

supplied with water under 31 feet head from the dam some 70 feet away, by two feeder pipes, 80 inches in diameter. Each wheel will develop 518 horse power. The whole wheel case and shafting is supported by steel girders and solid masonry. All bearings are of the self-oiling ring type, and the gate mechanism is operated from a suitable point in the dynamo room overhead. The main driving pulleys located at each end of the wheel case are 108 in. diameter and 36 in. face. The weight of the entire plant is about 125,000 lbs.

Taken altogether, the starting up of this plant marks an important point in Sherbrooke's industrial history, and emphasizes the ability and energy of those concerned

ELECTRICAL STAGE APPLIANCES.

THE proposed application of electrical power for mounting plays at Drury Lane, on the lines advocated by Mr. Edwin O. Sachs, has now taken a tangible form in the completion of the first section of the stage installation in time for the impending pantomime.

Mr. Sachs' present work refers principally to the stage floor and its movability in sections above and below the footlights. The total area now already movable by mechanical power exceeds 1200 square feet.

The electrical appliances just completed take the form of so-called 'bridges,' each working independently. Each individual section measures 40 feet by 7 feet, and weighs about 6 tons, of which about 4 tons are counter-balanced. They can travel about 20 feet vertically.

The motive power is from the ordinary electric supply mains over a four-pole motor, developing $7\frac{1}{2}$ h.p. at 520 revolutions per minute. The 'bridges' are suspended from cables, and these, working over the motor, allow the former to be raised with the necessary live load at rates varying from 6 feet to 20 feet per minute.

Mr. Sachs has arranged for every possible safeguard against accident, the 'bridges' themselves being so constructed that in the event of derangement of current the appliances can be worked by hand gear. Automatic switches are provided so as not to be entirely dependent on the attendants, and automatic catches will work in case of rope-breaking. Special locking gear has been installed to hold the bridges stationary at certain points, such as stage level, and a very large factor of safety has been allowed in apportioning the strengths and weights in the various parts of the mechanism, having special regard to the ever-increasing scenic requirement under Mr. Arthur Collins' able management.

As regards the economic aspect of the electrical installation, the initial outlay on Mr. Sachs' system is about half that of Continental hydraulic work, and this is allowing for English contractors as against foreigners. The maintenance is minimal, whilst the actual working only costs a few pence per performance. The saving in manual labor on the stage is very considerable, whilst the hygiene of the theatre is materially raised by the absence of woodwork.

The Dominion Bridge Company, Montreal, have just completed the installation of an arc lighting system in their large works at Lachine. The dynamo and arc lamps were manufactured by the W. A. Johnson Electric Company, of Toronto.

It is learned that the new electric railway in Kingston, Jamaica, which is being built by Montreal capitalists, is nearing completion. A fortnight ago a trial trip was made, under the direction of Mr. Henry Holgate, superintendent for the West India Electric Co. The speed of the car was about nine miles per hour.

GOOD ADVICE TO BOILER ATTENDANTS.

THE Manchester, Eng., Steam Users' Association has issued the following hints to boiler attendants:

WATER LEVEL.—Before lighting fires see that there is sufficient water in the boiler. Test the water gauges frequently and keep the water level steady.

BLOW-OFF COCKS.—Before lighting fires be sure that the blow-off cocks are closed and not leaking. Occasionally feel if the blow-off waste pipes are hot. Blow off from bottom before starting the engine. Sediment has then settled in the elbow pipe. Blow off the scum before stopping the engines, but only when the water level is at the correct height. At such times most of the scum has collected in the troughs.

LIGHTING FIRES. Sudden changes of temperature may produce fractures or start leakages. Therefore never raise steam hurriedly. The top and bottom of a boiler should grow warm together. If convenient, fill the boiler with warm water through the economizer. If the boiler water is cold, allow fully six hours for raising steam. If pressed for time, fill the boiler to the top of the water gauge, fire slowly, and keep the safety valve open until steam blows off freely. After closing the safety valve, blow out the bottom cold water till the working level is reached. The pressure may now be raised more quickly.

SMOKE PREVENTION.—Smoke and imperfect combustion are caused by an insufficient air supply or by premature cooling of the flames. Therefore after coaling, when the fires are black, admit air either at the door or through the split bridge. It is less wasteful to admit too much air than too little. With smoky boilers or when hard pressed, keep the fires thin and even. Fire steadily. Don't coal all furnaces at once. Coal each furnace on one side at a time.

EMPTYING BOILERS.—Do not empty boiler while steam is up.

OVERHAULING, CLEANING AND INSPECTION.—Clean the boiler monthly or oftener; remove the scale while soft, if possible while emptying the boiler. Sweep the soot off the boiler plates and clean the flues every three months, as well as on the occasion of the annual inspection. All leakages should be stopped, any cause of dampness in the setting should be removed, corrosion should be arrested. The fusible plugs should be cleaned on the fire side and water side once a month, and the fusible metal should be renewed once a year at the time of the annual inspection. All cocks should be kept oiled, and, unless asbestos-packed, they should be overhauled once every month. These cocks, the feed valves, steam stop valves, and all safety valves, should be overhauled annually on the occasion of the inspector's visit.

MANHOLES.—Before opening the man-holes, ease the safety valve so as to be quite sure that there is no pressure in the boiler. Before entering a boiler secure the steam valves and blow off cocks.

SAFETY VALVES AND LOW WATER ALARMS. Never overload or tamper with safety valves or with low water alarms. Ease or test them regularly every day. Be sure that they are in working order. If they will not work properly, reduce the steam pressure and then report to the manager.

Mr. E. O. Champagne, boiler inspector for the city of Montreal, has given public notice that steam users neglecting to provide smoke consuming apparatus will be prosecuted.