

individual animal (Andervont; and Lynch). It was noted by Lynch that mice painted with tar developed lung tumors at an earlier age than normally, confirming observations previously made by Murphy and Sturm.

The exact way through which these chemicals and tar act upon the lung tissue is still uncertain. It may be possible that the tar after penetration into the skin, and the subcutaneously injected dibenzanthracene and methylcholanthrene may enter the blood or lymph and thus reach the lung. The tar may be inhaled in the form of dust after drying and get into the lungs, or it may be licked off and enter the body through the alimentary tract. This substance may exert a specific, local, pulmonary influence or a general carcinogenesis favoring one. While Cook and his co-workers contended that these extraneous agents summate with the naturally occurring carcinogenic factor to give an effective stimulus, Andervont came to the conclusion that the appearance of lung tumors in strains which normally do not show spontaneous pulmonary neoplasms indicates that heredity is not an essential requisite for the production of these primary blastomatous responses in the lung. The existing variations in susceptibility are not of a fundamental nature, in the opinion of Andervont, but merely matters of degree. This investigator succeeded in producing in a strain of mice, showing a high incidence of spontaneous pulmonary malignancy, pulmonary tumors in practically 100 per cent, after the subcutaneous administration of sufficiently high doses of 1.2.5.6-dibenzanthracene. He was, also, able to induce the development of such neoplasms in several strains of mice, refractory to spontaneous pulmonary neoplasia.

b. SEX

The incidence of lung cancer is much higher in males than in females. In different statistical studies the ratio varies through wide ranges, according to Simons (males 59-91 per cent, females 9 to 40 per cent); Haintz (74.5 per cent males); Hill (77.9 per cent males); and Kraft (89 per cent males). In the survey made by Simons, there was an incidence of 80 per cent in males in the 5,121 compiled cases of lung cancer. The recent increase in lung cancer, according to this investigator, did not affect the sexes in all districts in the same way; there was a greater incidence among men than among women (Peters; and Kennaway and Kennaway). In more recent years the increase rate in both sexes has become practically equal. Similar sex relations exist regarding the incidence of laryngeal cancer. The sex distribution of laryngeal cancer is, according to Kraft, 20 men to 1 woman. The reason behind this divergent behaviour of the sexes is not known definitely. From experimental evidence Lynch as well as Campbell have concluded that sex as such has little or no effect upon the incidence of spontaneous and experimental pulmonary tumors in mice.

Andervont asserted that 1.2.5.6-dibenzanthracene brings about neoplastic response in the lung more rapidly in male than in female mice. He observed