afterwards with fibroma virus a generalized fibromatosis developed in these rabbits, a result never obtained before with the injection of the virus only. Also, in one of the rabbits thus treated a non-transplantable, polymorphous-cell sarcoma appeared.

Numerous reports deal with sarcomas in subcutaneous tissue after the injection of the various synthetic carcinogens (3.4-benzpyrene; 1.2.5.6-dibenzanthracene; methylcholanthrene; 3.4.5.6-dibenzcarbazole; and o-aminoazotoluene) into mice, rats, and chickens (Andervont; Shear; Boyland and Mawson; Watson; Burrows; Barry and Cook; Boyland and Burrows; Peacock; Hieger and Kennaway; and Nishiyama).

B. Physical Agents

a. Radiating Energy—1. ultraviolet rays

While the occurrence of occupational solar carcinoma of the skin appears to be a well-established fact, there is so far no evidence available concerning the existence of sarcomatous responses in the skin of persons exposed excessively to sunlight. A number of investigators (Putschar and Holtz; Roffo; Beard, Boggess and von Haam; Huldschinsky; von Haam, Alexander and Beard; Büngeler; and Hueper), reported sarcomas in the skin of the ear, the ocular region, and the dorsum of the forefeet of rats and mice, usually in coexistence with carcinomatous lesions after prolonged exposure to solar rays and ultraviolet rays. It is not likely that this discrepancy in the behavior of the cutaneous connective tissue of man and certain animals reflects any fundamental difference in the sensitivity and reactivity of the connective tissue cells of various species to ultraviolet rays; but it is the result of differences in the structure of the human skin and the skin of mice and rats, and in the intensity of exposure present in man under natural conditions and in animals under experimental conditions. As the epidermis of mice and rats is very much thinner than that of man, and scarcely covered by horny layers which absorb strongly ultraviolet rays, these cancerigenic agents penetrate readily into the subepidermal connective tissue in rats and mice and thus may elicit sarcomatous responses. The thick, cornified human skin arrests the bulk of these rays within the epidermal layer. The degree of exposure to the solar rays existing under the most severe occupational conditions never approaches the high intensity and duration of ultraviolet irradiation to which the animals were subjected. This resulted in the production of actinic burns of a severity and depth unknown under occupational circumstances, and permitted a direct action of the ultraviolet rays upon the uncovered, subepithelial connective tissue.

The experimental actinic sarcomas of the skin, observed by Putschar and Holtz, were spindle cellular tumors or chondrosarcomas, when originating from the cartilaginous tissue of the ears. Roffo stated that 58.33 per cent of