

SYNOPSIS

As Herman Moll acknowledges in his preface, William Stukeley presented him with the design of the 1723 map. By this he obviously meant the internal Roman Road layout which had been part of the research by W. Stukeley at the Society of Antiquaries. This information came from several documents of Roman origin. That Herman Moll's second engraving of the same coastline differs from the first within the margins of the engravers capabilities only whilst using a different scale bar, is a tribute to Moll's work. This paper examines the two maps and their antecedents, and the differing Mile units.

STUKELEY MAP, 1723

Diagram Ws1D01

The map has engraved at the top right position a cartouche with the following text;

"In Gratium Itinerarium Curiosum. Antonini Aug Itinerarium per Britanniam, tentavit W Stukeley, 1723"

Thus we have the basic information which was used to compile the map, "Itinerarium Antonini Augusti Iter Britanniarum". This is a compilation of many "Iters" throughout the Roman world and includes 15 'Iters' for Britannia. However the map information comprises much more than that data, and before a comparison is made it is necessary to indicate the other data available in the eighteenth century.

ANCIENT MANUSCRIPTS

That the Roman Army prepared and used maps is now accepted. The fact that they were perhaps copied and available in the first monasteries, by either originals already in Britannia or having been brought back to Britannia by peripatetic monks, is not known. The Venerable Bede mentions that a "Cosmographiorum codici mirandi operis", or "Book of the cosmographers", was extant then.(Tp1).

The following is a list of documents which would have been available to W.Stukeley;

Claudius Ptolemy, The Geography. An atlas of the world circa 150CE (Cp1)

Antonine Itinerary. A list of roads with the stopping places there-on including mileage.(Tp1)

Maritime Itinerary. A periplus, (coastal journeys), and part of the IT. ANT.(Tp1)

Ravenna Cosmography. A compilation of circa 700CE based on the itineraries.

Tabula Peutingeriana. *Perhaps*, but the part for Britannia is missing.(Tp1)

Notitia Dignitatum tam ciuillis quam militaris. A 5th century list of official appointments.

These and observations by Stukeley on his travels no doubt formed a basic building block for the map.

THE ROMAN ROADS OF BRITAIN

Diagram Ws1D02

That we can look at a complete map of Britain and know the route of practically all of the Roman Roads (Rm1), extant or buried, is a tribute to people like Stukeley who tirelessly investigated those routes. However, in the 17th and early 18th centuries most atlas maps had only the normal roads of Britain there-on. The real mapping of the countryside and all of the features began in the middle of the 18th century. Herman Moll includes the major roads on his county maps in the 1724 atlas, which built upon the traditions of geographers such as John Norden, William Smith and John Speed of the early 17th century. (Gm1 and Cs1)

Many Roman roads were still in everyday use, but it took a dedicated scholar to recognise those which were not in fact documented as such. Indeed possibly the most well known British Roman Road, the Foss Way was not used for parts of its route. Many others were mere marks on the land surface.

THE ITINERARIUM ANTONINI

Diagram Ws1D03

The fifteen 'Iters' are tabulated in a collation which has puzzled many scholars. It appears to be no more than a gathering of documents by an individual, but for what reason is unknown. The actual text as written offers no assistance to an investigator. The section covering routes in Britannia commences with the sea voyage from Gallia, (France), as follows;

"A Gessoriaco de Galliis Ritupis in portu Britanniarum stadia numero CCCCL."

There then follow the 15 'Iters', many of which are in fact duplications of what would have been well known routes in Roman times. Some are even short individual stretches of road route.

This data would have given Stukeley an excellent insight into just what a Roman Road comprised and enabled him to identify many others. However in wrongly identifying some Roman place names he has created a map which is both excellent and unfortunately very mis-leading.

COMPARISONS, STUKELEY/ACTUAL ITTERS

Diagram Ws1D04

The diagram Ws1D04 indicates on a geographical map of the 'Iters', those by Stukeley which may be considered co-incident with the actual routes. There are some he uses which are not co-incident enough to be considered factual. He also uses many place names which can only have come from other documents as they do not appear in the IT ANT. One in particular, the Julia Strata probably comes from the work of Geoffrey of Monmouth, and others from the list of cities included in the text of the monk Gildas.(Tp1)

COMPARISONS, STUKELEY/ACTUAL ROADS

Diagram Ws1D05

The maps have been aligned at Cantium Promontory, the ancient designation point for the positioning and dimensioning of Britannia. Here it can be seen that the general form of Moll's map for Stukeley is quite accurate and the actual road positions in many instances follow each other. The discrepancies however begin to show quite markedly and are a pointer to the mis-interpretation of the original Roman place name by Stukeley. That he was so nearly correct is a tribute to his scholarly activities with attention to detail.

THE MAP ACCURACY

Diagram Ws1D06

The actual Moll map for Stukeley is only some 245 x 272mm, i.e. an A4 page in height and c1.25 wider. It has a scale bar in Romana Milliaria of 80 RM length which measures $c2\frac{1}{16}$ inches. However, when the latitude scale is measured against the bar it is precisely 69 Romana Milliaria.

The geographical world can be fairly described as being 69 Statute miles per Latitudinal Degree.

Therefore Stukeley has asked Moll to engrave the map to the actual Statute Mile scale but named them, no doubt for effect, Romana Milliaria.

The 69 RM measures c1.75 inches, but we must be cautious as to the INCH accuracy. If we calculate as follows; $(1.75 \div 69) \times 80 = 2.029$ inches or $2\frac{1}{32}$ inch. This is a 3 % in-accuracy.

The scale at 55N is then 39RM and at 50N, 44.35RM, which may be translated as 1 inch and $1\frac{3}{16}$ inches.

But in preceding papers it has been shown that the Roman Survey of Britannia positioned certain civitates and Legionary Forts to a precise triangular arrangement. Thus Chester/Deva was 200 Mille Passum west of Cantium Promontory and 150 Mille Passum north. The Roman world was known as 75 Mille Passum per latitudinal degree and thus Chester/Deva was also 2 degrees north of Cant. Prom.

The map of Stukeley agrees with this triangulation and as indicated on diagram Ws1D06 the calculated distances are quite precise. The construction of a map using Roman survey data as a forma for the shape of Britannia is also appended indicating the probable origination of the data.

INTERIM COMMENTS

There has been considerable discussion in texts about cartography concerning the length of the Mile in the 16th to 18th centuries. It has variously been 5000 feet, 5280 feet and 6336 feet. But here we can conclusively state that the Statute Mile of 5280 feet was used as the drawn scale for the 1723 map.

HERMAN MOLL MAP 1724

Diagram Ws1D07

This map which is so very similar to the Stukeley map of 1723 has an expansion factor to the longitudinal width of Britain of approximately one degree. This may be seen as a hang-over from the change in longitude measured from the Christopher Saxton map of 1579 to the Joan Blaeu map of 1665, where there is a 115% expansion, as explained in text Cs1, and diagram Cs1D11. Herman Moll is generally thought to be Dutch by birth but may have spent time in Germany and thus known this map.

This expansion is gradual over the whole south coast of Britain, but, is most marked in the counties of Devon and Cornwall.

COMPARISONS

Diagram Ws1D08 and Ws1D09

The geographical map of England and Wales is drawn to the same scale as the Moll map, and it can be seen that the longitudes are quite comparable. But when they are drawn super-imposed as diagram Ws1D09 shows, the longitudinal expansion and over-sized Cornish peninsula becomes apparent. The map scales of all three maps are appended for comparison.

For his map Moll has chosen $1\frac{1}{2}$ inches for the latitudinal scale and then $\frac{7}{8}$ inch for the north and 1 inch for the south of the map. Thus the map is composed in a ratio of 7:8:12. The actual scale bar is drawn noted as English Miles, and has 60 marked there-on.

Unfortunately I think the scale bar has been corrupted by its drawn position, with the 6 degree west line interfering. This has in fact meant that the 60 English Mile overall measure is just too long. From the zero position to the 6 degree line it is actually $1\frac{1}{2}$ inches, the same as the latitudinal scale.

If that supposition is accepted then the “English Mile” scale is in fact using a Mile which is 1.15 times the Statute Mile; i.e. latitude scale 69 Statute Miles divided by 60 English Miles equals 1.15.

That 1.15 is the expansion factor from the Saxton Map to the Blaeu map.

THE 1723 AND 1724 MAPS COMPARED

Diagram Ws1D10

As has been stated both maps are surprisingly close in their overall plot with only minor discrepancies of detail on the coastline. They both use the Roman triangulation of Chester as a basic marker for their setting out and have the Cornish peninsula set northerly and overlong.

The scales compare favourably when properly aligned and thus indicate that these maps were drawn by choosing a latitudinal scale of known length based on the INCH measure and then the longitudinal scale was approximated to the cosine ratio, but using a part inch, eighth, sixteenth or other to enable it to be drawn. *There was no large ratio scale involved as we may expect to read on today's maps.*

CONCLUSIONS

Herman Moll was obviously a very skilled engraver and accomplished cartographer. His book or atlas of the ‘*Counties of England and Wales*’ contains some highly accurate information and was the precursor of the triangulation surveys of the late 18th century and the early Ordnance maps.

William Stukeley was the first person we may call an archaeologist in that he sought to explain the mysterious constructions which litter the British landscape. He also sought to record these findings in such a way as to be accessible to the many, with texts, drawings and diagrams and of course maps.

Without these two great men meeting in London and befriending each other we may be the poorer in our understanding of our ancient past.

Stukeley wrote in his diary a special note, “the death of his old acquaintance Herman Moll.”

Michael J Ferrar

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NOTE

Herman Moll is responsible for many great maps of the World and its countries. One these, a map of New England including New York, is dated 1721. His first atlas was published in 1710 and his Atlas Minor was again published in 1729.

In "Gullivers' Travels, by Jonathon Swift" he has his 'mariner' stating the following;
"This confirmed me in the opinion I have long entertained, that the maps and charts place this country at least three degrees more to the east than it really is; which thought I communicated many years ago to my worthy friend, Mr HERMAN MOLL, and gave him my reasons for it, although he has rather chosen to follow other authors".

There is no doubting Herman Moll was a man of some consequence in 18th century London.

Michael J Ferrar.