overhanging and elevated hyperkeratoses, falling off steeply toward the floor of the ulcer, but fading out gradually toward the periphery.

The atrophic portion of the skin furnishes a third source of roentgen-ulcers. This atrophic skin is highly sensitive to many kinds of physical and chemical traumas that are often of very mild and common types, such as soap, disinfectants, photographic chemicals, mechanical or thermic injury. Rhagades are formed, particularly in the region of the knuckles. When these break down, ulcers result which heal either slowly, and break open again, upon the least provocation, or they are refractory and may persist for years. These torpid, atonic ulcers are painless in the beginning, but later may produce excruciating pains. After years of duration their edges may become indurated and elevated, forming cauliflower-like, keratotic protrusions (Rosenbach; Béclère).

Concomitant with these changes which involve mainly the epidermis, there appear newly-formed dilated, tortuous and varicose capillaries in the subepidermal tissue, which are sometimes rather coarse and at other times more delicate, forming spider-like arrangements which involve smaller or larger areas of the injured skin. Telangiectatic pre-existing capillaries may participate in the development of these vascular abnormalities. The capillarectases are often found beneath a leukodermic epidermis, producing thereby lesions resembling the white spots present in the skin of xeroderma pigmentosum. While these vascular changes are no constant phenomena, they may follow even after very mild types of roentgen-injury. They may be considered as a part-phenomenon of the chronic congestion existing in the chronic roentgen-dermatitis and are related to functional and anatomical changes of the walls of deeper vessels. Deep seated fibrotic changes in the periarticular connective tissue are responsible for the swelling of the finger joints and for their ankyloses which are observed not infrequently in severe injuries.

The malignant growths, which arise in a skin showing these lesions, originate most often either from hyperkeratotic warts or in the hyperplastic margins of chronic roentgen-ulcers of varying derivation (Bordier). Atrophic parts furnish less often the basis of a malignant growth.

Saunders and Montgomery pointed out that carcinomas may develop occasionally in healed roentgen-ulcers many years after their apparent quiescence, starting usually in those parts of the scar which are composed of a thin, telangiectatic tissue. Warty or cone-shaped hyperkeratoses, which may be considered benign as long as they remain stationary, must be suspected of undergoing a malignant change when the horny mass is rapidly reformed after removal and when an infiltrative fixation of their base becomes apparent, accompanied by a rapid increase in size, throbbing pains and a tendency to slough, leaving either an ulcer, which shows no tendency to heal and excretes a fetid, malodorous exudate, or a delicate red skin.

Cancers arising in an atrophic part of the skin originate usually in leukoplakia-like areas in which a retracted spot ulcerates and becomes surrounded by a callous margin representing a malignant growth (Hesse). Enlarged