

# Colloquium I

## History of Astronomy

Contributed Talks: I 01 . . . 05

Chairmen:

Klaus-Dieter Herbst, Jena  
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**I 01**

### **New Media and the Historiography of Astronomy**

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For many centuries, paper was the only long-term data/information carrier for science (and astronomy in particular). Oral information (teaching, public disputes, personal conversation, negotiations, etc.) played always an important role in the development of science, but for historiography it was available only when written on paper afterwards (in the form of protocols, reminiscences, etc.). Starting with photographic emulsions, and especially with the invention of electronic media, new information carriers became available. The long-term storage and use of these media are a problem which has not yet been solved – although the preservation of books is although a growing problem. In addition, the use of the telephone and of electronic mail made informal information even more fleeting. These developments are a challenge also for historians of astronomy.

On the other hand, electronic publishing and other forms of the use of new media give powerful tools also to the historian. Full-text search and data retrieval from databases are possible only with electronic media.

This paper will discuss the use of new media in historiography of astronomy, both as sources of information and as data carriers for publishing results of historical research. It will concentrate on electronic publishing (Internet, CD-ROMs) and on the use of databases.

## I02

### The German Venus Transit Expedition to Persia in 1874: An Insider's View

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The German Empire organized several expeditions to observe the Venus transits of 1874 and 1882. They were organized by a *Commission for the Observation of Venus Transits*, headed by Arthur Auwers. Wilhelm Foerster, director of Berlin Observatory, was one of the commission members. The leader of the 1874 “Persian” expedition to Isfahan was Gustav Theodor Fritsch (1838–1927), anatomist, physiologist, zoologist, anthropologist, and photographer, and a cousin of Foerster. He was accompanied by astronomer Ernst Becker and two more photographers. Fritsch, a very original, independent and outspoken person, had travelled in southern Africa before, had written about his expeditions, and would afterwards investigate electrical fish, do research on three-color photography, and write books on *The Human Figure* and *Naked Beauty*. Fritsch's letters, sent to Foerster in 1874/75, deal with the preparation of the expedition, the trip, the setting up of the observing station, and the observation of the transit. They have survived partly in Foerster's written estate, partly in the files of the Venus Commission, and form a complement to Auwers' official 6-volume report of the German observations of the Venus transit, and to several popular accounts published in journals and newspapers. They provide an interesting insider's view on the work of the commission, the organization of the expedition, and they describe some travel events.

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## I03

### Astronomical Bibliography 1755–2002 in Perspective

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I will give a short overview on the available bibliographical resources in astronomy and beyond. Starting with Weidler's 1755 *Bibliographia astronomica*, I will also evaluate subsequent bibliographies (Scheibel, Reuss, Lalande, and Houzeau-Lancaster's monumental *Bibliographie générale de l'astronomie*). I will describe the status of bibliography in the “dark age” of 1881–1898, will give a short appreciation of the *Astronomischer Jahresbericht* and the *Astronomy & Astrophysics Abstracts*, and will end with various aspects of the NASA Astrophysics Data System (ADS) service.

I will also try to elucidate the merits and shortcomings of the different bibliographical resources, and will try give an overview of internet resources which may be useful for the bibliography of astronomy.

## Early German Radio Astronomy

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Astronomical radio emission had been discovered in the 1930s, but its origins were not clear. Starting in the early 1940s the Kiel astrophysicist Albrecht Unsöld (1905–1995) did important theoretical work on the origin of the radio-frequency radiation from the Milky Way. After WW II, radioastronomy developed quickly in the Allied countries thanks to radar technology and in particular to the German 7.5-m diameter “Würzburg-Riese” parabolic radar antennas which were obtained as war reparation. Such work with radar or radio was forbidden in Germany itself until the middle of the 1950s. In 1952 the Allies eased the restrictions.

Early radioastronomy was practised in four places in Germany. In Kiel in 1956 a 7.5-m parabolic antenna – the size of the “Würzburg-Riese” – was used for observing the Sun. In 1955 a 3-m parabolic reflector was used in Freiburg – mainly for the radio emission of the quiet Sun, and in 1957 a radiospectrograph was built for the observation of solar bursts. In the German Democratic Republic, solar radio observations were begun in Berlin-Adlershof in 1951, and in 1953 with antennas in Tremsdorf near Potsdam. In 1957 a 36-m transit radiotelescope began operations in Berlin-Adlershof.

The first really large radiotelescope in western Germany was erected in 1956 on the Stockert in the Eifel: a 25-m parabolic reflector for observing galactic and extragalactic radio sources. This prepared the way for Germany’s large presence today in the world of radioastronomy, leading to the largest (until 2000) fully steerable radiotelescope in the world: the 100-m parabolic reflector near Effelsberg in the Eifel (MPI für Radioastronomie).

## Methods and Questions in Maya Astronomy

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Two major questions are arisen since the epoch making work of Ernst Förstemann until 1906 about the calendar and astronomy of the Classic Maya. During the first half of the 20<sup>th</sup> century the main focus of Maya research was the search for the correlation between the Maya calendar and the Christian calendar. The progressing decipherment of the inscriptions changed the focus to the relationship between astronomical observations and religious belief, although all topics are closely related.

Beside the questions the methods of the interdisciplinary research are getting relevant, too. Linguistic knowledge and methods of text analysis are necessary to perform present archaeoastronomical investigations, although astronomical and mathematical methods are still the most important tools.