

Besides taking the histories of these workers, we ourselves or other physicians at the institute carried out ordinary routine physical examinations, supplemented, where this was considered necessary, with determinations of hemoglobin, red and white blood cell counts and determinations of erythrocyte sedimentation rates. In the anamneses the persons examined were requested to give to the greatest possible extent their own account of their symptoms, without detailed questioning, the purpose of this being to expose them as little as possible to the suggestion of any particular view. This, so to speak, spontaneous case history was then supplemented with questions concerning the symptoms mentioned below. Not until after this part of the interview was concluded were they questioned regarding the conditions under which they were exposed to trichloroethylene. We consider such a sequence in the recording of the history to be of particular importance in an investigation of this sort, as it is a matter of avoiding as far as possible anything that would fix the attention of the persons examined on the question of a connection between trichloroethylene and their symptoms. For it is not uncommon to meet with erroneous or misleading ideas concerning such questions in workers who are exposed or who believe themselves to have been exposed to poisonous substances. Notwithstanding this, however, one may in certain cases, in connection with a discussion of the conditions of work, get valuable information about symptoms. A small number of cases in which workers applied to the Department of Occupational Medicine for examination or treatment have been included in the investigation. The whole investigation was carried out during the years 1944 to 1949.

After the conclusion of the anamnesis and the laboratory examination, the physician responsible for this has, after conferring with us, given a general opinion as to whether he has considered the patient (*a*) not to be suffering from the effects of trichloroethylene, (*b*) probably not suffering from such effects, (*c*) possibly or (*d*) actually suffering from these effects.

In the case of each person examined, one or more samples of urine were analyzed for trichloroacetic acid. If several analyses were made, they were made on different occasions, provided that the conditions of exposure had not been radically changed. Altogether, 314 analyses were performed. The results of these examinations were not collocated with the results of the physical examination until the latter had been concluded. In those cases in which more than one analysis of urine had been performed, a correlation was made to the mean of the analytic values that had been arrived at in the same conditions of exposure. Certain details from earlier phases of this part of the investigation were publicized in the Swedish medical press (Forssman and Ahlmark,⁸ 1946) and at the Ninth International Congress on Industrial Medicine in London (Ahlmark and Forssman,^{9a} 1948).¹⁰

Results.—In an investigation of this kind one may expect a certain number of the workers to report neurasthenic symptoms which cannot be referred to the effect of any particular circumstance at the place of work. Other illness, a mild state of neurasthenia caused, for example, by overtime work or sickness in the home or without demonstrable cause may, despite the fact that the physicians have been on the lookout for the occurrence of such etiological factors and have excluded the cases concerned, exert an influence and give the appearance of a connection between the exposure existing at the place of work and the symptoms. As a matter of fact, one is probably justified in asserting that persons with neurasthenic symptoms are especially apt to connect their symptoms with something they imagine or know to be dangerous at their place of work. This is perhaps often explained by the fact that such persons frequently react strongly to odors, etc., of various kinds. From examinations that have been carried out at the Department of Occupational Hygiene and elsewhere, one might say that some neurasthenic symptoms would probably be met with in approximately 10 to 25 per cent of Swedish workers regarded as healthy, if they were examined.

10. After this study was finished Frant and Westendorp published their results from a similar study (Frant, P., and Westendorp, J.: Medical Control on Exposure of Industrial Workers to Trichloroethylene, *Arch. Indust. Hyg. & Occup. Med.* 1:308 [March] 1950).