

baths are provided, and the overalls are washed at the factory's expense, especially after exposure to dust.

Medical supervision of the workers is a part of the prophylaxis. Consideration should be paid to the state of health of the vanadium worker at the time of his employment. Any person showing symptoms of chronic disease of the lungs or of the respiratory tract should, in my opinion, be disqualified. A roentgenologic study of the lungs (screening) should complete the usual somatic examination, and this should include blood tests, especially a test of the peripheral blood for eosinophilia, the erythrocyte sedimentation test and, for the present, also the thymol turbidity test. If the person concerned has worked with vanadium previously, a patch test should be made with a 2 per cent sodium vanadate solution.

At least twice a year, and oftener when necessary, all the workers should be subjected to control examinations including the aforementioned test of blood and urine. The thymol turbidity test need be made only once a year, or at any time in the event of particularly severe symptoms. The same applies to the determination of the vanadium contents of blood and urine. Roentgenologic examination (screening) of the lungs and a patch test should be made once a year, or oftener when necessary. In cases of eczema caused by vanadium the patient should as a rule be given a change of work.

AN INVESTIGATION OF THE ACTION OF INHALED VANADIUM PENTOXIDE DUST ON ANIMALS

In order to study the action of vanadium pentoxide dust on animals, inhalation experiments were carried out on rabbits according to Deichmann's¹⁷ technique, with an apparatus which renders possible a determination of the dust concentration during the experiment according to the filter paper method (figure).

The dust used in the experiments was the purest products, ground and dried, from the Falun factory, containing about 99.9 per cent of V_2O_5 . The particles of this dust were smaller than those of the factory dust (33 per cent below 10μ). It was found that the preparation was more readily dissolved in body fluids (human serum, transudate from the pleura) than in distilled water, which may be due to its higher solubility in alkali, as well as to other factors which do not fall within the scope of the present work.

The details of the exposure and other procedures have been given elsewhere (Sjöberg^{12d}).

It was soon found that a high concentration of dust had a distinct effect on the animals, causing rapid snuffling, discharge of the nose, purulent discharge of the eyes and in some instances diarrhea, and that in some cases death occurred after about six to 36 hours. The product $c.t$, where c equals the dust concentration and t the time of exposure, represents the amount of dust inhaled by the animals. Death seemed to occur at a value for $c.t$ of about 86, when c is calculated in milligrams per liter and t in minutes, whereas smaller amounts were tolerated and did not cause death. Admittedly, the dust concentration and the time of exposure varied, chiefly because of the difficulty in assuring a constant and sufficiently high concentration

17. Deichmann, W. B.: A "Dustshaker": An Apparatus Designed for the Production of Controlled Dust Concentrations in the Air Breathed by Experimental Animals, *J. Indust. Hyg. & Toxicol.* **26**:334, 1944.