

carcinogenic factors, such as especially solar rays. It appears probable that the melanotic changes frequently associated with occupational cancerous reactions are causally not interrelated, but merely coincidental.

4. ORGAN AND TISSUE SPECIFICITY

Studies on the experimental production of cancer brought out the fact that there exist marked differences in the susceptibility of various species, different strains of the same species, and different individuals of the same strain to any particular carcinogenic agent. Apart from the spurious species specific differences in sensitivity reported, which may be accounted for by variations in the intensity, duration, and type of carcinogenic exposure, there remain fluctuations in susceptibility. These fluctuations, ranging from relative differences in the length of the latency period to complete refractoriness, must be attributed to other factors, such as differences in the diet, in the thickness of the hair coat and epidermis, in the constitution, and particularly in the metabolic degradation and conjugation of the carcinogenic agents. Shear stated that synthetic carcinogens were found to be active mainly in mice and rats, while other animals, particularly closely related rodents (guinea pigs, rabbits), cats, and dogs, were much less susceptible to these agents or were refractory. A successful experimental production of tumors requires the use of a suitable animal (Putschar; Baumann and Rusch; Lacassagne; Miescher; Sannie, Oberling, and Guérin; Lacassagne and Nyka; Klinke; Kinoshita; Woglom; Boyland and Burrows; Lambret, Driessens and Cornillot; Schürch and Winterstein; Haagensen and Krehbiel; Warren; and Menken).

As certain observations made in connection with occupational and experimental cancerigenesis indicated that the various cancerigenic agents seem to elicit neoplastic responses in some organs, but not at all or less readily in others, the claim was advanced that these agents possess well-defined organ and tissue specific affinities (Klinke; Woglom; Bullock and Rohdenburg; Uehlinger; and Evans and Goodman). It was asserted that aromatic amines (dye intermediaries) are attracted by the tissues of the urinary bladder, especially its vasculo-connective tissue elements (Schaer; and Ferguson), while arsenic was said to have an affinity to the epithelial cells of the skin, causing only carcinomatous growths and never sarcomatous tumors (Cook, Haslewood, Hewett, Hieger, Kennaway, and Mayneord).

Uehlinger contended that the rays emitted from radioactive substances could elicit cancerous reactions in some tissues, such as the periosteal tissue, but were ineffective in regard to the lung, brain, and testis. Ilfeld could elicit malignant neoplasms in the kidney, spleen, and uterus of rats and mice into which cholesterol pellets containing 1.2.5.6-dibenzanthracene or 3.4-benzpyrene were placed, while no such responses occurred in the liver, testicle, bone marrow, periosteum, stomach, and brain subjected to the same treatment. Similar observations were reported by Woglom, who inserted threads soaked