

# LA MERIDIENNE VERTE – Abroad Thoughts from Home

## A light hearted look across the Channel

Those who have spent happy hours cruising the autoroutes of France will have noticed from time to time signs indicating “La Meridienne Verte”, and may have wondered what this means. It is the most recent manifestation of the perennial competition between England and France.

In 1660, the Sun King was persuaded to establish an astronomical observatory in Paris, and staff were encouraged to solve the question of how to establish longitude accurately. Such a measurement was vital for the world’s shipping, and therefore would afford a nation both a trading and a military advantage.

At almost the same time, Christopher Wren was busy designing the Royal Observatory at Greenwich. It took Britain a few decades (60 years) to persuade the Government to put up the money for a prize (£20,000) to anyone who cracked the longitude problem. Those were the days when Parliament took bold strategic decisions.

A further four decades would pass before John Harrison could claim the prize for designing a clock which would faithfully record Greenwich time almost no matter how far you sailed. This, coupled with solar measurement, allowed a navigator to calculate his longitude. A consequence was the decision to base naval charts on degrees east or west of Greenwich.

It is worth mooting that this little piece of engineering did more to allow Britannia to Rule the Waves for the next century

or so than any other invention.

By the late 18th century the scientific and commercial world was abuzz with the desire to formalise measurement and standards. In France at the end of the Revolution, there were more measures of weight than the country produced varieties of cheese.

Wren had suggested that a metre be defined as the length of a pendulum with a half period of one second. This had the disadvantage that since gravity was not constant throughout the globe (it not being a perfect sphere), the period of swing varied.

The French recognised that a definition was needed which transcended national boundaries (and pride). They therefore determined that the circumference of the earth passing through the Paris Observatory was 40 million metres. However it still had to be measured so they sent two intrepid explorers off to triangulate France. Jean-Baptiste Delambre set off from Dunkerque while Pierre Mechain set off from Montjuic in the far south west of France.

They mainly used the tops of church towers for their measurements. After six years of toil, and not a little hazard (the King who had sent them on their way with letters patent and gold Louis’s had been guillotined!) they finally met in Rodez in Aveyron. On their return to Paris, all that was required was simple Euclidean geometry and to mark out a straight line one kilometre long on the ground. A metal bar was

then struck one metre long and locked away in Paris. The rest of the world was invited to copy it.

Better still the gram was then defined as the weight of one cubic centimetre of water (ie a litre weighs a kg). Once again a lump of metal was produced and locked away in Paris. The rest of the world could reproduce it.

There are three keys to the cellar containing these lumps of platinum/iridium alloy. Twice a year the guardians get together to inspect them. Then they have lunch.

France now had the definition of length and weight, as well as the Paris meridian. This latter was eventually to cause a problem. 75% of the world’s charts used Greenwich, and this effectively defined world time.

It was (inevitably) the USA who stepped in to resolve the impasse. By the late 19th century, the railroad enabled its citizens to cross the continent with comparative ease. The problem was that without agreement on time, it was not possible to tell customers when the train would arrive. In fact there were more “time zones” in the country than Wisconsin produced varieties of cheese. Accordingly in 1884, President Arthur convened a meeting in Washington with the aim of defining world time. Greenwich won easily. The French abstained, and for 30 years refused to acknowledge the result. It took a World War finally to persuade them in 1914 to accept the inevitable. Even today my French walking maps sometimes mark both meridians.

Then in 1960 the moving finger of science moved on, and redefined length in terms of a wavelength of light – the emission spectrum of krypton 86. Paris is still hanging on to the kilogram, but it is likely to be refined in the near future.

As thoughts of how to celebrate the Millennium developed, the UK, with startling originality, hit on fireworks. On the suggestion of Paul Chemetov (who is a well known architect and respected landscape designer), France decided to resuscitate the Paris Meridian! On behalf of the nation, President Chirac took this to his bosom. School children throughout the hexagon would plant lots of trees along the line and then have lots of picnics. These would be held on Bastille Day, not on 1st January when everyone else was celebrating. The green meridian would be marked as frequently as possible, even (particularly) when it crossed a motorway. Now you know.

In the interests of fairness, one should point out that the successor to metric units, SI units, have been adopted everywhere except Burma, Liberia and (of course) the United States of America. The United Kingdom (of course) has gone half way and sells milk in litres, but beer in pints. Lord (Geoffrey) Howe has been conducting a one man campaign for two decades to get us to adopt the kilometre.

Vive la différence

**Alan Malcolm**

