Mass concentrations of airborne brake dusts were determined at two positions by sampling through tared membrane filters. In the first position, a static sampler was placed close to the sources of dust emission. Generally, this sampling position was chosen to be in the area where the results of Tyndall Beam examinations had indicated that the highest dust concentrations were likely to be obtained. Secondly, a personal air sampling device was worn by the operative in such a manner that the sampling head was attached to the wearer's lapel, as near as practicable to the breathing zone.

Samples for particle counting were taken, again in the operative's breathing zone, using a Konimeter, and membrane filter samples were also taken for subsequent fibre counts by microscopy, using the method described by ADDINGLEY (1966). Possible weighing errors due to static charges on membrane filters were prevented by weighing in a field of ionising radiation, as described by HIGGINS and DEWELL.

The results of fibre counts showed that the numbers of fibres present in the high total dust concentrations obtained when an air line was used were of a low order of magnitude and hence the total dust concentration was used as a relative method to describe the dustiness of the environment.

The location selected for the experiments was in a workshop area, behind a glazed partition, and well away from access doors, so that comparisons of cleaning methods were not affected by variations in local air movement. Smoke tests were carried out at each sample period to confirm this point.

CONDITIONS OBTAINED WHEN A COMPRESSED AIR LINE WAS USED TO REMOVE BRAKE DUSTS

A commercial vehicle brake assembly, after removal of the brake drum preparatory to cleaning, is shown in Fig. 1. In this particular case, the hub had also been removed for bearing replacement which facilitated cleaning operations. It should be noted that this is not always so and for the majority of our tests the inconvenience of the hub being present had to be contended with.

A series of Konimeter samples were taken during typical operations and also after the process had ceased. The counts for these samples are summarized in Table 1.

TABLE 1. RESULTS OF KONIMETER SAMPLES DURING BLOW-OFF

Sample	Number of brake dust particles/5 cm³
Taken at beginning of operation	5000
Taken approx. 20 sec later	4500
Taken approx. 60 sec later	4000
Taken approx. 30 sec later	1800
Taken approx. 30 sec later	580

It is seen that there is a progressive fall in count as the local dust cloud disperses. The first three figures are approximate only, the numbers of particles collected being too high for accurate counting.