

fact in regard to the growth of a piece of cast iron when heated repeatedly; then, so long as the heating will be repeated the growth or the expansion of the cubic contents of the piece of iron will continue? No! there must be a limit to the action of the gas, and that is when the cavities become too large and the pressure on the iron walls of the cavities must cease.

Yours respectfully,

E. GOLDSMITH.

658 N. TENTH STREET,

PHILADELPHIA, February 11, 1904.

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## Notes and Comments.

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### ELECTRIC RAILROAD CAR LIGHTING IN GERMANY.

As a result of many tests of various systems of railroad car lighting in Germany, the Prussian State Railway Administration has finally settled on a direct system of lighting from a single generator with a steam-driven dynamo, located on the locomotive, under the control of the engineer; also auxiliary or regulating storage batteries placed on each car of the train, thus rendering the lighting system on each car practically independent, its lights being assured a constant supply of current from its own accumulators, which accumulators are kept charged by the dynamo on the locomotive. It is stated that this combination meets more perfectly than any of the others the requirements of simple, economical and efficient construction, maintenance and attendance in regular service.—*Iron Age*.

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### ACETYLENE FROM CALCIUM CARBIDE.

A yield of 5 cubic feet of acetylene gas from every pound of calcium carbide is guaranteed by manufacturers in the United States. In Germany acetylene gas is mixed with a gas of lower candle-power, containing about 25 per cent. acetylene, and used in railroad cars.—*Engineering and Mining Journal*.

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## Franklin Institute.

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[*Proceedings of the stated meeting held Wednesday, February 17, 1904.*]

HALL OF THE FRANKLIN INSTITUTE,  
PHILADELPHIA, February 17, 1904

Vice-President JAMES M. DODGE in the chair.

Present, 106 members and visitors.

Additions to membership since last report, 16.

The following resolution was adopted with unanimity:

“*Resolved*, That the President and Secretary be directed to extend to our sister Society, the Maryland Institute for the Promotion of the Mechanic Arts,

in Baltimore, the sincere regrets and sympathy of the Franklin Institute for the misfortune it has suffered in the destruction by fire of its building and equipment, and to express the hope that the Maryland Institute may speedily recover from this disaster, and enter upon a new career of usefulness."

The discussion announced for the evening was opened with a brief paper by Mr. Charles Day, on "The Electric Motor in the Machine Shop," which was illustrated by a number of lantern photographs, showing a variety of modifications of motor driving, adapted to meet the varying conditions found in machine shops.

Mr. Day was followed by Mr. H. B. Emerson, of the General Electric Company, Schenectady, N. Y.; Wm. Cooper, Cincinnati; Prof. Wm. D. Marks and others.

Mr. C. J. Reed described and exhibited in operation a "Variable Speed Controller" of his invention, which is designed to meet the requirements of motor driving.

The paper, with discussion thereon, has been referred for early publication.

The recent destructive fire in Baltimore was the subject of comment by Mr. Wm. McDevitt, Chief Inspector of the Philadelphia Fire Underwriters' Association, Dr. Henry Leffmann and Mr. Louis E. Levy. The latter exhibited and explained a number of lantern photographs, which illustrated the character and extent of the conflagration. Dr. Leffmann made a comparison of the areas covered by a number of the great fires in various cities of the world, which have become historic by reason of their magnitude and destructiveness. Mr. McDevitt treated the subject from the viewpoint of the fire and insurance expert.

The chairman announced the appointment of the several standing committees of the Institute for the current year.

Adjourned.

WM. H. WAHL,  
*Secretary.*

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## Committee on Science and the Arts.

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(Abstract of the proceedings of the stated meeting held Wednesday, February 3, 1904.)

MR. CHAS. E. RONALDSON and PROF. LEWIS M. HAUPT in the chair.

Prof. Lewis M. Haupt was elected chairman of the committee for the current year.

The following reports were acted on:

(No. 2164.) *Steam Generator.* John C. Parker, Philadelphia. Final action postponed.

(No. 2246.) *Enclosed Arc Lamp.* John Allen Heany, Philadelphia. Referred back to sub-committee.

(No. 2255.) *Joint for Rail-bonding.* C. B. Voynow and H. B. Nichols, Philadelphia.