

The Set of Brochures on Comets in the Pulkovo Observatory Library

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Abstract. The Pulkovo Observatory Library is a powerful information resource, which until now has not been available to a wide range of users. The library maintains a unique collection of brochures with descriptions of over 1,500 comets from the 16th through the 20th century. Many of them include unique illustrations and pictures. This section is of special interest for astronomers, historians, astrologists and amateur astronomers.

1. Introduction

This paper is to draw the attention of astronomers and librarians to the remarkable selection of 16th - 20th century brochures on comets available at the Pulkovo Observatory Library.

During the last few years, the library witnessed a considerable increase in claims for literature on comets. The comet section is able to provide users with information on this topic, but the brochures still remain unknown to a wide range of readers.

2. The Library of the Pulkovo Observatory

The Library of the Pulkovo Observatory is world famous for maintaining a remarkable stock of unique 15th - 18th century documents. One of the most significant parts of the library stock is the "Struve Fund". This contains 79 incunabula (23 of which are not found elsewhere) and a number of the 15th - 19th century rare volumes which were acquired at European book auctions. In the 20th century, the library went through two serious tragedies: During World War II, the library lost two-thirds of its stock; and, due to a library fire in 1997, the "Struve Fund" was badly damaged.

3. The Comet Brochures

Fortunately, the comet brochures suffered minimal damage. Today the comet brochure sections number over 1,500 units. Most of them were acquired during the 19th century at European book auctions. This section contains brochures from amateur astronomer Heinrich Wilhelm Olbers's private collection.

The 16th century brochures are mainly in German, and the latter ones are in German, English and Russian. divided into several parts:

1. **Comets General Data** numbers about 1,000 brochures, of which 17 units are from the 16th cent., 55 units of the 17th cent. and 64 units of the 18th cent. Many of them have pictures and artwork.

The 16th century brochures include the following:

Monteregio J., *De Cometæ magnitudine, longitudine de Loco ejus vero problemata XVI, Norimbergæ, 1531*; Blancicampanus, *Alio Cometa Exploratio, 1531*; Batrachus sive Fraschius, *De origine et principiis naturalibus impressionum, 1532*; Aretius B., *Brevis cometarum explicatio, Bernæ, 1556*; Lavatherus L., *Cometarum omnium fere catalogus usque ad hunc annum 1556, Tiguri, 1556*; Camerarius J., *De earum qui Cometæ appellantur nominibus, natura, causis, significatione, Brunsvigæ, nominibus, Lipsiæ, 1558*; Rocca, *Discorso filosofico, et teologica intorno alle comete, [1578]*; Dasypodius C., *Doctrina de Cometis at Cometarum effectibus, Argentorati, 1578*; Schinbain J.C., *Sternen oder Cometen Buch, Ingoltatt, 1578*; Kurtzer Auszug aller Cometen, aus allen Autborn, so bis auff's 1578 jar von Cometen geschrieben haben, Franckfurt am Mayn, 1578; Paduanus J., *Opus de stellis crinitis, Veronæ, 1578*; Sordi P., *Discorso sopra le comete, Parma, 1578*; Caesius G., *Catalogus omnium Cometarum secundum seriem annorum ejusdem judicium de Cometa anni 77, 1579*; Duditius A., *Cometarum significatione comentariolus, Basileæ, 1579*; *Tractatio de Cometarum causis, effectibus, differentiis et proprietatibus ex F. Junctini voluminibus exurpta, Lipsiæ, 1579*; Rasch J., *Cometen Buch. Von dem neuen Stern des 73, unnd von den Cometen des 77, unnd 81. Jats auch, München, 1582.*

2. **Comets Observations** is the most numerous section. It includes 700 units, of which 250 units are of the 17th century and 35 are from the 16th century:

Pruckner N., *Was ein Comet sey woher er Komme und seinen ursprung habe im Weynnonat, Stassburg, 1532*; Vogelín J., *Significatio Cometæ, quæ a 1532 apparuit, Viennæ, 1533*; Brotbeyhel M., *Bedeutung des ungewonlichen gesichts, so genennt is to ain comet 1532, 1532*; *Trost des Pasquilli an die grossen Herrn widder den nehisten ersch. Cometen und sein Drewen, 1533*; Cuno, *Von dem erschrecklichen Cometen und ungewonlichen Wettern, so wir im Anfang dieses 1556 Jares, 1556*; Wailer B., *Von dem Effect und Wurckung des Newen erscinen Cometen im 1569 Jar den 8 Nov. u. s. w. Augst. 1570, 1570*; Steinmetz V., *Von dem Cometen im Nov. 1577, Lpz., 1577*; *Vom Cometen 50 itz und in Latitudine Meridionali zscendente. Kurtzer Bericht, 1577*; Celichius A., *Theologische erinnerung, von dem neuen Cometen, Magdeburg, 1578*; Hagecius ab Hayck Th., *Descriptio Cometæ, qui apparuit Anno D. 1577, Prague, 1578*; Heerbrand J., *Ein Predig von dem erschrockenlichen lichen Wnderzeichen, Tubingen, 1578*; Henischii G., *Judicium de pogonia ad finem 1577 cospecto. Augustæ 1578*; Maestlinus M., *Observatio et demonstratio Cometæ aetherei, qui anno 1577 et 1578 apparuit, Tubingæ, 1578*; Meyne M., *Von aller geschlecht*

der Cometen, Dantzig, 1578; Misocacus W., *Observationes astronomicae pertinentes an novum cometam qui sisus est jam anno 1578*, [Dantisci], 1578; Praetorius J., *Narratio dern Cometen, so vor diser Zeit sind gesehen worden*, Nurnberg, 1578; Praetorius J., *De Cometis, qui antea visi sunt, et de eo, qui novissime mense Novembri apparuit, Noribergae*, 1578; Roeslin M., *Theoria nova coelestium superquibus Cometa anni 1577, Argentorati*, 1578; Scultetus B., *Cometae anno 1577 adpaventis descriptio, Corlicii*, 1578; Scultetus B., *Des grossen und wunderbaren Cometen u.s.w. Astronomische und naturliche Beschreibung*, 1578; Wincklerus N., *Cometa Pogonias qui anno labente 1577 apparuit, Noribergae*, Himberto de Billi de Charlieu, *Descrittione della Cometa, vista nel cielo alli Novembre*, Lyone, *examinatur sententia M. Moestlini, Gorlicii*, 1580; Fiorovelly G.M., *Discoso sopra la Cometa appazza nell anno presente*, 1577, Ferrara, 1577; Zuckwolfius J., *De Cometa Vidus octobris anno 1580 Witebegze conspecto, Witebergae*, 1581; Hagecius ab Hayck Th., *Apodixis physica et mathematica de cometis, Gorlicii*, 1581; Maestlinus M., *Consideratio et observatio Cometae aetherei astronomica, qui anno 1580, Heidelbergae*, 1581; Meine M., *Grundliche Observationes Astronomicae d. i. Absehung oder Abmessung des einigen Cometen, Dantzig*, 1581; Cimber E.O., *De Cometa quodam roturmo qui anno elapso (1585) conspiciebatur*, 1586; Tychos Original beobachtungen der Cometen 1590 und 1596, manuscript; Tanckius J., *Prognosticum Astrologicum auff das Jahr 1597*, Lpz., 1596; Henischius G., *Kurtze Erinnerung von dem Cometen welcher im October d.j. erschienen*, Augsburg, [1577]; Nolthius A., *Observatio und Beschreibung des Cometen, Erfurdt*, [1578]; Lange J., *Astrologische Beschreibung des neuen erschrecklichen und geschwindauffenden Cometen*, Magdeburck, 1581; Rivander-Lesnicensis Z., *Von dem newen Cometstern welcher das vergangene 1580 jar gesehen worden*, Wittemberg, 1581.

The most valuable and rare are the following: Nolthius A., *Observatio und Beschreibung des Cometen, Erfurdt*, [1578]; Snellius W., *Descriptio cometae qui anno 1618 mense novembri primum effulsit, Lugduni*, 1619.

The 16th and 17th century brochures are mainly in German. They cite descriptions of the Biela, Brooks, Febry, Barnard, Finlay, Brorsen, Kopff, Wilk Peltier, Swift, Giacobini, Comas Sola, Wolf, Faye, Tuttle, d'Arrest, Tempel and other comets.

In addition, the comet section has a subdivision covering the Encke Comet observation (75 brochures by Encke J., Asten E., Struve O., Backlund O., Yashkov P. and others). Of particular interest are two manuscripts by W.Struve and his observations of this comet: Struve W., *Beobachtungen der Enckeschen Cometen*, Dorpat, 1825; Struve W., *Beobachtungen der Enckeschen Cometen*, Dorpat, 1828.

Many brochures include unique illustrations and pictures.

4. The Comet Halley Section

Comet Halley is probably the most famous comet. It was named in honour of Edmond Halley, who predicted that the comet that had appeared in 1531, 1607 and 1682 would return in 1758. Halley's Comet has been seen 30 times since 239 B.C. The comet's average orbit period is 76 years. Comet Halley was visible in 1910 and again in 1986 and will return to the inner solar system in the year 2061.

The Comet Halley brochures are of high value and particular interest. The Haley Comet section numbers 140 brochures. Three of them date back to the 16th century. They are: Schoner J., *Conjectur odder abnemliche Auslegung uber den Cometen so im August monat 1531 erschinen*, Nurn, 1531 *Krautwadel M., Anzaygung gruntlicher naturlischer ursachen der natu*, Landsperg, 1531 *Apianus, Observationes*, 1540.

Nineteen brochures were published in the 17th century. They are by Eichler G., Majus Th., Rudrauff J., Buthnemus E., Honold J., Vulpus J., Zimmermann J., Kirch G., Martinus Ch., Polzius J., Voigt J. and other.

There are a number of brochures on Russian observations which occurred in 1910. Some brochures are by the Moscow Astronomical Society member A. Mikhaylov, who was later appointed the Director of the Pulkovo Observatory. His brochures contain pictures of Comet Halley as it appeared on the skyline in Moscow during the months of May-June.

In 1910, the brochure, under A. Mikhaylov's editorship, states: "The Halley Comet is approaching. Is the collision with the Earth possible?" The article clarifies the comet's nature and movement. A. Mikhaylov tried to reassure people against the predictions of imminent disaster. He wrote, "The time of the global catastrophe has not come yet"

In the article, A. Mikhaylov encouraged amateur astronomers to draw the comet as it was seen in a telescope, through the use of binoculars or with a naked eye. I have discovered a folder with the "List of Comet Halley reports". It is comprised of letters and telegrams sent to the Pulkovo Observatory by amateur astronomers in April - May 1910 from many cities in Russia, Germany, Czech and Latvia. Of particular interest, are three drawings by the Infantry Officer N. Protasov. They show the comet's movement on 21 April at 3:10 a.m., 1 May at 3 a.m. and 1 may at 3:15 a.m. 1910 in the city of Astrakhan.

This folder also contains reports from the astronomers-specialists. They are addressed to A. Mikhaylov, who delivered a number of lectures as to how the comet appeared in the Russian sky in 1910.

Many brochures, with the Comet Halley descriptions from 1909 - 1910, were published by the Russian Astronomical Society under the patronage of the emperor Nicolas II.

Of interest are brochures by A. Ivanov and D. Svyatsky.

5. Conclusion

The Pulkovo Observatory Library brochures are of interest to many persons interested in astronomy. For this reason, our major task is to make this unique

stock available online. This will enable astronomers, historians and librarians from all over the world to gain access to a new source of information.

At this stage, we have made a complete checklist of the brochures in-house. Our next step is to create an electronic catalogue of the 16th - 17th century brochures and the Halley Comet section. Such catalogues will no doubt enjoy a brisk demand from professional and amateur astronomers and historians.