

the same horse travelling three miles per hour can only carry 81 lbs., four miles per hour, 64 lbs., five miles per hour, 49 lbs., &c. Then there comes a time or rate when the horse can with great difficulty move his *own* weight *only*—not an ounce or fraction more. Then what becomes of the 33,000 lbs.?

Some will say that he is overcoming or moving against atmospheric resistance. True, but he is an expensive ornament only, which men concerned in matters of this kind would not keep up.

If the horse could keep up this high speed and go around the world, when he got around to the 33,000 lbs. again, he would not have moved or raised it the 1,000 part of an inch. This fact is but little understood by engineers, as any can tell who understands his business or gives the subject a thought.

Again, if a horse moves a carriage on a level road at the rate of $2\frac{1}{2}$ miles per hour, and exerts x lbs., at 4 miles it would be $2x$, &c.

Mr. Galt was all tight until he said it did not matter at what rate the horse was moving or travelling, and took the average horse; then he struck a hidden snag.

A h. p. is a power that can raise 33,000 lbs. 1 ft in one minute travelling at the rate of 220 ft. per minute, (see any of the authors quoted). *The reason that 33,000 lbs. is not multiplied by 220 in the text books is that 220 ft. per minute is the standard rate at which the horse is travelling.* Any one who has watched horses on a race course or have themselves run a foot race know this, or ought to know it.

Seeing is believing, but feeling is the naked truth, so is it with theory and practice. *Theory will not stand alone.* As a rule, there is too much theory and conservatism in our schools and colleges. Practice goes before theory every time. Theory is founded on practice.

C. W. ROSS,

C. & M. E.

THE N. E. L. A. CONVENTION.

MEETINGS of the Executive and Exhibition Committees to consider the advisability of postponing until September the Electric Light Convention to be held in Montreal, were held in that city on the 8th and 9th of June.

The following gentlemen were present: C. R. Huntley, president of the Association; F. R. Redpath, of the Redpath Refinery; Profs. Bovey and Cox, of McGill University; M. D. Barr, of the Edison Company in Toronto; W. J. Morrison, Fort Wayne Electric Company; Fred Nicholls, of Toronto Incandescent Electric Light Company; H. H. Fairbanks, of Worcester (Mass.) Electric Light Company; E. F. Peck, Citizens' Electric Illuminating Company of Brooklyn; J. W. Beane, secretary and treasurer of the Association; S. C. Stevenson, Council of Arts and Manufactures, Montreal; A. J. Corriveau, Canadian Electrical Construction, Manufacturing and Supply Company; and John Carroll, Eugene Phillips Electrical Works, Montreal.

The members of the above Committees were cordially welcomed by the Mayor and Ald. Stevenson on behalf of the City Council, and by ex-Mayor Beaugrand especially on behalf of the French-Canadian citizens.

Professors Bovey and Cox, of McGill University, and Mr. John Carroll, of the Phillips Electrical Works, representing the Reception Committee, read the following report:

MONTREAL, June 8, 1891.

The committee has held three meetings. A Reception Committee is being formed which already includes a large number of the most influential citizens of Montreal.

His Excellency, the Governor-General, has signified by letter that if the visit of the Association takes place in September, he hopes to be present, but under any circumstances will be glad to give his patronage to the meeting.

A number of plans for offering entertainment to the Association have been considered, but the final adoption must depend upon the date adopted for the visit, and the programme of the Association. Among the suggestions already considered by the committee are plans for a citizens' ball, a lacrosse match, an excursion to the Rapids, drives around the mountain, a promenade concert at Sohmer Park, visits to the G.T.R., C.P.R., and Dominion Bridge Works.

A Press Committee and Ladies' Committee will be formed, and special entertainment provided for the ladies of the association.

The officers of the Executive Committee, with Mr. John Carroll, were instructed to wait upon the executive of the association on June 8, and convey to them a cordial welcome to Montreal.

The report was enthusiastically received and adopted.

After due deliberation, it was decided that the Convention

should open on the 7th of September, and that the Exhibition should remain open each day and evening from the 7th to the 16th inclusive, during which time the machinery will be in motion.

The powers and duties of the Exhibit Committee were defined, and the following local sub-committee appointed to co-operate with the chairman of the Executive in carrying forward the exhibition arrangements: F. R. Redpath, chairman; Prof. Bovey, Prof. Cox, Fred. Nicholls, S. C. Stevenson, John Carroll and A. J. Corriveau.

The Executive Committee took into consideration the papers to be read at the Convention and a number of other important matters.

The outlook for a pleasant and profitable convention were never so bright. The demand for space at the Exhibition is so great that it is thought extra accommodation may have to be provided.

MONTREAL BRANCH NO. 1. C.A.S.E.

THE meetings of this Branch during the month have been of unusual interest and were well attended.

On the 4th Thursday in May an interesting discourse on "Indicator Diagrams and the Method of Finding the M. E. P. by the Hyp. Log," was delivered by Mr. Thomas Norton.

The meeting held on the first Thursday in June was devoted to a discussion of "The Expansion of Steam," by several members.

At the second meeting, Messrs. Thompson and Nadin gave a number of rules for ascertaining the speed of pulleys, transmission of power by belts, also for bracing boiler heads.

Mr. H. Nuttall, at the third meeting told in his own amusing way of his experience with a gas engine, one of which he described as a Turkish bath of four hours duration. Mr. Thompson at this meeting worked out on the blackboard several safety valve problems. In this connection it should be remarked that the blackboard is an excellent institution which has come to stay.

At the fourth meeting Mr. John Oades gave a short lecture on "The Errors of the Lever Safety Valves," illustrating his subject by means of drawings. He did not conclude his remarks, it being his wish that the members should give the subject further thought and come prepared to renew discussion upon it at a future meeting.

Four applications for membership were received during the month.

The members of the Montreal Branch extend to those of the western branches their best wishes for an enjoyable time at their picnic.

TRADE NOTES.

The Royal Electric Company have installed a motor plant in the large wholesale warehouse of E. A. Small & Co., as well as a large number of fan outfits.

The Royal Electric Company are making an addition of a 150 light dynamo and the necessary lamps, etc., to the plant already installed in the Hotel Delotinbiere at Vaudreuil.

The Royal Electric Company are building two 1500 light alternating dynamos for their lighting station in Montreal, and are busy preparing plans, etc., for a 3,000 light dynamo.

Messrs. Robin & Sadler, of Montreal and Toronto, have lately manufactured and put in operation in one of the Royal Electric Company's stations in Montreal, a 3-ply leather belt about 100 feet long, 38 inches wide.

A company has recently been formed to purchase and put in operation the rubber factory at Port Dalhousie, Ont., which has lain idle for a number of years. The promoters of the company, which has a capital of \$200,000, are: Capt. S. Neelon, of St. Catharines, and Messrs. T. Mellroy, J. McPherson, Taylor, M. Matheson and Pearson, of Toronto. It is stated that the works will go into operation at once. The development of electrical industries has largely increased the demand for rubber goods.

PUBLICATIONS.

We have received from the Dodge Wood Split pulley Co., of Toronto, a copy of their new catalogue for 1891 numbering 36 pages.

The June *Areia* which opens the fourth volume of this able review is unusually attractive. A fine picture of Bishop-elect Brooks, printed on card-board paper suitable for framing, is given as a supplement with this number. The frontispiece is a steel engraving of the editor, who contributes a paper of great interest on "Society's Exiles," dealing chiefly with life in the slums of Boston. The interest in this paper is enhanced by the admirable reproduction of ten flashlight photographs taken in the North End of Boston expressly for this contribution. These pictures, together with a full-page engraving of the artisans' apartment house, recently erected in Liverpool, are printed on heavy plate paper.