



THE AUTHORS

JAN DE GRAEVE started his professional life as a specialist in valuation of real estate rights, his deep interest in the collection of rare and early books on surveying and related areas has kept him going. He has been active within FIG since 1976. In 1985 he and Jim Smith formed a history group that is now called the IIHS&M within FIG. This group has been instrumental in getting UNESCO to make the Struve Geodetic Arc a World Heritage Monument in 2005 and is now working on the possible extension of that to take in the Arc of the 30th meridian in Africa.

JIM SMITH qualified as a Land Surveyor and has been an active member of FIG since 1968. He has authored various survey oriented texts including *Everest, the Man and the Mountain, From Plane to Spheroid*, and *R. S. Webb From Shropshire to Paarl via Geodesy and Lesotho*. The last of those was the incentive for these new volumes. Jim worked in Nigeria for 2 years and then spent most of his time before retirement, at Portsmouth University.

Jim and Jan also translated and published Struve's two original Reports of 1857 from French into English.



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All income from the book will go in full to FIG Foundation for its charitable activities for surveyors.

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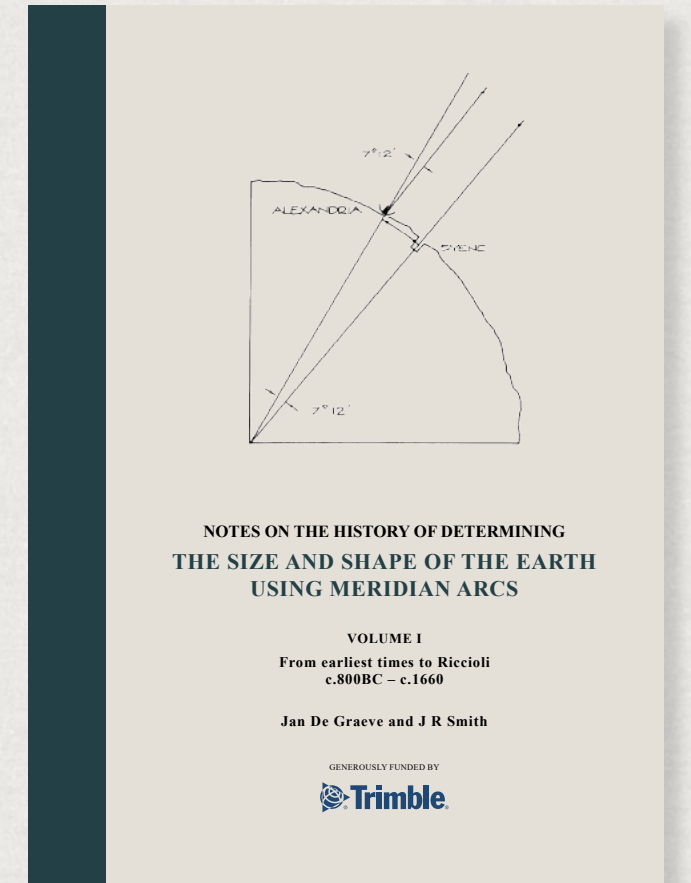
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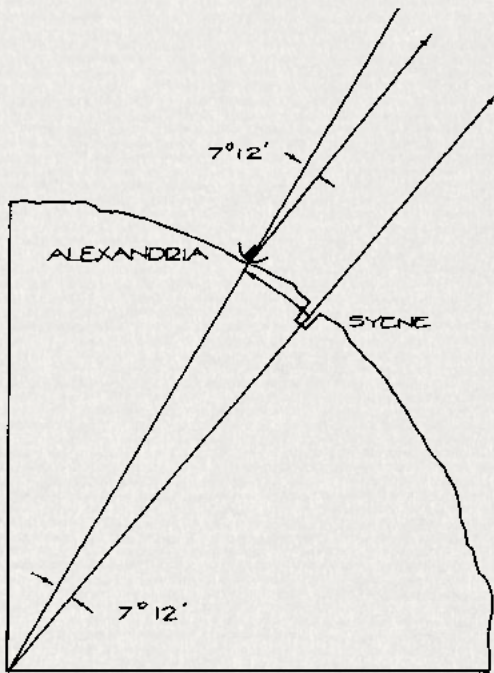


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NOTES ON THE HISTORY OF DETERMINING THE SIZE AND SHAPE OF THE EARTH USING MERIDIAN ARCS • VOLUMES I–V

Humankind has surely wondered about what goes beyond on the horizon that can be seen from the shores of the great oceans. Is it flat or round and whichever it may be, the obvious question then is “Just how big is this place that we call home?”

Jan De Graeve and Jim Smith, the Chairman and Secretary respectively of the International Institution for the History of Surveying & Measurement (IIHS&M), an organisation wholly within the International Federation of Surveyors (FIG), have compiled five volumes of notes on the estimation of the size and shape of the Earth starting from about 800 BCE until about 1960 CE, a span of over 2,700 years.

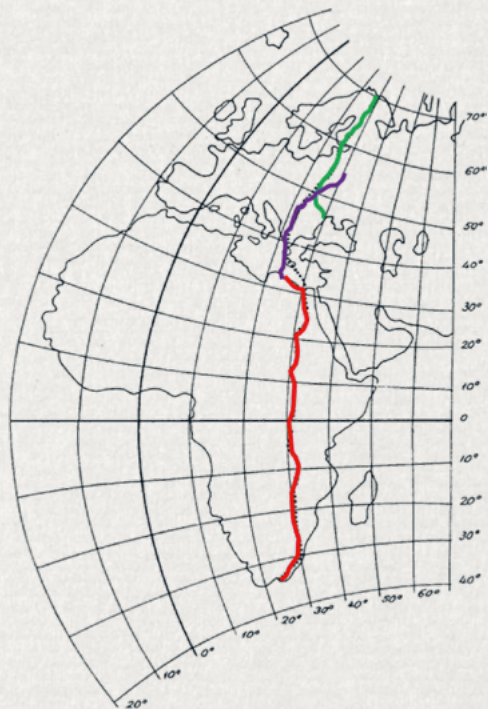
Jan and Jim take us through the efforts of the early Babylonian, Egyptian, Indian and Greek astronomers and the work of the 3rd century BCE Greek mathematician, Eratosthenes, who estimated the circumference of the Earth with remarkable accuracy using the shadow cast by the sun and known latitudes of places in Egypt.

They then come to the arc measurements in Europe, Lapland, Peru, Eastern Europe, India, South Africa and many others and end in the 1950s before the introduction of electronic computers and distance measuring devices and satellite navigation systems.

The five volumes include over 2,000 references which will be a treasure trove for students and researchers wishing to delve deeper into specific arcs or periods of arc measurement.

MERIDIAN ARCS IN EAST & SOUTHERN AFRICA WITH EMPHASIS ON THE ARC OF THE 30th MERIDIAN • VOLUME VI

CONNECTION BETWEEN THE STRUVE GEODETIC ARC AND THE ARC OF THE 30th MERIDIAN • VOLUME VII



Although these two books can be considered as two separate volumes they are in fact companions in that they complement one another as well as numerous publications and presentations on the Struve Geodetic Arc.

Jan De Graeve and Jim Smith have compiled the notes to give researchers and students a feeling for the magnitude of the task to measure, what turned out to be the longest terrestrial measurement covering an amplitude of approximately 105° or 11,635 km from Hammerfest in Norway to Port Elizabeth in South Africa. With the initial measurements starting in 1812 in Norway and the final measure-

ments to complete the arc in Sudan in 1954, 142 years was spent on this enormous task.

Whereas the African portion of the Arc was measured as a continuous chain of triangles from South Africa to Egypt, the European section was broken into two main sections notably the Struve Arc from Hammerfest to Ismael on the Black Sea and then a connection from the Struve Arc to Greece and ultimately to North Africa via Crete. The second of these two volumes, as the title suggests, only covers the connection between the Struve Arc and the Arc of the 30th Meridian in Africa.