

favorable, and little or no opportunity given to clean the dirty fires which will accumulate on large grate areas when an inferior grade of coal is used. Under such conditions the better the quality of the coal furnished the more satisfactory will be the results as regards efficiency.

However, with a locomotive construction with the features such as have been proposed, the possibility to derive satisfactory and efficient results from an inferior grade of fuel, with the corresponding economy, will be of decided advantage, especially in localities where the cost for either a superior or an inferior grade of coal is an item of vital consideration.

A system of individual checking and a means for the correct distribution of the quantity of fuel and oil to the engineers, in preference to the locomotives, should be inaugurated and the monthly performance bulletined. Individual check books can be supplied for each month, and which can be arranged to be self-recording in order to reduce the clerical work to the minimum. The comparative statement, to rank the men in accordance with the quantity of coal and oil used per locomotive mile, which will be a convenient calculation to make, and a fairly good basis for the comparison of the service being rendered by engineers and firemen operating locomotives of the same type under similar conditions. The service of those men who may fail to give an average performance to be investigated, the cause learned, and the necessary instruction or discipline extended.

The promotion of engineers and firemen to advanced and more desirable positions in consideration of their fuel, in connection with their general locomotive service, will also provide a means for stimulating economy, and with no resulting inefficiency, if the road performance is checked, and the cause for

inferior service of men who may not be up to the standard promptly investigated.

Every consideration should be given by all concerned to the cleanliness, not only of themselves, but of their surroundings and the locomotives. A small expenditure for white-wash, paint and labor at the intervals required to maintain clean buildings and premises, and well-directed efforts on the part of the foremen, engineers and terminal employees to keep the power in a presentable condition, will be more than justified by the net returns which must be derived from such methods. For the reason that the employees, buildings and the work pertaining to the motive power department must of necessity be associated with more or less uncleanness, this should be all the more an incentive for the maintaining of the most orderly and cleanly conditions consistent, and scoured locomotives will certainly be a relief to the usual condition in which they are found, with no parts other than the steam blower throttle knob and the coal scoop polished, or receiving any attention.

The care for the comfort, convenience and contentment of all employees connected with the operating departments cannot be overestimated. A fair, impartial and considerate treatment will, next to their own welfare, produce a disposition on the part of the majority, if not all, employees to exert themselves and direct their efforts to an improved service and general condition of the company. Civil service, if at all consistent, should govern in promotions, and merit being equal, seniority to receive the preference.

So long as railroads are to be operated successfully, strict discipline will be necessary, and the intentional or careless violation of the rules should be punished by reprimand, suspension or dismissal, as the case may justify.

Each case of disobedience, no matter how minor, or with what intent, should be investigated as promptly as possible after the occur-

rence, and the responsibility placed and censure or relief extended.

Also for extra good service rendered, a substantial recognition of the same will in almost every case be appreciated and instil a further desire to similar actions.

However, in the imposing of a sentence, in no instance should the offender be permitted to feel, if he will be reasonable, that an injustice has been inflicted, or that he is not deserving of the discipline, and will not accept it for the purpose as given.

If more attention would be given by some of the officials in direct charge, to assist their subordinates, by education and instruction, to keep out of trouble, rather than setting traps for them to fall into, the general service would, in many instances, profit accordingly. If roundhouse and shop foremen, travelling engineers, air brake instructors and master mechanics who may be concerned in the maintenance and operation of the motive power of a division, are given the authority which it is necessary and consistent that they should have to effect results, and if they will then combine their efforts towards harmony, and co-operate with each other and the officials in the other departments, to bring about railway instead of departmental results, such supervision will tend greatly to facilitate efficient and economical service which would not otherwise be forthcoming. No matter, though, how thorough the organization, or carefully established the system, only personal contact with the details and a knowledge of the situation as a whole will bring the greatest success to the person in charge of any work, and to the railway that employs his services.

In conclusion it may be added that, if for the promotion of either new or untried and which may be practicable ideas that are advanced from time to time, more assistance was received from and interest manifested by some of the railway mechanical men who in

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