MECHANICAL AND ENGINEERING SECTION.—Stated meeting held Thursday, May 23d, at 8 P. M. President Chas. Day in the chair. Present, 138 members and visitors.

The paper of the evening was read by Mr. James B. Bonnier, of Philadelphia, on "The Present Condition of the Work on the Panama Canal." The speaker gave an account of this important work, based on personal observations made in a recent visit to the Isthmus. His remarks were profusely illustrated with the aid of lantern photographs made from pictures taken on the ground.

The thanks of the meeting were voted to the speaker for his extremely interesting address, and the session was adjourned.

KERN DODGE, *Sec'y pro tem.*

The Franklin Institute.

(Proceedings of the stated meeting held Wednesday, June 19th, 1907.)

HALL OF THE FRANKLIN INSTITUTE,

PHILADELPHIA, June 19th, 1907.

VICE-PRESIDENT JAMES M. DODGE in the chair.

Present, thirty-five members.

Additions to membership since last report, three.

The Actuary, by instruction of the Board of Managers, transmitted a memoir on "The Speed of the Invisible Portions of the Spectrum," signed by "Algol," which had been received in competition for the Boyden Premium. With the memoir the Actuary also submitted the report of a special committee of judges, consisting of Mr. Hugo Bilgram, Prof. A. W. Goodspeed, and Dr. George Flowers Stradling, recommending that the original amount of the Boyden Premium, to wit: one thousand dollars, be awarded to the author of the memoir, Dr. Paul R. Heyl, of Philadelphia, for his successful experimental demonstration of a portion of the proposition stated by Mr. Boyden.

The Actuary likewise transmitted the following resolution adopted by the Board of Managers in reference to the subject, viz.:

"Resolved, That the Board of Managers hereby recommends to the Institute the approval of the report of the Judges upon certification from the Judges that they consider any further experimental demonstrations unnecessary." (A certification to this effect, signed by all the Judges, was found appended to the Judges' report.)

The following is an abstract of the applicant's thesis, prepared by the chairman of the Judges, viz.:

"The applicant, 'Algol,' for the Boyden premium has succeeded in demonstrating, by experiment, that those of the ultra-violet rays of light for which glass is transparent, have the same velocity as the light rays proper.

"He reasons that if the velocity of these rays were different they would not arrive, from a distant source, at the same time. For his

tests he selected 'Algol,' a well-known variable star in the constellation Perseus, as the source of light. By means of a diffraction grating he eliminated all but the ultra-violet rays of a known frequency, and by focusing them on a sensitive plate, obtained photographs of the star.

"For the purpose of identifying the rays so recorded with the visible rays, regarding the time of their emission, he selected, for the time of his tests, the time during which the light of this star shows the peculiar phenomenon of fading and recovering. The period of this variation is known to be about six hours. During this period he took a number of photographs, one-half hour apart, each exposure being twenty minutes, the remaining ten minutes being employed for making the necessary preparations for the next exposure. He thus obtained a number of exposures of the star on the same sensitive plate, but shifted in position. After developing the plate, the successive images plainly showed a fading and recovering, and although the exact location of the minimum brightness could not, in the nature of things, be absolutely determined, the approximate coincidence of the time of the minimum brightness of the visible and the photographed rays was obvious. These tests were repeated a number of times to eliminate the possibility of error and also to take in a certain range of the ultra-violet rays, and since favorable opportunity for making these tests is not frequent, the investigation extended over a period of two years.

"The applicant then reasoned as follows: Assuming that the photographic minimum did not exactly coincide with the observed visual minimum, their difference did certainly not exceed an hour, and since the distance of Algol is no less than forty light years, the difference of the velocities of the ultra-violet and the visual rays could not exceed one part in 250,000. This close approximation established equality to all intents and purposes."

After the reading of the foregoing abstract, the presiding officer announced the subject open for consideration.

Mr. Hugo Bilgram, chairman of the Committee of Judges, announced that he was prepared to make any explanation in reference to the work of Dr. Heyl that should be asked for.

Mr. Levy remarked that an interesting feature of Dr. Heyl's memoir was that it was a piece of original scientific research, for the neglect of which Americans have been frequently reproached.

A motion was thereupon unanimously passed confirming the award as recommended by the Judges and endorsed by the Board of Managers.

The Secretary reported the following vacancies in the Committee on Science and the Arts, viz.: Messrs. Amos P. Brown, J. Logan Fitts, C. J. Reed, Geo. P. Scholl, Frank Shuman, H. W. Spangler, A. H. Stewart, J. C. Trautwine, Jr. The following were duly nominated and elected to fill the vacancies:

Dr. G. H. Meeker in place of Prof. Brown; Chas. Zentmayer in place of Mr. Reed; Robert Job in place of Dr. Scholl; Carl G. Barth in place of Prof. Spangler; Richard Zeckwer in place of Dr. Stewart; Luther D. Lovekin in place of Mr. Fitts; Joseph H. Burroughs in place of Mr. Shuman; Mr. Henrick V. Loss, in place of Mr. Trautwine.

The following communications were presented:

The Holophane System of Illumination, by Mr. A. J. Marshall, Illuminating Engineer of the Holophane Glass Co., New York.

Asbestos Fireproof Materials for Buildings (flooring, siding, shingles, etc.), made by Keasby & Mattison, of Ambler, Penna. The subject was presented by Mr. Weldon Clark, the local representative of the manufacturers.

An improved Draughting Board was exhibited and described by Mr. Jos. W. Bramwell, of Philadelphia.

The subjects of the last two communications were referred to the Committee on Science and the Arts, and the thanks of the meeting were voted to the several speakers.

Adjourned.

LOUIS E. LEVY, *Sec'y pro tem.*

Committee on Science and the Arts.

(Abstract of proceedings of stated meeting held Wednesday, June 5, 1907.)

DR. WM. O. GRIGGS in the chair.

The following report was adopted:—

(No. 2402.) *A Re-discovered Lost Art.* Frank Della Torre, of Baltimore, Maryland.

This report was made advisory.

The following reports passed first reading:—

(No. 2392.) *Improvements in Diffraction Color Photographs.* Herbert E. Ives, of Weehawken, N. J.

(No. 2400.) *Improved Primary Battery.* Frank A. Decker, of Philadelphia, Pa.

(No. 2409.) *Diffraction Color Photographs.* Prof. R. W. Wood, of Baltimore, Md.

DEFERRED BUSINESS.—(No. 2389.) *Improved Thermometer Support.* Dr. T. F. Townsend, of Philadelphia, Pa.

A motion for reconsideration of the Committee's action in the above-named case was passed and the subject was again brought before the Committee for action. A motion to change the award from the grant of a certificate of merit to the grant of the Edward Longstreth Medal of Merit was made and upon being put to vote, was lost, by a vote of nine ayes to two nays, the remaining three members present declining to vote.

NEW BUSINESS.—The names of the following gentlemen were reported as having resigned from the committee:

Messrs. A. P. Brown, J. Logan Fitts, C. J. Reed, Geo. P. Scholl, Frank Shuman, Dr. A. H. Stewart, J. C. Trautwine, Jr., and Prof. H. W. Spangler.

A special committee, consisting of Messrs. Christie, Levy, Donaldson and the Chairman and Secretary, ex. off., was appointed to present nominations to fill these vacancies at the stated meeting of the Institute, to be held on Wednesday, the 19th inst.

Adjourned.

WM. H. WAHL, *Secretary.*