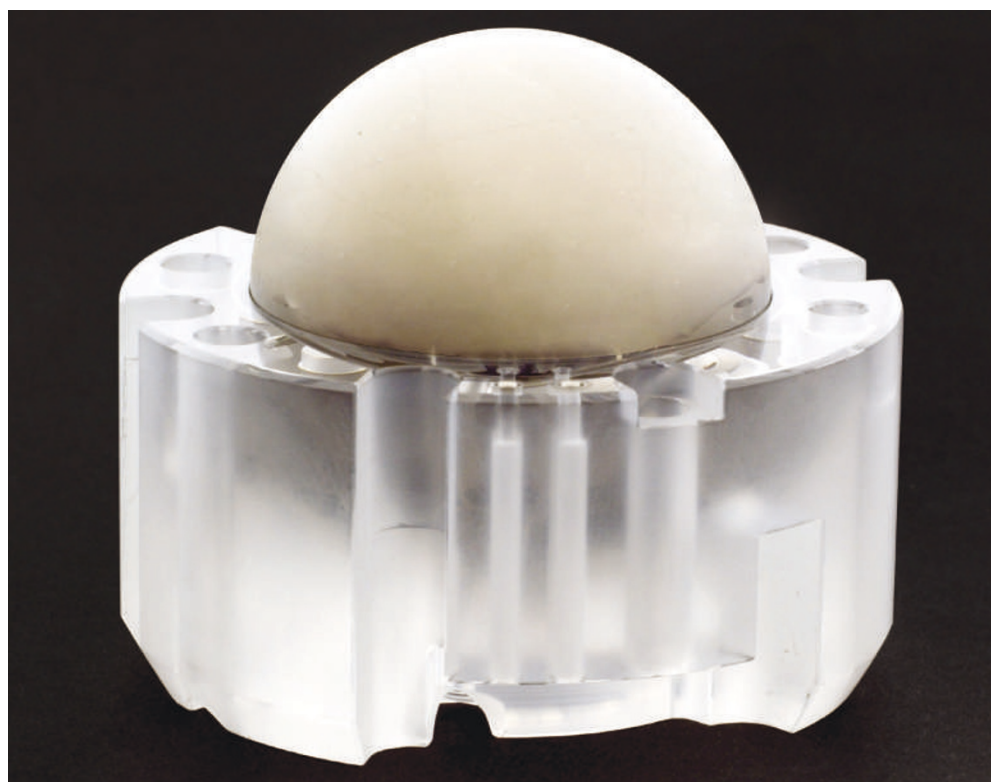


Perfect circle

This apparatus, held in London's Science Museum, has some significant purpose — or curiosity value — in the history of physics. Can you guess what it is?



MAYBE IT'S ALL RELATIVE, BUT THE PRECISION WITH WHICH THIS SPHERE WAS MACHINED REALLY COUNTS. ANSWER NEXT MONTH.

In 17th-century Italy, there was a flowering of interest in scientific pursuits, which was greatly stimulated by the introduction of new instruments. In Rome, Federico Cesi founded the Accademia De Lincei — named after the lynx, which has sharp eyesight — to discuss natural phenomena. One of its leading members was Galileo Galilei, who used a telescope to transform the world view. By the middle of the century, it was not only optical instruments that were revealing nature's secrets but air pumps, barometers and thermometers too.

The first temperature-measuring instruments should more properly be called thermoscopes than thermometers, as they indicated temperature rather than measured it on a



Last month: Florentine thermometer



numerical scale. They also had an open tube that responded to air pressure as well as temperature — a deficiency only realized in the 1640s when the variability of air pressure was discovered. The earliest sealed, 'spirit-in-glass', true thermometers can be dated to around 1654. They were designed by the Grand Duke of Tuscany, Ferdinand II, a member of the Medici family of Florence. Ferdinand went on to found another prestigious academy — the Accademia Del Cimento — in 1657, which published descriptions of these beautiful pieces of glasswork.

This Florentine thermometer is a replica, made in 1930, of a 1655 thermometer fashioned by the 'Gonfia', the Granducal glassblowers. It is a 100-point example of the spiral design.

The scale was not based on fixed points, but it is known that the scale on existing 50-point scale examples is very uniform.

In winter, this instrument would have shown a temperature of about 16 or 17 degrees, and in summer up to 80 degrees (the 50-point-scale examples have a top temperature of about 40, so are less sensitive). In the next century, the mercury thermometer became predominant, and the scales were standardized, resulting in instruments more similar to present-day thermometers.

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www.sciencemuseum.org.uk