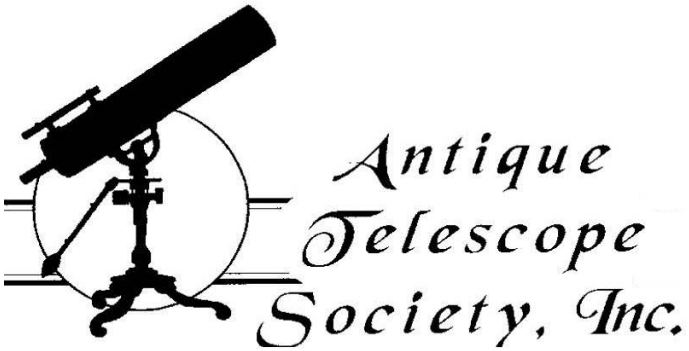
Gudrun Wolfschmidt (ed.)

Antique Telescope Society (ATS) Convention

Hamburg / Trip through Germany,
28. September – 3. Oktober 2012

Booklet of Abstracts



Hamburg: Institute for History of Science 2012

Web Page of the Symposium:
http://www.math.uni-hamburg.de/spag/ign/events/ATS-hh2012.htm

Funding for the Symposium was provided by

- Schimank-Stiftung
- Hamburg University

Cover illustration (front): Large Refractor, 1-m-Reflector
and 80-cm-Schmidt-Telescope of Hamburg Observatory

Cover illustration (back): Equatorial of Hamburg Observatory

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http://www.math.uni-hamburg.de/home/wolfschmidt/index.html
http://www.math.uni-hamburg.de/spag/ign/w.htm

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28. – 29. September 2012

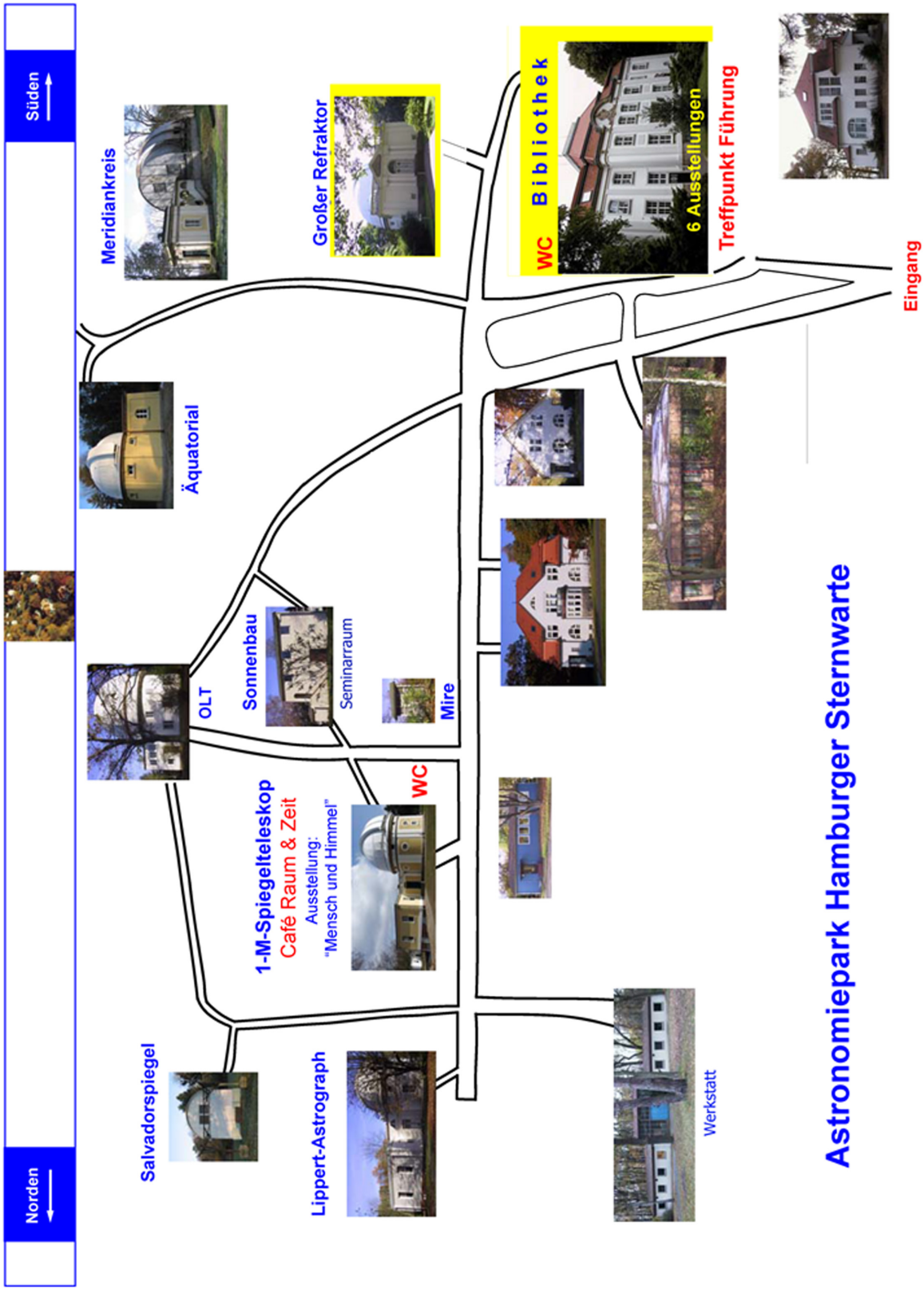
Hamburger Sternwarte in Bergedorf
Gojenbergsweg 112, D-21029 Hamburg
Library in the Main Building

Friday, 28. September 2012

10:00	Gudrun Wolfschmidt: *Observatories and Instruments – Astronomy in Hamburg*
10:30	Roger C. Ceragioli: *Johann Hieronymus Schroeter* *and his Little-Known Letters to William Herschel*
11:00	Coffee Break
11:15	Wayne Orchiston: *New Zealand's First Astronomical Observatories:* *The Tent Observatories Used on Cook's Voyages to the South Seas*
11:35	Beatrix Alscher: *Restoration of the 1 meter telescope*
12.30	Lunch in the Seminar room (Sonnenbau)
13:30	Bart Fried: *China's Astronomical Treasures*
14:20	Coffee Break
14:30	Irena Kampa: *The telescopes of Johannes Hevelius (1611–1687) –* *about polemoscopes, lens grinding machines and giant tubes*
15.00 h	Gudrun Wolfschmidt: *Guided Tour of Hamburg Observatory*
20.00 h	Evening: Dinner in Bergedorf Castle Keynote by Jim Caplan (Marseille): *Measuring angles in the sky, with and without telescopes,* *and other historical curiosities*

Saturday, 29. September 2012

9.00	Walter Stephani & Roger Ceragioli: *Walter & Roger's Telescope Adventures with Bernhard Schmidt*
10.00	Hans Seeger: *Historic handheld Zeiss Binoculars –* *what is documented, what has to be done?*
10.30	Coffee Break
10.45	Susanne M. Hoffmann: *Edwin Rolf's Giant Schupmann-telescope in Rathenow*
11.20	Detlef Groote: *Digitization of Hamburg Observatory Plate Archives*
11.40	Carl Romick and Wayne Orchiston: *J.H. Marriott: New Zealand's First Professional Telescope-maker*
12.00	Lunch in the Seminar room (Sonnenbau)
13.00	Wolfgang Busch: *From the extreme Zeiss B lens to my simple Oil Contact HAB system*
13.20	Coffee Break
13.40	Jim Caplan (Marseille): *The Marseille Observatory and its telescopes*
14.10	Depart by S-Bahn from Bergedorf station to Hamburg center (main railway station): *Museum für Kunst und Gewerbe (Arts and Crafts Museum)* *with a collection of scientific instruments, astrolabes, sun dials, ...*
15.30	Contact: Dr. des. Christine Kitzlinger
17:00	Gudrun Wolfschmidt: *Guided tour through Hamburg* *to places of interest in respect to history of astronomy*
20.00 h	Evening: Dinner: Restaurant in the cellar of the City Hall ParlAment, Rathausmarkt 1, 20095 Hamburg


Süden
Norden
Meridiankreis
Großer Refraktor
WC Bibliothek
6 Ausstellungen
Treffpunkt Führung
Eingang
Äquatorial
OLT
Sonnenbau
Seminarraum
Mire
1-M-Spiegelteleskop
Café Raum & Zeit
Ausstellung:
"Mensch und Himmel"
WC
Salvadorspiegel
Lippert-Astrograph
Werkstatt
Astronomiepark Hamburger Sternwarte

Abstracts,
compiled by Peter Abrahams

1.1 *Observatories and Instruments – Astronomy in Hamburg*

Gudrun Wolfschmidt

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Astronomy started in Hamburg already with Tycho Brahe (1546–1601) around 1600, and with private astronomical observatories in Baroque times. The School of Navigation in Hamburg was founded in 1749. Hamburg Observatory had two predecessors, a private observatory in 1802, and in 1825 an observatory initiated by Johann Georg Repsold (1770–1830), since 1833 State Institute. In 1823 Heinrich Christian Schumacher (1780–1850) founded another observatory in Altona, at that time under Danish administration.

The new observatory was built in 1906 to 1912 at the outskirts of Hamburg in Bergedorf (since 1969 University Observatory). The year 2012 is for Hamburg Observatory the 100th jubilee. The buildings mirror the architecture of that time, and the impressive collection of instruments form an important historical record of astronomical and astrophysical research. A highlight in Hamburg's history was the invention of the Schmidt Telescope around 1930. Here is a list of the main instruments: Equatoreal (Merz/Repsold, 1867), Meridian Circle (Repsold, 1909), Large Refractor (Steinheil/Repsold, 1911, 1914), 1-m-Reflecting Telescope (Zeiss of Jena, 1911), Lippert Astrograph (Zeiss of Jena, 1911, replaced by a 60-cm-reflector (Lichtenknecker, Belgium, 1974) and the 1.2-m-OLT-Reflector (Grubb-Parsons, Newcastle upon Tyne, 1975, on the mounting of the former Large 80-cm-Schmidt telescope).

The whole ensemble was put under monument protection in 1996 due to its significance in cultural history. The "Förderverein Hamburger Sternwarte", founded in 1998, helps to open the observatory to the public and is active with the requisition of grants for restoration. The final goal is the transnational, serial application together with La Plata, Argentina, for the UNESCO World Heritage List.

1.2 *Johann Hieronymus Schroeter and his Little-Known Letters to William Herschel*

Roger C. Ceragioli

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J.H. Schroeter (1745–1816) was celebrated the 19th century as the „Herschel of Germany", not only for his epoch-making lunar and planetary observations, but also for the excellence of his large telescopes-rivaling those of William Herschel himself-made at Schroeter's private observatory in Lilienthal, Germany, near the port city of Bremen. Starting in 1783, Schroeter carried on an extensive and detailed correspondence with William Herschel discussing telescopes, astronomical observing, and Schroeter's controversial ideas about the nature of the planets. These letters have been little-consulted by historians, probably because they are not easily accessible and not easily read, being hand-written in an obsolete script that is no longer widely understood, especially outside of Germany. The present talk discusses the author's complete transcription of the letters into modern type-face and his investigation of the content. The letters feature many points of interest, not only for the study of Schroeter's own work, but also for the study of William Herschel, his social position in England, and his fraught relations with his German colleagues.

1.3 *New Zealand's First Astronomical Observatories: The Tent Observatories Used on Cook's Voyages to the South Seas*

Wayne Orchiston

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Following the success of Cook's first voyage to the South Seas, two further expeditions to the Pacific were planned. Astronomers went on both voyages, and were supplied with telescopes, quadrants, astronomical clocks, chronometers and other instruments, as well as pre-fabricated tent observatories. In this paper we describe these portable observatories, and the ways in which they were used by the different astronomers during the various stop-overs made in New Zealand in 1773, 1774 and 1777.

1.4 *The 1m Reflector – An Object of Technical Heritage: Masterly Workmanship for Scientific Research*

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The 1m reflector telescope is an almost 100 year old device that is particularly relevant to the history of technology – not only due to its special design, but because it is still in a fully functional condition. With its traces of use and the conversions and additions made over time it is evidence of a long period of astronomic research. The telescope offers an extremely rare value of authenticity that should have been preserved as it is almost in its original condition and "true" context. This lecture, given directly in front of the telescope, presents the concept of preservation for this device of technical heritage, and delivers insight into the conservation treatments, in addition to demonstrating the usual features of the technical components of the telescope.

1.5 *China's Astronomical Treasures*

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This illustrated talk covers the hunt for Henry Draper's historic Clark refractor ostensibly sent to China. During the hunt, many other historic telescopes, observatories and astronomical treasures were discovered by the speaker, all along Eastern China. From the Forbidden City and the Peking Ancient Observatory to Purple-Rose Mountain Observatory complex, China has managed to preserve many of its observatories and instruments and has been working hard to make them accessible to the public.

1.6 *The telescopes of Johannes Hevelius (1611–1687) – about polemoscopes, lens grinding machines and giant tubes*

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Johannes Hevelius (1611–1687), a passionate astronomer and instrument maker from the Baltic city of Gdansk, constructed a wide variety of optical devices for his private observatory. With one of his early telescopes he made detailed topographical observations of the moon surface, that he published in his famous *Selenographia* (1647).

He used helioscopes for the study of the sun, grinded his own lenses with a self constructed grinding machine and developed a periscope, which he called "polemoscope", as it was intended for military use.

Beside this he pursued building new telescopes, each one with a bigger focal length than its predecessor to minimize the effects of spherical aberration. This trend concluded in a 140 ft long telescope, for which the lenses were made by Titus Livius Burattinus (1617–1681). One of these lenses is believed to be at the "Deutsche Museum" in Munich. The rest of his instruments became victims of a conflagration in 1679 or got lost. In my paper I will give a short overview of the optical devices of Hevelius with an emphasis on his giant telescopes. How were they constructed? Where were they erected? In which way were they moved to follow the apparent motion of the stars? And finally where is the place of Hevelius' telescopes in the historical context?

1.7 *Measuring angles in the sky, with and without telescopes*

Keynote address

James Caplan

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I shall describe the evolution of angle-measuring in astronomy from the 16th century to the present, with particular attention to one type of device, Tychonic sights, invented not long before the appearance of the first telescopes and dying out after a short period of competition with telescopic sights.

Angular measurements were at the heart of astronomical observation even after the advent of the telescope, and until the rise of "astrophysics" in the last third of the 19th century. The telescopic observations of Galileo were of course very important, giving significant support to the heliocentric system of Copernicus, but they did not clinch the matter. An ultimately more important development, a few years later, was Kepler's showing that the motions of the planets could be much better represented by elliptical orbits around the Sun. And Kepler was able to make his discovery because of the unprecedented accuracy of the angles measured without telescopes a few years earlier by Tycho Brahe – around one minute of arc.

How were these measurements possible? Simply because Tycho Brahe had invented a new sighting device that was fundamentally different from the "open slits" or "plain sights" that had been used since antiquity. It was actually extremely simple, but was never really understood even by the few astronomers who used it. It was much more accurate than previous sights, but the Keplerian telescope with crosshairs was even better, and by the end of the 17th century the controversy surrounding the "impossible" accuracy of Tycho's observations had been largely forgotten.

1.8 *Walter & Roger's Telescope Adventures with Bernhard Schmidt*

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Since 2004, Walter Stephani and Roger Ceragioli have been engaged in an on-going study of the life and works of Bernhard Schmidt. Their activity has centered on a comprehensive effort to identify, image, and scan all surviving documents and artifacts related to Schmidt; and to begin a systematic interpretation of them in order to develop an organic picture of how Schmidt's work in telescope optics led to his revolutionary concept of the "Fast Coma-Free Mirror System (lichtstarkes komafreies Spiegelsystem)", or Schmidt camera, in 1929. In the course of their work Stephani/Ceragioli have uncovered a vast new array of documents never before utilized for the study of Schmidt. They have also discovered several important new artifacts. The present talk will outline their work and its possible future directions.

1.9 *Historic handheld Zeiss Binoculars – what is documented, what has to be done?*

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There are two groups of people fascinated by magnifying optics: those who use telescopes and those who use binoculars. Normally, these groups are separated and only a few people are interested in both subjects. The astronomer can find a lot of historic literature but it is nearly impossible to find something on binoculars, because until the 1950s to the 1970s, no monograph on prismatic binoculars, their principles, forms and features had been published. In books on physics or optics, and in sales catalogs, a few binocular models were described; and also in some textbooks, such as König's Die Fernrohre und Entfernungsmesser and von Hofe's Fernoptik. In the works of Moritz von Rohr, a lot of information was collected and published, but it was possibly Joachim Rienitz who was the first to wrote a useful text: Die Kulturgeschichte des Fernrohrs, a monograph with several topics but mainly dedicated to opera glasses. It was the high quality of military optics by Zeiss which changed critical users of binoculars into collectors, who tried to find the best of the best in handheld binoculars. They taught each other and an informal body of knowledge was formed in this way but nobody wrote a textbook on binoculars in general or on these military binoculars. The reason is that binoculars were not, in contrast to astronomical telescopes, regarded as high-tech instruments. Said in another way: He, who has the theoretical knowledge, doesn't write on binoculars, and the collector with a lot of experience and knowledge on binoculars, doesn't write books. Seeger included a survey of books on the subject of binoculars in the 1980s when he published his first book on binoculars (Feldstecher - Ferngläser im Wandel der Zeit), which also contained a short history on Zeiss binoculars. This book was the first among several developments: More books on binoculars were published by Watson, Reid, Gregory, Gubas, Rohan, Forslund and Best. International groups were organized like the Binocular History Society and the Focus Family. Meetings on the subject of historic binoculars were organized in several countries. The internet allowed cooperation and sharing of information, but nobody wrote a monograph on Zeiss binoculars, strangely enough because Zeiss was and is the leading company in optics. After the reunification of Germany a good cooperation with the two Jena institutions, the Zeiss archive and the Optical Museum was established. Hans Seeger wrote a monograph on Military Optics featuring the high quality wide angle Zeiss models (Militärische Ferngläser und Fernrohre), and published a reprint of Zeiss brochures (Optisches Gerät der deutschen Militärtechnik). After this, he extended the short Zeiss chapter of his first book to a monograph on Zeiss binoculars from

1894 to 1919 (Zeiss Feldstecher. Modelle – Merkmale – Mythos. Handferngläser von 1894–1919) with nearly 900 pages and more than 2000 illustrations. This book will be shown as well as other binocular books on the market today. This is, as the title says, the present state: what has been done. The next step is the second volume of the monograph, describing the Zeiss models up to 1946. This volume is in the pipeline and the author welcomes all forms of cooperation.

1.10 *Edwin Rolf's Giant Schupmann-telescope in Rathenow*

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In the beginning of the 20th century, the German engineer professor Ludwig Schupmann developed new hybrid types of telescopes, which he called medial telescopes, because they are in the middle between reflectors and refractors featuring components of both, lenses and mirrors. He suggested this new type, because he wanted to correct the projection errors of both types of optical projection and he wanted to make refracting telescopes, which are bigger than 600 mm in diameter. He really managed to develop such a system theoretically. Due to the complexity of the Schupmann system, only few telescopes of this type had been built. Additionally, Europe saw World War I which delayed further developments and soon afterwards, in 1920, Schupmann died while his second paper was in the proof-reading phase. So, it appeared with some grave errors and it was a great challenge for astro-engineers to really perform this type of telescope.

Nonetheless, the young Edwin Rolf became interested in that topic. Since he was hobby astronomer, he made his own telescope of this type in the 1920s. After moving to Rathenow, close to Berlin, during the Second World War and opening again his own work-shop in this city of optical industry, he was surrounded with people who helped him performing a really great project. He wanted to build a medial telescope, which – due to Schupmann – should be bigger than 600 mm in diameter. As far as we know, he started with that work soon after the war was over. In 1951, the astronomy class of the German Academy of Science was founded and under the first projects was a financial support for Rolf's project (ex post facto). So, he finished his Giant Medial in 1953, tested the instrument during the following years in comparison with another big telescope-set he built and gave a final report in 1958. His telescope has a diameter from the front lens of 700 mm, focal length of 20.80 m, although the tube is only 10.5 m long. Additionally, Rolf's telescope provides a lot of special features, which are witnesses of tremendously large interest and accuracy of Rolf's work.

Watching all reports and protocols of the Academy of Science I found out, that the astronomers never got back to his results. They only discussed one time, that there are some giant telescopes at Rathenow, but did not decide anything, what to do them. So, Edwin Rolf used them personally by offering guided tours through his work-shop and so called "public observatory". After Rolf's death in 1991 the declined telescope in his garden has been sold twice, demounted in the garden (1994), remounted at a school's yard (1996) and again moved from there to a public park

in 2008. The park is called "park of optics" and provides a lot of optical toys as outdoor activities.

My talk will give an overview over the technical details of Schupmann's dream and its technical performance by Edwin Rolf. I will also show some sequences of the original movie of Edwin Rolf on his "public observatory Rathenow", which is an amateur film I dated historically in the early 1960s.

1.11 *Digitization of Hamburg Observatory plate archives*

DETLEF GROOTE

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Photographic plates had been the main observational storage tool in astronomy for nearly a century. At Hamburg Observatory in Bergedorf more than 36.000 plates were taken between 1912 and the end of the 20th century using different telescopes designed for positional astronomy and astrophysics. Most of these plates had been stored but not cataloged electronically so that they had been more or less unusable for further research most of their lifetime. After a pilot project in 2010 the complete digitization using modern flatbed scanners was started with support by the Deutsche Forschungsgemeinschaft (GR969/4-1).

The primary goals of the project are
i) to make the information available to research again,
ii) to preserve this valuable historic archive for the future, especially before further plate deterioration, and
iii) to present all available information together with the plate images in the world wide web including the access from virtual observatories.

The first 9000 plates are already scanned and can be accessed by public. Each plate has its own web page comprising information from envelope, log book and observers notes. Beside a low-resolution JPEG-image also links to high resolution data (2400 dpi FITS-files) can be found (`http://plate-archive.hs.uni-hamburg.de/index.php/en/`). The archives may not only be useful for researchers but also for historians, amateur astronomers and the interested public.

1.12 *J.H. Marriott: New Zealand's First Professional Telescope-maker*

Carl Romick and Wayne Orchiston

Townsville, Queensland, AUSTRALIA

wayne.orchiston@jcu.edu.au

New Zealand's first professional manufacturer of telescopes was an Englishman, James Henry Marriott (ca. 1800–1886), who settled in Wellington in 1842 and advertised in the local newspaper as a "...maker of astronomical telescopes ...". In this paper we discuss Marriott's training as a scientific instrument-maker in England and the extent to which he put these skills into practice while living in New Zealand. We end by describing a marine telescope made by Marriott in 1844 which is now owned by the first author of this paper.

1.13 *From the extreme Zeiss B lens to my simple Oil Contact HAB system*

Wolfgang Busch

Hamburg, GERMANY

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The design of the highly complex Zeiss B refracting objective, and the restoration of an example, will be compared to the author's HAB refractor.

1.14 *The Marseille Observatory and its telescopes*

James Caplan

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james.g.caplan@gmail.com

Astronomy has been practiced continuously in Marseille since the 1680s. The Marseille Observatory was founded by 1702 and directed for 60 years by the Jesuits, and financed by the French Navy. The original building (which still exists) was located near the Old Port. In the 1860s the observatory (having become, for a decade, an observing station of the Paris Observatory) was rebuilt a few kilometers away on the Plateau Longchamp, alongside the new Natural History Museum and Fine Arts Museum. Finally, in 2008 it was transferred to a new building, part of the "Technopole" of Château-Gombert, on the edge of the city; it is now called the Astrophysical Laboratory of Marseille. However, the historical heritage remains in storage on the Plateau Longchamp, where the astronomical outreach activities continue. We have several interesting telescopes, whose interesting histories I shall discuss. Two James Short reflectors were made in London in 1756 and were sent to Marseille during the Seven-Years War. The main telescope of the new observatory, in the 1860s, was Léon Foucault's recently finished 80-cm silvered-glass reflector. A rather unusual comet-seeker, unfortunately now lost, was installed at about the same time. In 1872 a refracting telescope with a Merz 257-mm objective and an Eichens mounting was installed – and it still works. A meridian circle was installed around 1876 and put into storage in 1912. In recent years, examination of archives has allowed us to tell some interesting stories about these telescopes and the people connected to them.

3 Organisation in Hamburg: Hotel, HVV, Publications

3.1 Hotels in Hamburg-Bergedorf

Center of Bergedorf

- Hotel Sachsentor, Bergedorfer Schloßstraße 10, 21029 Hamburg-Bergedorf
- Hotel Restaurant Kuhberg, Wiebekingweg 2a, 21029 Hamburg-Bergedorf, Tel. 040-72698006
- Hotel Lauenburger Hof, Hamburg-Bergedorf
- Ramada Hotel (Premium Quality), Holzhude 2, 21029 Hamburg Tel: +49 (0)40 / 72595 - 0; E-mail: hamburg-bergedorf@ramada.de

North

- Hotel Bergedorfer Höhe, Reinbeker Weg 59, 21029 Hamburg-Bergedorf
- Forsthaus Bergedorf, Reinbeker Weg 77, 21029 Hamburg-Bergedorf

Eastern end of Bergedorf

- Hotel Mediterran, Rothenhauschaussee 32, 21029 Hamburg-Bergedorf

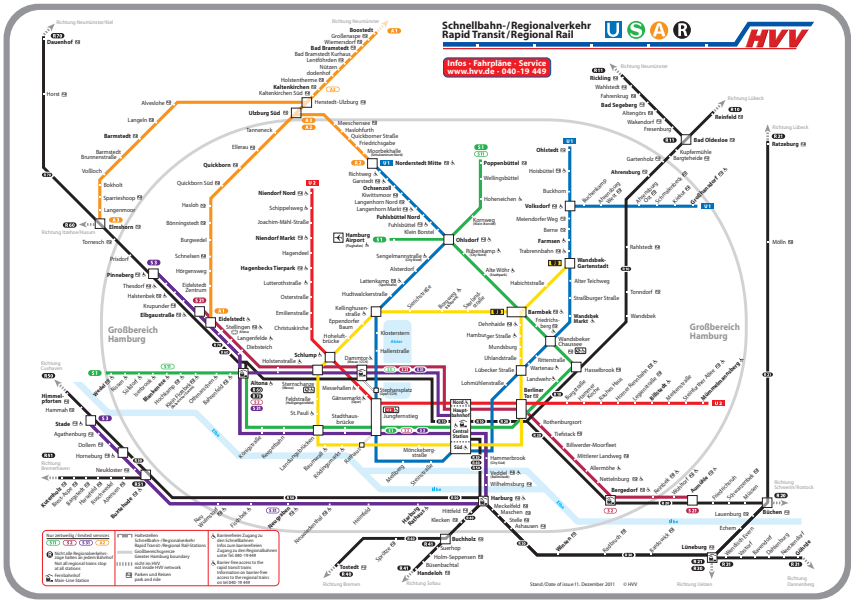
West of Bergedorf

Bus 334 from the hotel to the observatory

- Commundo Tagungs Hotel, Oberer Landweg 27, D-21033 Hamburg (Nähe S-Bahn Nettelnburg), Tel: +49 (0) 800 / 3304211, E-mail: rezeption.tagungshotel-hamburg@telekom.de
- Hotel Heckkaten, Kurt -A- Körber- Chaussee 114-116, 21033 Hamburg-Bergedorf

3.2 Public Transportation (HVV) in Hamburg (Öffentlicher Nahverkehr)

- Bus 335 from Bergedorf center to the observatory (`http://www.math.uni-hamburg.de/spag/ign/events/pdf/Bus-335-obs.pdf`) (Bus 135 - more walking)
- Public Transportation in Hamburg (HVV) – Timetable (Fahrplan) (`http://www.geofox.de/jsf/home.seam`)
- Map: U-Bahn (Elevated train and Metro), S-Bahn (`http://www.hvv.de/streckennetz/usar-plan/`)



Prizes:

- Kurzstrecke (very short trip, e.g. from Bergedorf center to the observatory) - 1.40 Euro
- Normale Fahrkarte Nahbereich (normal ticket in the center) - 1.85 Euro,
- Großbereich (ticket e.g. from the airport to the city center or from the center to the observatory in Bergedorf) - 2,85 Euro
- Tageskarte (ticket for one day) - 6,95 Euro,
- Tageskarte nach 9 Uhr (ticket for one day after 9 h) - 5.60 Euro
- Gruppenkarte bis 5 Personen (group ticket up to 5 persons) after 9 h - 9,90 Euro – This ticket we use on Friday for the trip to Hamburg.

3.3 Publications about the History of Astronomy in Hamburg

- Abalakin, Viktor: Über die Astronomendynastie Struve aus Hamburg-Altona. In: Wolfschmidt, Gudrun (Hg.): Hamburgs Geschichte einmal anders – Entwicklung der Naturwissenschaften, Medizin und Technik, Teil 3. Hamburg: tredition science (Nuncius Hamburgensis - Beiträge zur Geschichte der Naturwissenschaften; Band 20) 2011, S. 28/29-61.

- Alscher, Beatrix: The 1m-Reflector of the Hamburg Observatory: an Object of Technical Heritage – a Preservation Concept. In: Wolfschmidt, Gudrun (ed.): Astronomical Observatories 2010, S. 292/293-303.

- Dufner, Barbara: „Den Himmel fest im Blick." Eine wissenschaftliche Biografie über den Astro-Optiker Bernhard Schmidt. Stuttgart: Franz Steiner (Studien zur modernen Geschichte, Band 56) 2002.

- Hünsch, Matthias: The Telescopes of Hamburg Observatory - History and Present Situation. In: Wolfschmidt, Gudrun (ed.): Astronomical Observatories 2010, S. 274/275-283.

- Keller, Ruth und Beatrix Alscher: Farben an Technischem Kulturgut - Bedeutung und Restaurierung. In: Wolfschmidt, Gudrun (ed.): Colours in Culture and Science. 200 Years Goethe's Colour Theory. Proceedings of the Interdisciplinary Symposium in Hamburg, Oct. 12-15, 2010. Hamburg: tredition (Nuncius Hamburgensis - Beiträge zur Geschichte der Naturwissenschaften; Band 22) 2011, S. 94/95-107.

- Koch, Jürgen W.: Der Briefwechsel zwischen Johann Caspar Horner und Johann Georg Repsold. Norderstedt: BoD 1999.

- Koch, Jürgen W.: Der Briefwechsel zwischen Friedrich Wilhelm Bessel und Johann Georg Repsold. Norderstedt: BoD 2000.

- Koch, Jürgen W.: Der Briefwechsel von Johann Georg Repsold mit Carl Friedrich Gauß und Heinrich Christian Schumacher. Norderstedt: BoD 2000.

- Koch, Jürgen W.: Der Hamburger Spritzenmeister und Mechaniker Johann Georg Repsold (1770-1830), ein Beispiel für die Feinmechanik im norddeutschen Raum zu Beginn des 19. Jahrhunderts. Norderstedt: Books on Demand 2001.

- Koch, Jürgen W.: Die restlichen, noch nicht publizierten Briefe von und an Johann Georg Repsold (1770-1830) – Kommentierte Übertragung der Brieftexte. Norderstedt: BoD 2010.

- Kost, Jürgen: Die Äquatoreale der Firma Repsold in Hamburg. In: Wolfschmidt, Gudrun (Hg.): Hamburgs Geschichte einmal anders - Entwicklung der Naturwissenschaften, Medizin und Technik, Teil 3. Hamburg: tredition science (Nuncius Hamburgensis - Beiträge zur Geschichte der Naturwissenschaften; Band 20) 2011, S. 62/63-77.

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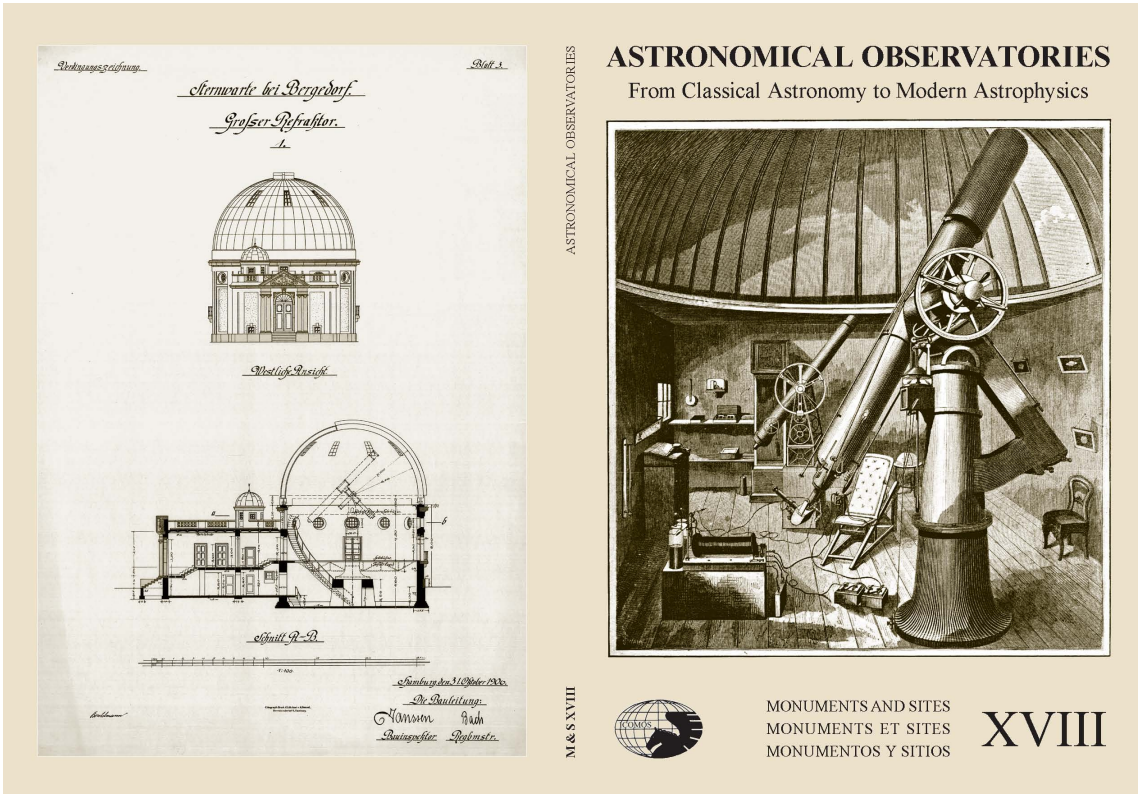

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5 Trip through Germany, Sunday 30. September – Tuesday 2. October 2012

5.1 Sunday, September 30, 2012 – Göttingen and Kassel

- Morning: Hamburg to Göttingen (nearly 300 km)
- Göttingen:
  - 12-12.45 h Old Observatory of Gauss (*1816),
    Geismarlandstr. 11, 37083 Göttingen,
    Parking see map: Gaußstraße!
    Guided tour by Dr. Axel Wittmann.
  - 13.00 (quick) Lunch in "Einstein" Restaurant
  - 13.30 -14.00 h Exhibition - 275 Years of Göttingen University *Objects of Knowledge*,
    `http://www.uni-goettingen.de/en/314638.html`
    University Library, Pauliner Church, Papendiek 14, 37073 Göttingen
    Guided Tour: Kai Bröking.
  - 14.30-15 h Institute for Astrophysics, Friedrich-Hund-Platz 1, 37077 Göttingen
    `http://www.uni-goettingen.de/en/203293.html`
    Guided Tour: Dr. Klaus Reisch.
  - Hainberg Solar Observatory (*1929),
    `http://www.avgoe.de/Hainberg/Hainberg.html`
    34-cm Astrograph UV-Triplet, Schmidt telescope (1937)
- Göttingen to Kassel (50 km)
- 16-17 h – Kassel: Astronomisch-Physikalisches Kabinett,
  (Museum for Astronomy), Orangerie,
  `http://www.museum-kassel.de/index_navi.php?parent=1035`
  Kassel, An der Karlsaue 20c (N 50.882427 E 12.071058)
  Guided Tour: Kai Bröking ?

- Kassel to Jena (200 km)
- 20 h – Evening Dinner in Jena:
  Schwarzer Bär, Lutherplatz 2, 07743 Jena
- Hotels in Jena (30. Sept. – 2. Oct.)
  - Schwarzer Bär, Lutherplatz 2, 07743 Jena
  - Weinbauernhaus Hotel Im Sack, Oberlauengasse 17, 07743 Jena
  - Hotel Thüringer Hof, Westbahnhofstraße 8, 07745 Jena
  - Ibis am Holzmarkt, Teichgraben 1, 07743 - Jena
  - Hotel Papiermühle Brauereigasthof, Erfurter Straße 102, 07743 Jena

5.2 Monday, October 1, 2012 – Jena

- 9 -10 h - Astrophysical Institute and University Observatory Jena (AIU), Friedrich Schiller Universität Jena
  `http://www.astro.uni-jena.de/`
  Schillergäßchen 2-3, 07745 Jena
  Telescopes and Instruments:
  `http://www.astro.uni-jena.de/Observations/gsh/gsh_tele_eng.htm`
  `http://www.astro.uni-jena.de/Observations/gsh/gsh_instrumente_eng.htm`
  Contact: Prof. Dr. Ralph Neuhäuser, Guided Tour: Dr. Frank Giessler
- 10-11 h – Volkssternwarte Urania (public observatory *1909),
  `http://www.urania-sternwarte.de/`
  Schillergäßchen 2a, 07745 Jena
  Contact: Peter Rucks
- 11.30-12.30 h – SCHOTT Glass Museum and Schott Villa SCHOTT AG,
  `http://www.schott.com/museum/english/index.htm`
  Otto-Schott-Strasse 13, 07745 Jena
  Contact: schott.museum @ schott.com
- Lunch
- 14.00 h – Optical Museum - Zeiss Workshop (Carl Zeiss Jena) `http://www.optischesmuseum.de/index.php?seite=1`
  Carl-Zeiß-Platz 12, 07743 Jena
  Contact: Karin Gjudjenow
- 15.30 h – Thüringer Landessternwarte Tautenburg – Karl Schwarzschild Observatory (*1960),
  `http://www.tls-tautenburg.de/TLS/index.php?id=2&L=1`

341m, 10 km north-east of Jena
Sternwarte 5, D - 07778 Tautenburg
2m-Alfred-Jensch-Telescope, largest Schmidt Telescope in the world,
http://www.tls-tautenburg.de/TLS/index.php?id=51&L=1
also Quasi-Cassegrain Telescope and Coudé Telescope
Contact: Prof. Dr. Artie Hatzes

- 17.00 h – Großschwabhausen University Observatory (*1962),
  built by the Bauhaus architect Hans Schlag,
  http://www.astro.uni-jena.de/Observations/gsh/gsh_index_eng.htm
  90-cm Reflecting Telescope, 25-cm Cassegrain,
  20-cm Refractor, Zeiss of Jena, more information see
  http://grossschwabhausen.de/wp-content/uploads/2011/04/GSH-Internet.pdf
  Großschwabhausen west of Jena
  Guided Tour: Dr. Stefanie Raetz und Christian Ginski

- Zeiss Planetarium Jena der Ernst-Abbe-Stiftung Jena
  http://www.planetarium-jena.de/
  Am Planetarium 5, D-07743 Jena
  Contact: Dr. Hans Meinl

- 20 h – Dinner: Hotel Papiermühle Brauereigasthof,
  Erfurter Straße 102, 07743 Jena

- (Hotel in Jena)

5.3 Tuesday, October 2, 2012 – Potsdam and Berlin

- Morning: Jena – stop in Wittenberg – Potsdam / Berlin (250km)
  Lutherstadt Wittenberg – short visit: Wittenberg Center
  \http://www.wittenberg.de/staticsite/staticsite.php?menuid=55&topmenu=3

  - Parking lot "Arsenal"
  - City Hall – Market Place (meeting point)
  - Leucorea (University)
  - Castle and Castle Church: Luther 95 theses

- Potsdam: 2 observatories (Babelsberg and Telegraphenberg)

  - 13-15 h (including lunch)
    Astrophysical Observatory Potsdam-Babelsberg (1913),
    Leibniz-Institut für Astrophysik Potsdam (AIP)
    http://www.aip.de/en?set_language=en
    (List of Instruments,
    http://www.aip.de/~lie/AUSSTELLUNG/KATALOGE/HG/hg.html)
    An der Sternwarte 16, 14482 Potsdam
    Contact: Regina von Berlepsch
  - 15 –15.30 h
    Astrophysical Observatory Potsdam Telegraphenberg (*1879)
    http://www.aip.de/image_archive/Telegrafenberg_Observatory.Hauptgebaeude.html
    Telegrafenberg A27, 14473 Potsdam
    (Large Refractor, Steinheil of Munich / Repsold of Hamburg, 1899,
    http://www.aip.de/grosser_refraktor/refengl.html
  - 15.30 – 16 h
    Einstein Tower Solar Physics Observatory, Zeiss of Jena, 1924)
    http://www.aip.de/einsteinturm/index.html

- Berlin:

  - 17-18 h
    Berlin-Treptow, Archenhold Sternwarte (Public Observatory) (1896),
    http://sdtb.de/Archenhold-Sternwarte.7.0.html
    Alt-Treptow 1, 12435 Berlin (opposite the restaurant Zenner/Eierschale)
    Observatory with astronomical museum
    http://sdtb.de/Das-Museum.64.0.html
    and the impressive "longest" refractor in the world.

http://sdtb.de/fileadmin/user_upload/_arc/PDF-Dateien/hausflyer_web.pdf
There exist a 500-mm-Reflecting Telescope, the solarphysics cabinet and the Coudé-Refractor. On the roof: the Astrograph, the Urania-Refractor, the Comet Seeker and the 250-mm-Reflecting Telescope.
Contact: Dr. Felix Lühning

- 18.30-19.30 h
  Wilhelm-Foerster-Sternwarte mit Planetarium am Insulaner
  http://www.planetarium-berlin.de/Verein/Sternwarte
  in Berlin-Schöneberg (1953), public observatory and planetarium, Munsterdamm 90, 12169 Berlin
  with the famous Refractor (314 mm / 5 m), Carl Bamberg of Berlin-Friedenau (1889),
  http://www.planetarium-berlin.de/Verein/Sternwarte/Bamberg-Refraktor
  in addition a Zeiss-Ritchey-Chrétien-Reflecting Telescope (75 cm / 5,8 m), 1980s, and a 6″ Double Refractor (15,25 cm / 2250 mm) with a Zeiss B-Objective and a Busch Immersion Objective, finally a 5″ Refractor with a Lyot filter.
  Contact: Monika Staesche
- 20 h: Evening Dinner in Berlin (with Rolf Riekher) Brauhaus Rixdorf, Glasower Strasse 27, 12051 Berlin

- Hotels in the southern part of Berlin (2.-3. Oct.)
  - Best Western Euro-Hotel Berlin, Sonnenallee 6, 12047 Berlin-Neukölln (near Hermannplatz)
  - Hotel Columbia, Dudenstrasse 4, 10965 Berlin-Tempelhof (U Platz der Luftbrücke)
  - Flair Hotel Riehmers Hofgarten, Yorckstraße 83, 10965 Berlin (Schöneberg/Kreuzberg)
  - Hotel Transit, Hagelberger Straße 53-54, 10965 Berlin-Kreuzberg

5.4 Wednesday, October 3, 2012 (National Holiday in Germany)

Additional possibilities and links for Oct.3, 2012:

- Deutsches Technikmuseum (Museum of Technology:
  http://www.sdtb.de/
  (http://www.sdtb.de/Museum-of-Technology.547.0.html)
  Aerospace, Navigation, Rail transport, Road traffic, Photo technology – Permanent exhibitions) and Science Center Spectrum,
  http://www.sdtb.de/Permanent-exhibitions.1126.0.html
  Trebbiner Straße 9, 10963 Berlin-Kreuzberg

- Zeiss-Großplanetarium Berlin with solar tower telescope,
  http://www.sdtb.de/Zeiss-Grossplanetarium.25.0.html
  Prenzlauer Allee 80, 10405 Berlin
  Sundials in Berlin (http://www.planetarium-berlin.de/pages/sundials/indexd.html)

Berlin to Hamburg (if necessary, 300 km) – possible stops in

- Museum of Optic Industry Rathenow, 70km west of Berlin
  http://www.oimr.de/
  Optik Park with the largest Brachymedial telescope (700mm / 20,80m)
  http://www.rathenow.de/Brachymedialfernrohr.613.0.html
  built by Edwin Rolf (1899-1991) of Rathenow

- Hanseatic City Rostock (Astronomical Clock 1472)
  http://www.rostock.de/
  http://www.astronomischeuhr.de/en/files/vorwort.htm and

- Bad Doberan (Dial of the Astronomical Clock 1390)

- Lübeck (medieval Hanseatic City, UNESCO World Cultural Heritage) –
  http://www.luebeck.de/languages/eng/city_portrait/index.html
  60km east of Hamburg.

7 List of Participants

7.1 Participants of the Convention and the ATS tour

- Peter Abrahams, Portland, OR, USA, telscope@europa.com
- Alan Agrawal, Lafayette, CA, USA, alancygnusx1@yahoo.com
- Walter H. Breyer, Dahlonega, GA, USA, whbreyer@gmail.com
- Roger Ceragioli, Vancouver, BC, CANADA, lensbender@msn.com
- Matt Considine, Randolph, VT, USA, matt@considine.net
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- Kenneth Lum, San Carlos, CA, USA, lum40@comcast.net
- Wayne Orchiston, Townsville, Queensland, AUSTRALIA, wayne.orchiston@jcu.edu.au
- Fred Orthlieb, Wallingford, PA, USA, forthli1@swarthmore.edu
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- Walter Yund, Ballston Spa, NY, USA, jafy50@gmail.com
- Julie Yund, Ballston Spa, NY, USA, jafy50@gmail.com
- Gudrun Wolfschmidt, Hamburg, GERMANY, gudrun.wolfschmidt@uni-hamburg.de
- Walter Stephani, Kiel, GERMANY, walterstephani@yahoo.de

7.2 Participants only in Hamburg

- Beatrix Alscher, Berlin, GERMANY, alscherb@online.de
- Jim Caplan, Marseille, FRANCE, james.g.caplan@gmail.com
- Wolfgang Busch, Hamburg, GERMANY, wolfgangbusch@yahoo.de

- Harald Goldbeck-Löwe, Hamburg, GERMANY, Harald.Goldbeck@physik.uni-hamburg.de
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- Susanne M. Hoffmann, Berlin, Hildesheim, GERMANY, akademeia@exopla.net
- PD Dr. Matthias Hünsch, Hamburg, GERMANY, matthias@huensch.de
- Irena Kampa, Hamburg, GERMANY, irena_kampa@gmx.de
- Hans Seeger, Hamburg, GERMANY , hans.t.seeger@t-online.de

7.3 Contact Persons (for guided tours)

- Dr. des. Christine Kitzlinger, Hamburg, Museum für Kunst und Gewerbe (Arts and Crafts Museum), Christine.Kitzlinger@mkg-hamburg.de
- Dr. Axel Wittmann, Göttingen, wittmann.rosdorf@t-online.de
- Kai Bröking, Göttingen, kai@nld.ds.mpg.de
- Dr. Klaus Reisch, Göttingen, reinsch@astro.physik.uni-goettingen.de
- Prof. Dr. Ralph Neuhäuser, Jena, ralph.neuhaeuser@uni-jena.de
- Dr. Frank Giessler, Jena, ifg@uni-jena.de
- Peter Rucks, Jena, p.rucks@zeiss.de
- SCHOTT Glass Museum, schott.museum@schott.com
- Karin Gjudjenow, Optical Museum Jena, karingjudjenow@optischesmuseum.de
- Prof. Dr. Artie Hatzes, Tautenburg, artie@tls-tautenburg.de
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