

land long before the introduction of the blue overalls. The marked differences existing in the incidence of occupational cancers of this type in industries of other countries are attributable to the fact that they do not use shale oils, but less carcinogenic or noncarcinogenic petroleum oils, for the lubrication of the spindles. However, the type of lubricating mineral oil used in English textile mills has changed since its introduction. Henry reported that the early mineral oil employed in cotton mills in England was obtained from Parrot coal and Rorbanite mineral (1850 to 1862). Later, the oil was distilled from Scotch bituminous shale. Recently, oils have been imported from Pennsylvania, Rumania, California, and Mid-Continental oil fields. These were blended with domestic, shale oils to reduce the carcinogenic potency of the oils used.

Paraffins. A carcinogenic hazard from paraffin exists for men employed in those occupations, which entail a contact with crude or impure paraffin, i.e., a product which contains appreciable amounts of crude mineral oils. The main group of workers exposed to crude paraffins are men employed in the manufacture of this substance, and here, especially men working in the paraffin shed, and the sweating shed. The men employed in the filter presses work with bare hands and arms, although they wear canvas bibs and leg covers. They come in contact with oil containing scale, especially when they clean canvas filter bags by hand, which is an extremely greasy job. They get thoroughly smeared with the pressed distillate, and their clothes are soaked with oil (Ehrlich; Davis; Heller; Scott; Müller; Kennaway; and Wood). Such an exposure is accentuated if the workers are unclean. Ullmann, for instance, reported that Galician workers used to sleep in their soiled working clothes. In addition to these paraffin workers proper, who have a direct contact with paraffin containing crude oil, workers of other occupations are, also, exposed to this material (shale breakers, ammonia workers, and laborers) (Kennaway). A potential hazard exists for all those workers who handle incompletely purified paraffin (printing trade, and the manufacture of cartridges and explosives). So far, occupational contact with pure paraffin has never given rise to cutaneous malignancy, or any other trace of inconvenience (White).

IV. GEOGRAPHIC DISTRIBUTION AND INCIDENCE

The first description of an occupational paraffin cancer of the skin was rendered by von Volkmann in 1875. He observed three cases of this disease among workers employed in paraffin plants near Halle, Saxony, where paraffin is obtained by the distillation of lignite. Additional cases from the same source were recorded by Tillmanns in 1880 (1 case), Schuchardt in 1884 (1 case), and Eckardt in 1886 (4 cases). Liebe added another case in 1892 and mentioned a second new one, which was observed by Frey. In 1893 Tuteur noted an additional case originating in an employee of a German paraffin plant.

Almost 30 years passed before a new case of industrial paraffin epithelioma was placed on record in Germany. In 1924 Leitch mentioned that not a single