THE KOCH FAMILY PAPERS. PART 2: DRAWINGS AND MAPS FROM THE 2ND THULE AND BICENTENARY JUBILEE EXPEDITIONS 1916–1923 AND THE MAPPING OF NORTHERN GREENLAND (AVANNAARSUA). VOLUME 1: BACKGROUND TO THE EXPEDITIONS AND A CATALOGUE. VOLUME 2: MAPPING FROM BAFFIN TO KOCH AND THE ROLE OF GREENLANDERS. Peter R. Dawes, 2016. Copenhagen: Geological Survey of Denmark and Greenland. Vol. 1: 250 p and Vol. 2: 242 p, illustrated, soft cover. ISBN 978-87-7871-441-1 and 978-87-7871-442-8. DKK 150 per vol.

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These two volumes comprise Part 2 of this extensive work on Danish cartographer and geologist Svend Lauge Koch's papers held by his family. Part 1, a volume published on the 100th year after Lauge Koch's first visit to Greenland, was reviewed previously (Brooks, 2013). These two volumes reviewed here are based on the documentary material, which runs to 217 items that are accessible on the Geological Survey of Denmark and Greenland website (www.geus.dk/koch-fam-papers/ sheet-collection). The author has a close relationship to the vast areas (the ice-free area amounts to about half the area of the UK) mapped by Koch (as explained in vol. 1, p. 10). The endeavour described in these papers comprises a huge and unique achievement, unsurpassed by other endeavours in the High Arctic, that deserves a foremost place in the history of pre-aviation cartography (vol. 2, p. 106, section 15.6 and vol. 1, p. 233, § 1 and 2). Even more remarkable is that all this was accomplished using only dog sleds for transport.

Prior to the description of the individual documents, which comprise a wide range of materials (field notes and sketches, panoramas, letters, lecture notes and printed items; termed 'Sheets' whatever the format), extensive explanatory material is given. This includes information on English, Danish and Greenlandic names, a description of the people (Inughuit and Inuit), terminology, spellings and abbreviations, a description of the document collection, reflections on Lauge Koch (with special attention to his humanitarian traits including his reaction to leaving a man to die in the wilderness, see vol. 1, pp. 42–43), the background to these expeditions including Lauge Koch's sources of motivation, and an overview of the document collection. All this material will be deposited in the Danish National Archives

(*Rigsarkivet*). Volume 1 concludes with an assessment of the material including reviews of Koch's work by the distinguished Swedish explorer of central Asia Sven Hedin, and F.H. Trap of the Royal Danish Navy and author of the authoritative work *Cartography of Greenland* (Trap, 1928). Finally, the continuing influence of Koch's cartography on some modern maps is noted.

The bulk of Volume 2 deals with the mapping of northern Greenland from William Baffin in 1616 to Lauge Koch up to 1923, and is thus the history of pre-aviation mapping. After this, aircraft made a huge difference to cartography and were used by Koch himself on subsequent expeditions. This work, for probably the first time, draws attention to the invaluable contribution made by local people to the work of Peary, Rasmussen, Koch and others, whose expeditions would not have been possible without their help. There is a long section devoted to the practicalities of mapping in the pre-aviation days, with particular attention to the travelling conditions. Early and late in the year, conditions for dog sled travel are good, but the cold is intense and the land is blanketed with snow, which is particularly hampering for geological observations (Koch carried out topographic and geological surveys simultaneously; indeed, topographic surveys were necessary as a basis for geological observations and Koch was primarily a geologist). During the summer, the geology is laid bare, but travelling becomes difficult to impossible and to start the retreat to base too late has been fatal on several occasions. Other key elements to success are then discussed. The text concludes with a return to Part 1 where a number of points not covered, along with corrections and newly discovered material, are presented. The volume concludes with material pertinent to the whole of Part 2: acknowledgements, bibliography, notes (designated throughout the text by red superscript numbers), figures (32 in number and including many facsimiles of the documents discussed), tables (a chronology of expeditions to North Greenland, a list of place names of northern Greenland and adjacent Canadian territory with approved names in Danish or English [unapproved names are also indicated], the Greenlandic name in new and old orthography) and the variations found in the work of Koch, Rasmussen and associates.

This is an extremely voluminous and detailed work, which deals not only with the Koch family papers but most aspects of the pre-aviation mapping of northern Greenland, an endeavour requiring heroic efforts of the sort popularly associated with polar expeditions. Apart from the work of Peary, these expeditions are little known outside Denmark, but certainly deserve a wider audience. The scope of this work is much greater than implied by the title. While Peter Dawes' volumes are unlikely to reach a mass market, they comprise a work of the highest intellectual standard and he is to be congratulated on covering every aspect of his subject with the minutest detail and, I suspect, with very few errors. He is also to be praised for his persistence in carrying the work so far in spite of serious illness. I did not spot any mistakes, either factual or typographical, and my only criticism is that some topics, often peripheral to the main narrative, are covered in the minutest detail and may be found tedious by some readers, but, after all, this is not bedtime reading, although a shortened version could perhaps be made so.

We were promised a Part 3, dealing with Koch's exploration for metalliferous ores in Greenland and there is every reason to believe this will be of the high standard already seen in this work. We look forward to it with eager anticipation. (Kent Brooks, Natural History Museum of Denmark, Øster Voldgade 5–7, DK-1350 Copenhagen K, Denmark)

## References

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