

B. Holmberg² in Walker carcinoma and mouse Erlich-Landschutz hyperdiploid transplants.

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Renal Disease associated with Positive Lupus Erythematosus Tests in a Cross-bred Strain of Mice

A STRAIN of mice *NZB/BL* suffering from an autoimmune type of hæmolytic anaemia has been described^{1,2}. Since then it has been shown that approximately 4 per cent of this strain have positive lupus erythematosus cell tests and that many of the animals show renal changes resembling those seen in human systemic lupus erythematosus^{2,3}. In this paper it was also shown that F_1 and F_2 progeny derived from a cross between mice of the *NZB/BL* and the *NZY/BL* strains showed a low incidence of hæmolytic anaemia but 25 per cent of the animals had positive lupus erythematosus cell tests and all had renal changes resembling lupus nephritis. These animals died from renal failure within 18–24 months of age.

Recently, hybrids derived from a cross between the *NZB/BL* strain and an inbred strain of white mice known as *NZW* have been shown to die of renal failure within 8–10 months. All animals show positive lupus erythematosus cell tests and all have florid renal changes showing close identity with those seen in human lupus nephritis.

The kidneys may appear enlarged, dusky pink in colour, flecked with multiple red specks, or contracted, typically *café au lait* coloured and granular. Early glomerular changes are hypercellularity with unfolding and thickening of the capillary walls to form typical wire-loop deformities. Lymphoid deposits around the hilar vessels spread along their course towards the cortex and are usually heavily populated with plasma cells and Russell body forms. The renal tubules contain hyaline casts of periodic acid-Schiff-positive material and often granules or droplets of similar material may be seen in the cytoplasm of the proximal convoluted tubules.

Other lesions are found according to the stage or intensity of the disease process. In the most florid cases large areas of fibrinoid necrosis involve the basement mem-

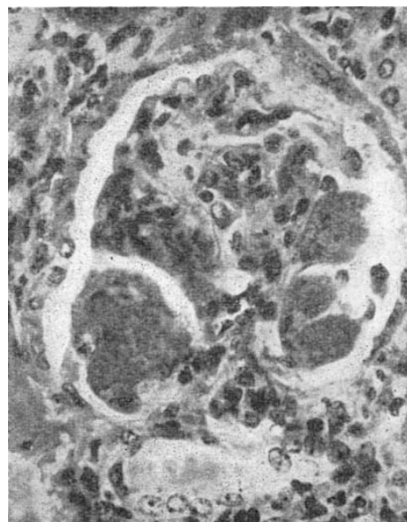


Fig. 2. Hypercellularity and fibrinoid necrosis of glomerular tuft (haematoxylin-eosin, \times c. 320)

brane and cellular elements of the glomerulus, while others show numerous so-called hyaline thrombi and occasional hæmatoxylin bodies. Approximately one-third of cases show fibrinoid necrotic lesions in the walls of medium and small renal vessels. In these cases similar vascular changes have been noted in the spleen, lymph nodes, stomach, thyroid and myocardium.

It is believed that this hybrid strain will prove invaluable in research into the nature and therapy of systemic lupus erythematosus.

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RADIOBIOLOGY

Cæsium-137 in Dried Milk Products in Relation to Phytoclimatic Zones

A RECENT evaluation of radiological data gathered by the U.S. Atomic Energy Commission's Health and Safety Laboratory includes a statement that the concentration of fission products in commercial milk is essentially independent of total rainfall^{1,2}. However, the precipitation values were presented as arbitrary ranges and the landscape units used were not strictly biological regions. The purpose of this communication is to show that if radiological data from the same source are arranged according to natural landscape units a relationship between phytoclimatic zones and the cæsium-137 content of milk is indicated.

For our purpose, the geographical region considered is the north-western portion of the United States where broad areas are mapped as distinctive natural vegetation zones³. Such broad areas are necessary to allow reasonable assurances that milk sample stations actually derive milk from an area representative of a particular vegetation zone.

Ten of eleven milk sampling stations in the north-west region were grouped into one of three natural vegetation zones (Table 1). Portland, Oregon and Burlington, Washington, were assigned to the Pacific north-west coniferous forest zone. Bismarck, Bottineau, and Cando, North Dakota; and Mitchell, South Dakota, were

Fig. 1. Wire-loop deformity of glomeruli (haematoxylin-eosin, \times c. 320)