Queen Elizabeth II looks through telescope at St. Paul's Cathedral, about 4 miles away, during a visit to the restored Flamsteed House, oldest building of the old Royal Observatory at Greenwich, London. in 1960.

HACKETT

Synchronise watches, Gentlemen

How Greenwich Mean Time made London the centre of the earth.

For so long, we didn't need it. Knowing the time in any specific sense was a redundant concept for all the millennia we were nomadic and most of the 12,000 or so years we've been farming. Even when giant sundials to measure and express time were invented in the ancient Sumerian city of Ur, over 6,000 years ago, little attention was paid to the readings.

While Religious scholars have, at times, habitually pored over the date of the Creation in order to anticipate and prepare for Armageddon (before the 5th Century, it was reckoned that the world would only exist for six millennia), ordinary folk for several hundred generations have been indifferent to the concept of measuring time. Light always called the shots: hence duels happened at dawn, midday sun meant turnips and beer and nightfall meant it was time to curl up and pray that no fire embers landed on your straw berth.

Even in relatively recently centuries, it was church clocks set to local time, as measured by a sundial that told people when it might be acceptable to start banging on the door of the village inn, which in effect meant that it was a different time depending where you were in the UK. Imagine the peels emanating from all those belfries, sweeping across the nation East to West like falling dominoes - starting 30 minutes earlier in London, Middlesbrough and Aberdeen than they did in Cardiff, Liverpool or Glasgow. It's an inherently romantic notion. But having disparate time zones within such a small island nation became untenable with the Industrial Revolution.

"As the railway network began to expand across Britain during the 1840s, it became increasingly difficult to coordinate the timetables with clocks set to different times," explains Curator of Royal Observatory Greenwich, Dr Louise Devoy. With the telecommunications industry making the need for temporal standardisation all the more pressing, the obvious solution was Greenwich Mean Time, a concept formulated at the Royal Observatory at Greenwich, which Charles II had founded in 1675 on a site chosen by Sir Christopher Wren.

The time – as dictated by the solar system – is erratic, in Greenwich and at any other single point on the globe, due to Earth's uneven speed in its elliptical orbit and its axial tilt. Hence, GMT is seldom the exact moment the sun reaches its highest point above Greenwich, but rather it is the average time – hence the word "mean". It's a simplified version of solar time that is configured in neat, consistent increments and therefore can be denoted by made-made mechanical devices that act imperviously to the Sun's movement.

"The railway companies decided to adopt GMT as their single time standard across the network, and gradually people became used to thinking about GMT rather than local time," says Devoy. For similar reasons, telegraph companies also coordinated the transmission of messages across the country according to GMT. After several decades of use, GMT was officially adopted as civil time across Britain on 2 August 1880."

The establishment of an international time zone system hooked to GMT was a gradual process over many decades following the International Meridian Conference in 1884, which saw 41 delegates from 25 nations gathered in Washington DC vote in favour of Greenwich, despite protests among European rivals. But it lives on to this day, and while the conference's main aim - a centralised system involving the entire world - never came into being due to opt outs, GMT prevails over the bulk of the world's time zones (including Russia's 11, America's 10, Canada's six and Australia's nine).

So why did the observatory in Britain's capital get to be the central marker point? "To persuade people to adopt a meridian defined by your observatory, you have to persuade other astronomers that your instruments are sufficiently accurate, plus you have to persuade mapmakers to denote your meridian as zero degrees longitude on their products," says Devoy. "There were several world-leading observatories considered at the conference in 1884, all of which had the required technical expertise to define a meridian, but in the end it was a pragmatic and economic decision to choose Greenwich as the majority of the world's ships were using British charts based on the Greenwich meridian, thanks to the influence of the Nautical Almanac since 1766. Meridians and time standards may be defined by the sun and stars but choosing which one to use is ultimately a human decision."

Had Sir Christopher Wren chosen a different site for the Observatory, then - let's say Cornwall - would it now be a different time to what it is the world over? "On a technical level, yes," says Devoy. "An observatory in, say, Falmouth, would have a time standard approximately 20 minutes behind London time so all the time zones would be shifted accordingly."

The longitude 0° 0' 00" line that dissects our maps passes through France, Spain, Algeria, Mali, Burkina Faso and Ghana, dividing the Earth into east and west just as the Equator dissects it into north and south. In other words, GMT puts Britain at the centre of the world – literally, in the case of any the flat world maps found on the wall of any classroom, military general's office or ship's cabin. The implications for Britain's role in trade, as a financial services hub, are unfathomable (London's ability to trade with Asia in the morning then the Americas in the afternoon is, of course, one boon).

But there's even more at stake here, from an intellectual point of view. If somewhere else, even within Britain had been designated the centre of the world – inevitably the case if, say, Boadicea's violent revolt hadn't led to Romans to shift the capital of their British outpost from Colchester to London 60 miles to the south-east – the standardised time, right now, across the world, would be a few minutes different to what it actually is. If chaos theory's famous butterfly effect holds even an iota of water, how might flashpoint events – lightening strikes, earthquakes, storms – happening at a different point in the time depicted on the world's mechanical timepieces have changed the course of history?

GMT is subject to some progress-linked threats – GPS Systems and atomic clocks to name two - but wherever its fate, it need never relinquished its claim to having defined the world as we know it today.