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THE ENGINEER'S DAILY ROUTINE.

In our best regulated and most efficiently managed steam plants, the life of the engineer is one of a regular routine of duties, for while each day may not be exactly like its predecessor, still it is so nearly so as to be at times very monotonous. Notable exceptions are those days in which some accident happens of greater or less magnitude, causing him extra labor and exertion in both body and mind.

Where the plant is a medium sized one, and the engineer does his own firing, his first duty on entering the fireroom is to try the gauge cocks and admit water and steam to the water gauge glass. In doing this, care should be taken to avoid bringing the pressure onto the glass too suddenly, for the expansion caused by the heat may break it. It is a good plan to admit a little steam first and gradually warm it up by allowing the steam to escape through the drip for a few seconds, and then close, not forgetting to open both steam and water valves sufficiently to show a true water level.

Assuming that there are three gauges of water in the boilers, it will then be in order to open the blow-off valves and blow down two or three inches of it before opening the dampers. Some engineers claim that it will answer every purpose to blow down while the engine is running and the fires at a white heat. It is the opinion of the writer that the best results are obtained by blowing down in the morning before the water is agitated by the heat of the fire, as much of the sediment having settled to the bottom of the boilers during the night, a portion of it may be removed in this way before it hardens into scale. This opinion is based on the fact that having once taken charge of a boiler that had not been properly cared for, on opening the same the spaces between the tubes at the rear end were found to be completely filled with scale.

By using a boiler compound and blowing down regularly every morning before starting the fire this boiler was entirely cleaned in a few months. Others may have had success in blowing down during the day, but even if this is true there is one reason which, standing alone, should decide the matter in favor of the former plan, and that is because it is the safer way, for when an engineer opens a blow-off valve he never knows whether he will be able to close it when he wishes to or not, and a number of accidents have happened in this way, as even a small piece of scale lodged in the right place will cause the boiler to be emptied before it can be removed, and such being the case, is it not much better to have the fire banked than to have it burning briskly.

If the extra strain on the pipes caused by the water rushing through them at a great speed and turning abrupt corners, perhaps, in its passage, should cause a corroded piece to give out, filling the fireroom with steam and hot water, would it not be a source of satisfaction to the engineer to know that he had taken every precaution to prevent his boiler being ruined? It is true that if a stream of water is turned on the fire through the bursting or breaking of this pipe, or if a large volume of steam is forced into the furnace, the fire will be extinguished; but who can guarantee that the pipe will break in such a way as to cause this to be done?

Having attended to this and levelled the fires; while steam is being gotten up it is a good time to key up any boxes or bearings that may need it. An objection to doing this work at night is because if anything should prevent the engineer from reporting for duty the next day, and some one else should start the engine, not knowing what had been done, it is quite possible that a hot box would be the result, whereas it would have done no harm to let it run as it was for another day; and when the keying up is done in the morning, the engineer is more apt to remember the circumstances and govern himself accordingly. It is well to have glass sight feed oilers filled when starting up in the morning, and also at noon, for if this is done regularly, when the engine has been running half an hour, if the cups are feeding properly, it may be noted at a glance, from any part of the engine-room; but if the practice of filling them up only when they are empty is adopted, without regard to any regular time for it, then it becomes necessary to go to each one separately, in order to tell whether they are working or not.

The writer has seen a systematic engineer take out his watch when setting his sight feed lubricator, feeding cylinder oil in the usual way, and adjust it to feed a certain number of drops each minute. This is a good plan, but at the same time it appears as if the watch was unnecessary, as the engine was running at a slow speed, for every engineer is supposed to know how many revolutions his engine is making per minute, and if it is found to be eighty, and he wishes to feed four drops per minute, then one drop should ascend for each twenty revolutions; and if it is sixty,