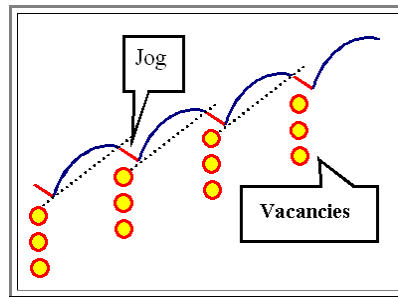


Generation of Vacancies by Moving Jogs of Screw Dislocations

This picture shows the basic mechanism for the generation of vacancies by the movement of dislocation with jogs.



Illustration

- The screw dislocation is trying to move in the direction indicated by the bowing in response to the resolved shear stress on its glide plane which is assumed to be about perpendicular to the screen.
- The jogs are short segments of edge dislocations; their glide plane would be the screen plan. The dislocation thus would be immobile.
- However, if a vacancy is emitted, the jog moves one plane up (the inserted half-plane of the edge dislocation gets shorter). The jog thus has to "[climb](#)" to keep up with the rest of the dislocation

In effect, the screw dislocation now moves as if it would experience some "friction" - but it still moves. At the same time vacancies are generated which may diffuse around and start to do their own thing.