

# GEORG VON NEUMAYER AND HIS TRACES IN GERMANY

JÖRN THIEDE

Department of Geography and Geology, University of Copenhagen,  
Øster Voldgade 10, DK-1350 Copenhagen K, Denmark  
(formerly Director of the Alfred-Wegener-Institute for Polar and Marine Research  
Bremerhaven, Germany).

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Georg Balthasar Neumayer (1826–1909) was probably the most important figure in establishing maritime services and ocean research in Germany, after he spent several years in Australia as a young scientist. He succeeded to found the ‘Deutsche Seewarte’ in Hamburg, the predecessor of the modern BSH (Bundesamt für Seeschifffahrt und Hydrographie—Federal Maritime and Hydrographic Agency) in Hamburg and Rostock and established a wide range of maritime services by providing sailing instructions for merchant vessels. He took initiatives towards Germany’s first global ocean expedition on *Gazelle*, the first International Polar Year, the first German Antarctic Expedition on *Gauss*, and became a widely recognised and respected science manager, on the national as well on the international scene.

*Key words:* POLLICHIA, Norddeutsche Seewarte, Neumayer Station, Dronning Maud Land, Antarctica

THIS paper contains some of the salient points of my statement during the closing ceremony of the Neumayer Symposium of the Royal Society of Victoria, which I have been able to offer on behalf of the Alfred Wegener Institute (AWI) for Polar and Marine Research (Bremerhaven, whose director I have been 1997–2007) of the German Helmholtz Association, of the learned society POLLICHIA (sited in Neustadt/Weinstrasse, whose member, president and honorary president Georg von Neumayer has been for many years) and of the modern BSH (Bundesamt für Seeschifffahrt und Hydrographie/today in Hamburg and Rostock, which is the successor of the institution ‘Deutsche Seewarte’, whose founding director was Georg Neumayer, 1876–1903). The POLLICHIA is running an archive on Georg von Neumayer in its natural history museum in Bad Dürkheim, with statue reminding us of this great citizen of the Palatinate (Fig. 1).

Hence this paper should not be considered a thoroughly investigated scientific contribution, but rather an essay of my impressions of the impacts of this man on national and international geophysical (mainly polar) sciences (I have drawn information from Kretzer 2001; Krause 2001; Günther 1906; Günther 1909; Heidke 1926; Paulus 1926; and the manuscript of a talk by P. Ehlers (former president of the BSH) given at the occasion of the international Pollichia-Sympo-

sium on June 25, 2001 in Bad Dürkheim). Georg Neumayer visited Australia twice in his young years, but he succeeded in firmly establishing his name as a serious scientist and he conducted important surveys and expeditions into poorly known regions of the young British colonies (reported on elsewhere in this volume), with the result that he is listed in formal Australian biographies. My statement was read just after a direct telephone link with the station chief of the recently inaugurated German Neumayer-III-Station (see below) in Dronning Maud Land (Antarctica).

The 100th anniversary of the death of Georg Balthasar von Neumayer (born 21 June 1826 in Kirchheimbolanden, died 24 May 1909 in Neustadt/Weinstrasse—both located in the Palatinate in central western Germany) offers an occasion to compare his young and highly talented personality as he arrived in Australia and as he strove for new knowledge through active participation in excursions, expeditions, establishment of the Flagstaff laboratory, with his later career in Germany and Europe. After his final return from Australia he became deeply involved in science administration and management; despite his input to the 1st International Polar Year (1882–1883), the German *Gazelle* expedition (1874–1876) and the first German expedition to Antarctica on *Gauss* (1901–1903) he never returned to field work or participated in scientific cruises.



*Fig. 1.* Statue of Georg von Neumayer in the garden of the Naturkundemuseum (Museum of Natural History) of the POLLICHA in Bad Dürkheim.

### GEORG NEUMAYER'S YOUNG YEARS IN GERMANY

The years when Georg Neumayer was young were difficult in the area which later became Germany, both politically as well as scientifically, and polar and marine research had no traditions at all. There were intense political tensions between some of the German states, Austria, Denmark and France, which all developed into wars. The first democratic experiment with a parliament in Frankfurt (1848, very close to the Palatinate) failed and young Georg Neumayer was 'exported' to Munich, the capital of the kingdom of Bavaria, for some time also to Tyrol to be out of sight (later he met a number of German emigrés in Australia with whom he sympathised, probably one of the reasons why he quickly gained status in Victoria). Germany was limping behind the polar (mainly Arctic) efforts of other countries (for example the United Kingdom, Russia, The Netherlands), which

had taken up the race for trade routes through and resources in the polar regions. Lack of suitable ships and lack of experience in surviving the extreme polar living conditions (clothing, housing, poor food, which led to scurvy) often had tragic consequences (e.g. Barents, Bering, Franklin) resulting in the death of many of the courageous people trying to master the polar winters. There was also no proper scientific equipment to be deployed to the polar seas or to stations on land, as can be seen for example by the Great Nordic Expedition (1733–1741) when the Russian imperial government equipped a gigantic multi-year expedition to explore the Siberian Far East.

After finishing high school in Speyer (and being introduced by an inspiring teacher to astronomy, geodesy and physics) he moved (1845) to Munich, where he obtained an academic education in geophysics and hydrography and developed a serious interest in polar exploration, and where he received a doctorate in 1850. He left a promising impression on some of his professors and was appointed assistant in the physics institute of the university. He quickly became aware that he needed practical experience in a number of science fields and studied terrestrial magnetism and oceanography, but trained himself also in navigation and nautical astronomy. He tried to enlist into the German navy, later also into the Austrian, but failed both times. In Hamburg he visited a maritime college (Navigationsschule), passed an officers examination and taught navigation both there and a bit later in Trieste. Although he failed to enter the navy, he wanted to gain practical experience. He became a sailor and participated in voyages to South America and Australia (arriving in Sydney in 1852 from where he ventured to the Bendigo gold fields).

He was well educated, intelligent, well liked and decisive, and was able to gain the support of famous scientists who opened for him the doors to the Bavarian King and his coffers (from where he received substantial support for his plans and preparations to establish an observatory in Australia, which became the Flagstaff Observatory in Melbourne). The years of his life in Australia (1852–1854, 1856–1864) and his impact on the development of science in Melbourne is described and discussed elsewhere in this publication, but his maturation and success as a scientist must have contributed substantially to his standing, both abroad as well as in Germany. Based on the ideas of Maury (1857) he developed schemes of optimal sailing routes from and to Australia, which can still be found in the national archives of Victoria

in Melbourne and which had an important influence on his later maritime activities in Germany.

#### ACTIVITIES ON THE NATIONAL AND INTERNATIONAL SCENE AFTER HIS RETURN FROM AUSTRALIA

After being so successful in Australia, and with so many challenges there waiting for him, it is not quite clear to me why Georg Neumayer decided to return to Germany (1864). He began almost immediately to lobby for the establishment of a new German central maritime institution. Some of the German states were quite belligerent at that time, and wars were won against Denmark, Austria and a bit later France, sea trade expanded and it became clear that some kind of a German navy was to be developed. Neumayer gave speeches on his plans both for the exploration of Antarctica as well as for collecting oceanographic and meteorological data.

He established close connections to the then young German navy and in 1872 became its hydrographer. In Hamburg he founded the private 'Norddeutsche Seewarte' (of a maritime instructor von Freeden), which was later merged into the 'Deutsche Seewarte', which became the central hydrographic office for the German Reich and combined marine research and applied aspects of all sciences and technologies, which were needed to support navigation. Sailing instructions for merchant ships, based on data collected over many years, were particularly valuable and it is one of the trademarks of the life and work of Georg Neumayer that he never forgot about the practical aspects of his work and of the marine sciences. The new institution also led to the establishment of meteorologic services and can be considered as one of the predecessors of what later became the German Weather Service, *Deutscher Wetter Dienst* (DWD).

After life and achievements of Georg Neumayer (Fig. 2) have been described in much detail at the occasion of his 80th birthday (Günther 1906), after his death in 1909 (Günther 1909) and at the occasion of his 100th anniversary (Heidke 1926), and more recently by Kretzer (2001) as well as Krause (2001), I will not go into much detail on Georg Neumayer's achievements, but only highlight a few traits which characterise him as a person and which brought him success.

He was born into a resourceful, well established family in the Palatinate and went straight through schools and his academic studies. After retirement



Fig. 2. Georg Neumayer as a mature man when he was director of the *Deutsche Seewarte* in Hamburg (from the archives of the BSH).

he returned to the area where he had his roots and where —through his membership in POLLICHIA— he came in contact with natural scientists. He lived his late years together with his sister, until she died; hence he can be considered a family man. Over many years he looked like an attractive man (my personal subjective impression), but strangely enough he never married to found his own family.

As mentioned previously, Georg Neumayer conducted extensive travels and field work in Australia, but despite his involvement in marine research, his contributions to the preparations of the *Gazelle* expedition, to the 1st International Polar Year (1882–1883) and the first German expedition to Antarctica (on *Gauss*, 1901–1903 under von Drygalski), he never again actively participated in expeditions. He travelled to conferences and meetings abroad (for example in Rome and London). It is not clear to me why.

In and outside Germany Georg Neumayer quickly gained acceptance as a scientist, and he established a

network of contacts that were invaluable in his preparations for the 1st International Polar Year (IPY). The original ideas for this effort came from Weyprecht (1838–1881), but later when the latter became seriously ill and finally died, Georg Neumayer took over to push for this venture of the first large scale internationally coordinated synoptic meteorologic observations over a whole seasonal cycle (1882–1883). Neumayer became president of an international polar committee and was able to convince 12 nations to establish meteorologic and magnetic observatories and to muster overwintering expeditions, on the Northern (13 stations), and to a lesser degree on the Southern hemisphere (2 stations). All but one succeeded to work over a whole year and to come back without loss of life (a wonder after the many tragic expeditions during the years prior to the 1st IPY). At first Georg Neumayer had substantial problems to mobilise the necessary funding for a German participation in the IPY, but in the end he was successful and, thanks to his Antarctic interests Germany became the only country with stations in both polar regions (South Georgia, Kingua Fjord/Baffin Bay). In summary, Georg Neumayer was probably more successful as an international science manager than as an original scientist. International coordination at that time was achieved through handwritten letters, conferences and publications; curiously enough he is said to never have used a telephone.

Georg Neumayer knew that he needed gifted colleagues in his new institution (Fig. 3); he sought out and hired highly qualified scientists. The best exam-



*Fig. 3.* The original building of the Deutsche Seewarte in Hamburg. Georg Neumayer succeeded in his aim to establish this maritime institution as a world class organisation for marine and meteorologic research and shipping advice (from the archives of the BSH, Hamburg). This building was destroyed during World War II, but the headquarters of the modern BSH are located in the same area.

ple is probably Vladimir Köppen, a meteorologist originally from St. Petersburg (who later became the father-in-law of Alfred Wegener and who, after the end of the First World War, drew both Wegener brothers into the ranks for the Deutsche Seewarte). Gerhard Schott was another scientist from this institution who exchanged frequently with Fridtjof Nansen. Neumayer had excellent skills to develop scientific instrumentation, and trained for example Amundsen in geomagnetism for his first crossing of the (Arctic) Northwest Passage.

At the end of his scientific career (Fig. 4) Neumayer had succeeded not only in establishing the Deutsche Seewarte as an internationally recognised maritime institution, but he had also published extensively (see Kretzer 2001) on the oceans and polar research; he had edited atlases and started the many series of regular publications/communications from his institution (for example a series of coastal hand books with sailing instructions). He received many awards and distinctions (over 100 in total, cf. Heidke 1926), most notably the high Royal Bavarian order, which resulted in 1900 in the change of his name. In the future he would be called Georg Balthasar Ritter von Neumayer (he was knighted!)

#### GEORG VON NEUMAYER AFTER RETIREMENT

Georg von Neumayer retired (1903) to the area where he came from, the Palatinate and lived for another 6 years, first together with his sister, later alone after she died. He was a member of learned societies and academies and was frequently an active member of the meetings of the POLLICHIA. He continued to attend scientific meetings and congresses. The population of the entire area mourned when he died on 24 May 1909 in Neustadt/Weinstrasse, where his impressive memorial can be found in the cemetery and where he was an honorary citizen.

#### TRACES OF GEORG VON NEUMAYER IN MODERN GERMANY AND ELSEWHERE

Neumayer's name is still with us in many ways, maybe most notably through Neumayer Station (Fig. 5) of the AWI in Dronning Maud Land, Antarctica. There are schools (in Neustadt, Krichheimbolanden, Kaiserslautern) and streets (in Neustadt, Hamburg) named after him as well as geographic



Fig. 4. Georg von Neumayer surrounded by his colleagues from the Deutsche Seewarte in 1903 towards the end of his term as director (courtesy AWI archive).

features (crater on the moon; a channel close to Lockroy, Antarctica; a glacier on South Georgia) to name but a few. Amundsen erected a cairn close to the location of his two winterings when crossing the Northwest Passage, commemorating his teacher and mentor Georg von Neumayer. There is even a marine animal which has been named after him: the echinoderm *Sterechinus neumayeri* (Meissner).

POLLICHIA, the natural history society in Neustadt, with its museum in Bad Dürkheim has probably the most extensive activities formally related to Neumayer (Georg von Neumayer youngest prize, Neumayer Medal, Neumayer Symposia, Georg von Neumayer Polar Archive in the Pollichia Museum, Georg von Neumayer Foundation). Some of his wider family still lives in the area, which also has a family archive.

The 100th anniversary of Neumayer's death in 2009 was marked by numerous symposia and exhibitions (Neustadt/Weinstraße, Hamburg in the BSH), beside the most welcome occasion to mark his influence on Australian sciences, which was celebrated by the Royal Society of Victoria.

#### ACKNOWLEDGEMENTS

The invitation of the Royal Society of Victoria in Melbourne, Australia to attend the symposium at the occasion of 100th anniversary of Georg von Neumayer's death offered me a wonderful occasion to learn more about Georg Neumayer's young years in Australia and his impact on the science scene in an emerging country. I was able to re-establish contacts with southern hemisphere polar researchers. The Alfred Wegener Institute (AWI) for Polar and Marine Research in Bremerhaven, Germany kindly funded travel to and attendance of the symposium. Dr. Reinhard Krause, the archivist of the AWI, advised me on some of the important aspects of Neumayer's life. The Royal Society of Victoria, AWI, POLLICHIA and the archives of the BSH made some illustrations available for my presentation. We in Germany acknowledge with great gratitude the efforts of the Royal Society of Victoria to commemorate the 100th anniversary of the death of Georg von Neumayer, who is considered a great scientist both in Australia and Germany.



Fig. 5. The Neumayer-III-Station in Dronning Maud Land (Atka Bay) which has been inaugurated in February 2009 (photo courtesy AWI, Bremerhaven).

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