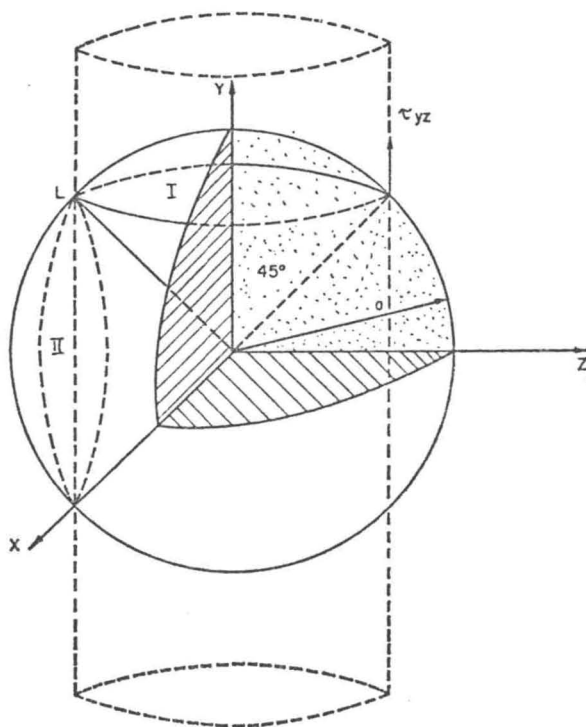
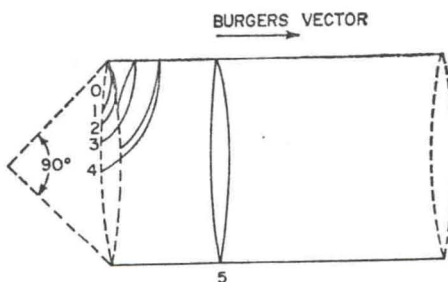


Fig. 3



(a)



(b)

(a) Spherical 'particle' of radius a in a matrix subjected to external hydrostatic pressure. The intersection of the 90° cone with the surface of the sphere corresponds to a circle of maximum induced shear stress and defines the glide cylinder, shown by the dashed lines, for the induced dislocation loops. (b) Schematic illustration of the stages of formation of a full prismatic loop at a spherical 'particle' under the action of pressure-induced shear stresses. At stage 5, the loop is capable of gliding along the cylinder, which has its axis parallel to the Burgers vector.

that the value is independent of the size of the particle. This paradox can be explained by the propagation of dislocations into account. At the interface of a particle under a constant shear stress, the induced shear stress is of the order of a full dislocation of a strongly size

of radius of the particle, nucleated on the surface under the action of the indicated shear stress. The resulting dislocation balance with the applied stress (and modified by the particle size). The shear stress supports the

(6)

For small particles, the induced shear stress is estimated as $Gb^2/2R$

(7)

stress which is independent of the size of the particle. This observation, based on this model, is in agreement with the experimental results. The dislocations to be discussed

used for the analysis of the stresses induced by the dislocations of the size necessary