

according to experiences with occupational and experimental tar and pitch tumors. The possibility exists, therefore, that recurrences may be more frequent in this series than they would be if the exposure had been terminated completely after the discovery of the first tumor. All available data indicate that prognosis of aniline tumors does not differ essentially in any way from those of the cryptogenetic type, when the same standards of comparison are applied (Berenblum; Hueckel).

XIV. SUSCEPTIBILITY

In many clinical reports reference is made to an apparent difference in individual susceptibility among workmen in the presence of an identical type and duration of exposure. Some of the variations in personal reactivity are certainly only apparent, i.e., they are referable to differences in cleanliness, working habits and general intelligence. These factors may have an important influence on the amount of exposure received. But, doubtlessly some of the discrepancies are of a personal or constitutional nature. Factors which may be of causative importance are, according to Berenblum, either true differences in the reactivity of the bladder mucosa, or individual variation in the absorption of the carcinogenic substances or in their alterations occurring in the body, or in their rate of excretion.

Such variations in neoplastic responsiveness were also evident among dogs used in the experiments of Hueper, Wiley and Wolfe. While the first dogs presented tumors after twenty months of treatment, two were still cystoscopically free from pathological manifestations after thirty months of exposure. As the microscopic examination of the bladder of one of these dogs showed the presence of a minute carcinomatous lesion, it stands to reason that any degree of personal resistance against chemical tumor formation may be overcome ultimately if the exposure to the aromatic amine is sufficiently long and intense. The high frequency of bladder tumors among certain groups of dye workers confirms this conception. From an analysis of a larger series of case histories of aniline tumors, it is the author's impression that hereditary factors, especially those indicating a special organ susceptibility do not play any significant role in the neoplastic responses observed. This is in spite of the fact that Anderson reported a positive cancer history in the family of four out of twenty-five cases of aniline tumors (17 per cent). If any congenital predisposition exists, it must have the character of a general special reactivity to the carcinogenic chemicals, which, in the main, seems to be a matter of gradual development and artificial acquisition. The site of the tumor, the bladder, is merely the result of metabolic and excretory conditions which are peculiar to the type of chemical and which determine the tissue of most pronounced contact.

From observations made in man so far, it may appear as though only the male sex is susceptible to aniline tumors. This has its plausible explanation