

The Transmission of Power by Compressed Air.

At the ordinary fortnightly meeting of the members of the Manchester Association of Engineers, held on Saturday last, at the Grand Hotel, Manchester, T. Daniels in the chair, an interesting paper was read by W. J. Jenkins, Assoc. M.I.C.E., and M.I.Mech.E., on "The Transmission of Power by Compressed Air." He said the modern tendency was towards the centralisation of light, heat and power, and a system was needed to cover the wide field of usefulness between the limits of the hydraulic and the electric systems. The hydraulic system, though admirably adapted for the transmission of power to slow moving, evenly loaded, and intermittently working machinery, soon fell short of commercial possibility when speeds were higher, loads variable, and constant working desirable. To cover the whole range of modern requirements, there were few systems that were equal to the transmission of power by compressed air. Many of the established plants for this purpose were, however, costly in the way of being owing to defective apparatus; and Mr. Jenkins proceeded to describe some of the modern improvements in compressors, the remedies for defects in valves, and the loss from leakage and friction. Dealing with the question of air engines, or motors, he said he could not too strongly urge the importance of arranging these in such a way as to render impossible the using of the air expansively. It had been the custom to use compressed air in a most expensive way, that was to say, with practically no expansion. To render the system highly economical, however, it was necessary to use expansion and to do so carried with it the other condition that heat, in one way or another, must be added to the air before or during expansion, to make up for the work being done, and to keep the temperature above the freezing point, after exhaust. With good arrangements, a quarter of a pound of coke burnt per hour per indicated horse-power, was sufficient to heat the air required in a moderate-sized expansive engine, and such a small matter as, say, 5 lb. of coke per hour, for an engine indicating 20-horse power, was not of great consequence, when it enabled the efficiency of the whole system to reach 85 per cent. In conclusion, Mr. Jenkins pointed out the general economy and usefulness of the system, and the almost infinite variety of purposes to which it could be applied.

In the discussion which followed the reading of the paper, Mr. Saxon said the author seemed to think the cost of the system quite an indifferent question, but the first condition was a very important consideration. Whether they were to work it from a central station or not, they must have a boiler and engines, and complete compressing plant, and he thought the first outlay would operate against it a great deal. The system was no doubt a valuable one, in certain cases, such as tunnel boring, but he would like Mr. Jenkins to explain the failure of the Birmingham scheme.

Mr. T. Lewis remarked that there was a difficulty with regard to waste in air compression. It was not so much like water, as it like gas or felt like electricity; it passed away through small pores, sometimes to an enormous extent. He was surprised the author had not brought before them the Birmingham design of Mr. Surgeon. Air was indeed valuable for certain purposes, as, for instance, for drilling machinery in mines.

Mr. Rea thought that air compression would become very useful for driving motors in large cities from central stations.

Mr. West said twelve years ago he introduced a compressed air plant for working striking machinery in the Manchester gasworks, alongside hydraulic machinery, and he might say that the first cost of the air-compressing plant was less than that of the hydraulic, whilst the

power was considerably more efficient, although the air-compression system was not then so far advanced as it was now. It was also more economical than hydraulic power, whilst it cost less for wear and tear, which was a very important item. With regard to the failure of the Birmingham scheme, that was due to its not being worked on scientific lines; the leakage in the mains was something considerable, and the machinery, compressing machinery, far from perfect. In Portsmouth Dockyard they had adopted for some time past a large system of air-compressing machinery, and it had done its work most efficiently. The engines worked by air did not get out of order as soon as those worked by water.

The chairman said he would like to know whether lead or leather would not do for joints?

Other gentlemen having spoken, Mr. Ashworth moved a vote of thanks to the reader of the paper, which was seconded by Mr. Saxon, and Mr. Jenkins in responding, remarked that the cause of the Birmingham failure was exactly as Mr. West had indicated. With regard to cylinders, he thought dry cylinders were much preferable to watery cylinders. The question of freezing was one of the great difficulties with compressed air, but this could be remedied by heating the air before it went in. With regard to the use of lead and leather for joints, he might state that they used copper rings at first, but, in his opinion, nothing was equal to the ordinary flanged joint.—*Colliery Guardian*.

Decimal System in England.

Whenever and wherever the decimal system is seriously discussed, be the discussion in relation to its suitability for weights, measures or currency, the objections that can be raised against it are few, while the conveniences to be gained from it are many. Whether it be for internal purposes of ordinary trade and account keeping, or for the purposes of "the largest foreign trade of any nation in the world," the advantages to be derived from the use of decimal appear so obvious, that, their adoption in a commercial country like the United Kingdom ought not to have been delayed as it has been. It would savor, in these glad days, of touching on ancient history to hark back to the various Commissions and Committees that have from time to time reported on the necessity for the British adoption of the decimal system. It has been demonstrated long since, *ad nauseum*, that the time saved in education alone, to say nothing of that which would be saved in business, would fully repay the nation for a momentary perplexity arising from the changes that would be necessary. Of the utility of the system in education, the late Minister responsible for the department accorded recognition by ordering its inclusion in the code. As to foreign trade, it is common knowledge that every materially important nation on the earth's surface has adopted decimal for its currency, if not for its weights and measures. Strong in the almost unanswerable case that the recent deputation to the Chancellor of the Exchequer had to present, they were justified in expecting more encouragement than they obtained. Mr. Goschen was, by comparison, a measure of good cheer, heaped up and flowing over, to the present controller of the Exchequer. Mr. Goschen frankly and fairly told the deputation that waited upon him, several years since, that "education of the people" was what was wanted; this was not a matter in which the Government of the day could move without being urged by definite and distinct expression of favorable public feeling, and especially on the part of the working classes. This cue from one eminently fitted to advise in financial matters has been persistently followed up. The subject of decimals having been put in the code, together with the metric system of weights and measures, school boards all over the king-

dom have been urged, and have—to their credit—decided, to give this part of the school curriculum particular prominence. Trades councils, also, in many centres—the Trades' Union Congress itself—have passed resolutions in favor of the adoption of the system. Representatives of all the professions, and others well able to form opinions as to the relative values of the proposed and present systems, have given their adhesion to the reform.

However, the deputation of the 25th of January, which, while numerous, was also representative, did not presume upon the soundness of their position to suggest any extreme or drastic measure. They modestly urged, as a preliminary step, that a new inquiry should be instituted, which Samuel Montagu, M.P., anticipated would lead to the "complete success" of the decimalists. Having heard the views of various members of the deputation, the Chancellor of the Exchequer opened his reply by the encouraging remark that he at least required no conversion. "Everybody," he said, "who had reflected on the matter must see the great advantages which attach to a decimal system." But having gone thus far, he preceded to launch out into the difficulties—some real, others frivolous—which he surmised had to be surmounted before her Majesty's Government could seriously consider the question. One of our daily contemporaries taking up the discouraging phase of the Chancellor of the Exchequer's response, said: "It is not often that Sir W. Harcourt finds himself in a position to administer a thorough scolding, without any apprehension that the indulgence of that pleasure will cost his party valuable votes. He accordingly availed himself of it to the full." We have naught to do with the political leanings of any minister or of any member of parliament, but, if the contention of the contemporary we have quoted is well founded, then it is matter for serious protest. We fully expect the request for an inquiry to be persisted in, notwithstanding the temporary rebuff; and it is to be hoped that such an inquiry will be granted. The "poor man and his penny" savors very much of co-cession to a policy of opportunism. But, to push the point, as it has been pushed, is to discredit the intelligence of the working classes, which for other affairs of State is considered beyond reproach. We refuse to believe that those who form "the great mass of the people" will not welcome the change if it be brought about judiciously. Even were this not the case, this reform appears to us to come within the sphere of those questions where statesmen should lead and not be led. It is a complement to the educational system of the country from which that system has much to gain and nothing to lose in the way of efficiency. Meantime it is evident that the agitation must spread, that information as to the advantages of decimals must be widely diffused, and there can be no doubt of the ultimate result.—*London Chamber of Commerce Journal*.

Cigar Industry in Florida.

The following figures, given by the Florida Times-Union, show the increase in the cigar manufacturing industry in Florida:

Cigars manufactured . . .	156,879,627	145,878,583
Pounds of tobacco used	2,778,142	2,874,375
Cigarettes manufactured	1,371,290	1,321,700
Pounds of tobacco used	4,007	3,901

"Florida is the fourth state in the Union in the manufacture of cigars and in the amount of tobacco used in their manufacture, and the industry is a prosperous and growing one."

Revelstoke is petitioning for a branch of the Molson's bank. It is not decided yet whether that institution intends extending its business to the west.

The C. P. R. Co. is asking for tenders for the clearing of the right of way of the Revelstoke and Arrow Lake railway, from Revelstoke to the head of Arrow Lake, also for the construction of a station at Agassiz.