tissue to the sarcomatous effect of roentgen-rays was demonstrated experimentally by Burrows, Mayneord and Roberts; Lacassagne and Vinzent; Vinzent; and Lacassagne. The English investigators produced a noninfectious, inflammatory tissue in young rabbits by the injection of 3 cc. of olive oil, containing 10 per cent of powdered silica, into the pubic labia. The treatment was followed four days later by the injection of olive oil containing 2 per cent oleic acid. Some time after this administration, a 10 per cent watery suspension of kaolin was introduced and the resulting inflammatory lesions irradiated with 600 r. Spindle-cell sarcomas developed two years later in these areas in several of the rabbits thus treated.

The French investigators used chronic inflammatory foci produced by the subcutaneous inoculation of streptobacilli. The abscesses formed in the thighs of the rabbits thus infected were exposed to roentgen-rays (915 r), a treatment which was repeated five months later (455 r), and one year later (610 r). After the third application of roentgen-rays the abscesses receded gradually, followed after six months to three years by the development of sarcomas in five of the 27 rabbits used. One of the neoplasms formed was a spindle cellular fibrosarcoma, a second one was a rhabdomyosarcoma, and the other three tumors were osteogenic sarcomas. Similar results were obtained when two rabbits were injected in the mammary region first with diatomaceous earth, followed by the application of roentgen-rays. One of the rabbits developed a metastasizing fibrosarcoma, while the second animal showed an intracanalicular epithelioma of the mammary gland. Eighteen per cent of the animals thus treated developed malignant neoplastic reactions. It appears probable that a chronic inflammatory granulation tissue is more susceptible to a sarcomatous reaction when exposed to roentgen-rays, than seems to be the case with a normal quiescent connective tissue.

III. RADIOACTIVE SUBSTANCES

Apart from the occurrence of osteogenic fibrosarcomas in luminous dial workers, which will be discussed among tumors of the osseous tissue, no reports are available concerning the existence of occupational sarcomas of connective tissue origin, caused by an exposure to radioactive substances. There is only a single case of a therapeutic radium sarcoma of connective tissue genesis on record (Deuticke). This situation may change during the coming ten to fifteen years, as colloidal thorium dioxide solutions have been used during recent years for diagnostic purposes in man (Foulds). Neoplastic sequelae have not been observed so far in man (Selbie). Yates and Whitmore reported the absence of any neoplastic complications in 64 patients, who had received thorotrast (colloidal thorium dioxide solution) injections a few days to three years previous to autopsy. The intravenous or intramammary introduction of this substance has resulted, according to information available (Fleming and Chase; Stuck and Reeves; Harris; Naegeli and Lauche;