

THE FOCAL POINT

Vol. I, No.VII

The Newsletter of the Atlanta Astronomy Club

March 1989

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CLUB CALENDAR

Next Meeting: March 17, 8:00 p.m. at Bradley Observatory.
Program: Astronomer David Dundee from Fernbank Science Center will talk about light pollution.

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Richard Jakiel, Mark Lancaster

The *Focal Point* is published monthly during the academic year by the Atlanta Astronomy Club, Inc. The AAC is a non-profit organization dedicated to the advancement of amateur astronomy. Meetings are held the third Friday of each month (except the second Friday in December) at the Bradley Observatory on the Agnes Scott campus. Dues are \$25 annually for a single membership and \$30 for a family membership and include a subscription to *Sky & Telescope* magazine and use of club observatory in Villa Rica.

Submissions: Article submissions are welcome, and may be delivered to the editor for consideration. Articles on computer floppy disk are encouraged.

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ON THE HISTORY OF WILHELM VON BIELA AND HIS COMET

by Dr. Karel Hujer

Introduction

by Dr. Ralph Buice

Dr. Karel Hujer, Guerry Professor Emeritus of Astronomy and Physics at the University of Tennessee at Chattanooga, and internationally known historian and scholar of the history of science, died on June 10, 1988 in Chattanooga at the age of 85. For a number of years he was a member of the Atlanta Astronomy Club, and was the banquet speaker at the Southeast Regional Convention of the Astronomical League, hosted by the Atlanta Astronomy Club in 1987 in Atlanta.

Dr. Hujer joined the University of Chattanooga faculty in 1945, after holding teaching posts at DePaul University, Iowa Wesleyan College, and Michigan State College. He was made a full professor at the University of Chattanooga in 1965 and was director of the Clarence T. Jones Observatory in Chattanooga until his retirement in 1973.

Born September 18, 1902 in Zelezny Brod, Czechoslovakia, he was graduated from Prague Charles University in 1932 with a doctorate in astrophysics and the history of philosophy of exact sciences. His extended studies abroad included work in France, at the University of London, and Yerkes Observatory at the University of Chicago under the guidance of Dr. E. B. Frost. His principal assignment at Yerkes was in the field of stellar spectroscopy and observation with the Bruce spectrograph attached to the Yerkes 40-inch refractor, still the world's largest lens telescope.

In 1920, Hujer was invited to the observatory of the French astronomer, Camille Flammarion in Juvisy, near Paris, and began a lifetime association with Camille and Madame Flammarion. During 1924-25 he studied at the Imperial College of the University of London under the famous spectroscopist, Albert Fowler and his collaborator, Herbert Dingle. In London, Hujer attended lectures by Sir Arthur Eddington and Sir James Jeans.

Dr. Hujer had studied astronomy, both ancient and modern, on most continents of the world. His travels included visits to China, Tibet, Japan, Mexico, and the countries of Europe. He studied for a year in India and made three journeys across Russia. Dr. Hujer, who spoke eight languages, had represented the University of Chattanooga at many national and international scientific congresses, primarily on the subject of astronomy and its history.

In 1935, while guest lecturer at Visva Bharati University operated by India's great poet and philosopher Rabindranath Tagore, he met and became a close personal friend of Mohandas K. Gandhi and spent three weeks as Gandhi's guest at his ashram in Wardha. In 1949 Dr. Hujer met India's Prime Minister Jawarharlal Nehru when he returned to that country to attend Gandhi's Memorial World Peace Conference. Upon his

return he delivered a personal note from Nehru to nuclear physicist Albert Einstein, who was then teaching at Princeton.

The author of numerous scientific articles, Hujer was also a Fellow of the American Association for the Advancement of Science, the Royal Astronomical Society of London, the London Astronomical Society, the Astronomical Society of the Pacific, Societe Astronomique de France, the Society for the History of Science, as well as many other scientific organizations. He contributed chapters to seven books and published more than forty scientific and philosophical papers in America and Europe.

In retirement he spent much of this time writing and lecturing, and enjoying the many friendships he had accumulated over the years. He was a tireless defender of freedom throughout the world, and his experiences allowed him to observe human society from a universal point of view, and as an astronomer, with an awareness of world citizenship.

The article in this issue entitled "On the History of Wilhelm Von Biela and his Comet" was originally published in the *Journal of the Royal Astronomical Society of Canada*, and is reprinted with permission of his wife, Harriet Hunt Hujer and dedicated to his memory.

As the most famous Halley's comet is once again approaching its perihelion and has already been sighted as a very faint object, it is timely to consider another comet, now extinct - Biela's. It vanished with a most spectacular meteor shower on 27th November 1872. Indeed Lubos Kohoutek states that his work on the discovery of comets 1973e and particularly 1973f started much earlier, actually in autumn 1971, and is closely related to the search for possible remnants of Biela's comet. About the time when the Bielid or Andromedid meteors were due to recur, Lubos Kohoutek was inspecting at Bergedorf Observatory the appropriate region of the sky for any possible sight of some fragment of the historical comet. In his classical volume *Meteors*, Charles P. Olivier opens the seventh chapter as follows: "The history of meteors which are connected with Biela's Comet and that body itself forms one of the most fascinating and important chapters in the development of meteoric astronomy." The extent of the investigation of Biela's comet throughout no less than half of the nineteenth century actually involved all the leading cultural centres of the world. Thus Olivier's statement shows that Biela's comet also represents an early example of the creative international cooperation that marks the spirit and role of scientific work, above all in astronomy. As Biela's comet was most instrumental in tracing the affinity of periodically recurrent meteoric showers with the orbits of comets, it is interesting to examine some little known facts about the dedicated early cometary observer Wilhelm von Biela.

The generally little known personality of Biela is in itself a colourful and adventurous example of the changing historical destinies of Europeans that are met with even in the latter part of our twentieth century. Captain Wilhelm von Biela was born in Rossla, Saxony, 19th March, 1782, and died on 18th February,

1856, in Venice which then belonged to the Austrian empire. He was the last descendant of the old Czech Protestant nobility of the Lords of Bila, with estates near Decin in northern Bohemia. Wilhelm's ancestor, Frederick of Bila, in 1621 during the anti-reformation wars, together with 27 leading Czech noblemen, was executed in the old plaza in Prague. Astronomically, it is interesting to comment that this took place on the spot facing Tynsky cathedral, where twenty years earlier, 1601, still the time of liberal Emperor Rudolf II, the refugee astronomer Tycho Brahe, had his glorious funeral. The Family of Biela, after the tragedy of 1621, emigrated to the region of Erfurt in Saxony, remaining mindful of its ancestral origin and family tradition.



Wilhelm von Biela (1782-1856)

After his training in the Saxonian military school in Dresden, Wilhelm volunteered for the Austrian army and distinguished himself in the Napoleonic wars. With peace concluded, in 1815, then in his 34th year and nearly 190 years after his ancestors had left their homeland, Biela returned to Prague. To his military career he added the study of astronomy at Charles University in Prague under the direction of Canon Prof. M. A. David, director of Prague Observatory. He made many observations when stationed with his garrison in Josefov, a little fortress town in eastern Bohemia. It was also in this town that he discovered the history-making comet on 27th February, 1826.

Biela was not the first discoverer of his comet. The memory of the discovery of the first predicted return of Halley's Comet, in 1758, still rung vividly throughout the civilized world when on the 8th March, 1772, Montaigne in Limoges, France, discovered

a small comet that was to play another historical role. There was nothing unusual in this comet, nor in the comet that Pons of Marseille added on 10th November, 1805, to the large list he had already discovered. In view of the general interest then current, various astronomers occupied themselves with the computation of the orbit from all observational data available. Thus, for instance, Gauss, using Bessel's elements of the comet 1772, obtained a period of 4.7 years. Observations of the Pons comet of 1805 enabled the determination of a period of about 6.75 years. By that time the Prague amateur astronomer, Josef Morstadt of Kolin, Bohemia, owner of a private observatory at Prague and friend of Biela, undertook the study of comets, including those of 1772 and 1805. When after twenty years of study Morstadt reached the opinion that Comet Pons of 1805 and that of Montaigne of 1772 both had an approximate period of 6.75 years and could be expected to return by 1826, then Biela likewise decided to investigate the comet.

Biela was fortunate to recover the comet himself at its perihelion return on 27th February, 1826, the perihelion passage actually occurring on 18th March of that year, and thereupon he undertook the computation of his comet's orbit in which he proved Morstadt's supposition. Biela first made two brief announcements in the *Astronomische Nachrichten*. The comet became an object of unusual interest because of its passage within a close proximity to our planet. All this encouraged Biela to complete his computation which, together with a comprehensive explanation, he submitted in a report to the Royal Bohemian Society of Science, dated 29th March, 1826 in Josefov, Bohemia. This report with an extensive commentary by the director of Prague Observatory, Canon David, was later published by the Society. Herein Biela leaves no doubt as to the identity of the comet of 1826 with that of Pons in 1805 and Montaigne in 1772, and David, teacher of Biela, verifies this identity with his judicious analysis of Biela's report. It was this computation by Biela together with his recovery that permanently associated the comet with his name.

Even though relatively faint, nevertheless by this time Biela's Comet entered the world scene. Several eager astronomers computed the orbit and predicted with some variations the time of the comet's return. When Olbers, the famous Bremen astronomer, announced that Biela's comet would cross the earth's orbit on 29th October, 1832, at only 11 million miles from our planet, rising panic among a wide public throughout Europe prompted the venerable Viennese astronomer, Littrow, to publish a calming explanation. When the comet actually reappeared on November 26.6, 1832, within twelve hours of Santini's computation for the recovery observation, the widespread excitement seemed to have no limits. Of the vast amount of published comments that followed this reappearance, the very revealing and historical letter of the astronomer J. H. v. Maedler of Berlin, dated 22nd October, 1837, inevitably draws our attention. Maedler therein refers to Morstadt's hypothesis on his own visit to Prague, where the subject was discussed at an astronomical conference with Morstadt himself who submitted the report. Although it was found later that meteors of 13th November were actually Leonids, this is indeed a significant development long before Schiaparelli's announcement in 1866 of a relation

between periodic meteors and comet's orbits.

At the predicted 1839 perihelion passage, Biela's comet was unobservable because of the unfavourable position of the perihelion in the twilight zone. The course of events in relation to this comet, however, reached its climax at the comets predicted return in 1846.

Again with only slightly varying values in the computed time of return, it appears that this time it was Di Vico in Rome who was first to sight Biela's Comet on 26th November, 1845. The comet reappeared in its normal form and was soon observed by a series of European astronomers. On 29th December, 1845, however, Bradley and Herrick of Yale University seem to have made the first announcement that Biela's Comet appeared to display a companion. This was followed by the same observation made by Lt. Mathew F. Maury, the first director of the newly founded Naval Observatory in Washington, an assiduous observer of Biela's Comet. The story of the strange splitting of the comet was then first published in the *American Journal of Science*, followed by Maury's report in the *Monthly Notices of the Royal Astronomical Society of London*. There is no doubt that the disintegration of Biela's comet, first sceptically criticized by such erudite observers as J. C. Challis of Cambridge, England, aroused an unprecedented interest and rehabilitated the ancient story of Ephorus of 371 B.C., relating to a comet that broke into two sections. The separation of both components of Biela's comet was increasing daily with two months of appearance, until the end of February, 1846, when it reached 16 minutes of arc, more than half of the Moon's apparent diameter. Wilhelm v. Biela now followed these exciting celestial events from Venice whither he had retired after being afflicted with an ailing heart in 1844. There he passed away 18th February, 1856.

On its next return in 1852, following the break-up in 1846, Biela's comet was this time first discovered by Father Secchi in Rome. The comet's companion was noted later, also by Secchi, on 26th August, 1852, then separated by some 1.5 million miles. After this final appearance in 1852, the comet was seen no more. The echo of the appearances and behaviour of Biela's comet continued to reverberate and various speculations circulated until they achieved a definite form in Schiaparelli's publication in 1866. This was followed two years later by Littrow's further exposition that included the role of Biela's comet in this celestial exploration.

The climax of the existence of Biela's comet occurred on 27th November, 1872, on one of the comet's expected returns, when a most spectacular meteor shower appeared with radiant in the constellation of Andromeda. There are varied opinions as to the number of meteors per hour. It is now surprising that exaggerations run up to 100,000 per hour. However A. C. B. Lovell in his *Meteor Astronomy* gives for 1872 the maximum rate near 6,000 per hour but he indicates 75,000 per hour for 1885 shower of Bielids with a subsequent decline in their activity. This prompted Schiaparelli and Denza of Brera Observatory in Milan to publish a vivid report. Thus the origin of periodic meteors could have no more dramatic, impressive and final confirmation of Schiaparelli's findings than that provided by the phenomenon of Biela's comet which helped to accomplish another milestone in the advancement of cosmology.

A MESSAGE FROM ANNA BELLE AND BILL CLOSE

Anna Belle and Bill Close wish to thank the Atlanta Astronomy Club for the immense surprise received at the January meeting -- the gift of a Lifetime Membership in the club.

The Atlanta Astronomy Club has been a way of life for us actually, and it is difficult to realize that we can speak of our belonging in terms of decades!

It is a joy to come to the meetings and see so many young people, women and men alike, and to see the youngsters who could well be the backbone of the club in a very few years. One more observation: It has amazed us to see the fairly steady attendance the club has enjoyed over the years. It's normal for a society to have its fluctuations in interest and attendance, but with the "timeless" stars, so has been the constancy of our group, and may it always be so.

Thank you everyone. The tribute of friendship is so very much appreciated.

-- Anna Belle and Bill

AN IMPORTANT ANNOUNCEMENT

Be sure to mark May 20th (the third Saturday) on your calendar for our annual Atlanta Astronomy Club Banquet. This year we'll be celebrating the club's 40th anniversary. More details will follow in the next issue of the Focal Point.

CLASSIFIED ADS

For Sale: Tasco telescope; 10 months old.
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 299-1936

THE FOCAL POINT

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