

Sand volcanoes on slumps in the Carboniferous of County Clare, Ireland

Professor William Daniel Gill, M.A. D.Sc. F.G.S. and Professor Philip Henry Kuenen, For.Mem.G.S.

Quarterly Journal of the Geological Society, January 1957, v.113, p.441-460.

<http://jgslegacy.lyellcollection.org/content/113/1-4/441.abstract?sid=db770098-d279-412a-9262-1fa629e003cd>

Summary

In the Namurian basin of western County Clare, Ireland, investigated by the first author, there is a fine display of slumping, which recurred frequently during the deposition of some 3500 feet of sands, silts and muds. The slumps occur in sheets and in channels with complex sheared margins, and exhibit a wide variety in size and in the degree and style of break-up. On the majority of the slumps are sand volcanoes. Some of these are quite large (up to 50 feet in diameter), but most are from one to three feet in diameter ; the volcanoes often occur in great profusion. They are interpreted as having been formed under water, by extrusion of sediment-laden water from the slumped masses before burial by undisturbed covering sediments. They provide proof that the slumps were " open-cast " and not buried during the movement. They also indicate a permanent cover of water with only slight wind and current action.

Although there is a clear empirical connexion between volcanoes and slumps, field evidence of feeding fissures or pipes is not common. The manner in which the volcanoes were formed is more fully explained on the basis of models produced on experimental slumps by the second author.