

9th August, 1938.

OBSERVATIONS ON THE RUN FROM LONDON TO GLASGOW.

(a) DUST IN THE CORONATION SCOT TRAIN.

OBSERVATIONS MADE BETWEEN LONDON
AND GLASGOW - 5th August, 1938.

INTRODUCTION.

It has recently been suggested that the dust filtering arrangements in the ventilating plants of the Coronation Scot trains are not as efficient as might be desired, and that there may be at times, a discharge of black sooty particles from the louvres. This note gives the results of observations made on the train to investigate the matter.

1. OBSERVATIONS MADE IN THE STATIONARY TRAIN.

(a) Examination shewed that the insides of the louvres were covered with a thin layer of fine black soot, and probing into the ducts indicated that this layer also covered the walls of these ducts.

(b) The ventilation plant was run whilst the train was standing in the shed to see if the air current dislodged any of this layer of soot. No such effect was seen.

CONCLUSIONS.

2. OBSERVATIONS ON THE RUN FROM EUSTON TO GLASGOW.

- (a) As careful a watch as possible was kept for the issue of dust particles from the louvres. Nothing of the sort was seen during the whole of the run.
- (b) The first-class restaurant car seemed to be remarkably clean and free from the black smuts usually associated with train travel. Any dust which there may have been on the table cloths was completely masked by cigarette ash. In this particular car none of the sliding windows were opened wider than six inches: in each of the third-class restaurant cars, however, several of these windows were opened to their fullest extent and there were specks of dust on the table cloths.
- (c) Filters made of wool and muslin were placed over six of the louvres, and during the run of $6\frac{1}{2}$ hours each one collected an appreciable quantity of black soot. In all cases but one, this was very fine - too fine, in fact, to be detached from the filter; one filter, however, had stopped a few large particles.

CONCLUSIONS.

The results of these observations are consistent with those of the experiments recently made by the Physics Section on the performance of dust filters in general viz.- that oil filters (as used in the Coronation Scot train) pass quite an appreciable amount of dust; the dust they pass, however, is of small particle size and would settle out only in a very still atmosphere. The dust passed by the filters in the ventilation plant of this train is not, therefore, likely to be noticed by the passengers. There is, however, a further possibility: soot may be shaken from the layer which covers the insides of the ducts and so pass into the air stream, and into the coaches. Dust particles so arising would generally be of fairly large size. It seems, however, from these observations that this happens only infrequently, and that if the passengers are allowed to open the windows as fully as they wish, the dust entering from outside will mask anything that comes through the ventilation plant. There seems little possibility of improving very much the dust filtering arrangements without having a very elaborate system, including subsidiary filters, on each louvre. It might, however, be desirable, to arrange for the plant to be run whilst the empty train is travelling from the carriage shed into the station: the combined effects of the air stream and the vibration of the train would then

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dislodge the looser parts of the dust film in the ducts, and just before departure, the attendants could remove from the plates and table cloths any noticeable particles.

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