

accompanied by the development of a vitamin C hypovitaminosis. A daily dose ranging from 75 to 400 mgm. of vitamin C is considered by Hagen as an adequate amount for therapeutic and prophylactic purposes.

The most effective means of combatting this occupational hazard is of a technical nature and consists of the complete elimination of benzol fumes from the atmosphere of the working environment. This aim may be achieved, in many instances, by the introduction of a closed system in the production. The installation of an efficient exhaust ventilation and a frequent periodic determination of the benzol concentration in the air of the workroom to detect leaks and defects may aid in achieving this goal. As the use of a closed system is not always practical, the replacement of benzol by the less toxic benzine or some other less harmful solvent should be considered and insisted upon.

At present, no country has officially recognized benzol leukemia as a compensable occupational disease. Several countries include aplastic anemia and related conditions caused by occupational exposure to benzol among this class of industrial disorders.

II. BENZOL DERIVATIVES AND OTHER AROMATIC COMPOUNDS

A great deal of experimental evidence exists incriminating various benzol derivatives and other aromatic compounds in the production of leukemoid and leukemic conditions. Phenylhydrazine and its derivatives have been proved repeatedly as the cause of extensive, heterotopic, myeloid proliferations in the liver, spleen, kidney, and lymph nodes and of hyperleucocytoses of leukemoid character (Jaffé; Seitz; Itami; Bratley; Hueper; v. Domarus; Long; Lüdke; Pappenheim; and Heck and Hall). Similar organic changes were observed after the administration of chemically related hemotoxins, such as saponin and pyrogallol.

Small amounts of indol, which is known for its anemiogenic and leukopenogenic properties (Büngeler), was repeatedly injected into experimental mice. Leukemia developed in seventeen of the ninety-seven animals surviving for more than eight months. An aleukemic, lymphatic leukemia was observed in three mice; one had a lymphosarcomatosis, four exhibited a myeloid leukemia, and nine showed an aleukemic, myeloid leukemia. A diversity of leukemic responses were exhibited similar to those observed in occupational benzol leukemias. The incidence of the leukemic reactions, among the mice so treated, increased with the duration of the treatment. The organs of these animals revealed an elevated glycolytic activity and the leukemic reactions followed a preliminary stage of anemia and leukopenia.

Recent investigations with different synthetic, carcinogenic aromatic hydrocarbons and tar have shown that these more distant relatives of benzol possess carcinogenic properties and may elicit leukemoid and leukemic responses. The occurrence of leukemia in 2 mice and lymphosarcoma in 1 mouse, out of 60 mice repeatedly injected with water soluble 1.2.5.6-dibenzanthracene-9.10-