsylvania Museum and School of Industrial Art, William H. Wahl.

Mr. W. Barnet LeVan presented a series of views, exhibiting the time tables of the fastest trains on the principal European and American railways, and commented upon the same. An abstract of Mr. LeVan's remarks has been referred to the Committee on Publication.

The Secretary, in his report, made some further references to the experiment of purifying the Schuylkill water by aëration, in connection with which, he presented a communication from Col. William Ludlow, Chief of

the Water Department of Philadelphia. The subject was discussed by Messrs. W. B. LeVan, William B. Cooper, Dr. Mintzer, Hector Orr and others.

The Secretary presented a view of the American Isthmus, exhibiting the location of the principal projected canal and railway routes, with remarks upon the salient features of each.

The Secretary also called attention to the alleged inadequacy of the facilities and equipment of the United States Patent Office, by reason of which the inventors of the country and the great business interests represented in patent property were subjected to unjust, unnecessary and expensive delays in the transaction of business with the office. He quoted from the last published annual report of the Commissioner to show that there were, on June 30, 1884, awaiting action in the office 9,186 applications, or 5,087 more than were awaiting action at the corresponding period of the year 1883; and that the decision in the telephone interference cases, arguments in which closed in November, 1881, was not reached until July, 1883, and was not confirmed on appeal until two or three months ago; and that, in some of the classes, the number of pending cases was so great that there was no probability of a new case receiving attention for six months or even longer. This was especially the case in the class of electrical inventions, in which, in August last, over 600 applications were awaiting their turn.

The Secretary's report embraced, also, remarks upon the new local anæsthetic (the hydrochlorate of cocaine); and the description of the following new inventions: Dr. Cook's improvement in Apparatus for Administering Anæsthetics; Joseph H. Black's improvement in Car Wheels; R. Baumgardner's Metallic Cross-tie for Railways; Edward B. Meatyard's Acme Railway Car; and the so-called Willesden Fabrics. These last consist of paper, canvas, cordage, etc., which have been treated with cupro-ammonium solution, by which they have been rendered water-, rot-, mildew- and insect-proof. The fabrics are adapted for a great variety of uses. [For a full description of these, the reader is referred to the *Journal of the Society of Arts* (London), May 7, 1884; Art. Cupro-Ammonium Products, by Dr. Alden-Wright.]

On Prof. E. J. Houston's motion, seconded by Prof. M. B. Snyder, the following preamble and resolutions were adopted, after prolonged discussion:

WHEREAS, Scientific books published abroad are absolutely essential to students and investigators, and are but rarely duplicated in this country, therefore, be it

Resolved, That the Franklin Institute of the State of Pennsylvania hereby requests the Representatives of Pennsylvania in the Congress of the United States to use all possible exertions to have private parties importing such books for their own use and not for sale, placed upon the same footing as colleges and other incorporated institutions.

Resolved, That a copy of this preamble and resolutions be forwarded to each Member of Congress from Pennsylvania.

The subject of holding a special Exhibition in the autumn of 1885, was again referred to the Board of Managers as urgent.

Adjourned.

WILLIAM H. WAHL, *Secretary*.