

The mountings and fittings of the boilers are in keeping with such a high class plant and leave nothing to be desired either in appearance or in completeness and convenience.

THE question of the enlargement of the canals of the St. Lawrence route, so as to admit of the larger sea-going vessels coming up to the great lakes, has been discussed at various times for the last thirty years, but until now the subject has never been taken hold of by any large body of Canadians acting in unison. Now, however, this great question will be discussed by a large gathering of Canadians from various provinces, and will include also delegates from American centres interested in the lake and ocean navigation. Prominent merchants, steamship owners and delegates from Boards of Trade will be represented in large force at this convention, which meets at Toronto on September 17th, and the various phases of the enterprise will receive a more thorough turning over than has ever yet been the case. That the day will come when ocean-going steamers may reach the great upper lakes without transshipping of cargo seems a certainty. Whether the enormous expense can yet be undertaken by this Dominion alone is one question, and another question is whether Canada would be justified in shouldering the whole of this outlay for a scheme which would benefit some of the American lake ports far more than it would the Canadian. If the American Government would contribute a fair share of the expense without claiming any national right in the canal works or the route itself, the way would be tolerably clear, but the great majority of Canadians would certainly object to any alienation of their territorial rights.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.

Continued from Last Month.

Mr T. R. Almond said that the molecular condition of metals was not as closely considered as it should be. After putting a metal under a great strain, time ought to be allowed for it to get back into its normal condition. Until it did get back to its normal condition, it would be constantly trying to get back. He had once found that a lot of coiling wire which he had thought useless and which he had put through a bath, had thereupon resumed its normal condition. He did not agree with Mr. Cary when he thought that for a bath to put the tension into good condition again, great heat was required. He himself had done it with a change of temperature not exceeding 150 degrees. He did not think any metal could be made to undergo any electric process without any alteration in it being manifested. The molecules were sure to want to return to their original and proper condition.

Mr Henning stated that different tubes for different pressures were sometimes used with advantage. In an ordinary case the tube never returned to its original condition. With regard to the Bristol tube, this did so, however, and there was no mechanism to retard it. The question he asked was whether the expansion of the tube would not alter the reading? He then made some remarks upon the different forms of recording sheets used, and said with the flat sheet used by Mr. Bristol, one could go on for a long period with the same paper. Mr. Henning said the inscribing liquid's friction between the pen and paper was there, though this friction might be very slight. The liquid consisted of a combination of glycerine and aniline colors.

J. McBride agreed with Mr. Henning's remark about the creation of friction.

Mr. Cary said the matter had been discussed considerably in the courts whether steel was affected under a temperature of 300 degrees, and it had been decided that no appreciable effect was produced under such a condition. The best temperature was between 400 and 600.

F. Richards' paper on "Compressed Air" was then read.

Prof. Jacobus stated that the plan adopted on certain cars run on the compressed air system was to pass the air through hot water, it being partially evaporated. The problem was how to get a motor

combining the full advantages of compressed air and of the hot-water process

The next paper was one by A. W. Robinson on "The Relation of the Drawing Office to the Shop in Manufacturing."

L. S. Randolph wrote on a few points raised in Mr. Robinson's paper, mentioning that a very good plan was to have all orders written. This would ensure full responsibility on each employee, and would have a very good moral effect

In the afternoon a special train was courteously placed by the G. T. R. Company at the disposal of the delegates for the trip to Lachine. At Lachine wharf they changed into a steamer, furnished by the harbor commissioners, and were conveyed down the rapids and past the city of Montreal as far as Long Point, viewing the dredging operations and harbor works on the way. After partaking of refreshments on board, the Engineers and their companions disembarked at Montreal after a very pleasant outing on the St. Lawrence.

Wednesday evening was taken up with a reception to the members and their ladies by Sir Donald Smith at his house on Dorchester street. The reception proved to be one of the most brilliant social re-unions which has ever taken place in Montreal. The list of distinguished Montrealers who were present to meet the American visitors is too long to repeat, but amongst them were Lady and Miss A. VanHorne, Sir Joseph Hickson, Mr. Claude and Miss Hickson, Chief Justice Sir Alexander and Lady Lacoste, Dr. Craik (Dean of McGill College), Dean and Mrs. Johnson, George Brush, Dean Bovey, Prof. Cox, Granville Cunningham, I. C. Keefer, W. Laurie, Frank R. Redpath, P. W. St. George, F. L. Wanklyn, Prof. J. T. Nicolson, G. H. Duggan, G. H. Garden, Mr. and Mrs. Cantlie, Dr. and Miss Adami, Mr. Justice and Mrs. Wurtele, Judge and Mrs. Archibald, etc., etc.

THURSDAY, 7TH JUNE.

The morning session was devoted to professional papers, the first on the list being R. H. Thurston's, on the "Theory of the Steam Jacket: Current Practice."

Mr. Hague remarked that it was sometimes forgotten that a jacket's real and most important use was to lessen condensation. This he thought had not been brought out sufficiently in the paper under discussion.

Albert F. Hall said that while the use of jackets did not very materially affect the working of some engines, yet, at the same time, for some they were absolutely essential. The Pawtucket, for example, could not be run without them.

G. J. Rockwood animadverted on the habit of many scientific and technical men to dogmatize. There were many authorities on the steam engine, and they were all equally sure of their facts, and yet nearly all of them differed the one from the other in a remarkable manner. He went on to say that at the present day there existed data sufficient to upset the whole basis of this paper. The proper thing to do would be for them to rest on their oars for say ten years: it was of no use laying down the law in the present state of things.

Prof. D. S. Jacobus then read his paper giving the "Results of Experiments with a 50 h. p. Single Non-Condensing Ball and Wood Engine, to determine the influence of Compression on Water Consumption."

The Professor showed that for either equal amounts of work produced, or for equal points of cut-off, the cushion steam in an engine should not, in general, be compressed as high as the initial pressure in order to obtain the best economy; but to some lower pressure governed by the amount of drop at the end of expansion, thus verifying conclusions arrived at by theory in the past.

Prof. J. H. Barr gave results of some experiments showing that a variation of pressure generally tended to an alteration in the consumption of water.

F. H. Ball presumed that the difference in results between Prof. Jacobus, and those of Prof. Barr, was due to differences between the engines experimented on. He stated that Prof. Barr would shortly be carrying on some more experiments, and no doubt the results would be shown more accurately then.

Prof. Jacobus briefly enunciated one or two theories to account for the dissimilarities between Prof. Barr's results and his own.

The secretary read Frank H. Ball's paper on "Cylinder Proportions for Compound Engines, determined by their Free Expansion Losses."

Prof. Jacobus said there was need for more experiments before it could be stated exactly how much the use of a compound engine reduced cylinder condensation. He was of opinion that they should make each engine do its very best in each range of pressure, and stated that he would carry on some experiments himself in