Hopes, Hazards and a Haggle:
Perthes’ Ten Sheet “Karte von Inner-Afrika”

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Abstract

The rise to fame both of Petermanns Geographische Mitteilungen and its dynamic founding editor August Petermann justifiably is closest related to their contributions in unveiling the unknown interior of Africa. Against a background sketch of Petermann’s cartographical concept and working method this paper discusses a major map-series of the pre-colonial era jointly compiled with Bruno Hassenstein – the ten sheet “Karte von Inner-Afrika nach dem Stande der geographischen Kenntnis in den Jahren 1861 bis 1863”.

Inaugurated as a guiding tool for the Deutsche Inner-Afrika Expedition (1861-62), propagated and organised by Petermann to salvage manuscripts of Eduard Vogel, who got lost in 1856 east of Lake Chad, however, the main purpose was to provide an up-to-date framework of all obtainable knowledge in the scale 1:2 millions supplemented by anticipated exclusive and extensive research exploration reports of the journal’s own expedition. Although the map-series remained a torso – the high hopes placed in the expedition failed with almost no cartographical gain due to inexperience and misfortune – it stands as arguably opus magnum of 19th century exploratory cartography of Central Africa drawing on many never before and never again constructed route itineraries.

Not to the least this painstaking accurate map-series of the known and unknown in Central Africa won the publisher Perthes and its cartographers Petermann and Hassenstein the status of European epitomes of the ‘geographical spirit’ of that time as illustrated best by their ‘appearance’ in the adventure novel Five Weeks in the Balloon (1863) which kick-started the science-fiction writing career of a certain Jules Verne.

Preface: Petermann’s Cartographical Concept and Working Method

Dusted records in the Thuringian State Archive in Gotha hold a letter dating back to the summer of 1854 in which a just-arrived cartographer introduced himself to his new sovereign Duke Ernst II of Sachsen-Coburg-Gotha, the elder brother of the better known Prince Consort Albert. Lauding the local publisher Justus Perthes as the “biggest geographical company in the world” and the home of a “school of the most famous geographers” like Adolf Stieler, Heinrich Berghaus and Emil von Sydow, the subservient writer confessed that it was “not without coyness and hesitation that I […] would be able to execute my task living up to the spirit of my meritful predecessors.”

With these humble words nobody else than the already widely-known August Petermann (1822-78) explained why he had accepted the publisher Bernhardt Perthes’ invitation to quit the uncertainty of an entrepreneurial existence in cosmopolitan

London to turn into a well-paid employee in the tiny ducal residence of Gotha in the heart of Germany to spearhead from there the company’s exploratory cartography and a new geographical journal. The latter was launched in February 1855 as “Mittheilungen aus Justus Perthes’ Geographischer Anstalt über wichtige neue Erforschungen auf dem Gesammtgebiet der Geographie von Dr. A. Petermann“, soon informally known as Petermann’s (Geographische) Mitteilungen or even shorter as PGM. This soon to be leading international journal was dedicated to its editor’s live long (over-)interpretation of that science: “The final result and aim of all geographical explorations, discoveries and observations is, in the first instance, a graphical representation of the earth’s surface, the map. The map shows us best, most clear and most exact what we know about the earth.”

Petermann’s claim to fame had start emerging almost a decade earlier in 1847 when he arrived in London, then the world capital of geographical exploration, finding himself in stiff competition with other cartographers. He soon realised the vital importance of having direct contacts with outgoing explorers and therefore started providing them with vital contacts to sponsors and publishers as well as – to a less important degree – expert extracts and advice on the scientific state-of-affairs of their respective destination. For this ‘service’ Petermann secured for himself the cutting edge, namely exclusive access to and cartographical exploitation of incoming letters, research accounts and draft maps. It consequently did not take him long to gain the interest and trust of the learned public, achieving some sort of a ‘trade mark’ status, and the eminent title of “Physical Geographer to the Queen” when he landed the scoop to add his fellow country men Heinrich Barth (1821-65) and Adolf Overweg (1822-52) as scientific members to James Richardson’s official merchant expedition which left for the interior of West Africa in 1849.

When Barth, after more than five years of adventurous wanderings as far as the legendary Timbuktu as last survivor of that expedition, returned to the Mediterranean shore at Tripoli on 28 August 1855, his travel letters – path-breaking in many realms of science yet literary in style – had already won him and his congenial cartographer and publicist Petermann admiration all over Europe. Having kick-started his career by linking it to discoverers and explorers travelling all corners of the globe, braving all obstacles of the unknown and reporting their achievements to a most receptive bourgeoisie audience as popular personifications of the time’s ideal, Petermann was looking for an opportunity to restage the tremendous success he had with the exploitation of Heinrich Barth’s wanderings in the Sahel.

Figure 1 (page 3):
Colour lithography (60 x 43 ½ cm) to advertise the account of Richardson’s expedition in the West African interior showing a map (centre, scale: about 1:12 million) of the expedition route 1850-53 with views and portraits on the margins among them Heinrich Barth (lower left corner) and Eduard Vogel (lower right corner) (Demhardt 2006, page 17).

2 Petermann 1866, page 581.
4 Demhardt 2000, pages 84-85.
Chapter One: PGM’s Expedition into the Heart of Africa

When with Overweg in September 1852 the last companion of Barth had fallen to the hardships of the British West African expedition, Petermann persuaded the organisers to continue that at least scientifically exceptionally successful venture by sending the young German survey specialist Eduard Vogel (1829-56) to Barth’s support. Reaching Lake Chad by January 1854, Vogel – while waiting for Barth to return from his journey to Timbuktu – explored the regions to the south and southeast of the lake. It was only in December that he met Barth on one of his excursions in Zinder. When Barth left the region homeward bound in May 1855, an ambitious Vogel hoped to open up the eastern Sahel as far as the distant shores of the Nile in the same way as what Barth’s exploration had achieved for the western Sahel up till Timbuktu. On 1 January 1856 Vogel left Kuka at Lake Chad to venture eastwards into the neighbouring but known xenophobe Kingdom of Wadai.⁶

Due to erratic trans-Sahara postal connections, Vogel’s contractual publicist Petermann, who in the meantime had moved to Gotha and founded PGM, exclusively published his last travel letter in the March 1857 issue,⁷ only to prepare the readers with a short notice in July 1857 that according to received rumours the promising young explorer might have perished.⁸ Encouraged by the sustained public interest in the fate of Vogel, the editor of PGM realised the chance to ride this wave. In PGM August 1860 Petermann therefore proposed a German expedition that would not only salvage the explorer’s papers and collections, but would also bring his works to a honourable end: The already glorious German discoveries in the interior of Africa “opened by Barth and Overweg and carried on to the east by the iron will of Vogel might achieve their final aim by reaching the Nile system.”⁹

A large-scale fund-raising campaign started in PGM in September 1860 collected within three years more than 22,000 Thaler or almost double the amount calculated as the minimum for the envisaged expedition. The of course in Gotha formed Steering Committee, headed by Duke Ernst II, was purposefully shy to publish detailed aims of the venture with the almost prophetic remark: “Because even the best laid out plans for such enterprises are subject to manifold alterations due to unforeseen circumstances on the spot.” However, it was made clear that a team of scientists was needed and that the venture would take three to four years to complete. As compensation for their donations the public was promised regular receipts and expedition reports to be published in PGM.¹⁰

Although he had never been ‘out in the field’ as an explorer himself Petermann, as driving force of the Steering Committee, drafted in the comfort of his Gotha office the extensive instructions which, in as many as 15 detailed paragraphs, contractually burdened all members of the so-called ‘Deutsche Innerafrika-Expedition’. According to § 1 of this instruction the expedition aimed for ‘the establishment of Eduard Vogel’s fate, the salvage of his papers and to achieve his scientific goal, namely the

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⁶ Demhardt 2006, page 27.  
⁷ Petermann 1855-57.  
⁸ Traurige Nachrichten 1857.  
⁹ Petermann 1860.  
¹⁰ Demhardt 2006, page 27-28. 40. In total from 1860 to 1863 not less than 30 reports from or about the expedition and pertaining ventures were published in PGM.
exploration of the regions between the Nile and Lake Chad.”

With emphasis on the third and agreed major task, the expedition consisted of its leader Theodor von Heuglin (1824-76) as zoologist and topographer, Werner Munzinger (1832-75) as ethnologist and linguist, Hermann Steudner (1832-63) as botanist and geologist and Theodor Kinzelbach (1822-68) as meteorologist and astronomical observer as well as additional staff who were hired en-route.

Chapter Two: A Herculean Map-Series for the ‘Deutsche Innerafrika-Expedition’

To illustrate § 10 of the instruction, which – once the causa Vogel was settled – obliged the expedition nothing less then “to make the most significant discoveries and to achieve the wealthiest scientific results in each direction”, Petermann added as an official supplement a sketch map of the continent recommending some of the most promising routes for the cartographical unveiling of the African interior. This “Kartenskizze von Afrika” shows the known areas (purple) as by 1 August 1860 with some routes of prominent explorers like Barth and Livingstone (red) and the “not researched, never by Europeans entered” huge white dot in the heart of the continent. This instruction advised the expedition to tackle the Wadai from the Red Sea along one of four possible routes through more or less known regions in the Nile basin before it recommended, with reference to the sketch map, nine alternative routes for an advance “into the big unknown heart of the African interior”. These routes were either towards the north through the Libyan Desert (no. 1) or – even better – towards Central Africa and onwards to the shore of the Atlantic (nos. 2-5) or Indian Ocean (nos. 6-9) with high hopes for an abundance of research reports and cartographical observations en-route. It goes without saying that other paragraphs of the instruction stipulated that the expedition had to send en-route and in regular intervals copies of all diaries, itineraries, draft maps and all other observations to Petermann whose journal had the exclusive rights to publish and cartographically exploit these materials.

With the Innerafrika-Expedition taking shape Petermann from December 1860 onwards, assigned his best apprentice and eventual cartographic successor, Bruno Hassenstein (1839-1902), almost exclusively to the compilation in preparation of a map-series of the African interior which was based on all hitherto known material. This envisaged map-series was preceded by a map of north-east Africa between the Red Sea and the Nile, hurriedly drawn and printed within only two months, as an orientation for both the expedition in their first progress until Chartum and the donating audience. Once this ‘quick-shot’ was off the press, the work on the truly Herculean map-series began: According to the notes in the work-diary Hassenstein kept on all his cartographic assignments, he started on 11 March 1861 with excerpts of the oldest itineraries dating back more than two generations to the end of the 18th century.
Figure 2:
Colour lithography sketch map (scale: about 44 ½ million) by August Petermann being supplement no. 1 to the instructions of the Innerafrika-Expedition indicating the known (purple) and unknown (white) parts of Africa and recommending of promising alternative routes (green) across the unknown continental interior back to the shore.
(Demhardt 2006, page 29).

The idea behind this long-term resource commitment was an at least theoretically brilliant dual approach. While the compilation was in the first instance meant to present both the expectant audience and the expedition members with state-
of-the-art mapping of the known and unknown, it was also ultimately scheduled to serve as a blue print for incorporating into future editions both in quantity and quality anticipated exploration results that was to be gained from the extensive wanderings of the Innerafrika-Expedition across hitherto unexplored regions within the coverage of this map-series. This cartographic venture drew on a comprehensive evaluation and graphic translation of all available written and drawn sources on the topography of the African hinterland between the Libyan coast and the north of the – as such still undiscovered – Congo basin. As to be expected from a Petermann project, a great number of the consulted diaries and itineraries had never before (and never again!) been constructed for use in a topographical map.

Not surprisingly, it took almost two and a half years to compile, draft and print this ambitious ten sheet map-series. In the preface to the PGM Supplement Volume II – which combined the four PGM Supplement Issues 7, 8, 10 and 11 containing the instalments of the ten-sheet map-series “Karte von Inner-Afrika nach dem Stande der geographischen Kenntnis in den Jahren 1861 bis 1863” in a scale of 1:2 million – Petermann, in November 1863, concluded the arduous work by specially thanking the main compiler, constructor, drafter, map-drawer and even author of the extensive critique commentaries on the sources of the map-series – “the friend at my side for 9 years, B. Hassenstein (whom I am lucky to call my apprentice)”.

As an example of the production stages of the map-series this paper shows extracts from sheet no. 5 “Wadai und Bagirmi” which was commenced by the end of April 1861 with Hassenstein computing the routes of the most important explorers before like many times “tidying up Petermann’s convolutes” on overseas territories distracted him for a whole week. The initial construction with the computation of the explorer routes, showing from Hassenstein’s hand both route traverses and short written excerpts of hearsay-‘knowledge’ in areas lacking such routes, was done in a scale of 1:1.4 million, while both the final draft and print were reduced to a scale of 1:2 million. All three extract illustrations show the same area from the north-western corner of that sheet with Lake Chad clearly visible at the upper left edge. The red lines to the south of the lake on the construction sheet have been partly identified as the routes of Heinrich Barth of 1852 and Eduard Vogel of 1854 in the direction of Musgo and the Tuburi swamps in what is nowadays northern Cameroon.

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15 The first instalment published in PGM Supplement Issue 7 (1862) contained sheets no. 4 “Nubien” and no. 6 “Darfur und Kordofan”, the second instalment in PGM Supplement Issue 8 (1862) sheets no. 1 “Fessan”, no. 2 “Ägypten” and no. 3 “Tebu-Land”, the third instalment in PGM Supplement Issue 10 (1862) sheets no. 5 “Wadai und Bagirmi”, no. 7 “Dar-Banda” and no. 9 “Kongo” and the fourth instalment in PGM Supplement Issue 11 (1863) sheets no. 8 “GondoKoro” and no. 10 “Uniamwesi”.

16 Petermann / Hassenstein 1862/63, page VI.

17 Forschungsbibliothek Gotha, Sammlung Perthes: Hassenstein, Kartographische Notizen, Heft 5, page 73.

18 According to Hassensteins “Memoire der Karte von Inner-Afrika” (pages XIII-XIV) the routes were complemented by “inquiries of the explorers, which by far had to fill the sheets”. In the evaluation process Petermann and Hassenstein of course “frequently encountered unsolvable contradictions were we had to follow either this or that authority […]. Therefore it was an advantage for us to place notes on the map because this enables us with much more security to distinguish the better from the erroneous” because this allowed to present all hearsay versions “while at the same time this appealed to solve such contradictions” by future expeditions. Notably in the southern third of the map-series coverage was such a terra incognita and more than obviously pointed out the destination of research in the decades to come.

19 Demhardt 2006, pages 43-44.
Chapter Three: Floundered Cartographical Hopes

One cannot say that the Deutsche Innerafrika-Expedition had a good guiding star. With some delay it arrived in Massaua at the Eritrean shore of the Red Sea already well behind schedule on 17 June 1861. And weeks later reports reaching Gotha alarmed the Steering Committee that in autumn the party was still in the mountainous hinterland, the old research ground of its leader Theodor von Heuglin, and even intended to remain there for quite a while instead of progressing via Chartum westward to Wadai. These reports convinced Petermann that von Heuglin had lost the expeditions first aim, namely to establish Vogel’s fate and to salvage his
papers, “completely out of sight and that instead he indulges in an absolutely casual travelling through certain areas in East Africa.”

After the thunder rolling short notice in PGM December 1861 that von Heuglin “doesn’t intend to go straight to Chartum” but envisages a detour into the Abessinian region of Kaffa, a thoroughly disgruntled Petermann on 1 January 1862 sent the stubborn von Heuglin a private letter that the “audience in toto”, after all financing the whole venture, disapproves his of detours. When even this warning didn’t change the mind of the expedition leader, the Steering Committee on 21 February forwarded an official document to the expedition – declaring the deposition of von Heuglin – not aware of the fact that by then the expedition due to internal disputes had already fallen apart with Heuglin and Steudner carrying on into Abessinia while Munzinger and Kinzelbach remained loyal to the instruction and were by then heading for Chartum.

The faithful Munzinger and Kinzelbach reached El-Obeid, the westernmost Egyptian outpost in the Sudan, in June where they found the onward journey effectively blocked by the xenophobe Sultanate Darfur’s interdiction to travel through to neighbouring Wadai. As seemingly the only luck of the whole expedition Munzinger met in El-Obeid the Arab Mohammed who had been in the entourage of Barth’s friend Sheik Sein el-Abidin in the Lake Chad region who confirmed the rumours that Eduard Vogel had already in May 1856 been stabbed to death on command of the Sultan of Wadai and that all his belongings were lost. Having obtained some second-hand information about Vogel and being effectively blocked from proceeding into the unmapped interior of Central Africa the two remaining loyal expedition members on 10 July 1862 informed the Steering Committee that they were on their way home, hoping that “the honourable Committee and each reasonable and cold blooded thinking gentleman, who is not up to place our lives and health in the balance and demand in vain martyrdom, will not disapprove.”

Whereas the Deutsche Innerafrika-Expedition begun with the highest hopes to salvage Vogel’s papers and to shrink the cartographical white dot of Central Africa, the whole endeavour ended with grossly unsatisfactory results especially when measured against the enormous input of donated money and map-editing work by Petermann and Hassenstein. To add tragic to the meagre outcome – basically only some amendments to already known Eritrean-Abessinian regions and ironically outside the coverage of the “Karte von Inner-Afrika” – all but one members of the expedition forcibly died or fell victim to diseases in Africa: Steudner 1863, Kinzelbach 1868 and Munzinger 1875. Only Theodor von Heuglin passed away peacefully at his home in Stuttgart in 1876.

By autumn 1863, when the last two sheets of this map-series appeared, the expedition send out with such far-flung hopes was already wrecked by disputes and adversary circumstances and their members either buried in Africa or back home.

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21 Neueste Nachrichten 1861.
22 Die Deutschen Expeditionen 1862.
23 Munzinger 1862 (Nachrichten), page 350.
24 Munzinger 1862 (Schluss), page 390.
Judged by its ambitious aim to be both inspiration and thesaurus of new discoveries in Central Africa the huge project remained a torso. However, the sheets of the meticulously elaborate “Karte von Inner-Afrika”, based on supreme source evaluation and covering almost a quarter of the continent, remains a milestone of African cartography never tried again and therefore unsurpassed.

The slow progress of the exploration and mapping of Central Africa in the years to come proved that Petermann’s Ten Sheet Map appearing in 1861-63 was a remarkable but isolated cartographical avantgard well ahead of its time. It would take more than a quarter of a century before his companion and successor Hassenstein had sufficient ‘new’ route traverse data about inner Africa at hand to draw in 1888 as a worthy follow-up\(^\text{26}\) a Four Sheet Map of the Northern Congo Basin which was still on an overview scale of 1:750,000.\(^\text{27}\)

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\(^{26}\) Demhardt 2006, page 71.

Fig. 4
Fig. 5
Epilogue: Being a Geographical Celebrity

During the appearance of the sheets the painstakingly Ten Sheet Map, which caused a stir in learned Europe, happened a little known episode nestling between art and science which highlights how soon, and to what extent the publishing house Perthes and its cartographer Petermann had achieved the status of European epitomes of the prevailing ‘geographical spirit’ of their time. In 1863 an unknown French author named Jules Verne (1828-1905) published a novel “Five weeks in a balloon” in which a fictive but widely travelled Dr. Samuel Fergusson embarked on an adventurous trip across Africa in a balloon. To lend this story more authenticity Verne gave some contemporary exploration heroes an ‘appearance’ and of course didn’t forget the celebrated Petermann. When in a dramatic twist of the tale all leading geographical journals rejected Dr. Fergusson’s proposal of a transcontinental balloon ride, Verne introduced the Gotha editor who as a deus ex machina silencing all sceptics: “But Mr. Petermann, in his ‘Mittheilungen’ appearing in Gotha, dished out a smashing rebuff to that Geneva journal. Mr. Petermann said he personally knows Dr. Ferguson and he vouch for his brave and prudent friend.” With the backing of such an authority Dr. Fergusson finally set off, discovered the hitherto only vaguely mapped origins of the Nile and rightly received the Royal Geographical Society’s Gold Medal for undertaking the most important expedition of 1862.

Both in content and in style Verne’s fiction imitated contemporary expedition reports to such an extent that many readers believed it to be a true travel journal and that PGM was forced to end a – factual – account of recent or projected expeditions into Africa in its issue September 1863 with an editorial note addressing all readers who had missed Dr. Fergusson’s journey in this article as follows: “The well-informed audience of course do not need to be told what to think about Jules Verne’s book ‘Cinque Semaines en Ballon’ about which the ‘Magazine of Foreign Literature’ and following that many other newspapers and journals published an account titled ‘A five weeks aerial journey across Africa’. Because many readers have been led astray by the bold appeal to the editor of this journal and other so-called [...] witnesses it might do no harm that we expressly make known here that this journey only is piece of fantasy.” This remarkable note was PGM’s first and only published protest against a novel but provided proof about the trust Petermann’s maps had won among European science and leisure readership alike.

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28 Verne 1863. Due to its immediate success with the French audience the novel was soon translated into other languages.
29 Verne 1863, page 9; as translated by Imre Josef Demhardt.
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Verne, Jules: *Cinq Semaines en Ballon*. Paris (Hetzel) 1863.