Waving, not drowning: The truth about quicksand

September 29 2005

Scientists have given the lie to the hoary scene in Westerns in which a cowboy slowly drowns in quicksand or alternatively is cast a lifeline by a buddy and gets hauled to safety.
Physicists in the Netherlands built a miniature quicksand in their lab, mixing up fine sand, clay and saltwater.

They discovered that quicksand becomes more viscous very slowly: it takes days for the substance to become progressively more toffee-like in consistency.

On the other hand, it loses this viscosity very quickly in response to stress. A moving object in the sand causes it to liquefy swiftly, as the sand heads towards the bottom and the upper layers become runny.

The settling sand then becomes so compact that it is impossible for material with the density of a human body to become completely submerged.

So an ensnared cowboy should take solace in that he won't drown, the study suggests.

On the other hand, he is likely to stay there for a long time, for even the most muscular help won't get him out.

The dense sand so clumps around the lower limbs that just to haul out a foot requires a force of 100,000 Newtons -- about the same as that

needed to lift a medium-sized car.

The study, published on Thursday in the British weekly science journal *Nature*, is led by University of Amsterdam researcher Daniel Bonn.