taken at stresses of 0.6 kg/mm² or above there are distinct sections of steady-state creep, for which the flow rates are very high. This shows that, even at low temperatures, recovery processes take place in lithium under conditions of slow plastic deformation. The most probable mechanism of recovery in low-temperature creep is the activationless process of the detachment of dislocation pile-ups, such as grain-block boundaries and interfaces, from obstacles. Thus the steady-state stage of creep can be represented as a successive alternation of horizontal and vertical sections.

a

b

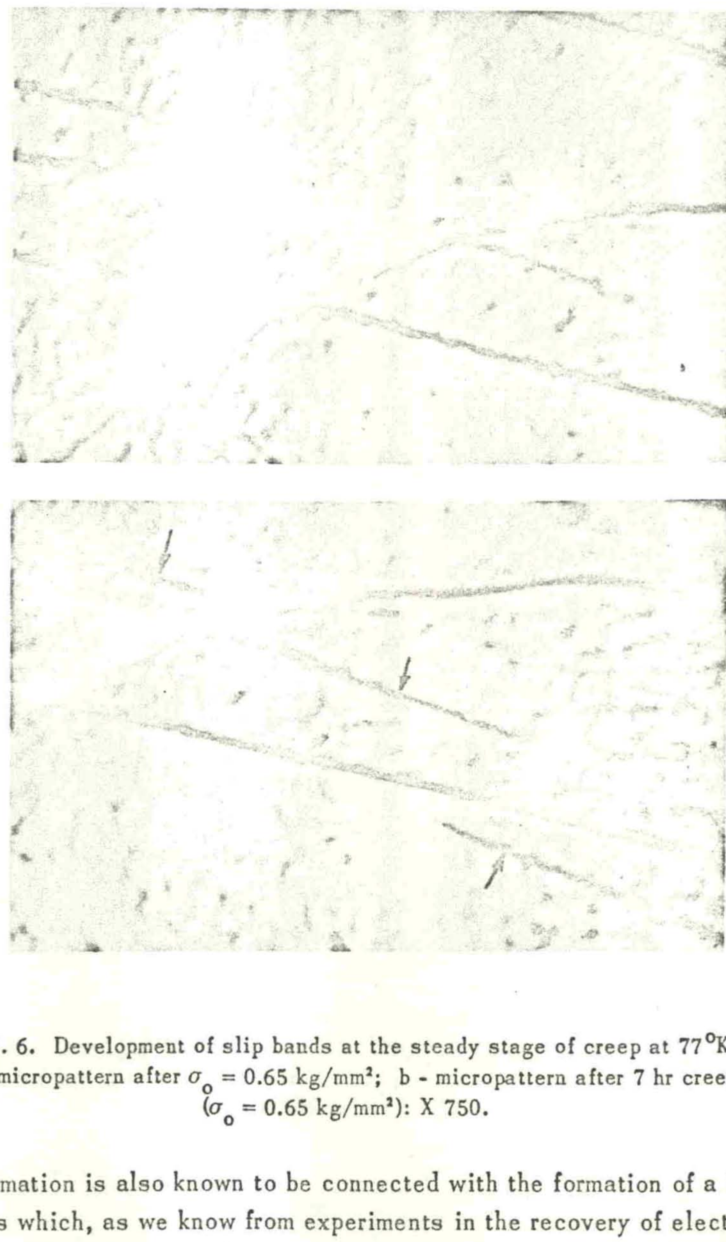

FIG. 6. Development of slip bands at the steady stage of creep at 77°K: a - micropattern after $\sigma_0 = 0.65$ kg/mm²; b - micropattern after 7 hr creep ($\sigma_0 = 0.65$ kg/mm²): X 750.

Low-temperature deformation is also known to be connected with the formation of a large number of point defects, i.e. vacancies which, as we know from experiments in the recovery of electrical resistivity of cold-deformed metals [14], have very high mobility. The redistribution of the point defects, which amounts to the formation of paired vacancies, vacancy pile-ups, and their migration to dislocations, may also lead to recovery during the low-temperature creep of lithium.