WAITING FOR THE ...DROP

In 1944, in a physics lab at Trinity College in Dublin, Ireland, a scientist (whose name, sadly, has been lost to history) set up an experiment. He took several lumps of tar pitch, heated them, and placed them in a funnel. After giving the pitch time to settle, he left the apparatus alone. Not for minutes or days or even years, but for decades. Pitch is a thick black material which appears to be solid at room temperature. In fact, if hit with a hammer, it shatters. The point of the experiment, however, is to prove the long-held belief that, over a long period of time, pitch actually has some liquid properties and is capable of flowing - albeit extremely slowly.

The Trinity experiment is only one of a number of similar experiments. The earliest and most famous one was initiated in 1927 by Professor Thomas Parnell of the University of Queensland in Brisbane, who wanted to see if his calculations regarding the viscosity of pitch were correct. Parnell poured a heated sample of pitch into a sealed funnel and allowed it to settle for three years, after which the seal at the neck of the funnel was cut, allowing the pitch to start flowing. A glass dome covers the apparatus which has been on display outside a lecture theatre ever since, over time, a large droplet of pitch forms and eventually falls out of the funnel. This event, known as a pitch drop, was predicted to occur about once a decade.

The Queensland experiment, however, has demonstrated that calculating the exact moment when a drop is likely to occur is hardly an easy matter. In 1979, John Mainstone, the professor by then in charge of the experiment, skipped one of his usual Sunday campus visits and missed the drop. In 1988, Mainstone went for a cup of tea and when he returned, he found he had missed the drop by five minutes. In 2000, Mainstone set up a video camera to catch the drop, but the camera malfunctioned, and he saw nothing.
Little wonder, therefore, that the Trinity College drop was being eagerly awaited. In April of 2013, Physics professor Shane Bergin set up a webcam so that the world at large could witness a pitch drop.

And the event the scientists were looking for came in the form of a momentary, yet momentous, happening: the pitch, rendered elastic, succumbed to gravity and leaked through the funnel, and dropped to the bottom of the jar. The event occurred at 5.00 p.m. local time on 11 July 2013. This time, the camera equipment didn't malfunction and the outcome of one of the world's longest running experiments was finally observed by human eyes.

All this has given these lumps of pitch something of a cult following - one that has been amplified by the Internet. Thanks to which, you may be able to watch the momentous event yourself next time. And when it comes, the drop may not be the most significant scientific event of its time, but it may be one of the more exciting ones. Science, in the public imagination, is often perceived as data-driven and analytical, by design divorced from human emotion. But this split- second falling of a lump of liquid pitch is a nice reminder of the excitement that can be embedded in even the dullest of experiments. The pitch drop when it comes may simply prove what we already know. But it is the result the world has been waiting for.



LIVEWORKSHEETS

1

A. The experiment set up in Dublin in 1944 sought to disprove a popular misconception.

B. The experiment set up in Dublin in 1944 sought to demonstrate that an accepted principle was correct.

2

A. When Professor Parnell set up his experiment, he was hoping to show that the pitch would drop within a given period of time.

B. When Professor Parnell set up his experiment, he was unaware how long the pitch would take to drop.

3

A. John Mainstone's experience shows that the original experiment was based on a miscalculation.

B. John Mainstone's experience shows that it is impossible to make very precise predictions about when the drop will occur.

4

A. Shane Bergin's innovation was designed to prove a point to rival scientists.

B. Shane Bergin's innovation was designed to share an experience more widely.

5

A. The writer feels that the public may have a better opinion of science thanks to the experiment.

B. The writer feels that the public may fail to appreciate the wider significance of the experiment.

LIVEWORKSHEETS