Continuing our series on Mad Dogs & Englishmen, RGBB Member Peter Lenthall gives us some thoughts arising from visiting degree confluence 23° 00′ 00″N 50° 00′ 00″E on 14th December last year.

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The Eid Al Fitr 1422H trek conducted by the author and some friends encompassing the North and West Central sectors of Ar Rub Al Khali, had a number of aims, one of which was to visit a Degree Confluence, where the parallel of a full degree of latitude intercepts the meridian of a full degree of longitude. One trekker, an IT professional, was keen to visit the recently established Degree Confluence Website and file a description of the terrain at the Confluence.

Before reading a very brief description of the Confluence location, readers may be interested an abbreviated account of the scholastic and technological evolution that have resulted in our being able to programme Global Positioning System (GPS) receivers to take us from where we are to where we want to be.

Ptolemy invented his system of organising maps using grids akin to latitude and longitude in the second century AD, although he did not, of course, use Greenwich as the Prime Meridian. Latitude is generally taken to be the angle formed between a line from a point on the earth's surface to earth centre, meeting a line from the equator starting on the same meridien (vertical geographic North-South line). It is expressed as 0-90 degrees either North or South of the Equator. Longitude is the angle formed at earth centre between the meridian of a point on the earth's surface to earth centre, meeting a line from the Prime Meridian to earth's centre, officially defined to pass through Greenwich in 1884. It is expressed as 0-180 degrees either East or West of Greenwich. Latitude has always been easy to measure; longitude has not.

In the eighteenth century the British Admiralty's Longitude Board's quest for a solution to the problem resulted in the 1765 invention of the chronometer, a clock of hitherto unsurpassed accuracy unaffected by temperature variations. Sixteen centuries after Ptolemy, Capt. Cook set new standards of navigational accuracy by calculating longitude using these chronometers.

Napier invented logarithm tables specifically for the intricate calculations required, which subsequently evolved into the Nautical Almanac used by seamen worldwide and the abbreviated Air Navigation Tables prepared for British Empire airmen of the Second World War, which continued in use long after electronic systems became available, which took some time. Even though Loran A, the predecessor of Decca and Loran C, was used on the American North Atlantic convoys to Iceland and an improved version at the Normandy landings, the technology advanced slowly thereafter. Years later the Royal Air Force's "V" bombers still used periscopic bubble sextants.

Land navigation in unmapped areas evolved from reliance on local guides to following rhumb lines (navigating on magnetic compass bearings), with or without local assistance. The compass allowed triangulation, the taking of bearings (angles) at the two ends of the measured distance between two points of a line being one side of a triangle, to locate the third point and to calculate the lengths of the other two sides of the triangle.

Height was measured by vertical triangulation using sextants and theodolites, aneroid altimeters and the boiling point of water. These basic techniques produced the first modern maps of many countries and were employed in the Survey of India under the direction of a Mr. Everest.

Picture Left:
Harry St John Philby (1885-1960) who devoted much of his life to Saudi Arabia pictured in 1932 taken from Saudi Arabia by the First Photographers published by Stacey International - London

Philby used rhumb lines as his basic technique during his crossing of the Rub in 1932. He measured latitude using a theodolite and had intended to calculate longitude but forgot to wind up both of the two chronometers he carried. His being the Kingdom's Marconi agent was of no help; radios of the period were too cumbersome to be carried across the Rub by camel. Unable to verify Greenwich Mean Time, he could not apply the correct Greenwich Hour Angle (GHA) for longitude calculations.

Nevertheless, his map is impressive. His latitudes have acceptable errors of a few seconds of arc (one second of arc is approximately 29m in Saudi Arabia) and his estimates of longitude based on dead reckoning using a camel's pace, although often out by typically 20 minutes of arc (approximately 36km) were good enough to enable him to draw a creditable map. He recorded Hadida Crater at 21° 29′ 30″N. Using Ayn

Pictured Right:
Top down:
During other trips outside the city, our intrepid explorer has taken some remarkable photographs of rock carvings, many of which are several thousand years old.

Apparently the darker they are the older they are likely to be, this one could be as much as 7000 yrs old.

The next picture looks like some kind of fertility symbol,
(Are you sure it's not an alien visitor, Peter?)

Below that is the only known carving of a chariot in KSA and the bottom shot appears to show some sort of cavalry battle.