evidence to suggest that stabilising these factors significantly enhances embryonic growth and differentiation, although in certain experiments it would be advantageous to define them.

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PRO EXPERIMENTIS

A simple procedure for the photometric evaluation of incidental findings on the recording strips of the Burkard pollen-and-spore trap[1]

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Summary. Reference is made to a procedure for evaluating certain incidental findings presented by particles of soot or dust on the adhesive strips of the Burkard pollen-and-spore trap or the slides of the similar Hirst apparatus. For this an evaluating device is recommended that is generally used for pherograms in large hospitals today. The often very noticeable streaks of soot or dust particles on the adhesive layer can be assessed with this method. Furthermore, it is possible to determine the time of the occurrence of the particles and possibly to relate them to the velocity and direction of the wind, and also eventually to detect the source of the polluting material.

The soot and dust content of the air can be monitored over an extended period, or occasionally, with apparatus of greatly differing construction. These include devices with continuous strips smeared with an adhesive medium on which the particles in question are caught. After exposure, these strips can, for instance, be evaluated densitometrically. (Apparatus of this kind are described by Leithe[3].)

In very many places, namely in Sweden, Finland, England, Denmark, Holland, Belgium, Austria, the USA, and Canada, and likewise in the Federal Republic of Germany and Switzerland, Burkard pollen-and-spore traps or older Hirst apparatus are in continuous operation. These devices work volumetrically, that is, they collect the floating living particles in a certain volume of air in the course of a day on an adhesive surface. Depending on the location of the apparatus and the prevailing direction of the winds, distinct streaks of soot and dust of very different origin occur as *incidental findings.* (The particles of these streaks can easily be identified under the microscope.)

In the Burkard pollen-and-spore trap (Leuschner[4]), a strip of Melinex® of 1.9 cm width, coated with vaseline as an adhesive medium, is rotated 2 mm each h past a suction slit of 14 mm width and 1.7 mm height. A volume of 10 l air is sucked in each min (Figure 1). (The Hirst apparatus works on a similar principle. Here a slide covered with an adhesive layer is drawn past a corresponding suction slit.) With the naked eye one can, for instance, estimate the thickness of the soot or the layer of dust on the strips or slides and determine the time of settling of these non-living particles polluting the air.

The evaluation of these specimens enclosed in Gelvatol (a polyvinyl alcohol) can today be simply and easily performed with the collaboration of a laboratory in a large hospital. This will be shown below.

Modern apparatus for the evaluation of ordinary discontinuous electrophoresis diagrams (= pherograms) of blood

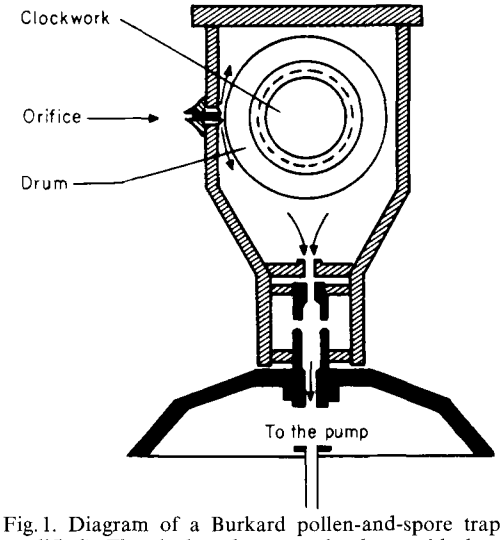

Fig. 1. Diagram of a Burkard pollen-and-spore trap (after Stix[6], modified). The clockwork rotates the drum with the adhesive tape 2 mm/h. ▨ Moving part; ■ fixed part.

serum enables one to plot graphs of these streaks of soot and dust densitometrically. The apparatus of greatly varying construction ordinarily used today automatically records the extinction.

On some days the exposed strips of Melinex® show a certain similarity to stained electrophoresis specimens (figure 2). The average value of possible dense accumulations is determined by photometric evaluation, using an Eppendorf pherogram evaluating device with a light gap of 6 mm length and 0.25 mm width (figure 3). Naturally, very dense accumulations of floating living particles such as pollen and fungal spores, which may occur, can also be detected by this method.

Fig. 2. Photograph of a daily specimen (Basel, 2.11.–3.11.1976) with 2 (3) distinct streaks of soot. The light longitudinal markings are to be attributed to large particles caught and hold in the suction slit. (Size 1:1).

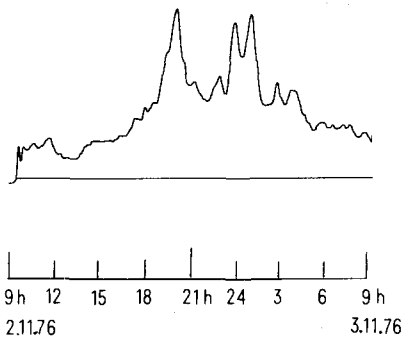

Fig. 3. Corresponding photometric evaluation with the Eppendorf pherogram evaluating device (2602) and the W+W electronic recorder (type 4000). The *extinction base* is given of course by the usual living and dead particles floating in the air. Most soot emission at about 20.00 h and 24.00 h.

This way of evaluating such incidental findings in the Burkard pollen-and-spore trap (and the Hirst device) may perhaps already have been used by others. Nevertheless, we think it is important to point out in this note that such slides coated with an adhesive layer can easily be examined in collaboration with a well equipped, modern hospital. This way of testing air pollution with the help of the Burkard and Hirst apparatus is, in any event, apparently not generally used at present.

It is common knowledge that large emissions of soot may point to insufficient combustion in badly adjusted oil burners. This simple procedure could, particularly in densely populated areas, be used to determine under what conditions and with what winds such emissions have occurred. In some cases, it would provide a clue to the source of pollution. Similarly, the strength of accumulations of non-living particles, e.g. of large amounts of dust, could be judged, and determined from the time of their occurrence on the adhesive layer (figure 3) (Boehm and Leuschner[5]).

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