definitely. In commenting upon this trend in opposite directions, by these two manifestations of radiation injury, Brandt suggested that although the greatly improved elimination of the hazard of direct radiation has essentially removed the principal source of cancerous responses, the danger from scatter rays, which he incriminated as the cause of hematic reactions, has persisted to an appreciable degree. The production of these secondary rays cannot be easily prevented, and the contact with them cannot be entirely avoided.

Exposed Occupations. The use of roentgen-rays and radioactive substances has grown rapidly during the last two decades by their increasingly widespread application in the fields of medicine, science, industry, arts, and commerce. The development has greatly increased the number of individuals exposed to these agents in occupational endeavors. It is probable that the introduction of these active agents into various industrial and commercial establishments possessing no appreciable previous experience in this field, such as the medical profession has acquired and learned to appreciate by painful experiences, may even add to the existing hazard. This may be brought about by the lack of careful observation of essential and adequate precautionary measures in the installation and operation of such equipment.

Radiation hazard of this type exists for the following occupations and professions: Scientific personnel of physical, physico-chemical, and biological laboratories, and the medical personnel of diagnostic and therapeutic institutes of radiology in hospitals and clinics; physicists, chemists, engineers, and mechanics engaged in the manufacture and testing of roentgen-tubes and radioactive substances intended for medical and commercial purposes; engineers and mechanics employed in the installation and repair of roentgen-apparatus; miners of radioactive ores; workers handling and using radioactive substances for commercial purposes (painting of luminescent dials and gunnery equipment and the manufacture of gas mantles); personnel of roentgen-ray laboratories of the electric industry (testing of micas used in electrical equipment for the absence of metal particles and verification of electric units hidden beneath insulating material of large electric mountings); personnel of roentgen-laboratories of the aviation industry (examination of wood for flaws and defects used in airplane construction); personnel of roentgen-ray and radium laboratories of the metallurgic industry (testing of castings for flaws and crystalline structure, and examination of alloys and testing of heat, pressure, and other mechanical stresses on metal parts); personnel of roentgen-laboratories of the chemical industry [examination of the structure of fibrils (cellulose, rayon, rubber, and proteins), and the effect of dyeing, light, heat, and chemicals on fibrils; and the study of amorphous and colloidal matter, crystals, and resins]; personnel of roentgen-laboratories connected with the art and jewelry trade (differentiation between natural and cultured pearls; and establishment of the authenticity of paintings, documents and similar matter); and the personnel employed in shoe stores using roentgen-ray equip-