

latter, as in 81 cases he did not observe *in vivo* or at autopsy any metastatic deposits. His optimism was not shared, however, by Mueller (1936), who pointed out that, according to the observations made in the Basel district, aniline tumors are extraordinarily malignant, and frequently and readily form distant metastases.

Metastases were present in the various organs (lymph nodes up to the supraclavicular fossae, vertebrae, skin, lungs, suprarenals, brain) of 11 of 17 fatalities which came to autopsy (Brezina; Simon) and for which detailed data were available in the literature. In 8 of these cases, remote organs were involved by secondary deposits. In none of the 5 American cases, in which autopsy was made, were metastases found (Gay). In 3 instances, however, there was primary carcinoma in other organs (skin, pancreas, kidney). The explanation of the apparently fundamentally different behavior of aniline tumors in different regions and different industrial plants is not evident. Experiences with other occupational cancers and with experimental tar and dibenzanthracene tumors suggest that such differences may be attributable to marked variations in the degree and length of exposure to the carcinogenic agent. It is a well known fact that the number of malignant tumors and the appearance of metastases depend to a certain extent on these factors, and a massive exposure to a carcinogenic agent may cause the development of neoplasms in usually less exposed organs.

Multiplicity is as frequent among bladder tumors having their origin in exposure to aromatic amines as among those of unknown genesis (for the latter Albarran gives the frequency of multiplicity as 25 per cent). The relation for aniline tumors is demonstrated in the following analysis of 98 instances reported in the literature.

	<i>Papilloma</i>	<i>Carcinoma</i>	<i>Total</i>
Single	21	57	78
Multiple	3	17	20

Washburn with 63 cases listed 24 as multiple and 39 as single.

Benign and malignant tumors may coexist in the same bladder, and multiple neoplasms of the same biological type (malignant or benign) may show marked differences in histologic structure (Wendel; Oppenheimer (1920 and 1926); Gay). This marked variation in histological structure of multiple neoplasms in a particular bladder was especially impressive in dogs treated with beta-naphthylamine (Hueper, Wiley and Wolfe). Among 50 or more lesions present at one time, practically all types of preneoplastic and neoplastic conditions were found. This factor, in addition to the histological evidence of multiple intraepithelial lesions, is sufficient proof that the multiplicity of aniline tumors is primary and not caused by secondary mucosal extensions from one tumor. Examination of the mucosa of the bladder in dogs with general papillomatosis frequently showed, near the base of well developed