

Franklin Institute.

HALL OF THE INSTITUTE, Jan. 17th, 1877.

The stated meeting was called to order at 8 o'clock P. M., the President, Dr. R. E. Rogers, in the chair.

There were 150 members and 10 visitors present.

The minutes of the last meeting were read and approved.

The Actuary presented the minutes of the Board of Managers, and reported that at the last meeting 40 persons were elected members of the Institute, and the following donations were made to the library :

Report of the permanent committee of the first international congress at Vienna, meeting at London, 1876. From the meteorological committee.

Discussions on technical education by the American societies of civil and mining engineering. Easton, Pa., 1876. From the Am. Soc. Mining Eng's.

Verhandlungen des naturhshistorisch-medecinischen Vereins zu Heidelberg. New ser. Vol. I, Pt. 4. From the union.

Catalogue of the collective exposition at the Centennial exhibition in 1876, at Philad'a, of the Netherlands booksellers' association. Amsterdam, 1876. From Dr. Geo. J. Ziegler, Philad'a.

Report of the board of health of the city and port of Philad'a to the Mayor, for the year 1875. From Geo. E. Chambers, registrar of the board.

Memoires of the imperial Russian technical society and collection of patents issued in the department of commerce and manufacture. 1876. 4 vols. From the society.

Secular change of magnetic declination in the United States and other parts of North America, 1874. From the U. S. coast survey.

Report on the North Sea canal of Holland, and on the improvement of navigation from Rotterdam to the sea.

(To be continued in next number.)

The President presented the following Annual Report of the Board of Managers, which was adopted :

REPORT OF THE BOARD OF MANAGERS TO THE FRANKLIN INSTITUTE
OF THE STATE OF PENNSYLVANIA, FOR THE PROMOTION OF
THE MECHANIC ARTS, FOR THE YEAR 1876.

Your Board of Managers beg respectfully to submit the following Report :

Members.—During the year 1876 there were elected one hundred and thirty-two members—and thirty-one resignations.

Treasurer's Report.—The report of the Treasurer herewith submitted as extracted from the minutes of the Board, presents the following exhibit :

Balance on hand Jan. 1st, 1876,	\$2,218.65
Receipts during the year from all sources,	17,622.71

Total,	\$19,841.36
Expenditures and investments during the year,	18,849.35

Leaving a balance on hand, Dec. 31, 1876, of	\$992.01
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Premiums and Medals.—During the past year the following medals and premiums were awarded :

Elliott Cresson gold medal to W. G. A. Bonwill, for his electro-magnetic mallet for dental purposes.

Scott Legacy premium and medal to C. Tyson, for his machine for uniting the soles to boots and shoes; to Morris L. Orum, for his flexible mandril for bending metal pipes, and to Chambers, Bros. & Co. for their brick-making machine.

The Journal of the Institute.—The Journal, which is under the management of the editor and the committee on publication, has not been self-sustaining for the past year.

Drawing School.—The Board are able to report the night drawing school as having been reasonably satisfactory in its operations; although they have to state that in consequence of the general depression in business, its numbers during the year have been somewhat diminished. The attendance at the school in the Spring was 103, and in the Fall was 81.

Lectures.—The lectures given during the earlier part of the year, from Jan. 4th, to March 21st, were: by C. B. Dudley, on Artificial Ice; by Robert Briggs, on Steam Boilers; by Prof. E. D. Cope, on Paleontology; by Joseph Zentmayer, on Lenses; by Prof. P. E. Chase, on Physics; by Prof. Persifor Frazer, Jr., on Geology; by M. B. Snyder, on Astronomical Spectroscopy; by Prof. L. M. Haupt, on Tunneling.

The attendance on these lectures was generally good and on some of them the lecture room was crowded.

The lectures arranged for this Winter were of two classes, the one being of the usual popular scientific character, admitting of extensive

experimental illustration, and the other for elementary instruction. The subjects chosen for the latter series were the first principles of dynamics, and elementary chemistry.

Such series of elementary lectures were in former years given each season, and the privilege of attendance on them was considered one of the most valuable rights of membership, and they were undertaken the present season with the hope of renewing the interest formerly felt for them, and of extending this kind of instruction to the younger members, and to those who may hereafter become such.

The lectures given from Nov. 14th to the end of the year were six on Light, brilliantly illustrated, by Prof. E. J. Houston, and five on the first principles of Dynamics, by Prof. W. D. Marks. The attendance on these lectures has been larger than usual, and especially those on Light, when the Hall has been nightly crowded.

Prof. Houston also gave, gratuitously, in Christmas week, one lecture on "Familiar Science" to the children and wards of members, which was highly appreciated.

Phonography.—Courses of instruction in Phonography have been given in the Hall of the Institute since November last, by Mr. D. S. Holman, Actuary. These courses, introduced for the first time systematically in the Institute, have proved very popular and attractive, and promise to become a valuable addition to the useful work of the Institute. So great has been the interest awakened in this variety of shorthand, by the efforts of Mr. Holman, that the number already registered in his classes reaches 131, and is steadily increasing.

Monthly Meetings of the Institute.—The attendance at the monthly meetings of members and strangers has been well maintained during the year, and interesting communications and noteworthy inventions and novelties have been presented and discussed on those occasions.

Library.—A statement of the condition of the library will be presented by the Committee on the Library.

The reports of the Committees on Models and on Science and the Arts will be read at this meeting, and will show what has been done in that connection.

Centennial Exhibition.—Believing that the objects of the Institute would be advanced by extending hospitalities to strangers visiting the Exhibition, the Board of Managers quite early secured a room in Machinery Hall for an office and reception room, where strangers

would be welcomed and could confer with some officers of the Institute on matters of mutual interest.

A Committee of Reception was appointed to take charge of the room and receive and give information to visitors. The report of this committee, submitted to the Institute at the last meeting, shows its operations.¹ To make the reception room the more useful to visitors, the Board directed the Secretary to ask publishers of desirable journals to donate for that use the numbers of their publications from May 1st to November 1st, which was very generously responded to by leading scientific and technical journals of this country and Europe.

The Institute also extended the free use of its library and reading room to all members of kindred societies at home and abroad, and this privilege was largely availed of by both private and official visitors.

Exhibitions.—It appearing to the Board that the holding of annual exhibitions by the Institute was not advisable, and that one in every three or four years would be often enough, and anticipating the great benefit to be derived from such an arrangement, the Committee on Exhibitions was authorized to correspond with other societies of like character in the Atlantic cities with the view to quadrennial exhibitions in Boston, New York, Philadelphia and Baltimore. This resulted in a convention² of the representatives of the Mass. Charitable Mechanics' Ass'n, of Boston; the Franklin Institute, and the Maryland Institute of Baltimore, and finally in the adoption by these societies of an agreement to hold exhibitions triennially (or quadrennially if the American Institute of New York will join in the arrangement) in their respective cities.

As one of the great difficulties hitherto encountered by the Institute in holding its exhibitions has been the procuring of a suitable building, and as the Machinery Hall of the Centennial Exhibition was built and is owned by this city, the Board of Managers petitioned Councils³ to maintain and preserve that building for this and other public purposes, which resulted in the adoption of the following ordinance, approved by the Mayor Dec. 12th, 1876:

¹ The proceedings of this convention will be found published in Vol. cii, page 291, JOURNAL OF THE FRANKLIN INSTITUTE.

² See Vol. cii, page 293, of the JOURNAL.

³ See Vol. ciii, page 8, of the JOURNAL.

“An ordinance for the retention, use, and management of Machinery Hall, in Fairmount Park.

“WHEREAS, The building recently used by the International Exposition, in Fairmount Park, and known as Machinery Hall, was built by and paid for with the money of the City of Philadelphia; and whereas, members of the Franklin Institute and other citizens have requested Councils that the building may remain, to be made available for useful purposes; and whereas, the Park Commission are willing that the said building may continue in its present location so long as the city desires it; therefore,

“Section 1. The Select and Common Councils of the City of Philadelphia do ordain:

“That Machinery Hall, within Fairmount Park, shall be permitted to remain until otherwise ordered by Councils, and that the same be placed in charge of the Park Commission, for the purposes of public exhibitions by the Franklin Institute, and such other purposes and objects, and under such regulations as the said Commissioners may deem expedient; the Councils hereby reserving to the city the exclusive ownership of the building, and the right to reclaim and remove it whenever they choose so to do.”

With a view to aid in the illustration of certain lectures, and to enable exhibitors to show at the monthly meetings the operation of their machines or models, the curators have been authorized, and have purchased a steam engine of six-horse power.

In conclusion, the Board of Managers feel that they can again cordially congratulate the Institute upon its increased prosperity, and its promising prospects in the future.

All of which is respectfully submitted.

By order of the Board.

R. E. ROGERS, *President*.

The Committees on Library, Models, and Science and the Arts, presented their reports as follows, which were adopted:

The Committee on Library would respectfully report that they have held monthly meetings with the usual good attendance. The catalogue of the books, which was in progress at the beginning of the year, was completed and printed in August, and makes an 8vo volume of 452 pages, and is a full and complete reference to all the books in the Library. The cost of this work was quite large, but in view of the increased usefulness of the Library, your Committee consider the outlay fully warranted.

The Catalogue, bound in cloth, is now for sale by the Actuary, at \$2.00 per copy.

The following additions have been made to the Library :

Bound volumes donated, including 420 vols. formerly deposited by A. Seybert,	599
Bound volumes purchased,	150
Number of volumes, Exchanges, bound,	266
“ “ British Patents, bound,	286
“ “ other books, bound,	147
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Total number of bound vols. added to the Library,	1448
Number of Pamphlets donated to the Library,	408
There are now in the Library bound vols. of British Patents,	2717
Indices to same,	66
Abridgments,	52
American Patents,	177
Total number of bound vols. in Library,	11,966

There is also a large number of unbound vols., but the number not ascertained.

Our set of British Patent Office publications, consisting of Patent specifications, abridgments and indices, is now full, with now and then a rare exception, and we are receiving the current numbers quite regularly, as also the Commissioner of Patents Journal, weekly.

The set of American Patents is complete from 1841 to date, so far as published.

There have been expended during the year, for the purchase of new books,	\$1260 84
There have been expended during the year, for binding books,	453 70
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Making a total, for the improvement of Library, of	\$1714 54
And there still remains a balance from the appropriation of \$5000 for the improvement of the Library, made Jan. 13th, 1875, of	1403 54
There were expended from the subscription fund, for binding British Patents,	115 25
And there still remains a balance of	71 15

As was anticipated at the beginning of the year, the attendance at the Library, and its use by members, is much greater than before, and is still increasing.

By order of the Committee. CHAS. BULLOCK, *Chairman.*

The Committee on Models respectfully report that very little has been done to the models during the year, for want of space in which to properly display them.

The Board of Managers at its meeting in December passed a resolution requesting the committee to report to the Board the extent and condition of the collection of models belonging to the Institute.

As there was no list of the models it was decided to take the measure of the larger and more important models and relics distributed about the room and to measure the shelves now occupied by the smaller ones.

One hundred and eighty models were measured and numbered, and entered in a book, and it is proposed to continue this at some future time to cover the whole collection.

The actual shelf room necessary to hold the models, when placed in contact with each other, is thus estimated at about 1000 sq. feet.

As models should have not less than twice their dimensions on the shelf, to display them properly, our collection will require 2000 sq. feet of shelf room.

Of all the models in the collection about one-third requires more or less repairs, and all need a thorough cleaning. There are a number of models of considerable historic interest in connection with the Institute, and a large number representing inventions passed upon by the Committee on Science and the Arts, and its predecessor, the Committee on Inventions; and a smaller portion are models remaining from early exhibitions; in fact the collection as a whole derives its greatest interest because of its connection with the work of the Institute. There are, however, many exceptions in which the models are in themselves of value, as representing progress in the arts, and for educational purposes.

While recognizing the advantages to be derived from the collection, if properly displayed, the committee, in view of the financial condition of the Institute, have not felt warranted in recommending the large appropriation necessary to accomplish it.

By order of the Committee.

C. CHABOT, *Chairman.*

The Committee on Science and the Arts would respectfully report that there has been an unusual amount of interest manifested by the members during the year, as well as a larger number of applications for reports on inventions.

The average attendance during the year at twelve stated and one adjourned meetings, was $30\frac{8}{13}$ persons, the highest number being 40 in May, and the lowest, 21 in July.

At the beginning of the year, there were pending applications for reports,	18
Number of applications during the year,	61
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	79
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Number of reports adopted during the year,	29
“ “ applications withdrawn,	3
“ “ “ dismissed,	9
“ “ “ pending Dec. 31st,	38
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	79

The medals recommended, and which were afterward awarded by the Board of Managers, were two, as follows :

The Scott Legacy premium and medal to Morris L. Orum, for his flexible mandril for bending metal pipes, and the Scott Legacy premium and medal to Chambers, Bros. & Co., for their brick-making machine.

The amount of money expended, during the year, for notices, is \$46.40.

By order of the Committee.

COLEMAN SELLERS, *Chairman.*

On motion the order of business was suspended and Mr. Wm. Welsh offered the following, which was seconded by Mr. J. W. Nystrom, and unanimously adopted :

WHEREAS, It is alleged and generally believed that the education of children in our public schools and in private seminaries, does not dignify labor or furnish the pupils with any special preparation for mechanical and other useful arts, and

WHEREAS, The Franklin Institute of the State of Pennsylvania was founded to promote and encourage manufactures and mechanical and useful arts by all such measures as its members may judge expedient ; therefore,

Resolved, That a Committee of seven members of this Institute be appointed, with power to confer with Boards of Education, Directors and Teachers of Schools, and with others interested in the special training of youth of both sexes, for industrial pursuits ; reporting to this Institute the result of their conferences, and the extent of the alleged defect in education, with such remedial measures as the Committee may deem practicable.

Mr. Welsh moved that the President be a member of the Committee, and that he appoint the remainder at his leisure, which was carried.

The Committee, as appointed by the President, is constituted as follows :

Wm. Welsh, *Chairman*, Dr. R. E. Rogers, Jas. S. Whitney, Wm. A. Ingham, Jos. M. Wilson, Enoch Lewis, F. O. Horstmann, and J. B. Knight, *Secretary*.

The President called Vice-President J. E. Mitchell to the chair.

The Tellers presented their Report of the Annual Election held this day, which was accepted, and in accordance therewith the chair declared the following members elected :

President, Robert E. Rogers, M. D.

Vice-President, Henry G. Morris.

Secretary, J. B. Knight.

Treasurer, Fred. Fraley.

Managers to serve three years, Prof. E. J. Houston, Enoch Lewis, C. H. Banes, Wm. Helme, Sam'l Sartain, Chas. Bullock, John Sartain, C. Chabot.

Auditor, Wm. Biddle.

Representative to the Penna. Museum and School of Industrial Art, J. B. Knight.

The Secretary presented his Report, which embraced a number of attachments for improving the draft of chimneys, and the heating and ventilation of buildings, designed by Mr. Wm. Welshⁱ; J. A. Lock's Paper Pulley-cover; Marsland's Water Meter; Specimens of tissue paper and cotton cloth, rendered incombustible by being saturated in Tungstate of Soda; and a cylindrical Holtz Electric Machine, made of Paraffined paper, designed and built by Prof. Elihu Thomson.ⁱⁱ

Mr. J. B. Knight, representative of the Institute in the Board of Trustees of the Penn'a Museum and School of Industrial Art, presented the following report :

PENNSYLVANIA MUSEUM AND SCHOOL OF INDUSTRIAL ART.—At the meeting of the Institute in June last, I made a Reportⁱⁱⁱ covering the principal features in the progress of the association up to that time, and would now present the following :

It having been the original intention in organizing the museum, to take advantage of the opportunities offered by the International Exhibition, and the subscriptions having reached an amount which

ⁱ ⁱⁱ Descriptions of the Ventilating apparatus of Mr. Welsh, and of the Holtz Machine of Prof. Thomson, are necessarily deferred to the next number of the JOURNAL.

ⁱⁱⁱ See JOURNAL for August, 1876, page 79.

warranted the expenditure, the Board appointed a Committee on Selection, and clothed it with authority to purchase at the exhibition, suitable objects for the museum collection to the value of \$25,000. With this, and under special appropriations, they have made very judicious purchases to more than \$33,000. The promises of assistance and donations from foreign commissions, referred to in my former report, have been fully realized, and by them many valuable additions have been donated to the collection.

The Board of Trustees, in its Annual Report, acknowledge the great interest in the museum manifested by persons outside of Philadelphia, and especially to that of Mr. P. Cunliffe Owen, of the South Kensington Museum, London, who, among other important acts, has secured permission from his government to have reproduced for our Museum, a number of pieces of royal plate of great historical and artistic value, now in the Tower of London.

The Board was also fortunate in having secured Dr. Christopher Dresser to deliver under its auspices, three lectures on Industrial Art Education, which were of great value, both from their intrinsic merit and the marked influence they had in directing attention to the importance of the work undertaken by the Museum.

The Governor of the Commonwealth, in his recent message to the Legislature, again pointed to the necessity of Industrial Art Education, and refers to the important part to be borne by the Museum, and asks the Legislature to "seriously consider whether * * * the "State ought not to extend a hand to place upon a firm foundation "a work of so much public utility."

The time of occupying Memorial Hall is necessarily somewhat delayed, in order to make the required preparations for receiving and arranging the objects; but it is expected that the Museum will be opened to the public during the coming Spring.

Meanwhile, with a view of bringing the Museum more prominently before the public, the Board of Trustees authorized the holding of a temporary exhibition, consisting of such objects from its own collection as are available, supplemented by objects loaned from private collections. Arrangements were made with the Academy of Fine Arts for the use of the south tier of galleries in its building, and the exhibition was opened on Jan. 16th, and will continue open until March 31st.

It will be remembered that one of the principle means to be employed by the organization in its work of improving the character of

our manufactures, is the establishment of Schools of Art, as applied to the industries, where drawing and designing, in their more advanced stage, shall be thoroughly taught. A widespread interest is manifested by our citizens, and there has been much inquiry regarding the opening of the schools, and which, with other evidence of a strong demand for such instruction as shall be available in making a livelihood, shows that the time is ripe for the establishment of the Museum's schools. The Board of Trustees has been unable as yet to complete the details necessary to put them in operation, but timely notice will be given of the opening.

The members of the museum, realizing the great public importance of giving a more practical direction to the instruction in our public schools, and how much the work of establishing art schools will be advanced thereby, adopted a Report from its Committee on Education on that subject at the Annual Meeting of the Corporation, held Jan. 8th, 1877, in which reference is made to "the position of Philadelphia as a manufacturing city, and to the fact that the large majority of the children being educated at the public expense, are the sons and daughters of those engaged in the multifarious industries of the city, and who in their turn will become mechanics and artisans. * * * * Heretofore, it is well known that the instruction in our schools, most excellent of its kind, has been almost exclusively of a literary character, and * * * * would, no doubt, be of the greatest value to a resident of a city devoted to letters or to mercantile pursuits, but in such a city as our own, where the whirl of the loom, the stroke of the hammer, and the countless sounds of a people actively engaged in industries of the most practical character, daily strike upon the ear, your Committee are of the opinion that the present plan of instructing the young of Philadelphia is by no means complete, and that here especially the study of drawing should be enforced as an essential branch of education.

"The establishment of a complete system of Industrial Art Education by this Corporation, will supply opportunities for the instruction and training of teachers, which will obviate the necessity of the very large expenditure involved in the formation and support of a normal Art School."

Owing to the very depressed condition of business, the difficulties in obtaining subscriptions to any enterprise of this nature, have been very great, but under the circumstances the success of the museum in

this regard, is considered quite encouraging, the amount secured up to Dec. 31st, 1876, being \$70,000, and the number of persons elected members is one hundred and fifty.

It is important, however, to keep in mind the fact that the Museum is supported entirely by subscription, and I would urge upon the members of the Institute the importance of increasing the membership and the subscriptions to its fund, thus enabling it to assist in carrying out the principle upon which the Franklin Institute is founded—the promotion of the mechanic arts.

Members and subscribers have the following privileges :

Life Members paying one hundred dollars, and Subscribers to the amount of two hundred dollars, are entitled to one season ticket annually, or in lieu thereof, to twenty-four single tickets of admission to the Museum and its collections for each one hundred dollars subscribed.

Annual Members paying ten dollars yearly, are entitled to one season ticket and sixteen single admission tickets, or in lieu thereof, to forty single admission tickets.

As showing the intimate connection between the Museum and the Institute, I would call your attention to the fact that out of thirty-two Trustees composing the Board, thirteen are Members of the Institute, and five of these are Members of the Board of Managers of the Institute, and one of these, Mr. Coleman Sellers, is President of the Museum.

J. B. KNIGHT,

Trustee in behalf of the Franklin Inst.

Mr. F. M. M. Beall offered the following :

WHEREAS, A bill is at present pending before Congress, asking aid for carrying into execution the scheme of Capt. H. W. Howgate, of the Signal Service, for reaching and exploring the region about the north pole on the plan of colonization,

Resolved, That the Franklin Institute approve of this plan, not only for its economy, but for its apparent practicability, and believe it to be the most feasible plan yet offered.

On motion of Mr. Close the consideration of the subject was postponed to the next meeting.

On motion, the meeting adjourned.

J. B. KNIGHT, *Secretary.*