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*Klaudios Ptolemaios Handbuch der Geographie. Griechisch-Deutsch, Einleitung, Text und Übersetzung, Index* edited by Alfred Stückelberger and Gerd Graßhoff with Florian Mittenhuber, Renate Burri, Klaus Geus, Gerhard Winkler, Susanne Ziegler, Judith Hindermann, Lutz Koch, and Kurt Keller

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Studies of ancient Greek and Roman geography and cartography are currently flourishing. Over the past decade, new scholarly editions of ancient key authors have been published (with translations in modern languages) which offer a reliable basis for any future research in ancient geography as a branch of science and especially in these authors. Of these publications, one may mention the editions of the main geographical works by Strabo and by Ptolemy as the two most important. The edition of the 17 books of Strabo's *Geographica* (composed in the reign of the emperor Augustus with additions in the early Tiberian years) with a German translation and commentary by Stefan Radt [2002– ] has justly received much praise. Strabo's geography has been labelled an encyclopedic *summa* of earlier ancient Greek cultural or human geography. Of equal importance for our knowledge of the other concurrent branch of ancient geography, which was fundamentally based on astronomy, mathematics, and physical geography, are the eight books of Claudius Ptolemy's *Geographia* (or Γεωγραφικὴ ὑφήγησις) written in the second half of the second century AD.

This review will focus on the first two volumes of this edition [2006], an edition which comes with an introduction, the Greek text, a German translation, maps, illustrations, and indices. Here, readers will find only very brief notes helping to clarify the meaning of the text or justifying the translation, since these two volumes should always be consulted together with a third or companion volume published in 2009. This third volume collects a considerable number of

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thorough studies written by the team of contributors to the first two volumes and by others with expertise in the Greek manuscripts of Ptolemy's geographical work, the canon of πόλεις ἐπίσημοι (important cities), different ancient methods of measuring the whole earth or certain distances, and in establishing and calculating the precise location of a place. Other studies deal with Ptolemy's view of the world, world and regional maps, the reception of his work, his prominent place in the history of geography, and his Greek and style of writing. Volume 3 also has a useful bibliography.

Readers of *Aestimatio* will surely appreciate a brief outline of the contents of Ptolemy's geographical work. In book 1, he starts with a famous definition of γεωγραφία as a science, its scope, and methods. Then, scholarly opinions of his most recent predecessor and one of his main sources, Marinus of Tyre, are critically discussed; and technical instruction on drawing a world map and on two different spherical projections (Ptolemy's chief contribution to scientific mapmaking) follows. The main part of *Geographia*, books 2–7, consists of long lists of places or, more generally, toponyms on the three continents Europe, Africa (Libya), and Asia with longitude and latitude (and sometimes brief descriptions of topographical features). One finds more than 8000 geographical data altogether which make Ptolemy's geographical treatise by far the most detailed and complete ancient inventory of toponyms and exact localizations. Parts of book 7 and the final book, book 8, provide instruction for breaking down the world map into 26 individual maps of certain regions mainly of the οἰκουμένη (the civilized world).

This key source of scientific geography from the second to the 16th century is presented in the two volumes under review in a splendid edition.<sup>1</sup> The Greek text is based on thorough studies of the extant original manuscripts; and the modern German translation makes the work easily accessible not only to a small circle of classical scholars but also to a broader readership of historians of science, researchers in the history of geography and cartography, and several other interested groups.

An accompanying CD-ROM has been added to the two volumes which will be very welcome to friends of electronic media and e-books.

<sup>1</sup> On the history of the reception of Ptolemy's treatise, see the companion volume [2009a] and [Gautier Dalché 2009](#).

A searchable database (*PtolDB*) on this CD-ROM includes the complete catalogue of toponyms and the maps. It runs without problems with Mac OSX (version 10.3 or higher) as well as with Windows (2000, XP service pack 2 or any higher version). It will surely facilitate modern ways of research on the text and the maps.

Carolus F. A. Nobbe's edition [1843–1845] astonishingly remained the only complete edition of the Greek text of the *Geographia* for more than 150 years. Edward Luther Stevenson [1932] provided a widely read complete English translation without a Greek text. Several subsequent attempts to finish a new scholarly edition unfortunately failed for different reasons: the major edition of Karl Müller [1883–1901] contains only books 1–5. (Müller's edition is still the basis of the Greek text of Ptolemy's geography in the widely used Thesaurus Linguae Graecae (TLG) database.) Various 20th-century studies by experts such as Otto Cuntz, Joseph Fischer, Aubrey Diller, and Paul Schnabel have focused on the complicated manuscript tradition or single manuscripts. Other scholars have concentrated their efforts on single books<sup>2</sup> or they have dealt in detail with Ptolemy's theoretical introduction and the sections about the differences between γεωγραφία and χωρογραφία.<sup>3</sup>

But, finally, a completely revised critical edition is now available. Coordinated by a team of researchers at the Universität Bern, the individual contributors to these two volumes have worked independently on their books or sections of the text. Alfred Stückelberger himself is responsible for the introduction, *Geog.* books 1 and 7.5–7. Florian Mittenhuber deals with book 2, the design of the reconstructed maps (see below) and the final versions of the catalogue of toponyms and the indices. Renate Burri has worked on book 3; Klaus Geus, on book 4. Gerhard Winkler deals with book 5; Susanne Ziegler, with book 6; Judith Hindermann, with book 7.1–4, and Lutz Koch, with book 8. The indices were carefully prepared by Kurt Keller. The new Greek text differs from Nobbe's edition in more than 1000 passages. In books 1 and 7, some small sections of the text on geography as a science and on projections have been rearranged.

At present, we know of 53 manuscripts of the Greek text of Ptolemy's geographical work, dating from the 13th to 16th centuries.

<sup>2</sup> E.g., Helmut Humbach and Susanne Ziegler on book 6 [1998–2002].

<sup>3</sup> On books 1 and 7.5–7, see especially Berggren and Jones 2000.

Some of them give the complete text, others only parts of it. 17 manuscripts include maps. Stückelberger, Graßhoff, and their colleagues differ considerably with Nobbe about the manuscript tradition and the constitution of a *stemma*. Most importantly, the new edition fully acknowledges the fundamental importance of the Codex Constantinopolitanus Seragliensis GI 57, a manuscript (with the text of the geographical work and maps) found in 1927 in the library of the Topkapi Museum in Istanbul.<sup>4</sup>

Constantinopolitanus Seragliensis GI 57 (K), Vaticanus Urbinas Graecus 82 (U), Vaticanus Graecus 177 (V), Venetus Marcianus Graecus Z. 516 (R) and Vaticanus Graecus 191 (X) are the most important manuscripts of the Greek text of the *Geographia*, the *codices primarii*. The famous Byzantine scholar Maximus Planudes himself once owned Vaticanus Graecus 177 and supported the production of other manuscripts and general research on Ptolemy in the 13th century. Most of the *codices primarii* were copied from a considerably earlier manuscript (perhaps of the late 5th century, in majuscules and with maps) which had only recently been rediscovered in Planudes' time. Vaticanus Graecus 191 (X), however, contains only the text of the geographical work (along with other scientific texts, which of course is of major interest to the history of the reception of Ptolemy). This manuscript is our only extant testimony of a different line of the manuscript tradition. Following the current consensus among scholars, Stückelberger and his team generally follow U (or K) in the constitution of their text; but they regularly add variants of names or locations given in X, especially in the text of books 1–5. This correct editorial decision follows from the simple fact that we cannot honestly establish clear criteria for choosing between the different place names or coordinates of longitude and latitude which we find in the five manuscripts of the *codices primarii*. Another typical problem of editing Ptolemy's text stems from difficulties of understanding precisely his theoretical views of projections and their ancient mathematical basis in books 1 and 7. The illustrations and diagrams in this edition are really helpful; and to this reviewer some of them

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<sup>4</sup> On the Greek manuscripts of Ptolemy's *Geographia*, see Burri 2009; Stückelberger and Mittenhuber 2009b; and Fuchs and Oltrogge 2009. Stückelberger, Mittenhuber, and Burri 2003 is still useful. Several manuscripts have been digitalized in the course of this project and can be consulted at <http://www.philoscience.unibe.ch/ptolemaios>.

seem to be almost indispensable to an understanding of Ptolemy's complicated theories.

Some of the general problems in preparing a critical edition and a translation of ancient scientific or technical treatises belonging to different τέχνηαι (*disciplinae*) are well known. These problems concern *inter alia* important works on mathematics, astronomy, architecture, medicine, and so on. Since ancient geography poses problems in addition to those raised by texts in other scientific disciplines, still many important ancient works are available only in outdated and unreliable editions. Generally, ancient geographical texts often constitute problems with an exact understanding of their partly remote subjects, an unusual technical vocabulary, place names which cannot be located, differing distances between two places in ancient sources, and—at least to a modern reader—strange remarks or plain mistakes in indications of directions of a coast line, a mountain range, and the like. These alleged ‘mistakes’, however, often stem from a typical traveler's or ‘hodological’ perspective, as Pietro Janni observes.

Ptolemy's major geographical treatise clearly raises such general problems as well as some additional special ones too; indeed, this key text of ancient geography and mapmaking presents huge challenges to an editor. Ancient geographers were very well aware of the fact that maps of the whole world or single regions needed to be copied manually again and again—almost in every generation—in order to preserve them for future generations. Grave mistakes very often and easily occurred in this difficult and expensive process of copying, let alone the manipulation of maps for political or ideological reasons. Since Ptolemy clearly knew of these problems, he actively tried to oppose processes of this sort by which maps deteriorate. Thus, the bulk of his *Geographia* consists of lists of about 8000 toponyms with exact longitude and latitude—all indicated in a new unified system of scientific coordinates, which in principle provided a reliable source material for making maps—which he deliberately separated from the maps themselves. However, many of these names sounded strange already to ancient Greeks and Romans, some were without any parallel in Greek and Roman literature—there are unique occurrences (ἄπαξ λεγόμενα) among the toponyms—and the coordinates were given in a system of letters and other small signs as numbers. It goes without saying that such toponyms and coordinates were easily corrupted in

the process of copying by ancient and Byzantine scribes. Unfortunately, modern scholars do not know any secure method of detecting such typical mistakes in the preserved manuscripts of the *Geographia*, even less of correcting these corrupted passages. Nevertheless, by systematically linking the coordinates and the visual representation of the maps Ptolemy surely reached a higher level of ancient scientific geography and mapmaking. Given the many and intricate problems of editing Ptolemy's geography, Stückelberger and his colleagues have done an excellent job; and given the present state of our knowledge, they have tackled these problems as successfully as possible.

The reconstructed world maps and 26 regional maps are an important part of the edition under review. Far from merely serving as illustrations and visualizations of the text, the maps are key sources for the ancient and pre-modern view of the world and its most important regions until the early 16th century. Moreover, the map tradition of Ptolemy's geography preserves some pieces of information not found in the textual tradition of this work. However, these maps confront us with problems of early mapmaking, too. For instance, the world maps in Codex Seragliensis GI 57 and in Vaticanus Urbinas Graecus 82 show different cartographic projections (as explained in *Geog.* 1 and 7), namely, the modified and the simple spherical projection. In addition, to modern observers at least, the 26 regional maps (10 for Europe, 4 for Africa, and 12 for Asia) sometimes show a strange and surprising perception of space. Finally, the precise relationship between the text of Ptolemy's *Geographia* and the preserved earliest maps constitutes a very controversial field of research. For some scholars hold that Ptolemy's original work did not include maps but only instructions for making such maps, and that the world map and the regional maps were only added in later ancient or Byzantine editions, for instance, by an early cartographer named Agathodaimon of Alexandria. More studies are also needed, in my view, of the temporal layers of the 26 regional maps.<sup>5</sup> These problems exceed the usual tasks of textual criticism and editorial practice. They are connected with the current controversy about the recently published Artemidorus Papyrus (P. Artemid.) which includes a late Hellenistic

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<sup>5</sup> On the main problems connected with ancient mapmaking and the tradition of Ptolemy's maps, see [Mittenhuber, 2009](#), 34–108.

map. This map has been seen as an early and incomplete preliminary stage of advanced later mapmaking in Ptolemy's time.<sup>6</sup>

Stückelberger's introduction to volume 1 [9–47] concisely informs us about Ptolemy's life and works. In antiquity, Ptolemy's fame as a scholar was primarily based on his research and publications in mathematics and astronomy (including astrology as usual in the Roman empire). The *Syntaxis Mathematica* (*Mathematical Systematic Treatise*, better known as the 'Almagest'), *Apotelesmata* (*Astrological Influences*, *Tetrabiblos*), and the Star Catalogue were composed before the *Geographia*, which today is usually dated to *ca* AD 150–170. Stückelberger and his team chose a 'pragmatic' German translation, 'Handbuch der Geographie', for the original Greek title Γεωγραφικὴ ὑφήγησις (*Geographia*) [11 *et pass.*]. However, readers should be aware that 'Handbuch' ('manual') may not render precisely the original intentions which Ptolemy wanted to express with his title, namely, to provide an introduction to describing the Earth and to show the Earth on a map, rather than to give a general overview of the whole discipline of geography that one would expect in a manual.

Notwithstanding their different concepts of geography (their concerns with the issue of cultural geography *versus* mathematical geography, and so on), Strabo and Ptolemy shared the common aim of systematically correcting positions of earlier geographers and of securing substantial progress in scholarly geography by criticizing opinions held by prominent precursors (the principle of ἐπανόρθωσις). Thus, the *Geographia* tries to concur with the geographical work of Ptolemy's immediate precursor, Marinus of Tyre (*ca* AD 80–130), but still corrects his views and the opinions held by other earlier geographers. Since Marinus' treatise has been only fragmentarily preserved and that, moreover, in Ptolemy's geographical work mainly, the question of how far Ptolemy relied on scientific results already found by Marinus must remain unresolved.

Ptolemy, perhaps the greatest ancient geographer, was left with a methodological dilemma regarding his sources for the lists of toponyms and their coordinates and distances. Strictly speaking, and given the limitations of the instruments available to him and of the known methods of measurement, he could only use 'reliable' scientific

<sup>6</sup> See the edition by Claudio Gallazi, Bärbel Kramer, and Salvatore Settis [2008].

data for computing and establishing his coordinates. In this case, he would have had at his disposal only a small fraction of the data which he needed to show the whole Earth on a map. Hence, and perhaps unwillingly, he made use of many earlier notes on distances and locations in general historical and geographical works or travel reports especially on places and regions on the edges of the *οικουμένη* [see 1.16–20]. Ptolemy could also find no secure way to deal with the differing units of length in earlier authors, for instance, the *στάδιον* ('stade'), since in antiquity there never was a unified or standard unit of length. Nonetheless, and despite all shortcomings and mistakes, I think that today we still have many reasons to admire Ptolemy's scholarly achievement.

An apparatus of parallel sources is missing in this edition. But preparing such an apparatus to the *Geographia* would have taken up a great deal of time and would have made the edition even more expensive than it is now. However, there are very detailed and reliable indices. One finds a huge index of ancient toponyms [924–1015] (with modern names of these places when it is possible to provide them), and two other short indices of persons [1015] and subjects [1016–1018]. These indices and the well thought-out layout make this edition according to Ptolemy's wishes really *εύχρηστον* (user-friendly). Stückelberger, Graßhoff, and their colleagues have made the *Geographia* accessible to 21st century scholarship in a reliable and splendid edition.

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