

The gas used for the engines is Dowson gas made on the premises; there being also provided a connection with the town's gas supply in case of any failure in the Dowson plant. When the current is taken direct from the dynamos the lights are to a small extent unsteady. This is got over meantime by running them in parallel with the battery.

In distributing the current conductors are taken from the main switch-board in dynamo room to distributing boards placed at various points throughout the building. It is there divided into two main circuits, either of which can be cut off independently of the other. From omnibus bars connected with these main circuits leads are run to the lamps, which are arranged in groups of from twenty to twenty-five for each pair of leads. They are also arranged so that one of the main circuits can be shut off during the night.

Most of the lamps are 16 candle-power; a few are 32; and some 8. Arc lamps are used in the dynamo room and for lighting the Asylum, Hospital, and Elmhill House approaches.

In the Hospital all single rooms are lighted by bulkhead lights placed over the doors with the switches outside. Day rooms have two-light pendants and wall brackets placed at about eight feet from the floor, and also a few counter-weight lights. The dormitories and corridors have plain cord pendants about nine feet from the floor.

Excepting in the single rooms, as above stated, all the switches are placed inside the rooms, and are quite within reach of patients, but no trouble has been experienced on that account.

At Elmhill all the lights have been placed as they would be in a private house, except that in a number of the bedrooms the switches are placed outside the rooms.

We have no means of decreasing the brilliancy of the light except by turning out a number of the lamps. The dormitories are supplied with a few 8 candle-power lamps with obscured glass, so as to subdue the lights left in over night.

The men who attend to the lighting plant have also charge of the steam boilers; steam being required for purposes of heating, cooking, ventilation, and laundry purposes; and thus it is not easy to state what proportion of the expenses should be assigned to the electric lighting. The staff consists of one engineer and four assistants. It is expected that this staff will be sufficient when the asylum main buildings—at present lit by gas supplied from the city—are lighted by electricity as reconstruction proceeds.

There is at present no general dining-hall nor adequate recreation-room, but these are included in the alteration scheme, and electricity will be used as illuminant.

As to the suitability of electric lighting for an asylum, we think there can be no doubt that it is in every way superior to gas. Its cleanliness, the freedom from vitiated air attending its use, and the absence of danger from explosions and escapes are all in its favour.

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FROM MR. TOWNSEND.

Referring to Dr. Jones's paper in the last number of this Journal, Mr. Townsend writes:—

*Electric Lighting Engines.*—Statistics taken during the last five years show (as pointed out by Dr. Jones, p. 761) that high-speed engines coupled direct to dynamos and with improved multitubular boilers, are coming into favour, and prove that their cost of generating current is nearly 10 per cent. lower than with slow-speed engines and belt-driven dynamos—especially when the engines and dynamos are of 50 horse-power and upwards.

*Wiring.*—The best systems at present known are (1) to run the wires, both

positive and negative being twisted together, and drawn into steel tubing, which is lined with a bituminous composition. (2) Wires as before drawn into plain iron tubes. In this system great care must be taken that the insides of the tubes are quite smooth, otherwise the insulation of the cables is certain to be damaged. (3) Concentric wiring, having the outer conductor "earthed." This outer conductor is sometimes of copper strip covered with lead, and sometimes small iron wires twisted closely together. The great advantages of concentric wiring over the tube system are (a) lower first cost and (b) less cutting away of floors, ceilings, and walls. The disadvantage is that the conductors cannot be so easily renewed as in the case of the tube system.

More skilled labour is required both with the tube systems and the concentric systems than with the wood casing system. In the case of the first two systems a leakage will very soon find its way to the other conductor—the result being a short circuit. In the wood-casing system a leakage may go on for years—the only result being waste of current. The precaution of "double" wiring as at Claybury is excellent but costly.

*Gas Engines.*—It is stated that "the speed of gas engines fluctuates slightly, so that running the lamps direct from the dynamo gives an unsteady light." This is perfectly true when gas engines of the "Otto" (Crossley) type are used. These engines never run much above 200 revolutions per minute, and only on full loads do they take an explosion every two revolutions, or say 100 explosions per minute. There is now a gas engine in the market which I have had experience of for over two years, which runs at 750 revolutions per minute and takes 375 explosions per minute. This engine runs so smoothly that there is not the slightest visible "jump" in the lamps. Indeed, it takes a very sensitive voltmeter to show any variation. This engine is of the "enclosed vertical" type, and is generally used coupled direct to dynamos.

*Oil Engines.*—My experience of oil engines has been large, and my advice is, Never use one if you can possibly help it, especially for dynamo driving. These engines are very expensive to buy, and even more expensive in maintenance. The best oil I have found is a Russian oil at from 5d. to 8d. per gallon, according to the state of the market. Oil engines are "nasty, noisy, smelly things," but I recommend the use of oil engines for small installations up to about 10 horse-power or as "stand-by" in water-power installations.

*Turbines.*—The remark by the Superintendent of the Devon County Asylum that "turbines should be avoided" seems to indicate that something is radically wrong with the installation. Of course there must be abundance of water at the driest time of the year, and the height of fall has to be taken into consideration.

#### COMPLIMENTARY.

##### PRESENTATIONS.

Mr. Richard Adams, L.R.C.P.Edin., M.R.C.S.Eng., Medical Superintendent of the Cornwall County Asylum, at Bodmin, on his retirement from that office, which he had held over forty years, was presented with a valuable silver coffee tray as a testimonial of esteem, subscribed for by 157 of the officials, past and present.

Dr. Nathan Raw was, just before his departure from the Dundee Infirmary for his new sphere of labour in the Mill Road Infirmary, Liverpool, the recipient of a present, subscribed for by the nursing staff of the former institution, which consisted of a pair of silver candlesticks and silver inkstands enclosed in a case. On the outside of the lid of the inkstand are engraved Dr. Raw's initials, and inside is the following inscription: "Pre-