

## DISTANT THUNDER

## Onshore exploration

### Geologist and science writer Nina Morgan discovers a successful solution to a sticky situation

A long- forgotten report, published back in 1962, about the discovery of economically viable amounts of treacle in sediments in Cumbria offers useful lessons for all resource exploration companies hoping to exploit onshore mineral and hydrocarbon resources. An essential ingredient in puddings, especially those calorie-rich hot puddings, typically prepared under high pressure/ high temperature regimes, and served with custard in works canteens during the hottest days in summer, treacle has typically been obtained from foreign sources.

In light of Brexit and with no specific trade deals yet in place to ensure continued supplies of this important culinary resource, the exploration, development and successful extraction of this essential ingredient has now become more important than ever. Hence, the aforementioned report summarised and quoted below that describes, among other things, the geological history and setting of treacle deposits takes on a new significance.

### Geological setting

The formation of native treacle deposits probably occurred sometime between the late Plasticene and early Obscene periods, a time of intense volcanic activity. It was also a time when the great land mammals, such as the ugly plated twenty-one piece dinosaurs roamed the great forests. Under these volcanic conditions, and in successive cycles of genesis and nemesis around and in the swamps and shallow seas of Cumbria, there was thus ample carbonaceous matter for the production, assisted by the heat from contemporaneous lava flows, of large quantities of sucrose, comatose, dextrose, and ambidextrose, and the

subsequent consolidation into treacle-bearing schists. These deposits form by far the largest source of economically exploitable treacle deposits.

A typical section includes (from top to bottom) Alluvium and Effluvium; Sham Rock; Short Coal Measures; Lager and Limestone Beds (Carlsberg Series); Treacle Bearing Schists (the target reservoir rock!); Matrimonial Beds (Wedlock Series); Gneiss; Gnasty; Hire Purchase Deposits; and Old Red Flagstone (Stalinite). The schists are to be found immediately above the Matrimonial Beds of the Wedlock Series, from which they are occasionally separated by dogmatic intrusions—though care must be taken to distinguish between these intrusions and the volcanic necks of the Teenage Tuffs.

Where folding of the rock strata has occurred, it is possible that small quantities of the very viscous fluid treacle were previously obtained by the sinking of wells, for while there is frequent reference in folklore to wells, no reliable evidence of springs in the Matrimonial Beds has been found.

### Public relations

Onshore exploration, discovery and production of essential mineral resources is one thing. But as companies such as Cuadrilla know only too well, attempts to develop hydrocarbon and mineral resources, particularly in onshore locations, often proves problematic—not least because of environmental objections and public scepticism about the motives of the companies involved. To counter this, establishing good public relations with local communities near the areas

affected by the developments is essential. Resource companies with onshore exploration and production programmes need to spend much

time and effort in explaining the rationale behind their operations to anyone who will listen and pointing out the benefits that they hope will ensue. They also need to offer guided tours of the operation sites, and be willing to present talks in local schools and community centres.

There is no record of mass protests against the mining of treacle in Cumbria to date. This suggests that the operators of the Cumbrian Treacle mines were extraordinarily successful in their public relations campaigns. And, given that there appears to be no shortage of UK-produced treacle, one can only assume that the un-named mining company involved has been able to successfully and economically exploit their treacle resources in an environmentally friendly manner. At any rate—they certainly seemed to have found ways to keep the local population sweet. No fooling!

**End notes:** The geology and history of the Cumbrian Treacle mines was first described by an anonymous author in an article published in the *Appleby-Frodingham News*, 15, no. 2, summer 1962. I thank Philip Powell of the Oxford University Museum of Natural History for drawing my attention to this article. I made up the rest!

\* **Nina Morgan** is a geologist and science writer based near Oxford. Her latest book, *The Geology of Oxford Gravestones*, is available via [www.gravestonegeology.uk](http://www.gravestonegeology.uk)

