

Apart from these natural environmental sources of arsenic exposure, giving rise to neoplastic growths of the skin, there have come into existence various important artificial conditions of an environmental contact with arsenicals for the general population in many countries (Zangger). Some of these artificial environmental contaminations have produced similar effects as the natural ones, while in others the possibility and potentiality of such an action must be considered as a great probability.

In the first report dealing with the occurrence of industrial arsenical epithelioma, Paris mentioned the development of cancerous ulcers in domestic animals (horses and cows) grazing in meadows situated close to the copper smelters and tin-burning establishments. The arsenical fumes released from these plants into the atmosphere were precipitated upon the vegetation of the adjacent countryside. The arsenic contaminating the grass of the meadows was ingested by grazing animals and thus caused the development of the cancerous lesions. It was not until quite recent years that similar observations were made again. Wirth noted in 1922 that animals grazing near smelters showed signs of chronic arsenic poisoning. Prell reported in 1936 the occurrence of extensive arsenical injuries among the domestic and wild animal life in the region of Freiberg, Saxony, where numerous smelters (silver and lead) released arsenic containing fumes into the air. It was shown that these arsenical fumes were spread over an area measuring 50 km. in diameter and settled upon the vegetation. Horses, cows, goats, and pigs, feeding on this vegetable matter, developed loss of hair and hyperkeratoses, while melanotic spots and pre-cancerous warts were seen occasionally on the skin of deer inhabiting the forests of this region. A carcinomatous lesion was found in one deer. In addition to the cutaneous manifestations of chronic arsenic poisoning, domestic, as well as wild animals, were affected by arsenical enteritis, gastric ulcers and cirrhosis of the liver. There existed in this area an extraordinary mortality among insects, especially bees. After rainfalls which washed the arsenical dust from the leaves and carried it along into the water of brooks and pools, a great many fish died, such as was also reported recently from France following the use of arsenical insecticides. Baader stated that somewhat similar conditions existed in other mining and industrial regions in Germany (Harz district, Rhineland).

Recently, Nieberle reported the endemic occurrence of adenocarcinoma of the nasal sinuses in a flock of sheep kept in the fume and dust zone of these smelters in Freiberg. He suggested that this condition was caused by the chronic introduction of arsenic, as not only was arsenic found in the brain, tumor tissue and liver of the affected animals, but attacks of acute arsenic poisoning with gastrointestinal manifestations were not uncommon among the sheep which furnished the cancerous animals. Commenting upon these findings, Baader suggested that in all probability not only the animals, but also the human inhabitants of such areas, were exposed to the arsenical environ-