

# Electricity Notes.

## Dullness of Business.

Throughout business circles in Britain there is the complaint that the electric manufacturing industry is in a bad state through overcompetition, which it is impossible to regulate in any way, all attempts having failed signally. The last of these was an understanding in regard to engine prices in consequence of which a code of rules was accepted binding every tenderer to add five per cent to every engine price. Every manufacturer cordially agreed, and every one of them carefully balanced matters by reducing the dynamo price in proportion. The consequence was a collapse of the agreement. An understanding is now talked of among manufacturers as to minimum prices, and for a time before the mail left there was hope, but at the last moment it was found that two or three strong firms were resisting, and hope departed. A section of public opinion was openly declaring that the business has a fascination about it which has led to overproduction, and contends that if that is so, the best thing, in fact the only sound thing, is to let the situation clear itself by the time-honoured process of the survival of the fittest.

## Municipal Telephones.

In this country we like to have our growl at everything, including the telephone system, but no one has ever gone so far as to propose the substitution of private enterprise for the State control which is both cheap and effective. In the land of our fathers the matter is viewed with different eyes. Just at present the municipalisation of the telephones is much under discussion and with results not altogether favourable to the municipal principle. The leading case among those discussed is that of the Town of Portsmouth, where the Town Council has been for years working the telephone system. At the investigation made a great deal of complaint was established that the management had charged revenue to capital, had six pages of bad debts, extending back to the beginning of the undertaking, that they had had defalcations, that names of men who had no existence were on the pay rolls, that the disconnected stations were never deducted, that therefore the statistics were not trustworthy, and that the undertaking had got entirely beyond the control of the Chairman. The Chairman admitted the indictment, and had nothing better to offer by way of defence than that the Committee, having thought the manager a capable man, was bound to regard him as such, apparently until something dreadful disclosed the contrary. The opponents of municipalisation are consequently making much capital. However, the old proverb about the mabily of a single swallow to make a summer has found its way out here and we can wait for more.

## Is this Final?

The remarks of a contemporary on the above subject are vigorous and not altogether without point — "The idea which possesses the heterogeneous combination of many minds forming a Town Council, that a young and inexperienced man, may, without any expert supervision, be entrusted with the sole management of a technical and progressive business, at a starvation salary of £200 or £300 a year, with the responsibility of a plant costing £50,000 to £100,000, a staff of a hundred or more, and a turnover of £10,000 to £20,000 a year, is a stupid notion. A dishonest and demoralising manager is of course the exception, though no such manager could remain in sole control of a private business so long as four years."

## Carbon Lamp Standards.

The long expected specification for Carbon Filament Glow Lamps was issued last January by the Engineers' Standards Committee, which regarded it as of exceptional importance. Certainly no single piece of electric apparatus stands in greater need of standardisation. The quality of some carbon lamps is, beyond question, very erratic. There is no independent check on it, and the makers' guarantees, — well, they are makers' guarantees. "It is well known" says an expert writer,

"that 220 volt lamps of 16 c.p. reputed 60-watt lamps, take anything from 70 watts upwards during their brief lives, and they vary widely in candle power." Under these circumstances it requires no stretch of the imagination to conceive of consumers paying for 16 candle power and getting only eight. Neither does it require any preternatural acumen to conclude that when they suspect they complain rather bitterly. There is the testing of lamps of course, but it is never quite satisfactory. Next perhaps to caloric values there is no measurement in common use in the electric industry which is so difficult to conduct with accuracy as that of the candle power and efficiency of lamps. The new standard having been adopted by the makers there will, it is expected in Britain, be a marked improvement in electric lamps.

## The New Standard.

The specification issued by the Engineering Standards Committee provides that the British light standard shall be 10 c.p. Veinon-Harcourt pentane lamp at the National Physical Laboratory, from which carbon-filament secondary standards shall be derived. The useful life of a lamp is completed when the mean horizontal candle power has dropped 20 per cent. Four classes of standard lamps are recognised, having lives of 400 and 800 hours respectively, and made for 110 and 220 volts; these are distinguished by reference letters, which also indicate the standard efficiencies. Thus for 16-c.p. lamps, A represents a 400-hour 50-watt lamp for 110 volts; B a 400-hour 60-watt lamp for 220 volts; C an 800-hour 56-watt lamp for 110 volts; and D an 800-hour 66-watt lamp for 220 volts. The reference letter (in a circle) voyage and M.H.C.P. are to be marked on each lamp bulb, with the name or trade mark of the manufacturer.

Tests are prescribed for mechanical defects, insulation resistance and vacuum, as well as for initial candle-power, efficiency and total watts, the candle-power is to be determined at standard pressure, while the lamp is revolving at 200 r.p.m. about a vertical axis. The average limits between which the results must fall are 8 per cent for the candle-power and 5 per cent for the total watts, but individual lamps are allowed about 60 per cent. greater latitude. The watts per M.H.C.P. are limited to 16 per cent. from the standard. Life tests are to be carried out on a circuit whose voltage is never more than  $\frac{1}{2}$  per cent. above normal, the pressure being adjusted at the start so that the lamp is burning at its standard efficiency, and the average total candle-power hours during the useful life must not fall below 90 per cent. of the standard figures. The ratio of mean spherical to mean horizontal candle-power is to be not less than 0.8.

The standard efficiencies for 8 and 16 c.p. lamps are as follows —

Class.	Life.	Volts.	Watts	
			c.p.	per c.p.
A	400 hours	100	8	3.25
			16	3.10
B	400 "	200	8	3.90
			16	3.70
C	800 "	110	8	3.75
			16	3.50
D	800 "	220	8	4.50
			16	4.10

Limit gauges are provided for testing cap dimensions.

## Employer's Liability.

We hear of much carelessness of employers and their neglect of the interests of their workpeople, but seldom does anyone tell of the other side. The following report of a fatality throws a powerful light on the risks which experts in the employment of others choose to run without any compulsion, simply for their own convenience. We take it from a London paper of last January.

In the City Coroner's Court on Friday, Mr. F. Danford Thomas held an inquest with reference to the death of Frank Wm Moore, aged 36 years, an installation inspector in the employ of the City of London Electric Supply Co. and lately living at East Dulwich Grove Peckham S.E. Frank Joseph Mackey, chief engineer in the electric lighting section of the Commercial Sale Rooms Mincing Lane E.C., said that three days prior to the deceased's death two men called at the sale rooms to make up an estimate this being a private generating station. On Tuesday last the deceased came officially to deliver this estimate and whilst there witness asked him what it would cost to run an exhaust fan electrically. They walked over towards the fans in use at the present time which were in motion but witness did not imagine for one moment that he would go near them, as he knew

the danger. The deceased knew every hole and corner of the room in which the electric plant was, and he knew that no one could go near the fans without a terrible danger to life. Witness turned round to see what the load was on the switch-board when he heard a sound like the crushing of a hat. He thought a bolt or belt had gone wrong so turned off the current, and, on going to see what the matter was, was horrified to find the deceased lying on the stone at the side of the fan shockingly mangled. So far as witness could make out he had attempted to get over the rail at the side of the fan with the idea of squeezing past the ten inches of space between the fan and the wall, and had been caught by the belt and been whirled round and round to his death. It was only the fact that the deceased knew so much of electrical work that could have caused him to take such an awful risk. So great had been the force with which the deceased had been dashed against the stones that they were smashed in many places. The fan was fixed on the edge of the wheel-race, and witness would never have attempted to go past the fan whilst in motion, and certainly never have allowed anyone else to do so had he been able to prevent it.

Mr. James Parker Buck, chief inspector, said his opinion was that the deceased was going to look to find a suitable place to fix a motor for the working of the fan by electricity. There was no doubt he ran a terrible risk.

Dr. Kaufmann, of Dunster House, said that death was due to terrible injuries, the deceased's left leg having been torn off and his skull fractured in many places.

The Coroner said that the curious part of the case appeared to be the fact that it was the deceased's knowledge of his business which caused him to be indifferent and run the risk, where a layman would not have attempted such a thing.

The jury returned a verdict of "Accidental Death."

## Contract Dodging.

In the Electric Circles of Britain there is much fluttering about an alleged German practice in the matter of contracts. This said that a secret Syndicate of large firms is in the habit of tendering at high prices for works where no competition is expected, and at cutting prices in case of rivalry, the losses in one case being made up for by the gains in the other. The remedy seems to be not to make a fuss in the newspapers but to tender. There is no other way of remedying a grievance caused by the spasmodic tendering which is the result of negligence to keep abreast of the requirements of the time.

## Electric Power in Germany.

As a commentary upon the doubts expressed in England as to the practicability of electricity in mines and other industrial establishments, the report of the Allgemeine Elektrizitäts-Gesellschaft, of Berlin, is full of significance. The Company's installation department," says this document, "was occupied last year chiefly by the coal and iron industries. The development of electrical transmission comes to the aid of the iron industry through the utilisation of waste gases for power, and, while the gas engine seems to predominate, the steam turbine is creating a rapid opening for itself at mines. The Company have recently put into operation the first electrical plant for driving reversible rollers. This mill is situated in Austrian Silesia, and it is the first one of the kind in the world, but the Allgemeine have several others in course of construction. At the Silesian mills the generators are driven by steam turbines. While many iron companies in Germany have put in continuous rollers driven by electricity, they were checked at the blooming mill; only the old-fashioned steam engine was thought adapted to do this heavy work, as it required repeated reversing of the rollers. As it is now demonstrated that electricity can serve reversing rollers successfully, iron manufacturers can electrify their plants throughout. That they will have great inducements for doing so is evident from the experience of the Silesian mill referred to, where it is reported that a 10 per cent saving of expenses has been attained." This should give the thick-and-thin advocates of the steam engine something to ponder.

## Bluing.

10 lb saltpetre, 1 lb black oxide of manganese. Heat (in a crucible) to a point that will ignite pine saw dust, stir thoroughly. Suspend work in a wire basket (keeping basket in motion) until proper colour is obtained.