

workers, dye mixers, workers in explosives and rubber, and other nonspecified chemical operations) in England and Wales during 1921 to 1928. Since that time approximately thirty new cases of bladder tumors among chemical workers have occurred in English plants up to the end of 1937 (Young and Russell; Henry, Kennaway and Kennaway; Bridge and Henry; Bridge; Wignall; Macalpine; Berenblum; Henry; Stallybrass).

Similar observations were made in the Union of Soviet Socialist Republics by Rosenbaum and Gottlieb in 1926 (3 cases) and by Abramyan, Romberg and Maynats in 1932; and in Austria by Scheele in 1926 and 1927 and by Schueller in 1932.

The first cases of aniline tumor in the United States were reported in 1934, i.e., sixteen years after the beginning of the production of synthetic dyes from aniline and aniline derivatives on a large scale. At that time Ferguson and his co-workers placed on record 25 cases, all originating in one chemical concern. The first of these cases was discovered in 1931 by Anderson. The number increased to 86 by the end of 1936, according to subsequent communications (Gehrmann; Wolfe; Evans; Washburn; Gay; Ferguson) and is, at the present time, approximately 100 cases.

A recent newcomer to this group of countries is Italy. While the occurrence of aniline tumors of the bladder was still unknown in Italy in 1934, according to Gaeta, who attributed this fact to the relative newness of the Italian chemical industry, di Maio reported 12 aniline tumors in 1936 and 1937 which had developed among 86 workers of a certain dye factory in the course of the last few years. An earlier Italian communication on this subject by Bianchi, in 1911, does not refer to Italian cases but describes cases observed in Germany (Carozzi).

In 1940 Japan joined the list of modern industrialized countries in which aniline tumors of the bladder have appeared. Nagayo and Kinoshita mentioned three cases of papillomatous neoplasms of the bladder in workers of an aniline dye factory, of which one case ended fatally. There were, in addition, many cases of hematuria among men employed for more than 10 years in the following operations: naphthylamine, nitrobenzene, benzidine, etc.

The total number of approximately 550 occupational tumors so far are on record in various countries. It need scarcely be mentioned that this does not represent the total incidence, as numerous factors are at work to obviate accurate information. It may be pointed out, for example, that so far all such tumors observed occurred in male workers, in spite of the fact that during the late World War women were also employed in these hazardous operations in some German plants. While they were eliminated from these occupations soon after the end of the war, it is not likely that all of them escaped without subsequent formation of bladder tumors. It is more probable that, when these tumors occurred, their occupational origin was not recognized.