

precautions are taken as well as proper supervision exercised by a foreman familiar with the hazards involved.

In numerous plants of modern construction and where there is conscientious management, a great many of the various hazards listed either have been completely eliminated or reduced greatly by the introduction of a closed system of production, installation of an efficient and properly placed exhaust ventilation and other sanitary measures. Any escape of fumes and dust in such plants, owing to leaks in pipe connections and similar defects, is mainly accidental. On the other hand, the occurrence of numerous aniline tumors among workers of some plants in recent years provides weighty evidence that in these establishments a great hazard still exists and that improvement is needed urgently.

2. The second group of men exposed to carcinogenic aromatic amines consists of workers who enter at irregular intervals the rooms in which these chemicals are manufactured or handled. They are special workers, such as plumbers, bricklayers, pipefitters, millwrights, carpenters, and mechanics. While their contact with the carcinogenic agents is not constant, it is usually rather intimate and is associated with the carrying on of repair work. This task involves the handling of parts of machinery (stills, boilers, autoclaves, pipes), covered with aromatic amines and tarry sludge, as well as lumber and bricks saturated with these chemicals. There is approximately a total of twenty of these workers on record with aniline tumors (Leuenberger; Nassauer; Oppenheimer; Hueper).

3. A third, but relatively small group of exposed persons, is represented by chemists and laboratory assistants who analyze and test the various products used in the manufacture of synthetic dyes. The occurrence of bladder tumors of aromatic amine genesis among members of this occupational group was reported by Leuenberger; Nassauer; Oppenheimer, and Wolfe.

4. A fourth group of individuals who may develop aniline tumors of the urogenous organs, in spite of the fact that they have no direct occupational contact with the carcinogenic chemicals, but who work or live in the immediate vicinity of their production and thus may be exposed to the inhalation of fumes, dust and vapors containing aromatic amines in low concentration, is composed of managers, clerks, drivers, and yard workers (Oppenheimer; Nassauer; Hueper) employed in the dye works.

5. A fifth group of workers among whom the occurrence of aniline tumors has been observed (Schueller; Rosenbaum and Gottlieb; Gay; Leuenberger; Joseph; Fierz-David) consists of persons handling the finished products. These may be dye grinders, mixers, attendants of dye storage houses and dyers. The dyers, pressing hot aniline dyes upon fabrics, are especially endangered, according to Leuenberger.

The carcinogenic potency of aniline dyes has been disputed by numerous investigators until recent times. Gehrmann as late as 1934 stated that the