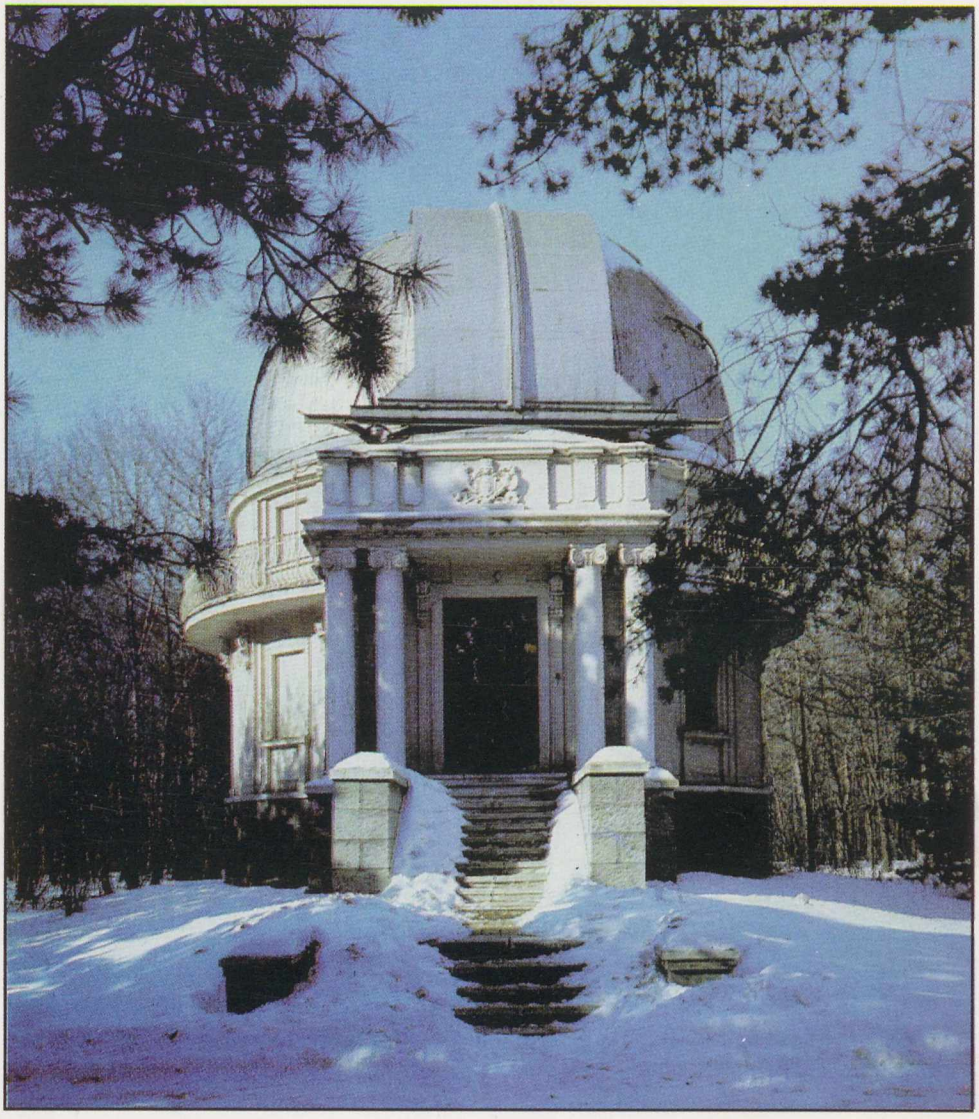
Konkoly Observatory Monographs No. 3.



The Konkoly Observatory Chronicle
In Commemoration of its Centenary

by Magda Vargha

Budapest
1999

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by Magda Vargha

with the assistance of Dr. József Csaba and Robert Vida

Genoveva reg. szerelemből
Magoli néni

Budapest
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Special thanks to Dr. Gerhard Scholz for the photographs of the original instruments of the Ogyallaer Observatory.

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The Human Component

by Lajos Balázs
Director of the Konkoly Observatory

On the event of the Observatory's centenary I was often asked, that looking back, what is it that I consider to be the Observatory's biggest achievement. After a while I replied, that the biggest achievement is that it exists in the first place. In its existence I, naturally, do not mean, that in one of the pleasant green belts of Budapest, on the Svábhegy hills, near Normafa, there exists eight 'holds' (about 4.6 hectares) of territory, where, at its entrance, the following stands: Magyar Tudományos Akadémia Csillagászati Kutatóintézete (Astronomical Research Institute of the Hungarian Academy of Sciences); but that the Insitute's astronomical knowledge is internationally recognised. Though Hungarian astronomy is not full of success stories.

The beginning was promising for the 1815-opened University Observatory of Gellérthegy. Its opening was honoured by the presence of three rulers (Austrian Emperor, Russian Tsar, Prussian King). Its equipment lived up to its day's standards. The observatory was completely destroyed under the siege of Buda castle in 1849. There are those who think that Miklós Konkoly Thege chosen on purpose the 20th of May 1899 as the giving of the observatory to the state, as the taking back of Buda is celebrated on the 21st of May, so the Hungarian Royal Konkoly-founded Astrophysical Observatory started its functioning exactly 50 years after the destruction of the Gellérthegy Observatory.

The fate was not merciful either, for the observatory built by Károly Nagy, on the borders of Bicske. From the reminiscences of Benjamin Gould, the founder of the Astronomical Journal, we know that in 1847 he visited the then half-built observatory, and was amazed by the great library which had several thousands volumes, and the up-to-dateness of the equipment. Here the War of Independence in 1848/49 had interfered with the normal life of the observatory. The Austrian troops erected a battery in the garden of the observatory, and then arrested Károly Nagy, who created a flag for the observatory (blue with white stars) on the grounds of republicanism. The 52 year-old man was chained to one of the gun-carriages in the observatory's garden; there he spent the night under the starry sky; then on foot he was driven to the 'Neues Gebäude' in Pest. Here after several weeks of trial he was released on lack of evidence. This event has shaken him to the extent that he offered his observatory to HM Franz Joseph I and asked for permission to leave the country.

The fate of the observatory's buildings was not determined, however, by the destructive force of time. The hilltop next to Bicske had again become military territory at the end of 1944. One of the attacking groups of Wehrmacht tried here to break into the Soviet siege-circle. The territory changed hands several times. The still intact buildings were severely damaged. But what could not be destroyed by the iron-teeth of time or the Wehrmacht, the local residents destroyed. The building of the observatory was simply carried away; now not even the base of the observatory is to be seen. From the observing watch-tower something remained, or rather, from the mausoleum that Károly Nagy erected for his younger brother who died early in his life. We should mention however, that the town of Bicske, on the 200th anniversary of Károly Nagy, named its library after him.

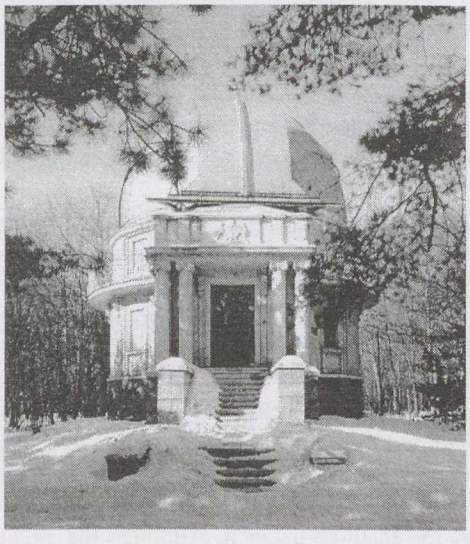
Unfortunately Hungary is plentiful in these events. Nevertheless, Miklós Konkoly Thege's Institute is not an example to the so-called 'Hungarian' fate. At the establishment, in 1871 (four years after the Austro-Hungarian compromise), the country was, at running pace, on the road which today we often call 'opening up to Europe'. With good instincts, Konkoly realised that in astronomy, the future meant the development of the field of astrophysics. Due to this, in his Institute's research profile, he gave astrophysics a dominant part to play. During the 1880s the Konkoly Institute was widely known about outside the borders of Hungary. This alone, however, could not prevent it from sharing the sad fate of private observatories; that is when observatories gradually degradated and eventually became useless and insignificant, when its founder died. From the viewpoint of the later-living, the decisive moment was, without doubt, when the Institute came under state ownership on the 20th of May, 1899. This made it possible, that the ruins that were created after the First World War did not bury the Institute under it. Although the Trianon Treaty stripped away Ógyalla and with it its observatory from Hungary, the state ownership of the instruments created the right for them to be carried to Budapest, and there, the descendant of the observatory to be built.

That the state played a part was necessary, but still not enough for survival. Towards the end of the war the Institute was on the edge of existence. In 1917, for months, the whole of the scientific staff consisted only of Antal Tass. The Observatory's survival could not have happened, had it not been for his permanent determination. Therefore apart from state ownership, there had to be something which we would now mostly call, 'the human component'. During the life of the Institute, for the right decisions, without doubt, there always had to be the beneficial historical event, but there also had to be people, who utilized these possibilities, which were given. People who worked to put culture and science back on its feet after the war were needed, culture ministers such as dr. Vass and Klebelsberg; but trained researchers were also needed, who could produce scientific contents for the Institute that were to its days' standards.

During the Second World War the Institute, again, stood close to being perished. At the end of 1943 it consisted only of the director and two assistants. On the 25th of December 1944, the Soviet troops invaded the buildings; in some of the domes, camp kitchens were set up, in others, horses were kept. The director however, after 3 days, succeeded in getting the Soviet Command to agree that the library and some laboratories could be free from Soviet occupation. When I was a young researcher I heard a legend, that among the Soviet officers there was one who was an astronomer, and it was thanks to him that so soon an agreement was reached. Therefore the library could be saved. From 'the human component', this seemingly unimportant trifle bears witness to a dramatically force. To our library visitors we often proudly show that all the important astronomical journals are present from the first edition onwards, progressively (the Astronomische Nachrichten from 1823, the Astronomical Journal from 1851, and so on), whilst they had been through two world wars, two revolutions, the Wall Street crash and two changes of political system, to mention only the most severe events.

These people, who gave embodiment to this so-called 'human component', were of course not free from errors. Quite regularly they had torn apart their strength with bad temper and conflicts. Yet the Institute survived all this. Following the revolution in 1956, promising young talents left for the West. However in 1958 the director, László Detre, achieved that from the 9 million forint support from the Government, the Piszkéstetõ mountain station be built. This support ended in 1974, when the 1m telescope was put into operation. After this there were no more big-scale astronomical investments in Hungary; the Institute's extensive development closed down. A new era started with the directorship of Béla Szeidl, which is characterised by the expansion in the field of computing and informatics. The number of staff did not increase, but its productivity doubled in 20 years.

One of the biggest traumas of the 20th century is that the naive belief of the last century, of using science for the general progression of humanity has faded away. The technological advances built by scientific results were discharged into all out warfare and Hiroshima. The history of the Institute is an example to the fact that astronomy could raise itself above narrow, temporary political interest. It preserved the virtue of determination, persistence, renewal and recovery, without which there is no science, culture, or human existence.



To my colleagues with whom I have spent a great time

Introduction

I intended to prepare this volume as an introduction to the Observatory. While editing this book, I saw before me the past hundred years' more important events.

Apart from the three essays that I wrote as an introduction to certain chapters, I made an effort to revive the years past through original, unknown or hardly attainable documents.

Naturally, where volumes are edited on the basis of documents, it belongs to the book's character that individual subjects are not brought up proportionally to their importance, since memories never survive in order of importance but are subjects to the laws of chance.

I published everything in its original language, and its incorrected state, except some Hungarian material that I felt essential to be translated into English.

In the first part of the book my goal was to show Konkoly's activities as fully as possible by a selection of passages. Taking a fragment from the several hundred-page itineraries, I wished to show the humour in his style and his daring colors.

Through the articles in the second part I tried to sketch out the historical background of the Observatory's re-birth.

In László Detre's scientific letters, the era's significant events crop up.

By the interview with Béla Szeidl, I tried to provide everyday information about the past.

In the Supplement, I give you the biography of the Observatory's past hundred years' most important persons. Finally, in the last, a bit unusual chapter, I put together some of my colleagues' subjective thoughts.

For the predominant part of the letters presented in this book, I got hold of them with the big-hearted support of my friends. The surviving letters of Ógyalla form the property of Dr. László Druga. I got hold of the letters from Gotha with the help of my close friend Manfred Strumpf. From Dr. Csaba Detre, László Detre's original pieces of correspondence arrived to the Konkoly Observatory's library. I got a copy of the Beobachtungs of Konkoly from librarian József Horváth. I got the souvenirs associated with Károly Lassovszky with the help of Mrs. Lassovszky and her daughter, Judit. Finally, I owe thanks to science historian Dr. Anita McConnel, who found for me a previously unknown article about Konkoly in the Optician paper.

The reading of handwriting (in particular, the ones written in Gothic letters) is very difficult. I owe thanks to Dr. László Patkós, Katalin Rajczy, V. Miklós Gyöngy, Katalin Vargha, József Márton, Szabolcs Barcza and István Domsa who in this and other work, were available at my disposal.

Magda Vargha

PART I
Life in Ógyalla

CHAPTER 1

THE LIFE AND WORK OF MIKLÓS KONKOLY THEGE

"...The soul aims high. Where to? Nobody knows. It would fly high, but abhors the gloomy night, until the comforting stars rise and turn the mind towards eternity with their beauty and splendour, and show us, wanderers, where to look for hope, faith and eternity."

Roots

Miklós Konkoly Thege was born in Pest, on the 20th January 1842. His parents were well-to-do landowners from Ógyalla[1]. He was an only child, and grew up surrounded by his parents loving care. He was not allowed to go to state schools, but had been educated by private tutors. This way his parents hoped to protect him from sickness and other perils. It was a natural consequence of this that, although he very seldom disobeyed a parental order, he grew up to be a brave, almost foolhardy man, who was almost constitutionally unable to shirk from a challenge, however seemingly impossible it was.

He was a nobleman, so nobody was surprised over his prowess with sabre and gun, but his well developed technical sense, his ability to construct or con a ship, or to pass the examinations necessary to get his papers as a ship's mate and as a (railway) engine-driver, were regarded as rather eccentric. His habit of taking his visiting scientists to his estate on his train, driven by himself, was counted as an even higher audacity.

We shall never know where his daredevil spirit, fed on the tradition of centuries – his family acquired the Ógyalla estate in the XIIIth century – would have driven him, had he not met, as a sixteen year old student of the University of Pest, Ányos Jedlik, a physicist of nation-wide renown, one the inventors of the electric generator. The experimental cast of mind of the master infected the pupil and through all his life Miklós Konkoly Thege remained open to new ideas, and he himself became a tireless experimenter.

It was the wish of Konkoly's parents that he should make a career for himself in politics, so he was directed to go to the university as a law student. As an obedient son, he complied, but by no means with the same willingness as he had shown towards his studies of physics, mathematics and astronomical subjects.

Studies abroad

In 1860 he started his studies at the Astronomy Department of the University of Berlin, where he could, under the guidance of Encke, steep himself in the most up-to-date results of astronomical research. Johann Franz Encke taught astronomy at Berlin University since 1826. As the only professor of astronomy of the University, he was the intellectual leader of a whole generation of astronomers of later fame and renown. J.

[1] Now Hurbanovo, in Slovakia

H. Mädler, J. G. Galle, Gustav Spörer, Benjamin Gould, Ph. Wolfers, C. Bremiker, F. Brünow, L. Seidel, H. Schubert and many others were among his former pupils. P. Rümker, A. Krüger, Lesser, B. Hoffman, Wilhelm Förster, Tiel, F.Tietjen were Konkoly's contemporaries studying under Encke, who was as excellent a teacher as he was an astronomer. *"Alle Schüler Encke's aber denken an die Vorlesungen mit grosser Freude zurück und bewahren ihrem theuern Lehrer ein dankbares, bleibenden Andenken."*, writes O. Bruhms in his monograph about Encke.[2]

Some of the enthusiastic astronomy students of Berlin University decided to found a society devoted to astronomy. Although another three years had to pass before the still existing "Astronomische Gesellschaft" (AG) was instituted in Heidelberg, amongst its founder members we also find these young men from Berlin. During the following years Konkoly remained in close contact with his astronomer friends who were members of the AG.

The list of the subjects these young men had to study in Berlin can also be ascertained from the previously mentioned biography of Encke:

⇒ Sphärische Astronomie mit Anwendung der Instrument.
⇒ Theoretische Astronomie
⇒ Rechende Astronomie
⇒ Specielle Störungen
⇒ Geschichte der Astronomie
⇒ Lösung numerischer Gleichungen

To comply with his parents' wishes, he attended some lectures on law, but with an enthusiasm even less than at Pest.

Years of Drifting

After receiving his degree from the University of Berlin in 1862, he felt a desire – he could afford it – to augment his knowledge of astronomy, which was restricted to theory, by the study of its practical aspects. To achieve this, he spent a year at various observatories in Europe (Göttingen, Heidelberg, Paris and Greenwich).

Immediately after his return he married. In his new wife he found himself a companion of great intellect and sensibility. Unfortunately they were also closely related by blood. This resulted in the untimely death of their two little sons. Mrs Konkoly (née Erzsébet Madarassy) was liked and respected by the guest scientists visiting Ógyalla, politicians, composers and the family's innumerable relations in need of help.

Yielding to the entreaties of his family, Miklós Konkoly Thege has put aside his ambition to be an astronomer, and tried to settle down and lead the sort of life that was expected of him by his family. So he entered the County Administration, but after a few years he could bear it no longer and quitted the world which was so completely alien to his whole being.

In 1870 he made another study trip to Europe. The last seven years saw a rapid expansion of science. The rate of improvement in the field of instrument making was quite incredible. He recognized this, and on this trip, besides visiting observatories, he also made it his business to visit the more notable instrument makers, such as John Browning in York and Siegmund Merz in Munich. Later on, they became the suppliers of his first instruments.

Decision for a lifetime

When he lost his firstborn son at the age of seven (his other son lived for only one day), he felt that he must find another way of perpetuating his name for the future, and decided to achieve this by realizing his youthful dreams and devoting his life to astronomical research. In pursuance of this idea, he erected a four inch Bardou telescope under a small rotating dome, on the northern roof of his mansion and started on the work of observing stars, which he continued till the end of his days.

At first he wanted to do this just to satisfy his own curiosity, but he soon realized that both his talents and ambitions spurred him on to greater achievements. Konkoly's personality was well suited to attempting to do things which appeared at first to be beyond his powers. His intention was single-handedly to establish a basis for the cultivation of astronomy in the Hungary of his times, where the necessary material and intellectual necessities (except traditions) did not exist.

In 1874 the building of the two-dome observatory was completed.

In these times not a single observatory was working in Hungary

[2] Bruhms, C.: Johann Franz Encke. Leipzig, 1869.

I believe, that the sad fact, that during this time, when in more fortunate countries new observatories grew almost like mushrooms, Hungary had possessed not a single one, requires an explanation. It is all the more surprising that this happened to a country, which was, during the renaissance, the home of Regiomontanus and Martin Bylica, where three important observatories were working at the end of the XVIIIth century, and where three monarchs attended the inauguration of one of the most beautiful observatories of the contemporary world, the observatory on the top of St. Gellért's Hill.

The observatory on St. Gellért's Hill was damaged during the 1848-49 War of Liberation, and later, after the war was lost, in the following period of merciless oppression. It was blown up by the Austrian military. The fabulous instruments of Reichenbach, together with the valuable library, were stored in the basement of the University of Pest, waiting for better times. In 1867 the "reconciliation" took place between Hungary and Austria, out of which a new state, the Austro-Hungarian Monarchy was born. In this state Hungary was granted an independent government, signifying the end of Hungary's one hundred and eighty years of subjugation.

When Konkoly made his decision that, instead of enjoying the nightly splendours of the starlit firmament as a private person, he would attempt to breathe new life into Hungarian astronomy, he could not have chosen a more opportune historical moment.

Years of beginning, years of instant success

Konkoly made some of his instruments by his own hand. He immortalized those through his splendid drawings. Looking at any one of them, we cannot help being struck with the way he amalgamated the need for utility and precision with the demands of aesthetics. His piano-playing was similar and the same elegance characterized all of his creative activities, such as the creation of his new observatory. Of course he had an easy time, as long as his pocket was deep enough to pay for the realization of his richly imaginative plans. In 1874 a Browning type 10 ½ inch reflector was delivered in seven crates. A one hundred and sixty-two mm Merz refractor was erected in the second dome.

Using his Bardou telescope, Konkoly embarked on his regular observation of sunspots and protuberances as early as 1872. Because he wanted to compare his work to the latest research, he sent his first observations to the Potsdam Observatory, to Gustav Spörer, one of the oldest pupils of Encke and one of the foremost authorities on the subject. It can be seen from their surviving correspondence, that Spöhrer was pleased at being approached by Konkoly, as it gave him the opportunity to augment his own observations with those taken independently at Ógyalla.

In 1873 Konkoly became a member of the Astronomische Gesellschaft, thereby securing himself an international platform from which to introduce the results of his researches. From 1879 onwards the Ógyalla Observatory regularly sent their annual report to the periodical published by the AG, the "Vierteljahrschrift".

Providing a backing for his instate, in his own country, so that the effectiveness and efficiency of his work can be maintained, needed no smaller effort than doing the work itself.

Since 1872 the work of he observatory was reviewed yearly in the "Proceedings in the fields of Mathematical Sciences" of the Hungarian Academy of Sciences.[3]

As an acknowledgement of his labours, in 1876, after five years devoted to science, he was honoured by being made a corresponding member of the Hungarian Academy of Science. After a further seven years, he was accepted as an ordinary member.

Ever since the beginning, in his capacity as director of the Ógyalla Observatory, Konkoly established close contacts with the Royal Society in London. His papers read at the meetings of the R.A.S. were regularly published in the "Monthly Notices". The fist two (in 1873 and 1874) were read by John Browning. His third paper (On the passage of Mercury in front of the Sun), was interpreted by the Society's President, H. M. Christie. On the 14th of January 1881 "He was balloted and duly elected Fellow of the Society". On four occasions he appeared in person to deliver his papers. Konkoly left no stone upturned in the interest of having his collaborators' work presented to the famous society. He read the inaugural lectures of the brothers Jenõ and Sándor Gothard on the occasion of their being elected to membership of the RAS. On two occasions Konkoly also read the papers of the young Kövesligethy in front of the illustrious gathering. He was on good terms with the editor of the Observatory. Between 1882 and 1910 ten of his articles were published in this periodical. When he visited London, he very seldom failed to visit the home of William Huggins. There are twenty letters of Konkoly in the care of the Archives of the Royal Society. Some of these deal with administrative problems, such as methods of payment of his membership fees. The majority of

[3] Értekezések a mathematikai Tudományok köréből. Budapest, Magyar Tudományos Akadémia

Konkoly's letters addressed to the society are related to articles he sent to the society. The primary subject of his communications was his research into the spectroscopy of meteors and comets.

The first few of Konkoly's years devoted to astronomy can only be likened to the honeymoon following marriage. At first success came easy in all his endeavours. A majority of the Academy's "Proceedings" were devoted to the publication of his articles. The Hungarian periodicals devoted to the popularization of science were clamouring for papers bearing the hallmark of his light-hearted and entertaining style. Suddenly astronomy became a matter of public interest in Hungary.

The scientific programme of the Ógyalla observatory

From 1879 the Ógyalla Observatory had its own publication. The lavishly illustrated "Beobachtungen angestellt der Astrophysicalischen Observatorium Ógyalla", printed in Halle, was an eminently suitable medium for disseminating information to the more important observatories of the contemporary world about the astronomical research conducted at Ógyalla. It was also suitable for facilitating the making of arrangements for the exchanges of personnel between observatories.

Immediately after his return from his first study tour in 1864, Miklós Konkoly Thege started his work on the observation of comets. He continued with this investigation through his whole life. Ten years later, the first use he made of his new Browning type telescope was a spectroscopic study of a comet. During his life he had forty opportunities to observe a comet, and twenty-seven times out of the forty he also managed to complete a spectroscopic examination.

The use of spectroscopy in astronomy was at this time a novel field of study. Together with Carl Vogel of the Potsdam Observatory, Konkoly soon managed to create a respectable collection of spectrographic data at the Ógyalla Observatory. By 1875 he had published in the "Proceedings" the spectral classification of one hundred and sixty stars. In addition to obtaining the advice of Carl Vogel, Konkoly also utilised the results of Angelo Secchi and William Huggins. He several times visited Huggins in his home, and he was travelling to Potsdam practically every year. One of Konkoly's short communications in "Nature", amounting to not much more than a few words, served as an excuse for Angelo Secchi to enter into direct communication with the astronomer at Ógyalla by means of writing him a letter. In this letter Secchi expressed some doubts about some of the results of Vogel in the field of stellar spectroscopy. Konkoly did not get involved in his controversy and maintained good relations with both astronomers.

So, in a few years Hungarian astronomy had found its home at Ógyalla. After a short time, even the outside world had to take us into consideration, if for nothing else, on account of the yearly reports published in the Vierteljahrschrift. Most of Konkoly's writings (fifty-two of them) saw daylight in the Astronomische Nachrichten, published in Kiel. Since 1890 its editor was Konkoly's favourite pupil, Hermann Kobold.

But these were just some important steps towards establishing a country-wide astronomical culture.

Unsuccessful attempts at nationalisation. The Gotha adventure

After a few years after the foundation of his observatory, Konkoly realised that only the state can provide the resources for financing continued astronomical research in the country. To obtain state support, he tried in 1878 to offer his observatory to the University of Pozsony (Bratislava), just about to be established. Because the founding of the University of Pozsony was delayed, a year later he entered into negotiations with the University of Technology in Budapest. Ágost Trefort, then the Minister for Education, had given his consent, but this initiative also came to nothing due to technical reasons.

Nobody should think that Konkoly wished to shed his responsibilities for running the observatory, as he expressly reserved the right for himself to remain with the institute as its director. Konkoly, who could not tolerate less than perfect workmanship even in the simplest object of everyday use, was only afraid, that his own pocket would not be deep enough to operate his observatory according to the standards of the outside world. The thought of compromising quality under financial pressure was abhorrent to him.

Discouraged by his unsuccessful attempts to hand over his observatory into the hands of the nation, he decided on a step, which afterwards even he might have regretted himself. This assumption of mine is supported by the fact, that until now the failure of his Gotha adventure was never mentioned in any of his previous biographies. The documentary evidence was unearthed by Manfred Stumpf, as a result of his literature studies at the State Archives of Gotha.

In 1882 Hansen's directorship of the Gotha Observatory ended and his director's chair became vacant. Konkoly offered himself as a candidate for the place. It can be seen from his letters that are still extant, that he was deeply wounded by the fact, that while he never shirked any financial sacrifice in the interest of Hungarian astronomy, government officials regarded it with indifference. A list of instruments, showing how

up-to-date the equipment of Ógyalla was, is available in the Gotha Archives[4]. Anyway, Konkoly did not offer to donate his instruments, assembled with such great care and sacrifice – they were superior to those being in use at Gotha – , but to loan them for the duration of his directorship.

In the autumn of 1882 four letters have been sent from Ógyalla to Gotha (16th and 24th of November, 19th and 29th of December). In his fifth letter, dated January 1882, giving as reason his father's serious illness, Konkoly Thege withdrew his offer. It is true that his father was seriously ill. He died of heart failure one year later.

Konkoly visited the ruler of Gotha in January 1883. They both were favourably impressed with each other. Even so, I feel, that Konkoly must have sensed, what was revealed by Prof. Schreiber's letter, found in 1984, that is, that he was not judged by the Gotha authorities capable of filling the position. Whether Konkoly knew of these undercurrents, or not, we shall probably never know.

In 1887 the post of director of the Gotha Observatory fell vacant again. Konkoly applied again, but, fortunately for us, unsuccessfully. By the time his letter arrived to Gotha, the post was already filled.

After each unsuccessful attempt to donate his observatory to the nation, Konkoly carried on with the job of maintaining the standards of his observatory with renewed vigour. He could draw energy from his failures.

One swallow doth not a summer make

Konkoly was clear-sighted enough to know that "One swallow doth not a summer make", he knew that his efforts alone were not sufficient to bring about the creation of an astronomical culture in Hungary, so he decided to try to persuade others to join him in his endeavours to build more observatories.

Most of the scientists, grouped around the Hungarian Academy of Sciences, wanted to make the most of the opportunities, presented by the brightening of political horizons. They wanted to use all available means to help the cultural development of their country. Some of them, like Konkoly, united in their person the devoted patron of science and the practicing scientist. Such were Lajos Haynald, Bishop of Kalocsa and also an outstanding botanist, the brothers Jenő and Sándor Gothard, the joint landlords of Herény and many others. There were outstanding scientists, like Baron Loránd Eötvös and Baron Béla Harkányi, who had practically no interests outside science, for whom their aristocratic descent was important only in establishing social contacts, to be used in promoting and financing their scientific work. Another type of patron were Baron Géza Podmaniczky and his wife, the Baroness Berta Dégenfeld-Schomberg, who fell in love with the observation of the night sky and founded an observatory at Kiskartal, where they pursued their interest with the devotion of the committed amateur. They moved in the highest of high circles, Berta Dégenfeld was an aunt of Count István Tisza, who later became prime minister. Both Baron Géza Podmaniczky and Baron Béla Harkányi were members of the upper house of parliament. Baron Podmaniczky was so proud of his work as an astronomer, that, although he was a well regarded economist, he had himself enrolled among the honorary members of the Academy as an astronomer.

In September 1877 cardinal Lajos Haynald, archbishop of Kalocsa wrote a letter to Konkoly, soliciting his expert advice on establishing an observatory, similar to that of Ógyalla, in his town. Observation started one year later in the new observatory, built to Konkoly's design and equipped with instruments of his choosing. The observatory was attached to the Jesuit Gymnasium[5] and was operated in co-operation with the fathers. Its reputation rests on the observation of solar protuberances, made by the then director, Fr. Gyula Fényi, between 1885 and 1913. The results of this work were disclosed in the institute's own publications, and earned international respect for the solar observations at Kalocsa. After the retirement of Fr. Fényi, the observatory continued working, albeit less productively, until in 1950, the year the Jesuit Order was banned throughout Hungary. The last director, Dr. Mátyás Tibor, who had been working previously in he Observatory of the Vatican, had to flee, and had to discontinue his scientific work.

Fényi's heritage is preserved and his work is continued in the Observatory of Solar Physics in Debrecen.[6]

Friends and co-workers close to Konkoly

Miklós Konkoly Thege first got acquainted with the name and the works of Jenő Gothard in 1879, during the Industry Fair in Székesfehérvár. Next year he met them in person, when the brothers Jenő and Sándor Gothard visited Konkoly at Ógyalla. Jenõ Gothard immediately fell under the spell of what he saw, and decided, that he will build an astronomical observatory on his estate at Herény, and not a physics laboratory, as was his original intention.

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[4] Staatsarchiv Weimar, Staatsministerium Gotha.

[5] In Hungary a Gymnasium was approximately equivalent to a British grammar school

[6] MTA Csillagászati Kutatóintézete Napfizikai Obszervatóriuma, Debrecen.

In 1881 Konkoly sold his Browning type reflector to Gothard, who started to use it for his observations one year later, under a dome erected on the roof of his palace at Herény.

Konkoly and Gothard did not take long to establish a friendship and a cordial working relation. Gothard was educated in the College of Polytechnic in Vienna, where, at this time, astronomy was taught by Joseph Herr and Wilhelm Tinter.

During September of 1881 they both travelled to see the Electrotechnical Fair in Paris, from where they went to Calais to cross the Channel and visit England.

According to the testimony of their correspondence they had often traveled together. For example in 1883 they traveled together to the meeting of AG in Vienna.

Konkoly did everything possible to inform his fellow academicians about the work done by Gothard, and to have him accepted as a corresponding member. It was Konkoly who presented Gothard's results in front of the Royal Society in London.

Ógyalla and Herény were the first two localities connected by a permanent telegraph line. Naturally, conditions were rather primitive, so many technical problems had to be solved in order to maintain reliable communications.

For himself, Konkoly regarded Carl Vogel and Max Wolf as his favourite friends abroad. Soon the Gothard brothers also established a close relation with the two scientists.

Konkoly was a good picker of men. He had excellent working relations with his co-workers. Perhaps Herman Kobold and Radó Kövesligethy were the best among them.

Martin Ebell wrote in his obituary of Herman Kobold[7]:

"The twenty-two year old Kobold arrived to Konkoly's estate at Ógyalla in Hungary. The two scientists were tied to each other by a lifelong friendship. At the Strasbourg Conference in 1901 I was witness to their joy at seeing each other. Kobold regards his five years spent with Konkoly at Ógyalla as the best, happiest and most fruitful time of his life. At Ógyalla he was busy with the observation of comets and other heavenly bodies. Konkoly, right from the beginning took an interest in astrophysics. He built his own instruments, primarily spectroscopes. He was among the first to carry out spectroscopic investigations on comets."

Konkoly was so well satisfied with Kobold's work, that he wanted to take the young man with him to Gotha and pay his emoluments out of his own pockets.

Ógyalla during the 1880s

In 1882-1883 Konkoly devoted all his available time to writing the first of his great Handbooks. This was published in 1883 in Halle, under the title of "Praktische Anleitung der Astronomischer Beobachtungen".

Now, after completing his book, he had an immediate need for another telescope, as replacement for the Browning reflector which he had sold to Gothard. He purchased a ten and a quarter inch lens from Merz, but could not find anybody, who would undertake the building of the mechanical parts in the available time. So, he had to do it himself. He started on the construction of the mechanism in his workshop at Ógyalla, using the new reflector at Potsdam as his template, and finished the job in one year.

In 1883 he went on another study-tour in Europe. His purpose was to see the up-to-date instruments produced abroad, and to find out which are the instruments indispensable for a modern observatory.

In a monograph about Konkoly, the author, Lajos Steiner[8], described this time as the "golden age" of the Ógyalla Observatory. This opinion is supported by the "Beobachtungen", published by the Institute, which give a detailed survey of the Institute's manifold achievements.

Between 1880 and 1885 Kobold worked at Ógyalla almost without interruption, carrying on with his observations. It is characteristic of Konkoly's caring benevolence, that, after a year of his arrival he has presented one of the young man's papers in front of the Academy in his own translation.

Kobold's primary interest was the observation of comets and asteroids, with a view to establish their positions. He also regularly observed the surface of the big planets. He intended to use his observations to determine the conditions prevailing on the planets' surface. He regularly photographed the red spot of Jupiter, and used his results to compute the time of the planet's rotation.

The decades long association of the young Radó Kövesligethy, who was at the time a student in Vienna, with Ógyalla dates back to the summer of 1881. He spent his summers in observation work at Ógyalla. His main interest was spectroscopy, and his work resulted in the publication, in 1887, of a spectroscopic catalogue in volume IX/2 of the "Beobachtungen"[9].

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[7] EBELL, Martin: Herman Kobold. In: Vierteljahrschrift des Astronomischen Gesselschaft. Bd. 77. 1942. pp 241-252.

[8] STEINER Lajos: Konkoly Thege Miklós T. Tag emlékezete. Budapest, Magyar Tudományos Akadémia, 1943.

[9] Beobachtungen angestellt am Astrophysicalischen Observatorium in O Gyalla. Halle, H.W.Schmidt

The regular observation of sunspots at Ógyalla started in 1972. Konkoly usually reserved this work for himself. If necessary, he also used the help of other scientists. At first Konkoly drew the sunspots, later he used a heliograph to obtain photographic records. He also calculated the area of sunspots. In his later calculations he used the relative number of Wolf. He also carried out some measurements using a micrometer. He was among the first astronomers to use this method. He tried to learn about the physics of the Sun's surface by observing the solar spectrum through various filters. These observations were continued at Ógyalla after Konkoly's death, until 1918.

The birth of a new observatory in Hungary

In Kiskartal, the year 1885 saw the building of a new observatory on the estate of Baron Géza Podmaniczky. Konkoly took an active part in its preparation. The dome itself and some of the instruments were from Ógyalla. The Baron and his wife, Countess Berta Dégenfeld were serious in preparing for their future in astronomy. In the summer of 1885, regular astronomy classes were held at Nyírmada, in the palace of the Countess. The tutor was Radó Kövesligethy. The young astronomer attracted a very distinguished circle of visitors, Kálmán Tisza, the prime minister, and his son István Tisza, a future prime minister of Hungary.

One night the countess, who spent all her evenings in front of the telescope, drew Kövesligethy's attention to something interesting in the Andromeda constellation. What she saw was in fact an extragalactic supernova, known as S Andromedae. This way the name of the Countess was added to the names of the discoverers of this supernova. Later it was studied both at Ógyalla and at Herény. Subsequently Kövesligethy also made some spectrographic studies of it.

At Kiskartal, regular observations started in the new observatory, under the guidance of Kövesligethy, in 1886.

After a short while the brilliant young astronomer was invited to Budapest by Loránd Eötvös, the head of the Geophysics Department of the University, to join his department as an assistant lecturer. This was an offer not to be refused. The golden age of Ógyalla ended with the departure of Kövesligethy. Kobold has already left a year ago, to take up an appointment in Strasbourg. In 1887 the Ógyalla Spectrum Catalogue was published. In its introduction Konkoly paid generous hommage to Kövesligethy's outstanding achievement.

1887 saw the publication of Konkoly's second great handbook, the "Praktische Anleiung zur Himmelsphotographie". The degree of success of the book is indicated by the fact, that W. Valentiner entrusted Konkoly with the writing of the chapter "Astrophotographie" (Vol. I. 1897, pp. 212-34) for his monumental handbook, the "Handwörtebuch der Astronomie".

Konkoly's third great handbook, the "Handbuch für Spektroskopiker was published in the first year when he became thr director of the National Institute of Meteorolgy."[10]

In these years the technological base of astronomy underwent an enormous expansion, enriching astronomy with newer and better instruments and appliances.

Konkoly's purse became lighter and lighter with the passing of every year.

As the new director of the National Institute of Meteorology he did not neglect astronomy for a single moment

His appointment to the directorship of the National Institute of Meteorology in 1890 could not happen at a more propitious time for Konkoly. He moved to Budapest, so he could spend only the summers at Ógyalla. He had to discontinue his regular observations, but the fate of astronomy in Hungary still remained his principal preoccupation.

In his capacity of director of the National Institute of Meteorology, he established a meteorological observation post in one of the annexes. The staff of this station were state employees, but it was them who continued the work of astronomical observation. So the "Beobachtungen" could be regularly published, just as before.

A series of articles on astronomy was printed, in Hungarian, in the periodical of the institute titled "Időjárás" ("The Weather"), so this publication also served as a substitute for the still non-existent printed forum of the Hungarian astronomers.

In addition to repairing the instruments used at Ógyalla, the well trained artisans staffing the workshop of the Institute of Meteorology even created original new instruments.

As director of the Institute of Meteorology, Konkoly Thege made four long study-trips in Europe. The most important stages of his first visit in 1893 were Potsdam, Pic du Midi, Brussels, Utrecht and Leyden. In

[10] Hanbuch für Spectroskopiker im Cabinet und am Fernrohr. Halle, Druck und Verlag von Wilhelm Knapp. 1890.

1897 he took part in the World Fair in Paris. In 1898 he traveled to Strasbourg, Paris, and Heidelberg. In 1901 he spent some time in Trieste, Milan, Nice and Zurich.

Of course they were not the only occasions when he traveled abroad. He was devoted to music, so any performance, promising to be interesting, was a sufficient reason for him to take to the road.

According to his own estimation, he visited Greenwich at least a dozen times.

Even though he was in charge of the Institute of Meteorology, he maintained close contact with his astronomer friends. In the account of one of his travels he wrote:

"On the 1st of May, an exhibition of Photography was opened in Dresden. We spent the previous afternoon having a friendly contest with my friend Maximilian Wolf of hanging the splendid astronomical and spectrographic photographs of Lohse, Pickering, Wolf, Schorr, Hall and Campbell. The Solar photographs from Ógyalla reaped a rich harvest of success."

Konkoly Thege was one of the first amateur photographers in Hungary. At first he used the old Daguerre process on plates produced by himself. He was among the first to use dry plates. For his work in photography he was awarded the Daguerre Gold Medal and the Voigtländer Silver Medal of the Photographische Gesellschaft.

At the "Exhibition of Hungarian Technology", held in the Princess Hall of London in 1908, he had won the "Grand Prix" with his photographs and with the instruments made by his own hands.

As an astronomer, Konkoly also exerted himself greatly in the interest of meteorology in Hungary. After a short while meteorology has been given a new and much more up-to-date home. It was also in Konkoly's time that a countrywide network of weather stations was created. These stations were equipped with instruments already well tried in other countries. Finally, it was in the last year of Konkoly's directorship, that a new, palatial building was handed over to the Institute of Meteorology, as its new, permanent home.

Konkoly used every means for the establishment of a national observatory

Even though he was sitting in the director's chair of the Institute of Meteorology, he never faltered in his principal ambition of handing over his observatory to the nation.

In 1896 Konkoly was elected as Member of Parliament to represent the electoral district of Tata. He made use of the opportunities being presented by his becoming an MP, to continue the struggle for the continued support of Hungarian astronomy and for the establishment of a National Observatory. He made two speeches in the House on this subject. In his other speeches he gave his views on the weighty matter of infrastructure development. He chose as his subject the improvements necessary to make Hungary's shipping and railway systems up to date.

The year 1896 had another significance for Konkoly. This was Hungary's millennial year, which was commemorated with – among others – holding a grandiose millennial exhibition. One of its organisers was Miklós Konkoly Thege, in collaboration with Ferenc Hopp. The Hungarian Institute of Meteorology had a separate pavilion, where meteorological and astronomical instruments, both newly designed and of historical interest, were exhibited, together with valuable old books on astronomy from the institute's library. The catalogue of this memorable collection was also produced in printed form.

The directorship of the National Institute of Meteorology conferred an even higher social standing on Konkoly Thege. In 1897 the 25th anniversary of the Ógyalla Observatory was celebrated with the participation of several ministers. This event was the prelude to the Institute's nationalisation.

In 1898 the AG held its meeting in Budapest, to lend support to Konkoly's efforts. The meeting continued on the premises of the Academy, under the honorary chairmanship of Baron Loránd Eötvös.

The Royal Hungarian Ógyalla Astrophysical Observatory of the Konkoly Foundation is born

On the 16th of May 1899 the Hungarian state accepted Konkoly's offer, so the Royal Hungarian Ógyalla Astrophysical Observatory of the Konkoly Foundation came into being. Konkoly had got what he wanted. Miklós Konkoly Thege remained director, but as he was already responsible for running the Institute of Meteorology, the institute was actually lead by Radó Kövesligethy, as deputy director. The Institute also acquired the services of Béla Harkányi, who had considerable experience, having worked in numerous observatories, such as Potsdam and Meudon. In 1893 he visited, accompanied by Jenő Gothard, the most important observatories of the American continent. Antal Tass and Lajos Terkán were working for the institute. Astronomic photometry and photography became the principal field of interest for the institute. Photometry based on photography was initiated at Ógyalla by Antal Tass in 1906.

By the initiative of Kövesligethy and Harkányi a small Zöllner type modern spectrophotometer was acquired in 1901, which was followed by a larger one and a wedge-photometer in 1903. Visual photometry became the centre of gravity of the institute's work-programme. Konkoly was pushing mainly for the extension of the institute's instrument-park. In 1904 they bought a 162mm photographic telescope. This was mounted – after the necessary modification – on the already existing 262mm telescope This acquisition enabled the institute to make photography of the sky part of their programme. Later in 1908 a 200mm Heyde refractor, equipped with a movable photographic camera, was also acquired. It was used for the determination of stars' luminosity according to Schwarzschild method.

The most important result of the photometric activities at Ógyalla was the Ógyalla Catalogue of Variable Stars[11], whose first volume was published in 1916, a few weeks before Konkoly's death, whose working life lasted just long enough to have written the foreword to the volume.

Konkoly retired in 1911

At Ógyalla, just as later on the Svábhegy, it was an iron rule, that clear nights must be used for observation, but during cloudy evenings the Konkoly palace was the scene of many a happy gatherings. Politicians, fellow scientists from home and abroad, writers, poets and musicians regularly enjoyed the hospitality of Konkoly's house.

Konkoly was an outstanding pianist, good enough to give several public recitals. Elisabeth, Queen of Hungary and Louis, King of Belgium had a high opinion of Konkoly's playing. He knew Franz Liszt, and he also had a close rapport with Richard Wagner. On one occasion when they were travelling by ship down the Danube, the ship suffered some damage during a storm, and was saved only by the bravery and seamanship of Konkoly. He later commented on this event :

"Wagner bore himself with bravery. He received great a pleasure from observing the storm as if we were attending a performance of the Flying Dutchman."

Konkoly built an observatory reserved exclusively for his own use in Nagytagyos. When he retired in 1911, he divided his time between Budapest, Ógyalla and Nagytagyos. In 1914 he decided to move the equipment from Nagytagyos to Pannonhalma during his life, so that he could build a small new observatory. The dome was also dismantled and moved to Pannonhalma. One of his teachers was Ányos Jedlik, a Benedictine monk, who, in his old age, returned to Pannonhalma to end his days there. Konkoly was privately educated, but his examinations were conducted by the Benedictine monks in Győr, so even though he was a Protestant, he felt very close to the Benedictine order. It is rather touching to read his letters written to Aladár Tóth, in which he related all the troubles he had with the transportation of his instruments to Pannonhalma.

Although conditions prevailing during the war somewhat hindered his movements, Konkoly kept working until his death. He never lost the acuteness of his mind and was full of ideas till the end.

One of his colleagues, Antal Bodócs, gave the following account of Konkoly's death, in his letter to Aladár Tóth :

"Dear Colleague!

We were greatly surprised by the unexpected death of His Excellency, because until now he was never known to suffer from any serious illness, so we were convinced that we would live to see his eightieth birthday, but the joke is on us, for he died, without a long illness, of a heart attack. This is all the more

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[11] Photometrische Beobachtungen Veränderlicher Sterne. /Antal Tass. Publikation des Königl. Ung. Astrophysikalischen Observatoriums v. Konkoly's Stiftung in Budapest. Ógyalla 1918 – Budapest 1925.

surprising, because less than a year ago he had a minor operation to remove a lipoma, and on that occasion the doctors told him, that at the age of seventy-four, less than one man in a hundred had a heart like his.

Concerning the circumstances of his death: on the 16th he visited the ordnance factory of Marx and Mérei, and between four and seven hours in the afternoon he was still walking indefatigably from floor to floor. Marx said that he was in a "great form", telling jokes almost incessantly. The next day, in the afternoon he experienced some trouble with his breathing. His breathing stopped for a few moments, so he had to lie down for a short while. Next day he had a turn for the worse and his heart stopped suddenly at seven p. m. His doctor, to whom he was telling jokes until the last minute, is of the opinion that the heart failure was the direct cause of death. We, on the other hand, believe, that it might have been his troublesome breathing that affected his heart, as, looking back after the event, we seem to remember that lately he was apparently trying to avoid the climbing of stairs.

One thing is certain : He died in style, because it is not the fate of every man to die telling jokes."

We know it from other sources, that on his last night, after his factory visit, he went to hear a performance of his favourite opera, Wagner's "Parsifal".

He took leave of this world with the music of his friend still in his ears.

Dr. Kopf, the president of the AG, said at the meeting of the Royal Hungarian Association of Natural Sciences :

"Er hat als einer der ersten astrophysicalische Untersuchungen angestellt und er wird in der Geschichte der Astronomie als einer Begründer diese jüngeren Zweiges unsere Wissenschaft in Ehren genannt."

CHAPTER 2

A BRIEF HISTORY OF THE ASTROPHYSICAL OBSERVATORY OF THE KONKOLY FOUNDATION

Dr. M. Konkoly Thege

It is said often enough, that beginnings are always difficult. This truism applies a special force when one tries establish an observatory – when the chance to attract such an influx of funds, as does the observatory in Chile, or the one in Hamburg, where the sum of 5000 marks was made available for the purchase of just one refractor, does not exist, and the would-be owner has to provide every penny out of his own pocket. Even the provision of the bare necessities is a strain. An astrophysical observatory is much harder to organize than an astronomical one. In case of the latter, it is sufficient for the needs of a private owner to furnish a room with a refractor with a good micrometer, standing next to a pendulum clock, or, at the most, with a chronograph. The acquisition of a double telescope on shared support would be also recommended (funds permitting), one barrel for visual observation, and the other one for photography. On the other hand, the furnishing of an astrophysical observatory even on a most modest scale immediately calls for a plethora of instruments, spectroscopes and spectrographs, various photometers and sundry other devices. What is more, the acquisition of a few instruments of astrometry is often unavoidable.

In 1870, when the building of the Ógyalla Observatory was started, the owner was relatively lucky, as spectrographs and refracting telescopes equipped for photography were not yet available, so the astronomer had to content himself with visual observations. Consequently, I could start working at my observatory at Ógyalla by installing a modest rotating drum into the NW corner of my home, where my first four-inch telescope was already in position, perched on top of the arch spanning the sidewalls of my house. The adjoining small room was the "passage room" housing a smallish "meridian circle" (bought second hand) which did service in the determination of time. The instrument was made in 1842, so it as really my contemporary, out of piety, with most of its useful years behind it. Now this instrument has found a place in the beautiful museum of the Royal Hungarian National Institute of Meteorology and Geomagnetism, where it can spend its old days, without the danger of being disturbed by visitor's eyes, curious to see it.

Each of these instruments was flanked by a pendulum clock of medium quality. For one of them I have built a reticular pendulum with my own hands, which made it a first class instrument, and so it remains until the present day. An excellent marine chronometer did service as the standard clock of the observatory. In the beginning the refracting telescope was very sparsely equipped with peripheral equipment, it did not even have clockwork until a later time. On the other hand I have installed a good circular micrometer, a solar projector, a handsome Browning type (London) solar spectroscope, and a smallish stellar spectroscope, which could serve as an aid to teaching but not much more, because of the relative weakness of the four inch objective. In addition to the two principal instruments one could also find a good meteoroscope, a beautiful Gambey type mirror-sextant and a good Bardou type (Paris) telescope.

The activities of the Observatory were initially restricted to the observation of sunspots and the determination of their positions through measurement, the study of the Sun's protuberances, time determination and the observation of meteors.

In addition to myself, there was a young man, who was also active in the operation of this modest little observatory. He was Tamás Nagy, who later ended his life as a schoolmaster at Hódmezővásárhely.

After a short while, I should have liked to extend slightly the scope of our work. With this end in view, I have placed an order at Browning's of London for a 10 1/2inch reflector, which later ended up in the private observatory of Jenő Gothard. Today, after the sad demise of my unforgettable friend, it started to decay, and now it is progressing on this sad road 'on the double'. This initiative was the beginning of my attempt to revitalize the hitherto ill regarded 'mirror-telescopic systems'. Even so, in spite of the low esteem enjoyed by the reflective type telescopes, I had many visitors from abroad, who came to look at a modern reflector of good quality. It is a fact that all visitors were delighted with the instrument, and parted as converts. This, on its own, gave me great satisfaction, but I am even more gratified by the fact, that today even some of the most up-to-date instruments are equipped with large mirrors up to 120 cm of diameter. What is more, the Americans – who have money to spend on science – go as high as 3 meters of diameter with the size of their mirrors.

The reflector was delivered, packed in seven crates, at Ógyalla in February 1874, before I could provide room for its installation. The mirror was expertly packaged, so I left it in its original crate, but I have

unpacked the instrument itself and assembled it in one of the more inaccessible guestrooms, so that I could at least feast my eyes on it. Then I started formulating a plan about where the new dome should be erected. To make it share the site of the original observatory would have been not only expensive, but also impractical from the scientific point of view. On the other hand there was a bathhouse in my garden, which was fit for anything, except bathing. My choice fell on this: I have made a survey and drawn up plans, which, with a few extensions, became the basic design of the new observatory, some of whose parts are doing good service even to this day. After this I dismantled the old dome, and transferred it from the roof of my house to what became now its new home. This solution was cheaper, and first of all more practical, than any rearrangement of my attic that I could think of. To make sure that my money would stretch to the buying of the actual instruments, I had to keep a sharp eye on the proceedings. Such consideration crop up even during such projects as the erection of the giant dome, built to house the huge refractor in Potsdam, because the architect there has designed a magnificent vestibule as a front to the dome itself. When Director Vogel, my respected friend, has shown the plans to HM the Emperor Wilhelm II, the emperor said: 'what is this ornament for? It would cost 60000 Marks. Spend it on buying a bigger telescope", and removed the vestibule from the budget. Even in this situation, His Majesty has displayed his great wisdom based on his encyclopedic knowledge.

Now let us take a look at this new and, let us say, definitive, observatory, as it was in July 1874. As I have already mentioned, the old bathhouse was converted: its roof (at least forty years old), being fit for nothing but burning. All that could be used of the old structure were a few of the old roof-beams. Although the old walls themselves looked, at first sight, sturdy enough, I dared not use for the making of the superstructure anything heavier than Riegel-walling. However, the Riegel-wall has put to rest once and for all the misconception of most architects, that Riegel-walls have a useful life of, at most, fifteen years. Although the upper floor of the Observatory was built in 1874, it is still standing and it is still in good repair. The transfer of the dome from the top of the dwelling-house to its new place on the NE corner of the new building in one piece was accomplished at the cost of a great deal of trouble and even more noise. Now it provides cover for the four-inch Steinheil refractor, which, by this time, is equipped with a clockwork and stands on a stone foundation. After being slightly augmented, the West corner is now covered by a hemispherical dome, which was built, according to my own design and under my supervision, by my machinist and the estate blacksmith. This dome is still in service, only in these year (1913) it will be subjected to some light repairs, which is well deserved after thirty-eight years of arduous service. I have installed the 10 1/2inches Browning telescope under this dome. In the meantime the four-inch Steinheil refractor was sold to the Science Oriented Grammar School at Zagreb. As its replacement, I have acquired a first class Merz telescope of six inches (162 mm) diameter. The old, existing drum was too small to accept this, just as the iron dome was too small for the Browning reflector. So I have decided to erect a drum-shaped rotating tool for the reflector, independently of the main building, and provide it with access to and from the upper floor of the main building by means of a bridge, to equip the six inch Merz telescope with a new stand and house it in the iron dome, and to replace it on its old stand with a 3 inch Reinfelder heliograph for carrying out solar observations.

In addition to the building work and the proliferation of new telescopes, the number of spectroscopes also grew. The light gathering power of the reflector was sufficiently high to use spectroscopes of higher resolution. This fact prompted me to order for the Observatory two very valuable spectroscopes from Browning's of London, and universal spectroscope from Merz of Munich. Naturally, to carry out any astrophysical observation, one needs a plethora of auxiliary instruments. I have made an attempt to acquire those as far as circumstances permitted.

The mark of the meridian was erected in the square room between the two domes, on a pillar of the correct elevation, just like the reflector itself. A second class clock was placed next to the meridian. Using Mercury compensation, I have converted it into a good pendulum-clock. At a later day, T. Cooke of York (England) delivered a first rate Mercury compensated clock to the observatory. With this the Observatory has at last acquired its standard clock.

This reflector did not stay with me for very long. In 1881 I have started on a major project, the writing of the book: Anleitung zur Anstellung Astronomischer Beobachtungen (it was published by Vieweg). Overestimating the time necessary for the writing of a book of 68 1/2 printed sheets and drawing the 345 illustrations, I gave the reflector to Jenő Gothard. The book came out in 1883, so I had to acquire a new large telescope, if I wanted to avoid my observatory becoming obsolescent. Although the Chevalier Dr. Sigismund Merz, my friend of the highest esteem, has ground for me an excellent 254 mm (10inch) objective, but I had to rack my brain to find a way to equip it with the suitable mechanism. Repsold needed three, Cooke two years, Grubb had too much of a backlog even to contemplate it. So, in the end, I have decided to do a second tour of Europe, with a view to obtain (that is to draw) the best solution. I was very much impressed by the Repsold type refractors installed in Potsdam (12inch) and in Strasbourg (18inch). In the month of October I

started working on replicating them by making a mock-up out of timber. I have hired a good mechanic to help my machinist. In the month of May of the following year we have succeeded in installing the presently existing instrument (10inch) in the dome (drum), previously housing the old reflector.

This is where my troubles really started. The barrel was a little too long (or the dome was too small). This caused me much trouble. If I did any work in the dark, I was constantly worried about knocking the objective against something. Then on a lucky day, I was visited by the Baron Géza Podmaniczky, who took an instant liking to my dome. When I complained that it is too small for my instrument, he immediately offered to take it off my hand and transfer it to his observatory at Kiskartal, since he was needing just the type of dome. A bargain was quickly struck, and I had dismantled my instrument. The dome was successfully repatriated to Kiskartal, where it is still one of the ornaments in the noble baron's park.

To house my own refractor, I had a new dome built by the Kühnel Machine Factory of Komárom, after my own design. It is still in use: the completely rebuilt 254mm refractor still stands underneath.

Besides the main building, the building of several smaller pavilions became necessary. One had to be erected for the refractor used for photographing the Sun, another one for the comet-sweeper. After a while the number of spectrographs and spectroscopes has also shown a healthy increase, so that as far as spectroscopic instrument is concerned, the observatory at Ógyalla is second to none. What is more, all this equipment is maintained and kept in good working order. In addition to the spectroscopes, I have acquired a multitude of other instruments, many of which was crafted in the Observatory's own workshop, as I have also acquired the services of an instrument-mechanic. This way we could produce two chronographs, two pendulum clocks, one passage tube, one photoheliograph and sundry other instruments.

After installing all this equipment, there was no idle time for the Observatory. This is borne out by its records to be found in the annals of the institution. For example, between 1864 and the present day, I myself observed forty comets, twenty-seven out of those were also evaluated spectroscopically. Thus, I can assert without boasting, that in the field of observing and spectroscopically analyzing comets, this achievement secures for me the first place amongst European and American astronomers. Until nationalization of the observatory, besides myself, the following people took part in its work: Tamás Nagy (deceased); Dr. Károly Schrader, at present 'geheimes Regierungsrat' in Berlin and the inspector of all the naval cadet schools; Dr. Herman Kobold, at present professor at the University of Kiel and the editor of the 'Astronomische Nachrichten' (civil servant); Dr. Radó Kövesligethy, at present tenured professor at the University of Budapest and Dr Ottó Tetens, at present senior lecturer at the University of Lindenberg. Dr. Ferenc Lakits and József Bártfay participated in the work on a voluntary basis. The work of this splendid group will always be held in the highest regard by the world's scientific community.

As I am childless, my constant fear is that my observatory, built at great cost in time and effort, will, after my death, share the lamentable fate of other privately owned observatories. As an example, I can mention the observatory of the late lamented Jenő Gothard, my poor old working partner; the outstanding Browning reflector is in a very lamentable state, without even a hope for improvement, because its housing has so far progressed in decrepitation, that it only needs a good storm to make it collapse and batter the beautiful instrument into ruin. Such was the fate of the observatory of the Baron Comphausen in Rüngsdorf, near Bonn; also of that of Fr. Brödel in Saxony, the Umkrechtsberg in Olmütz and many others. Under the influence of these sad cases, I have decided to donate my observatory to the state, as it stands, lock, stock and barrel, with three stipulations: 1. The state will take responsibility for the operation of the observatory and employ three officials to do this. 2. The observatory will not be moved from Ógyalla during my life (it is hoped that, even after my demise, no minister will contemplate such an idiocy, considering the investments, which will have been made since nationalization). 3. As long as I live and am capable, I shall remain the director of the Observatory, but without ever receiving any remuneration for my services.

The Observatory passed into state ownership in 1898, during the ministry of Dr. Gyula Wlassich. The organization of the staffing was completed in 1899. I have acquired the services of Professor Dr. Radó Kövesligethy as deputy director, and the Baron Dr. Béla Harkányi, Private-Docent of the university, as senior observer, both of them astronomers of the highest esteem. The position of First Principal Assistant was filled by Antal Tass, that of Second Principal Assistant by Béla Szántó, Dipl. Chem.

In 1900, after the departure of Szántó from the group of founder members, Dr. Lajos Terkán, who is at present a Privat-Docent of the University of Budapest, filled his post of Second Principal Assistant.

Harkányi left us in 1912. Following an automatic 'chain of promotion', the staff positions of the observatory were filled by Antal Tass as Senior Observer, by Dr. Lajos Terkán as First Principal Assistant. The post of Second Principal Assistant was filled by the new appointment of Emil Czuczy, mechanical engineer, and later by István Bodócs, as his successor.

So, the present scientific leadership of the Observatory consists of:

Director: Dr. Miklós Konkoly Thege, Ministerial Adviser.
Deputy director: Prof. Dr. Radó Kövesligethy (since 1898)
Senior observer: Dr. Antal Tass (since 1899)
First principal assistant: Privat-docent Lajos Terkán (since 1900)
Second principal assistant: István Bodócs (since 1909)

Since nationalization, the Institute is growing day by day. It is my pleasure to state that the Royal Hungarian Ministry of Religious Affairs and Education is by no means tight fisted, as far as the Observatory is concerned.

The full of complement of astronomical instruments belonging to the Royal Hungarian Institute of Meteorology and Geomagnetism was transferred to the Observatory, so that by now the observatory can boast of eleven domes of various sizes.

The acquisition of the splendid Breithaupt theodolite, the large and small Zöllner photometer (for measuring their intensity of starlight), the fully equipped 200 mm aperture refractor from Heyde of Dresden, the great ultraviolet spectrograph, the 152 mm Zeiss photographic objective, and many other instruments were financed by the state. We have built an iron dome of three meters for Hyde refractor, and another three drum shaped buildings for the aforementioned other instruments.

The old publications from the old observatory were numbers 1-20. There were further publications since nationalization, amounting to fourteen booklets, written in co-operation by the Baron Dr Béla Harkányi, Antal Tass observator, Dr Lajos Terkán first principal assistant and the author. It is also reasonable to foresee the publication of the Great Catalogue of Photometry in 1913 and the Catalogue of Photographic Photometry in 1914. Thanks to the munificence of His Excellency the Minister for Religious Affairs and Education, it will be possible to move the offices and already splendid library of the Observatory out of my gardener's lodge to their own pavilion.

I must add that during my tenure as Director of the Royal Hungarian Institute of Meteorology, from 1890 until its nationalization, the following associates of the Institute also contributed to the work of the observatory: Dr. Lajos Steiner, Private Docent Lajos Tolnay (jr.), Zsigmond Karvázy, Dr Ernő Massányi and Ede Farkas, who was observing sun-spots, as his full-time occupation.

Finally, in context of the Ógyalla Observatory I feel obliged to mention the smaller observatory at Nagytagyos.

One of the aims of the Ógyalla Observatory was the observation of "shooting stars", following the most promising one of the visual methods, that is to carry out observations of coincidence at two stations, not far removed from each other. To serve this end, I erected a minor observatory (out of my resources) on my estate at Tagyos (Vértesalja), where there is a 100mm refractor under a drum type roof. In addition there is an excellent little transit prism and a few minor instruments to be found in this park.

These observations of meteors using the coincidence method were eminently successful.

This is how the Ógyalla Observatory stands at present. If the government does not withdraw his kind and benevolent hand presently extended towards us (perish the thoughts), then the next year (1914) will see the addition of a 300 mm reflector (which is already under construction at Heyde of Dresden) to our beautiful collection of instruments.

Dr. Konkoly Thege Miklós: Az ógyallai Konkoly alapítványú asztrofizikai obszervatórium történetének rövid vázlata. "Komárom" (A Jókai Közművelődési és Múzeumegyesület hivatalos értesítője.) I. évf. Komárom, 1913. p. 15-22.

CHAPTER 3

BEOBACHTUNGEN ANGESTELLT AM ASTROPHYSIKALISCHEN OBSERVATORIUM IN ÓGYALLA IN UNGARN

Dieses Werk, die erste Publication meiner Sternwarte, welche der ganzen wissenschaftlichen Welt übergegeben wird,

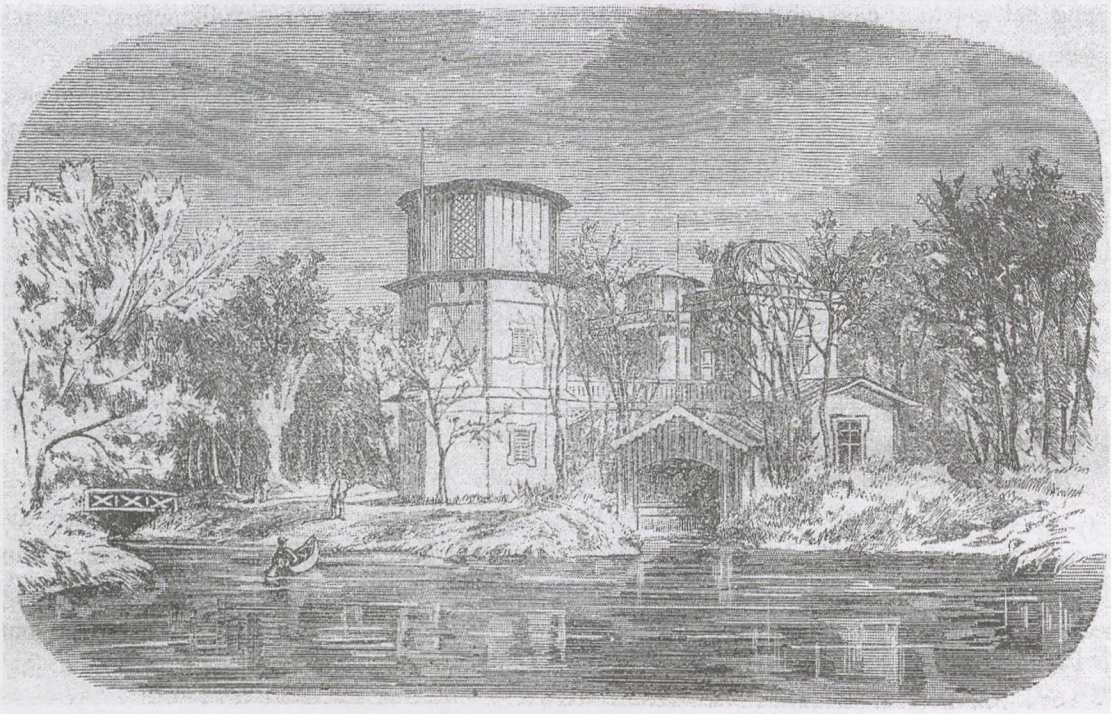
widme ich

Meinen lieben Eltern!

Ihnen verdanke ich mein Dasein, meine Erziehung und Alles auf Erden! Ihnen verdanke ich, dass ich heute in der Lage bin, durch das Errichten meiner Sternwarte dieses Buch der Wissenschaft zu übergeben, und ihr damit meine bescheidene wissenschaftliche Thätigkeit anzuzeigen. –

Empfangen Sie, Liebe Eltern, dies als ein Zeichen meiner Liebe, meiner Achtung, meiner Dankbarkeit und meiner Thätigkeit von –

Ihrem dankbarsten Sohne
Nicolaus.



Einleitung

Die Sternwarte bestand im Anfange aus einem kleinen Drehthurme von 9 Fuss Durchmesser und einem kleinen Meridian-Zimmerchen; im ersten befand sich ein parallactisches Fernrohr von Steinheil mit 4" Oeffnung, im zweiten ehn Meridiankreis mit 18 zölligem Kreise und ein Fernrohr von 33" Oeffnung nebst einigen kleineren Nebenapparaten. Diese kleine Sternwarte war auf der nordwestlichen Ecke meines Wohnhauses eingerichtet, welches sich an meinem Landgute in O Gyalla befindet. O Gyalla liegt etwa 2 Meilen nördlich von Comorn und 2 Meilen von der Centralstation Neuhäusel; der K. K. Staatseisenbahngesellschaft; es besitzt ein Postamt mit sehr regem Verkehr und ein Telegraphenamt. –

Die Mängel der kleinen Sternwarte traten sehr bald zu Tage, und da ich gesonnen war ein grösseres Instrument anzuschaffen, lag es nahe, die Sternwarte, falls sie etwas leisten sollte, nicht am Wohnhause verbleiben zu lassen.

Im Winter 1873–1874 entschloss ich mich daher, dieselbe im folgenden Frühjahre niederreissen und im Parke, welcher etwa 22 österreichische Joch gross ist, von Grund aus neu aufbauen zu lassen. Das nöthige Baunmaterial wurde bereits im Winter an Ort und Stelle angesammelt, so dass der Bau mit Eintritt der guten Jahreszeit sofort begonnen werden konnte. Alles wurde mit hydraulischem Kalk gemauert, was zur Folge hatte, dass das Gebäude, als es fertig; auch trocken war, ich hatte die Freude, schon Ende Mai desselben Jahres alle Instrumente im neuen Hause unterbringen zu können und die Erfahrung hat gelehrt, dass ebensowohl der Spiegel des grossen Telescopes vollkommen rein blieb, als auch, dass sich an den Instrumenten nicht ein emziger Rostfleck zeigte.

Das neuerbaute Institut (Fig. 1.) ist sozusagen ebenerdig, denn die kaum 10 Fuss hohen unteren Räume kann man nicht als ein Stockwerk, eher als Souterrain betrachten. Die Horizontalaxe des Meridiankreises steht vielleicht 14 Fuss über dem Niveau des Parkes, die parallactischen Instrumente, nämlich ihr Undrehungspunkt, um. etwa 6 Fuss höher.

Nach dem ersten Bau wurde dann noch ern Experimentir-Zimmer, welches ich Südzimmer nennen werde, und eine dritte Drehkuppel angebaut, weshalb ich das Haus jetzt nur kurz in seinem heutigen Zustande schildere, wie es auch der Holzschnitt Fig. 1. von Westen betrachtet darstellt.

Der ebenerdige Tract enthält ein Arbeitszimmer des Assistenten, ein sogenanntes schwarzes Zimmer, welches für photographische Zwecke verwendet wird, ein chemisches Laboratorium, das Südzimmer, welches gleichzeitig mein Sommerarbeitszimmer ist, und das Stiegenhaus.

In der Mitte des Stiegenhauses steht ein starker, von allen Grundmauern und Decken vollständig isolirter Backsteinpfeiler von 7 Fuss Durchmesser, welcher nach oben telescopisch abnimmt. Ueber dem Stiegenhause befindet sich eine kleine Vorhalle, darüber eine runde Drehkuppel von 12½ Fuss Durchmesser. Diese ist ganz aus Eisen construirt, und hat eine sehr breite Oeffnung nach americanischem Principe zum Seitlichschieben. Die Oeffnung erlaubt auf einmal am Horizont etwa 35° in Azimuth zu durchsuchen. (Ich habe bei Beobachtung der partiellen Mondfinsterniss am 12ten August 1878 die Kuppel während der ganzen Dauer blos 2mal nachdrehen müssen). Diese Kuppel schützt einen 6 zölligen Refractor von Merz in München, welcher trotz seiner sehr kurzen Brennweite von nur 6 Fuss ausgezeichnet scharfe Bilder giebt; und man erkennt gleich am Objective Merz's Meisterhand. (Das Instrument wird später beschrieben werden). Neben dem Refractor steht eine Pendeluhr von sehr starker Construction, mit einem Stamfer'schen Pendel und einem Daniselhefsky'schen (Wilna) Contactapparate.

Von der Vorhalle, von wo wir in die Kuppel kamen, gelangt man westlich durch eine Thür auf eine Brücke, die in den im Jabre 1877 neuerbauten grossen Thurm führt, der vom alten Gebäude gänzlich isolirt steht; dann nördlich resp. nordöstlich in das Meridran-Zimmer. Dieses hat 14 Fuss im Quadrat, und in seiner Mitte erhebt sich der aus Backsteinen aufgeführte Pfeiler, welcher sowohl von den Grundmauern als von dem Fussboden vollständig isolirt ist. Dieser Pfeiler trägt den Meridran-Kreis mit gebrochenem Fernrohre. – Nebenan steht eine Pendeluhr mit Quecksilbercompensation und einem Lamont'schen Contactapparate, – sowie ein Chronograph nebst dem grossen Stromwechsler. Der Chronograph ist von Mayer und Wolf in Wien. –

Vom Meridian-Zimmer öffnen sich noch zwei Thüren gegen Nordost, deren eine in die kleine Drehkuppel führt, welche von der alten Sternwarte herübertransportirt wurde, und in das physicalische Cabinet, welches auch zur Aufbewahrung der nicht alle Tage gebrauchten Instrumente dient. Man gelangt auf etwa 8 Stufen in die kleine Drehkuppel, welche gegenwärtig den Heliographen schützt, wovon bei den Sonnenbeobachtungen die Rede sein wird. Neben dem Heliographen steht in der kleinen Kuppel eine Pendeluhr mit Quecksilberpendel und einem Lamont'schen Contactapparate, sowie ein dreiarmiger Chronograph eigener Construction für spezielle Sonnenfleckenbeobachtungen.

Der neue Thurm, zu welchem man über die schon erwähnte Brücke gelangt, ist von der Erde aus ganz isolirt aufgeführt, ferner ist in, seiner Mitte ein länglich viereckiger Backsteinpfeiler, der oben den grossen Reflector trägt. – Wenn man über die Brücke in den neuen Thurm kommt, ist man abermals gleichsam in einer Vorhalle, von wo man erst durch etwa 15 Stiegen in die Kuppel gelangt. In dieser Vorhalle ist gegen Nord der Pfeiler des Reflectors mit einer Nische versehen, welche die Normaluhr von Cooke in York mit Quecksilberpendeh einschliesst. Dieser Raum dient auch zur Aufbewahrung kleinerer Apparate und eines Chronographen.

Die Drehkuppel respective Drehtrommel hat einen Durchmesser von 16 Fuss und schützt den von John Browning in London verfertigten parallactisch montirten Reflector. Daneben steht eine Pendeluhr mit Stamfer'scher Compensation.

Alle Drehthürme laufen auf Eisenbahnen, welchem System ich entschieden vor dem der Kugeln den Vorzug gebe. Sie gehen alle mit der grössten Leichtigkeit, und die Drehthürme sind mit je 4 Fenstern versehen, so dass man die Klappe nur dann zu öffnen braucht, wenn man über 45° Höhe beobachtet.

Die Instrumente

1. Der Reflector

Der Reflector ist das Hauptinstrument der Sternwarte, er wurde von John Browning in London verfertigt. Die definitive Bestellung wurde im Mai 1873 gemacht, und der Spiegel ist schon im August desselben Jahres soweit fertig gewesen, dass ich ihn persönlich bei dem Künstler prüfen konnte. Das Instrument wurde im Januar 1874 vollendet, und ich bekam es in O Gyalla am 25ten Februar 1874. Weil ich zur Zeit keinen Raum dafür hatte, wurde es zwar ausgepackt, aber nur ganz primitiv in einem trockenen Zimmer meines Wohnhauses zusammengestellt, bis die neue Sternwarte fertig geworden ist.

Der Reflector wurde in den letzten Tagen des Mai 1874 in der westlichen Kuppel aufgestellt, wo er bis zum 15 October 1877 blieb; hierauf ward er in die neue grosse Kuppel übergeführt, welche eigentlich für ihn bestimmt war.

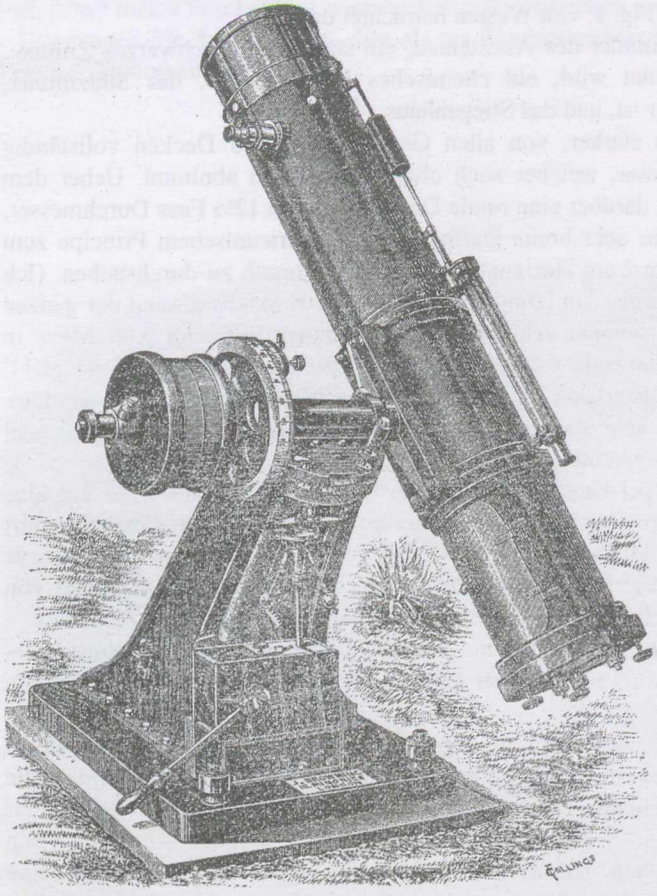


Fig. 2.

Der Reflector ist aequatoreal montirt (Fig. 2.) und zwar auf eine besonders solide Weise. Er besitzt eine viereckige Grundplatte mit 3 Stellschrauben aus Bronce, um jene horizontal stellen respective der Polaraxe die gehörige Stellung geben zu können, dieselben befinden sich in einem Schlitten aus Guss – und Schmiedeeisen mit je 2 broncenen Stellschrauben, vermittelst welcher das Instrument in Azimuth corrigirt werden kann. Dies Alles liegt auf einer Marmorplatte. Die Grundplatte trägt im Norden 2 Ständer, welche durch 8 Schrauben mit ihr verbolzt sind, und oben das eine Lager der Polaraxe tragen. Dieses liegt in einem 14 zoll im Durchmesser haltenden Kreise conisch eingesetzt und ist aus glashartem Gussstahl. Auf diesem ruht der Airy'sche bewegliche Stundenkreis, der direct von 2–2^{m} getheilt ist und mit 2 Nonien eine Ablesung von 2^{s} (Zeit) gestattet; er besitzt einen festen und einen beweglichen Nonius. – Dieser Kreis hat eine doppelte Theilung, entsprechend jedem Nonius, die Einstellung im Stundenwinkel geschieht mit ihm so, dass man auf den beweglichen Nonius die Rectascension des Sternes, und auf den festen die Sternzeit ernstellt. Unten befindet sich die Axe auf einem. gusseisernen Lager, und auf seinem Ende ist der Druck mit einer Stahlschraube aufgehoben.

Der bewegliche Stundenkreis ist durch einen starken gusseisernen Kreis geschützt, mit welchem gleichzeitig die Lager der Declinations-Axe gegossen, deren Deckel mit je 2 Bronceschrauben befestigt sind. Die Declinationsaxe ist ebenfalls aus Gussstahl verfertigt und trägt auf dem einen Ende den 14 zölligen Declinationskreis, der direct von 20–20 Minuten getheilt ist und man am Nonius 1' ablesen kann. Die Feineinstellung in Declination geschieht durch ein sogenanntes Wurmrad. Dieses Rad ist eigentlich eine Schraube ohne Ende, welches sich in ein gezahntes Rad (mit Schraubengewinde) nach Bedarf aus – und einschalten, auch mit einem langen aus dünner Röhre verfertigten Huyghens-Schlüssel herumdrehen lässt. Am anderen ende trägt die Axe eine Wiege, in welcher das Fernrohr liegt. Diese ist jedoch vom gewöhnlichen System etwas abweichend. Jenes Stück, welches auf der Axe festsitzt, ist eigentlich blos eine Platte, an welche eine zweite Platte befestigt ist, die 2 Ringe von 12 Zoll Durchmesser trägt. Diese zweite

Platte ist an dem einen Ende mit 2 Stahlschrauben an die andere Platte angezogen; und am anderen Ende ist sie gegen die erste durch 2 Zug- und 2 Druckschrauben verstellbar, wodurch es ermöglicht wird, dass die optische Axe des Fernrohres genau rechtwinkelig auf die Declinationsaxe gerichtet werden kann. In die schon erwähnten 2 Ringe, welche inwendig gedreht sind, passen 2 andere hinein, welche mit dem Fernrohre fest verbunden sind; zufolge dieser Einrichtung kann das Fernrohr um die optisehe Axe gedreht werden, und man kann das Ocular bei allen Lagen des Fernrohres entweder horizontal, oder nach Belieben stellen.

Das Fernrohr ist ein Newton'sches System. Sein Spiegel hat eine freie Oeffnung von 10½ Zoll und eine Brennweite von nur 6 Fuss und 5 Zoll.

Der Spiegel ist in eine gusseiserne Zelle einmontirt, die er nirgends berührt, weil sich in dieser Zelle auf 3 Paar Zug – und Druckschrauben eine beiderseits gedrehte Gussplatte von 1 Zoll Dicke befindet, auf deren Oberfläche, welche mit dem Spiegel so zusammengeschliffen ist, dass die beiden schon durch Adhäsion enorm stark zusammen haften, der über 2½ Zoll dicke versilberte Glasspiegel sitzt. Er wird durch einen Messingring festgehalten, um ihn vor seitlichem Abrutschen von der Platte zu bewahren. Die Zelle ist wieder durch 3 Bronceschrauben an einen gedrehten Ring angepresst, welcher auf das aus 1''' dickem Bessemerblech verfertigte Rohr angenietet ist.

Am oberen Ende trägt das Rohr den Diagonalspiegel mit seiner Fassung. Dieser ist auf das Minimum reducirt, um möglichst wenig Licht vom grossen Spiegel wegzunehmen, und sein Halter besteht aus drei Uhrfedern, die mit der Schneide dem grossen Spiegel zugekehrt sind, und sich von Aussen mit 3 Schrauben spannen lassen. Natürlich ist der Diagonalspiegel mit allen nöthigen Corrections-Schrauben versehen. Das Ocularrohr ist aus Bronce und mit einem Triebe zur Feineinstellung versehen, sowie mit einer Sammlung von Ringen, um Apparate jeglicher Art daran anbringen zu können.

Dem Fernrohre ist noch ein Uhrwerk begegeben, welches ich als ein Musterstück der Triebwerke aufstellen möchte. Es ist enorm stark, und wird von einem circa 60 Kilogramm schweren Gewicht; welches sich im Steinpfeiler befindet, getrieben. Die Construction ist `höchst einfach. Der Regulator besteht aus einem Watt'schen Pendel, welcher oben mit Hülfe von 2 kleinen Rollen eine Kapsel gegen die Federn drückt, und je schneller das Uhrwerk läuft, um so stärker wird der Druck, der gegen die 2 Federn wirkt, und die Uhr bremst. Die Federn sind aus Neusilber, die Reibungsfläche aus glashartem Stahl, und Alles schwimmt in Oel. – Die Uebertragung geschieht mit einem Wurmrade auf eine Zahnscheibe, welche lose auf der Polaraxe sitzt, und mit ihr nur nach Bedarf durch Schrauben zusammenbremsbar ist. Dieses Zusammenbremsen kann mit einer Schnur vom Oculare aus geschehen. Falls man das Triebwerk nicht benutzt und nur mit einem Huyghens-Schlüssel arbeitet, lässt sich das letzte Zahnrad vom Wurmrade abziehen und man kann statt seiner einen Schlüssel aufstecken. – Die unabhängige Bewegung des Fernrohres wird auch vom Ocalare aus mit einer Schnur bewirkt.

Neben dem Oculare ist ein achromatisches Fernrohr von 24''' Oeffnung und 2 Fuss Brennweite als Sucher angeschraubt, und zwar auf corrigirbaren 2 Metallständern. Ich habe später für spezielle Zwecke auf der andern Seite des Oculars einen Steinheil'schen Cometensucher von 27''' Oeffnung und 27" Brennweite als einen grösseren und lichtstärkeren Sucher anbringen lassen:

Es befinden sich noch am Fernrohre 2 Stahlstangen, an welchen passende Laufgewichte hängen, um beim Anhängen von verschiedenen Apparaten das Fernrohr im Sinne der Declinationsbewegung schnell ausbalanciren zu können. Im Sinne der täglichen Bewegung hat sich dies als überflüssig erwiesen, da zu den colossalen Gesammtmassen der beweglichen Theile von etwa 300 Kilogramm das Gewicht eines grösseren Spectralapparates verschwindend klein ist. –

Es sind im Ganzen 17 Oculare dem Instrumente beigegeben, und zwar:

1.	Mappirungsocular mit einem Drahtnetz	; Vergrösserung	35.
2.	Achromatisches Kellner'sches Ocular	; "	77.
3.	" " " "	; "	100.
4.	" " " "	; "	120.
5.	Micrometer-Ocular, Ring-Micrometer	; "	120.
6.	" " Positions-Micrometer	; "	266.
7.	" " " "	; "	380.
8.	" " " "	; "	612.
9.	Micrometer-Ocular im Fadenmicrometer	; "	80.
10.	Micrometer Ocular in Fadenmicrometer	; "	100.
11.	" " " "	; "	120.

12. Huyghens'sches Ocular ; " 137.
13. " " " ; " 262.
14. " " " ; " 612.
15. Achromatisches Ramsden-Ocular (c) ; " 220.
16. " " " ; " 262.
17. " " " ; " 852.

Als Micrometer sind diesem Instrumente ausser einem Stahlring-Micrometer noch ein Positions-Micrometer, ein Faden-Micrometer und ein Browning'sches Doppelbildmicrometer beigegeben. Der Positions-Micrometer hat einen ganz kleinen Kreis von 2½ Zoll Durchmesser, die Theilung ist auf Platin aufgetragen und gestattet durch 2 Nonien die Ablesung von 1'. Die directe Theilung ist von 30–30'. Die Trommel, welche an der Micrometer-Schraube sitzt, ist in 100 Theile getheilt und eine Umdrehung der Schraube entspricht einem Werthe von 26"484. Die Faden lassen sich entweder von vorn oder von hinten beleuchten. Im ersten Falle hat man dunkle Fäden auf hellem Grunde, im letzten helle Fäden auf dunklem Gunde. Es sind 4 Declinationsfäden, wovon 2 beweglich, und 5 Antrittsfäden im Sehfelde ausgespannt.

Der Faden-Micrometer hat im Gesichtsfelde 7 Austrittsfäden und ebenfalls 2 feste und 2 bewegliche ausgespannt. Die Trommel der Schraube ist auch in 100 Theile getheilt und die Beleuchtungsvorrichtung ist genau dem des Positionsmicrometers ähnlich.

Der Durchmesser des Stahlringmicrometers ist auf folgende Weise bestimmt worden:

Aeusserer Durchmesser des Ringes = 21' 1.76"
Innerer " " " = 17' 9.20"
Mittlerer " " " = 19' 5.48".

Das Doppelbildmicrometer besteht aus einer durchgeschnittenen achromatischen Barlow-Linse, deren beide Theile sich durch eine Micrometerschraube, deren Kopf in 100 Theile getheilt ist, verschieben lassen. Man kann dazu alle erwähnten Oculare ohne Ausnahme gebrauchen.

Beigegeben sind noch 2 Barlow-Linsen, mit denen man die Vergrösserung der Oculare, die für unsere Klimate so schon überflüssig stark sind, noch um ein Drittel steigern könnte. –

Um die optische Kraft des Instrumentes zu kennzeichnen, will ich nur erwähnen, dass ich schon oft mit ihm 45–50^{m} nach Sonnenuntergang den Begleiter des Polarsternes gesehen habe.

2. Der Refractor von Merz.

Dieses vorzügliche Instrument ist auch eins von denen, welche lange die Meisterhände von G. & S. Merz und die Leistungsfähigkeit ihrer Glashütte in Benedictbeuren loben werden. Das Objectiv hat 6 Zoll (pariser) Oeffnung und nur 6 Fuss Brennweite. Beigegeben sind 6 Stück Oculare und zwar:

1. Grosses Cometenocular mit 4° Sehfeld. Vergrösserung: 20.
2. Orthoscopisches Ocular " 40.
3. " " mit Doppelstahlring-Micrometer " 45.
4. Fraunhaffer'sches Ocular " 108.
5. " " " " 144.
6. " " " " 276.

An der Seite befindet sich ein Sucher von 21'" Oeffnung mit einem orthoscopischen Oculare, an dessen Collectiv-Linse ein kleiner Stahlring anstatt des gebräuchlichen Fadenkreuzes angekittet ist.

Die optische Leistungsfähigkeit des Instrumentes lässt nichts zu wünschen übrig, und obgleich die Brennweite nur kurz ist, kann das Objectiv an Schärfe und Definition doch jedem anderen mit langer Brennweite als ebenbürtig zur Seite gestellt werden.

Ueberhaupt glaube ich dte Wahrheit zu sagen, wenn ieh behaupte, dass, wie für die Construction der Spiegeltelescope John Browning, so für achromatische Objective das Haus Merz einzig und unübertroffen dasteht. Von dem optischen Institute der Herren Merz wird nichts Mittelmässiges in die Welt geschickt, sondern alles etwa Misslungene wird zu Glasscherben zerschlagen, wovon ich mich öfters persönlich überzeugt habe.

Dem Instrumente ist noch ein Helioscop beigegeben, und zwar ein von S. Merz neu construirtes Polarisations-Helioscop, welches zwar sehr viel kürzer ist als seine älteren Apparate dieser Art, dagegen an Leistungsfähigkeit alle anderen Helioscope, auch die englischen, sehr weit übertrifft. Dieses Instrument ist in Carl's physicalischem Repertorium Bd. 12, Taf. 7. Fig. l. abgebildet und S. 143 beschrieben.

Das Fernrohr ist äquatoreal montirt mit Uhrwerk. Die Montirung ist der eines Grubb'schen (Dublin) Aequatoreals sehr ähnlich (Tafel II.), ist von mir construirt und in meiner mechanischen Werkstätte ausgeführt worden. Die Construction weicht insofern von der englischen ab, als auf dem eisernen Sockel noch eine Platte mit Correctionsschrauben jeglicher Art angebracht und erst auf diese die Hülse der Polaraxe

angeschraubt ist. Die Polaraxe ist aus Gusstahl und oben conisch, unten cylindrisch gedreht. Unten ruht sie auf einer glasharten Stahlplatte, welche durch 3 Schrauben corrigirbar ist. Oben trägt sie den Stundenkreis, der 8" im Durchmesser hat und dessen directe Stirntheilung 1^{m} giebt; mit 2 Nonien lassen sich direct Secunden (Zeit) ablesen. – Auf dem Ende der Palaraxe ist die Hülse der Declinationsaxe mit 4 Schrauben aus Stahl befestigt. Diese Hülse ist von dem Befestigungsorte beiderseits conisch und aus Gusseisen verfertigt. Die Declinationsaxe ist aus Gussstahl und beiderseits conisch gedreht. Am unteren Ende befindet sich der Declinationskreis mit Stirntheilung und 2 Nonien. Der Kreis ist direct von 20–20' getheilt und gestattet eine Ablesung von 1'. Sein Durchmesser ist 10 Zoll. Unter ihm befindet sich noch ein Rad mit rundem Kranze, um mit ihm die Einstellung zu bewerkstelligen, und endlich ein Gegengewicht. Es ist selbstverständlich, dass die Nonien so am Declinationskreise wie am Stundenkreise mit den gehörigen Einstellungs-Loupen versehen sind. Am oberen Ende trägt die Axe die feinenstellung in Declination, und eine gusseiserne Platte, welche mit einer ganz ähnlichen Verbindung, wie dies schon bei dem Refractor beschrieben wurde, die zwei Ringe trägt, in welchen das Fernrohr befestigt ist. Die Feineinstellung geschieht mit einem langen Arm vom Ocularende aus, ebenso auch die Klemmung. Das Fernrohr trägt noch 3 Stahlstangen mit Laufgewichten, und ein ähnliches ist auf der Declinations-Hülse angebracht, um eine vollkommene Ausbalancirung des Instrumentes ermitteln zu können.

Das Uhrwerk ist eine ganz getreue Copie eines Eichens'schen, System Foucault. Ich habe dasselbe genau nach der Skizze und Beschreibung des Bothkamper Uhrwerkes copiren lassen, und kann sagen, dass das Uhrwerk bereits über anderthalb Jahre tadellos geht. Es ist auch leicht begreiflich, dass es sich mit dem sonst in allen Theilen sehr massiven 6 zöller blos spielt, da es genau die Dimensionen besitzt, wie jenes in Bothkamp für einen zöller. Ich bin indirect dem Herrn Dr. Vogel sehr dankbar für seine Beschreibung im II. Bande der Bothkamper Beobachtungen, welche so klar ist, dass ich nach derselben im Stande war, dieses Uhrwerk bauen zu lassen.

Das Uhrwerk befindet sich unter dem Ständer und ist an allen vier Seiten durch Glas vor Staub geschützt; das Gewicht befindet sich auf einem Drahtseile im Pfeiler. – Die Beschreibung des Uhrwerkes halte ich für überflüssig, da sich dieselbe im II. Bande der Bothkamper Beobachtungen findet. Die Uebertragung der Bewegung geschieht mittels 2 Paar Universal-Gelenken und 4 conischen Rädern zuerst auf eine freie Welle, welche neben dem Schlitten der unabhängigen Bewegung zwischen 2 Kirnerspitzen läuft, und an dem einen Ende ein Zahnrad trägt, welches in ein zweites mit etwa 35^{mm} breiten Zähnen eingreift; dieses sitzt lose auf der Schraube ohne Ende und kann mit ihr nach Bedarf zusammengebremst werden. Die Schraube sitzt an einem Schlitten (sage Souport), welcher mit einer zweiten Schraube von Ost nach West und vice-versa verschoben werden kann; mit dieser Bewegung wird die Schraube unabhängig von der Bewegung, welche ihr die Uhr mittheilt, hin- und hergeschoben und mit ihr der auf der Stundenaxe sitzende gezahnte Quadrant, wohin sie eingreift. Auch der Quadrant sitzt lose an der Polaraxe und kann mit ihr nach Bedarf zusammengebremst werden. Die unabhängige Bewegung wird vom Ocular-Ende des Fernrohres entweder mit einem Huyghens'schen Doppelschlüssel oder mit einem Rade durch eine Schnur bewegt.

Das Uhrwerk geht nach einmaligem Aufziehen etwa 2½ Stunden, wogegen jenes am Reflector über 3 Stunden geht.

3. Meridiankreis

Der Meridiankreis wird auf der Sternwarte vielmehr als Passagen-Instrument benutzt. – Er ist aus der ehemaligen Werkstätte des K. K. Polytechnischen Institutes in Wien, von Ch. Starke. Er besitzt ein gebrochenes Fernrohr von 33 Linien Oeffnung und 3 Fuss Brennweite. – Im Sehfelde sind 15 Antrittsfäden und 2 Declinationsfäden ausgespannt, es giebt keinen beweglichen Faden darin. Die 3 Oculare vergrössern 50, 100 und 150 mal; bei den 2 letzten ist auch ein Sonnenglas angebracht. Der Kreis hat 18 Zoll Durchmesser und ist von 5–5' getheilt; der Nonius giebt 4". Es befinden sich aber daran vier micrometrische Microscope, mit deren Hülfe man directe Bogensecunden ablesen kann. Das Instrument ist in allen Theilen ebenso gegen Durchbiegung ausbalancirt als gegen einen etwaigen Druck in der Lagern entlastet. Das Kreisniveau ist noch das ursprüngliche, dessen 1 pars = 3.5" ist. Das Axenniveau habe ich nachträglich neu machen lassen, weil das alte zu träge war. Dieses ist von W. Reinisch in Wien und 1 pars ist 1.4".

Im Jahre 1877 habe ich den ursprünglich gusseisernen Ständer durch einen neuen ersetzt, so dass sich jetzt das Fernrohr durchschlagen lässt und man in dem zu diesem Zwecke angefertigten Quecksilber-Horizonte Nadir-Beobachtungen anstellen kann, was vorher nicht möglich war. Ebenso wurde eine passende Umlegevorrichtung zum Instrumente gemacht, während man früher dasselbe mit 2 Seidenschnüren umlegen musste, was allerdings immer eine gefährliche Sache war.

4. Kleinere Instrumente

An kleineren Instrumenten besitzt die Sternwarte noch einen Cometensucher von 50" Oeffnung und 26 Zoll Brennweite. Derselbe ist azimuthal montirt und auf der Insel im Park frei aufgestellt. Er hat ein Ocular von 13½ maliger Vergrösserung. Zum Schutze gegen die Unbilden des Wetters hat er ein Häuschen, das auf 4 Rädern ruht und das sich auf einer Eisenbahn zurückschieben lässt, wenn man die Thür aufmacht; man hat dann das Instrument ganz frei. – Die azimuthale Montirung besitzt in beiden Coordinaten eine Feinbewegung, jedoch keine Kreise. – Ein zweiter Cometensucher von 42'" Oeffnung und 26" Brennweite ist auch azimuthal, jedoch als tragbar montirt; er besitzt in beiden Coordinaten eine Feinbewegung, aber keine Kreise. Die Vergrösserungen sind 18, 26 und 33. Das Instrument wurde in der Werkstätte der Sternwarte montirt. – Ein dritter Cometensucher mit 36'" Oeffnung und 30" Brennweite mit 15- und 30 maliger Vergrösserung auf Rohraxen, und ein Fernrohr von 45'" Oeffnung und 52" Brennweite, auch auf Rohraxen, sind ebenfalls in der Werkstätte der Sternwarte angefertigt worden. – Ausserdem sind noch vorhanden: ein Spiegelsextant von Gambey in Paris, dessen wunderschöne Theilung eine Ablesung von 10" gestattet, dann ein Zöllner'scher Astrophotometer, 2 tragbare Passagen-Instrumente, das eine mit fein getheiltem Kreise, woran man 10" ablesen kann, das andere mit gebrochenem Fernrohre; ein Octant von Harris in London und mehrere andere kleinere Sachen.

An physicalischen Apparaten sind vorhanden: ein grosser und ein kleiner Ruhmkorf (der grosse ist original R.), eine complete Sammlung von Geissler'schen Röhren, ein Galvanometer, eine Thermosäule, eine zweite von Noë, ein Inductionsapparat von Gaeff in Paris, eine Luftpumpe, 3 Blech- und ein Glas-Gasometer; eine Anzahl unmontirter Prismen verschiedener Art und Linsen-Gläser, – sowie 3 complete photographische Apparate. In der Werkstatt ist gegenwärtig halb fertig ein photographisches Fernrohr mit einer Hansen'schen Aufstellung, und ein tragbares Passagen-Instrument, System Pistor und Martins. – Es befinden sich auch 2 complete Telegraphen-Stationen, die eine auf der Sternwarte, die andere in meinem Arbeitszimmer in meinem Wohnhause, welche in directer Verbindung mit der Linie Nro. 203 (Comorn-Budapest) des K. ung. Staats-Telegraphen stehen. (Vom Telegraphenwesen wird übrigens bei den Längenbestimmungen die Rede sein).

Es ist auch ein chemisches Laboratorium in der Sternwarte eingerichtet, welches alle jene Chemikalien und. Apparate enthält, die im Astrophysikalischen Observatorium unentbehrlich sind; selbstverständlich ist eine ganze Sammlung von galvanischen Batterien bei dem Telegraphen und den Registrirapparaten in Thätigkeit.

5. Uhren und Registrir-Apparate

a.) Als Normaluhr dient auf der Sternwarte eine von Cooke & Son in York angefertigte mit Quecksilber-Pendel, welches aus einem gusseisernen Gefässe verfertigt und auf eine Stahlstange aufgehängt ist. Die Uhr geht 8 Tage und ist nach Sternzeit regulirt. Sie befindet sich im neuen Thurme in einer Nische im Pfeiler des Reflectors und ist gegen alle Erschütterungen vollständig geschützt.

b.) Ein Box-Chronometer von A. Arway in Wien. Es ist als Schiffschronometer in eine Cardani'sche Suspension montirt, und sein Gang ist sehr befriedigend. (Mittlere Zeit.)

c.) Ein Chronometer in Taschenformat (gross) von Calame-Robert in Chauxdefonds, mit Sehneckenzug und Cylinderspirale. (Mittlere Zeit.)

d.) Eine Pendeluhr von einem unbekannten Verfertiger steht am Meridiankreise; sie hatte ursprünglich einen Holzpendel, jedoch hat Herr Dr. Schrader im Jahre 1876 für dieselbe einen Quecksilberpendel gerechnet, der in unserer Werkstätte ausgeführt wurde; seitdem hat die Uhr einen sehr befriedigenden Gang, wenn man in Betracht zieht, dass mit ihr ein Lamont'scher Contactapparat in Verbindung steht. – (Sternzeit.)

e.) Am Heliographen (siehe: Sonnenfleckenbeobachtungen) steht eine Pendeluhr vom Hofmechanicus Hauck in Wien, deren Pendel (Quecksilber) von mir gerechnet und in unserer Werkstätte ausgeführt wurde. Auch diese Uhr besitzt einen Lamont'schen Contactapparat. (Sternzeit.)

f.) Eine abnorm starke Uhr, von einem hiesigen Uhrmacher Horvath verfertigt, wozu ich einen Stamfer'schen Pendel rechnete. Sie steht neben dem 6 zölligen Merz'schen Refractor, und es ist mit ihr ein Danischefsky'scher Contactapparat in Verbindung. – (Sternzeit.)

g.) Neben dem Reflector ist eine Pendeluhr aus der Wiener Grossuhrmacherei aufgestellt, zu der seinerzeit Herr Assistent Nagy einem Stamfer'schen Pendel rechnete, welcher in der Werkstätte der Sternwarte ausgeführt wurde (Sternzeit.)

h.) Duplexuhren, welche entweder zu Sternschnuppenbeobachtungen oder für auswärtige (nicht absolute Fachleute) zu Beobachtungen dienen, und nach mittlerer Zeit regulirt sind; und zum Shluss einen Secundenzähler, der allem Anscheine nach ern französisches Erzeugniss ist.

An Chronographen besitzt die Sternwarte 3 Stück. Der eine, von Mayer und Wolf in Wien, ist im Meridian-Zimmer aufgestellt. Der Motor wird electrisch betrieben durch 6–8 Meidinger-Elemente; der

Secunden-Hebel kann entweder mit der Meridianuhr oder mit jener am Heliographen, auch mit dem Danischefsky'schen Contactapparate je nach Umständen betrieben werden, sowie man auch auf seinen Signalhebel von sämmtlichen Beobachtungsräumen registriren kann, da er als Normalapparat dient und sämmtliche Uhren mit ihm verglichen werden.

Der zweité Chronograph befindet sich neben dem Heliographen. Als Motor seines Triebwerkes dient ein Gewicht. Dieser Apparat ist aus 2 alten Morse-Apparaten in meiner Werkstätte zusammengestellt worden und fungirt seit 1872 bis jetzt unausgesetzt bei den Sonnenfleckenbeobachtungen tadellos. Er besitzt 3 Hebel. Der mittlerne ist der Secunden-, die beiden anderen sind die Signal-Hebel. Der Apparat ist in der Maximum-Epoche der Sonnenflecken-Periode angefertigt worden, und der Grund, warum ich 2 statt eines Signalhebels genommen habe, ist der, weil sehr oft 2 und 3 Flecke zu jener Zeit auf einmal auf den Antrittsfaden kamen. Schliesslich möchte ich noch sagen, dass es wohl nur wenige Chronographen giebt, die soviel gelaufen sind als dieser. –

Der dritte Chronograph ist auch ein Doppelhebelapparat, aus der eigenen Werkstätte, und hat sehr viel Aehnlichkeit mit dem Mayer & Wolf'schen, nur dass als Motor des Triebwerkes ein Gewieht dient. Als Regulator ist darin ein Original-Patent-Regulator von Siemens & Halske in Berlin.

6. Meteorologische Instrumente

Von meteorologisehen Instrumenten ist ein ganzer Satz vorhanden: ein Fortin'sches Barometer von Hauck in Wien, ein älteres von Sattler in Wien, und 2 Aneroide von Naudet & Hulot in Paris. An Thermometern haben wir ein in 0.1" getheiltes Normalthermometer von Dr. Geissler in Bonn, ein auch in 0.1" getheiltes Psychrometer von demselben Künstler, ein alteres von Calderoni & Comp. in Budapest, 3 Kappeller'sche Taschen-Thermometer, ein Bifilar-Hygrometer von Lambrecht in Göttingen nach Professor Klinkerfues, eine Windfahne und einen Regenmesser.

Die meteorologischen Beobachtungen werden seit 1869 von Herrn Siegmund Weiss angestellt, der keine Mühe scheut, um dieselben mit der grössten Genauigkeit durchzuführen. Die meteorologischen Beobachtungen fallen hier weg, weil sie in den Jahrbüchern der K. ung. Meteorologischen Central-Anstalt erscheinen.

7. Spectralapparate

Die Sternwarte ist unter allen Nebenapparaten mit den Spectralapparaten am reichlichsten ausgerüstet. Es giebt im Ganzen 14 Stück Spectroscope von der verschiedensten Construction.

a.) Grosses Universal-Automatisches Spectroscop. Ist von John Browning in London verfertigt worden (Fig. 3.) und hat 6 schwere Flintglas-Prismen, deren specifisches Gewicht = 3.6, und deren Brechungsexponent = 1.665 is. – Die Anordnung der Prismen ist in Kreisform und sie haben eine automatische Bewegung, um jeden Theil des Spectrums in das Minimum der Ablenkung einstellen zu können. Dies geschieht hier wesentlich anders als bei den älteren von Browning construirten ähnlichen Apparaten, weil dort durch die Verschiebung des Fernrohres die Einstellung geschieht, während hier die Einstellung mit einer separat zu diesem Zwecke dienenden Schraube bewerkstelligt wird.

Auf dem Tischchen, auf welchem die Schlitten der Prismen angebracht sind, befinden sich 2 prismatische Messingstangen, welche das Spaltende des Collimatorrohres tragen, noch über dieses hinaus verlaufen und an ihren Enden ein paar in einander eingedrehte Kreise tragen. Die Befestigung ist jedoch nicht an dem inneren Kreise, sondern an einem Schlitten, der seinerseits wieder auf einem rechtwinkelig auf dem ersten stehenden zweiten Schlitten ruht, bis dieser an den inneren Kreis verschraubt ist. – Die beiden Schlitten haben eine Schraubenbewegung und erlauben bei Beobachtung des Sonnenrandes die Spalte schnell auf jeden Punkt des Sonnenlimbus zu bringen. – Der innere Kreis ist in den äusseren eingedreht, und lässt sich mit ihm nach Belieben zusammenklemmen. Er trägt eine Theilung, die blos einzelne Grade abzulesen gestattet. Der äussere Kreis endlich trägt eine Schraube, mittelst welcher man den ganzen Apparat an das Fernrohr befestigen kann. –

Senkrecht auf die Collimatorrohraxe ist das Fernrohr auf das Tischchen festgeschraubt, welches mit Trieb einstellbar ist; es besitzt 5 Oculare von 4, 8, 16, 24 und 30 maliger Vergrösserung, von denen die 2 letzten achromatische Micrometeroculare sind.

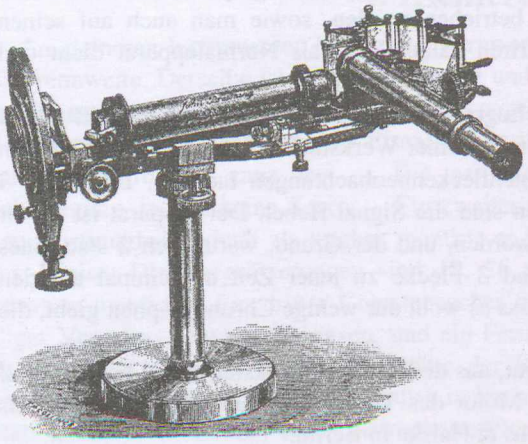


Fig. 3.

Der Gang des von der Spalte erzeugten Lichtbündels ist der folgende: Auf die untere Hälfte des ersten Prismas, welches einen brechenden Winkel von 30° hat, ist ein grosses rechtwinkliges Prisma aufgekittet, welches alle von der Collimatorlinse austretenden Strahlen aufnimmt und auf das erste Prisma reflectirt; von diesem fallen sie auf die untere Hälfte des 2ten, 3ten, 4ten, 5ten Prismas, deren brechender Winkel 60° ist, und endlich fallen sie auf ein 30 gradiges 6tes Prisma. Auf der hinteren Fläche dieses letzteren ist abermals ein rechtwinkliges Prisma aufgekittet, welches das Spaltbild nach der oberen Hälfte sammtlicher Prismen befördert, und das Lichtbündel passirt wieder der Reihe nach das 6te, 5te, 4te, 3te, 2te und 1te Prisma, worauf es in das Beobachtungs-Fernrohr tritt. – Es ist ersichtlich, dass das Instrument gleich dem eines mit 10 Stück 60 gradigen Prismen versehenen Spectroscopes ist.

Die Prismen sind sehr sinnreich auf dem Tischchen respective auf der beweglichen Platte angebracht. Jedes ist für sich auf einen Schlitten aufmontirt, der sich auf seinen gehörigen Platz schieben lässt. Will man nun die Dispersionskraft des Instrumentes vermindern, so wird das 2te, 3te, 4te oder 5te Prisma mit seinem Schlitten herausgezogen und statt ihrer das 6te hineingeschoben; dann hat man der Reihenfolge nach eine Dispersion von respective 2, 4, 6, 8 und 10 Prismen von 60°, je nach Bedarf der Beobachtungen.

Die Zerstreuung des Instrumentes ist so gross, dass man mit ihm zur Mittagszeit zwischen den beiden D-Linien noch 5 Linien sicher erkennen kann; die Definition lässt nichts zu wünschen übrig.

Als Micrometer dient dazu ein Filar-Micrometer, welches weiter unten beschrieben wird, und das gemeinschaftlich mit einem anderen Stern-Spectroscope ist, sowie der Spectrograph, der ebenfalls als ein selbstständiges Instrument gebraucht werden kann, und auch als solches weiter unten beschrieben wird.

b) Universal-Spectralapparat „a vision direct" von G. & S. Merz in München. Als Beschreibung dieses Apparats lasse ich hier die eigenen Worte meines Freundes Siegmund Merz folgen (Carl's Physical Repertorium Bd 6.) und beschränke mich zusätzlich auf einige Bemerkungen.

„Dieses Instrument besteht aus einem einfachen und einem zusammengesetzten Spectroscope „a vision direct", die sich theilweise ergänzen. Ersterer Apparat besitzt ein Prisma mit gerader Durchsicht (5 Prismen) von einer Zerstreuungskraft: $D - H = 8°$, und ein positives Ocular von 1" aequivalent Brennweite nebst Cylinderlinse.

„Der zusammengesetzte Apparat hat ein genau ähnliches Prisma, Spalte, Collimator und Beobachtungsfernrohr. Die Objective der letzteren sind von gleicher Focalweite, und haben 4" Focus bei 7'" Oeffnung.

„Das Beobachtungsfernrohr ist mit einem Spitzenmicrometer versehen, besitzt ein positives Ocular von 1" und ist mit den nöthigen Feinbewegungen ausgestattet. Die Spalte besitzt die nöthigen Correctionen, hinter sich ein Vergleichsprisma zur Flammenvergleichung, und eine Cylindercollectivlinse. Der Apparat ist auch mit einer Positionsscheibe versehen, die eine Ablesung von ganzen Graden gestattet.

„Von dem einfachen Apparate kann das Prisma abgenommen und zwischen Collimator und Prisma des zusammengesetzten Apparates geschraubt werden, wodurch die Dispersion verdoppelt wird, und das Instrument gestattet die Beobachtung der Protuberanzen. Die Spalte kann bei dieser Gelegenheit auch gehörig weit geöffnet werden.

Herr Merz hat aus seiner allgemein bekannten und hochgeschätzten Bescheidenheit bei dieser Beschreibung sehr Vieles übergangen. Der Apparat besitzt nämlich noch ein drittes Prismensystem, welches zwischen Collimator und dem ersten System eingeschraubt werden kann, wodurch man eine Zerstreuung von 24° von D bis H bekommt, im Ganzen also 15 Prismen in Thätigkeit hat. Der Apparat hat zwischen dem Prismenrohr und dem Collimator eine Charnirung, mittelst welcher und mit Hülfe einer endlosen Schraube man die Prismen auf das Minimum der Ablenkung stellen kann; diese Bewegung ist mit einem aus Silber gefertigten Gradbogen versehen. Siehe Fig. 1. Tafel VI. Ferner besitzt das Fernrohr im Prismenrohre eine ganz ähnliche Bewegung, welcher ebenfalls eine schöne Schraube beigegeben ist, deren Kopf auf Silber in 100 Theile getheilt ist. Eine Schraubenumdrehung entspricht genau einem Theile am Gradbogen. Dieser Schraubenmicrometer ergänzt eigentlich den Spitzenmicrometer, und macht ihn zu einem wirklich schönen Micrometer. Es ist noch ein zweites Ocular mit 0.5 Zoll Brennweite beigegeben, auf welches sich nach Bedarf ein Zöllner'sches Rerversionsprisma, ein Sonnenglas, oder auch eine kleine Cylinderlinse aufschrauben lässt. Vor der Oeffnung, welche mit dem Vergleichsprisma correspondirt, sind zwei Säulen mit

Hartgummi isolirt, welche fähig sind, Electroden von verschiedenen Metallen aufzunehmen. Die Construction dieser ganzen Vorrichtung ist sehr sinnreich. Das schon erwähnte Loch ist für den gewöhnlichen Gebrauch geschlossen und dadurch auch das Vergleichsprisma von der Spalte entfernt. Dreht man die Electrodenhalter um etwa 60°, so öffnet sich das Loch und das Vergleichsprisma stellt sich vor die Spalte. – Es ist noch eine viereckige Oeffnung da, durch welche man auf die Spalte sehen kann, die auch durch Drehen eines Rohres geöffnet oder geschlossen wird. Die grosse Collectivcylinderlinse kann auch von Aussen mit ihrer Cylinderaxe der Spaltöffnung senkrecht oder parallel gestellt werden, je nach Umständen.

Die optische Leistungsfähigkeit des Instrumentes lässt nichts zu wünschen übrig, und genau so ist es auch mit der Mechanik. Was man abschraubt, passt beim Wiederaufschrauben so präcis, dass es von einem Chronometermacher ersten Ranges nicht besser hätte ausgeführt werden können. – Die Bilder im Spectrum sowohl wie bei den Protuberanzen sind bis in's äusserste Détail sehr scharf, als Sternspectroscop ist das „Einfache" ausserordentlich lichtstark, überhaupt ist das Instrument ein solches, das man als Musterarbeit auf jede Weltausstellung schicken könnte.

Ich habe leider noch nicht die Gelegenheit gehabt, ein Winkelspectroscop von Merz näher zu untersuchen, indess habe ich schon mehrere Prismen a vision direct von ihm genau untersucht, und auch mit solchen viel beobachtet.

Ich bin auch schon öfter in der Lage gewesen, Prismen mit gerader Durchsicht von anderen Künstlern zu untersuchen und mit ihnen zu beobachten, muss jedoch aufrichtig gestehen, dass sie sämmtlich hinter den Merz'schen weit zurückgeblieben sind. Nirgends bemerkt man diesen colossalen Unterschied auffallender als bei den kleinen Zöllner'schen Ocularspectroscopen, deren ich selbst etwa 3 Stück habe. Die Brillanz der Farben, die Definitron und die Lichtstärke ist immer bei den Merz'schen Primen die vorzüglichste; wer einige Monate mit ihnen beobachtet hat, wird sie gewiss unter vielen andern sofort erkennen. – Wie die Optik gediegen ist, eben so gediegen ist auch die Mechanik!

Nach diesen Bemerkungen können wir schliessen, wie Herr Merz in Carl's Repertorium Bd. 6. pag. 273 seine Beschreibung schliesst: „Das Instrument befindet sich in einem eleganten Etui".

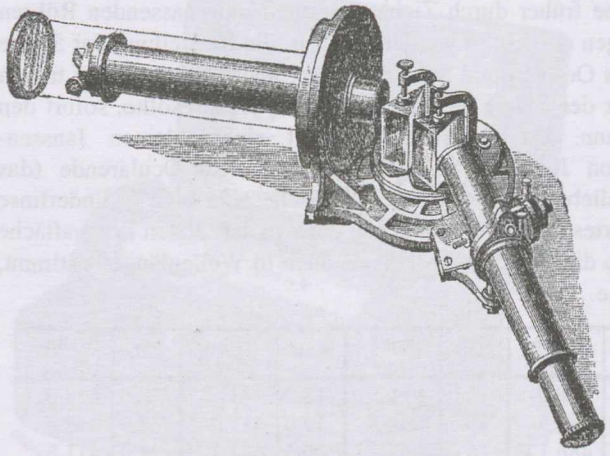


Fig. 4.

c) Sternsprectroscop mit 2 Prismen von John Browning in London (Fig. 4.) Dieses Instrument ist im grossen Ganzen jenem ähnlich, welches Dr. Schellen in seiner Spectralanalyse (2te Auflage) pag. 446 beschreibt; nur sind an diesem sehr viele Neuerungen angebracht worden, und besitzt es eine ganze Anzahl von Micrometern. Das Spectroscop ist in allen Einzelheiten meisterhaft ausgeführt und hat 2 schwere Flintglasprismen von 60°, welche einen Brechungsexponenten = 1.75 haben. Das Fernrohr lässt sich um den Mittelpunct des Tischchens drehen, welches die Prismen trägt, und hat einen Nonius nebst einer Schraube, deren Kopf in 100 Theile getheilt ist. Das Tischchen trägt am Rande eine Stirntheilung, und gestattet eine Ablesung von 30". Man kann mit der Theilung auch die Schraube zusammencombiniren, und dann liest man mit der Schraube in Verbindung der Kreistheilung 0.3" ab. – Ein zweites Micrometer ist eine photographirte Scala, welche am Ende eines Rohres befestigt ist und von der hinteren Fläche des zweiten Prismas in das Fernrohr reflectirt wird. – Endlich ist noch ein Fadenmicrometer beigegeben. – Da ich einige Cometenspectra mit diesem Instrumente beobachtet habe, und da auch späterhin noch öfter von ihm die Rede sein wird, lasse ich im Folgenden eine nähere Beschreibung desselben folgen. Im Oculare sind 2 Fadenkreuze unter einem Winkel von 60° ausgespannt; der eine ist fest, der andere mit der Micrometerschraube verschiebbar. Wenn der Index der in 100 Theile getheilten Trommel der Micrometerschraube auf 0 steht, decken sich die 4 Fäden vollständig. Das feste Fadenkreuz lässt sich auch verschieben, um daran eine etwaige Correction anbringen zu können. Ich habe den Werth dieser Schraube mittelst des Sonnenspectrums und mit Zuhülfenahme der Angström'schen Normaltafeln bestimmt, welche Bestimmung icb hier von 0.5–0.5 Schraubengängen folgen lasse:

Schrauben-gang	Wellen-länge	Schrauben-gang	Wellen-länge	Schrauben-gang	Wellen-länge	Schrauben-gang	Wellen-länge	Schrauben-gang	Wellen-länge	Schrauben-gang	Wellen-länge
0.0	686.7 B	7.0	621.4	14.0	573.8	21.0	535.2	28.0	507.4	35.0	485.0
0.5	682.4	7.5	617.0	14.5	570.1	21.5	532.6	28.5	505.0	35.5	483.6
1.0	676.8	8.0	613.2	15.0	567.5	22.0	530.1	29.0	503.5	36.0	481.4
1.5	671.3	8.5	610.0	15.5	565.0	22.5	527.7	29.5	501.5	36.5	480.0
2.0	666.1	9.0	606.3	16.0	563.3	23.0	525.8	30.0	500.1	37.0	478.4
2.5	661.2	9.5	602.3	16.5	559.9	23.5	523.8	30.5	498.7	37.5	476.0
3.0	656.3	10.0	598.6	17.0	557.2	24.0	521.7	31.0	497.0	38.0	474.3
3.5	651.8	10.5	595.5	17.5	554.1	24.5	519.8	31.5	495.1	38.5	471.2
4.0	647.1	11.0	591.2	18.0	541.2	25.0	517.5	32.0	494.2	39.0	470.0
4.5	643.0	11.5	588.6	18.5	548.8	25.5	515.8	32.5	492.0	39.5	467.9
5.0	638.9	12.0	585.0	19.0	546.3	26.0	514.0	33.0	490.6	40.0	465.8
5.5	634.1	12.5	584.4	19.5	543.8	26.5	512.5	33.5	489.7		
6.0	629.3	13.0	579.6	20.0	540.5	27.0	510.6	34.0	487.8		
6.5	624.9	13.5	576.6	20.5	538.0	27.5	508.9	34.5	486.4		

Die Zerstreuung dieses Spectroscopes ist so gross, dass man schon bei der schwächsten Vergrösserung die D-Linie beinahe doppelt sieht. Beigegeben sind 6 Oculare mit 4-, 8- und 12maliger Vergrösserung; ferner die zum Filarmicrometer gehörigen von 10-, 15- bis 20maliger Vergrösserung.

Das Instrument besitzt auch ein Vergleichsprisma, Cylinderlinse und einen Electroden-Halter aus Hartgummi, welcher zwei kleine Pincetten trägt, um in dieselben die erforderlichen Metalle einspannen zu können; über diesem befindet sich noch ein Concavspiegel, um das Licht, welches vom electrischen Funken erzeugt wird, auf das Vergleichsprisma reflectiren und condensiren zu können.

d.) Sternspectroscop nach Angabe des Herrn Dr. Vogel in Potsdam. Herr Doctor H. C. Vogel hat während seines Aufenthaltes in Bothkamp mehrere derartige Instrumente ber dem Mechaniker Heustreu in Kiel anfertigen lassen. Das hier in Rede stehende ist auch ein solches; es ist jedoch gründlich umgebaut worden insofern, als jetzt alle Bewegungen, welche früher durch Ziehen der ineinanderpassenden Röhren bewerkstelligt wurden, jetzt durch Drehen von Ringen ausgeführt werden; so z. B. die Einstellung der Spalte in den Brennpunct der Collimator-Linse, ferner das Oeffnen und Schliessen der Spalte. Diese Ringe tragen Gradtheilungen, so dass man, auch wenn einer oder der andere derselben verdreht werden sollte, sofort den dadurch hervorgebrachten Fehler beseitigen kann. Das Instrument besitzt einen kleinen Janssen-Hoffmann'schen Prismensatz von 5 Prismen, von John Browning in London. Am Ocularende (das Spectroscop hat kein Fernrohr) kann man nach Belieben entweder eine sphärische oder eine Cylinderlinse einschieben. Als Micrometer dient eine auf versilbertes Glas getheilte Scala, die von der letzten Prismafläche zum Auge des Beobachters reflectirt wird. Ich habe die Werthe dieser Scala auch in Wellenlänge bestimmt, welche ich hier von 0.5–0.5 Scalatheilen folgen lasse.

Scala	Wellen-länge	Scala	Wellen-länge	Scala	Wellen-länge	Scala	Wellen-länge	Scala	Wellen-länge	Scala	Wellen-länge	Scala	Wellen-länge
1.0	775.0	4.5	630.0	8.0	345.0	11.5	500.0	15.0	469.0	18.5	444.5	22.0	418.0
1.5	750.0	5.0	607.5	8.5	535.5	12.0	493.0	15.5	466.0	19.0	441.0	22.5	414.5
2.0	725.0	5.5	589.2 D	9.0	527.5	12.5	486.1 F	16.0	462.5	19.5	437.5	23.0	411.5
2.5	706.0	6.0	580.0	9.5	522.0	13.0	483.5	16.5	459.0	20.0	434.5	23.5	407.5
3.0	686.7 B	6.5	572.0	10.0	516.0	13.5	479.5	17.0	456.0	20.5	430.0	24.0	403.5
3.5	668.0	7.0	562.5	10.5	511.0	14.0	476.0	17.5	452.0	21.0	425.5	24.5	400.0
4.0	648.0	7.5	554.0	11.0	505.0	14.5	472.5	18.0	448.0	21.5	422.0	25.0	397.0

Ich habe es für überflüssig gefunden, die Bestimmung der Scalawerthe genauer auszuführen, da man ja keinen so grossen Fehler bei dem Interpoliren der Wellenlängen zwischen z. B. 10.0–10.5 macht, als man bei Angabe der 0.1 Scalentheile machen könnte.

e.) Spectrograph, von John Browning in London. Die nähere Beschreibung befindet sich in der Abtheilung „Spectroscopische Beobachtungen".

f.) Kleiner Sternspectralapparat, nach Angabe von Prof. Zöllner, von G. & S. Merz in München. Dieser kleine Apparat hat 2 Amici'sche Prismen „a vision direct" mit einer Cylinderlinse ohne Spalte. Die Primen lassen sich entweder einzeln oder beide zusammen gebrauchen, jenachdem man für eine Dispersion haben will. Ich habe grösstentheils meine Durchmusterung von 160 Fixsternen (siehe weiter unten) mit diesem instrumente gemacht und kann auch bei dieser Gelegenheit nur das Beste von den Merz'schen Gläsern sagen.

g.) Ein Ocularspectroscop, nach der neuesten Angabe von Dr. H. C. Vogel, durch dessen Güte ich am 24. September 1878 in Potsdam die Skizze desselben erhalten habe, jedoch will ich seine Construction übergehen, weil Herr Vogel dieselbe noch nicht veröffentlicht hat. Kurzum es ist ein Ocular-Spectroscop mit oder ohne Spalte, wie man will, und der es einmal in der Hand hatte, wird daran die allbekannte sinnreiche

Construction Vogel's sofort erkennen. Ich habe es, um die Zeichnung keinem Mechaniker geben zu müssen, in der eigenen Werkstätte ausführen lassen, und dazu ein achromatisches Ocular von 1½ Zoll Aequivalent-Brennweite von Reinfelder und Hertel benützt, sowie ein kleines Amici'sches Prisma, welches ich einmal von meinem Freunde S. Merz geschenkt bekommen habe.

h.) Kleines Sternspectroscop mit Spalte ohne Fernrohr, mit einem Merz'schen Prisma a vision direct. Dasselbe besitzt auch ein Verglerchsprisma. – Ist in der eigenen Werkstätte gemacht worden.

i.) Meteor-Spectroscop von John Browning in London. Dies besteht aus einem Amici'schen Prisma von ziemlichen Demensionen, welches in ein Messingrohr gefasst ist. An dem einen Ende dieses Rohres sitzt eine Cylinderlinse, an dem andern ein schwach vergrösserndes achromatisches Fernrohr. Ich habe dieses Instrument im Anfange so benutzt, wie es mir der Meister der Spectroscope, der selbst sehr viele Meteorspectra beobachtet hat, angerathen. Das Instrument hatte ein Sehfeld von 7° Durchmesser, was allerdings nicht besonders viel für derartige Beobachtungen ist, das Fernrohr war dabei ziemlich lichtschwach. Ich habe einmal das Fernrohr davon beseitigt, und die Cylinderlinse dem Auge zugekehrt. Bei der ersten Beobachtung sah ich sofort, dass man auf diese Weise viel besser zu seinem Ziele kommt. Der Durchmesser des Sehfeldes war jetzt 22° geworden, und die Lichtstärke nahm colossal zu. Seitdem wird das Instrument immer so benutzt.

k.) Spectralphotometer nach Angabe des Herrn Dr. Glahn in Berlin. Die Collimatorlinse, Objectiv des Fernrohres und Ocular sind aus dem optischen Institut von Reinfelder und Hertel in München, sowie auch das 60°ige Flintglas-Prisma, der Nicol von Steeg in Homburg, und das doppeltbrechende Quarzprisma von Schmiedt & Hensch in Berlin. Die mechanische Ausführung geschah in der eigenen Werkstätte.

l.) Ein kleines Handspectroscop „a vision direct" von John Browning in London auf verstellbarem Stativ mit 6 Prismen (=1 Janssen-Hoffmann'sches). –

m.) Ein Taschenspectroscop von demselben Künstler, auch mit einem Janssen-Hoffmann'schen Prisma a vision direct. –

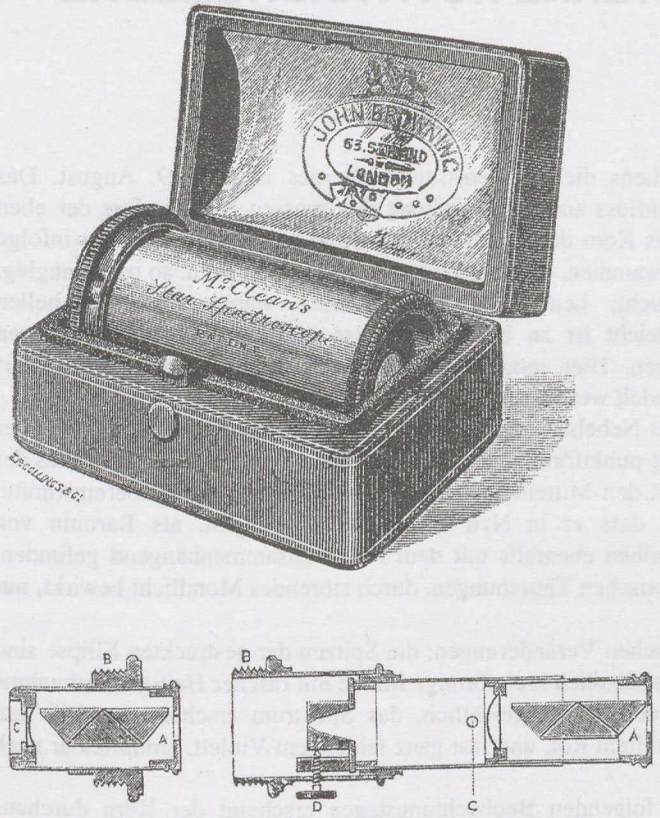


Fig. 5.

n.) Ein Sternspectroscop von John Browning in London. System M'Clean. Dieses, wie alle von Browning construirten spectralapparate, ist ein ganz sinnreiches Instrument; es befindet sich in einem Marocco-Etui und hat 3 Amici'sche Prismen a vision direct (Fig. 5) nebst Cylinderlinse. Die Hülse des Apparates wird in eine beliebige andere Hülse von den Browning'schen achromatischen Oculären eingeschoben, und damit an das Fernrohr angeschraubt. Beigegeben ist noch ein Revolver-Ocularhalter, in dessen einer Röhre ein Ocular, in der anderen das Spectroscop sitzt. Diese lassen sich nach Belieben in höchstens 2 Secunden vertauschen. Wie Fig. 6 zeigt, kann man es auch mit Spalte benutzen. Der linke Theil von Fig. 6 zeigt den Apparat im Durchschnitt, der rechte in Verbindung mit einer Spalte. Das Instrument besitzt den grossen Vortheil, dass es sehr lichtstark ist, weil es verhältnissmässig grosse Prismen hat. Dieses kleine Instrument habe ich während des Schreibens dieser Zeilen von Mister Browning erhalten, und darum noch keine rechte Gelegenheit gehabt es zu prüfen. Indessen hatten wir vor Kurzem einige klare Abende, welche ich sofort benutzte, um mit dem Instrumente einige bekannte Sternspectra anzusehen. Das Resultat war unerwartet günstig. Man konnte das Spectrum des Sirius bis tief in das Violett beobachten, was jedenfalls auf eine andere zu den Prismen verwendete Glassorte schliessen lässt, weil ich eben in allen anderen Spectralapparaten Browninig's, die er früher verfertigte, (ich meine natürlich solche „a vision direct") immer den Nachtheil merkte; dass das violette Ende des Sternspectrums sehr bald unsichtbar wird. Bei diesem Apparate ist dies aber durchaus nicht der Fall, denn abgesehen davon, dass die Definition gar nichts zu

wünschen übrig lässt, ist das Spectrum derart lichtstark, dass man von seiner Helligkeit überrascht wird. Natürlich ist das Sirius-Spectrum durchaus kein Prüfstem für ein Spectroscop, weil man dies auch durch einen Protuberanzenapparat zu sehen im Stande ist; ich habe aber auch auf schwache Sterne 7–8 mg. eingestellt und immer ein beobachtbares Spectrum im Gesichtsfelde gehabt. Ich kann Herrn Browning zu seiner neuen Glassorte für seine Prismen „a vision direct" nur aufrichtig gratuliren.

Das Instrumentchen ist ausserdem mit dem Revolverocular-Ansatz ausserordentlich handlich.

o.) Schliesslich ist noch ein ganz einfaches Spectroscop mit 1 oder nach Bedarf mehreren Prismen vorhanden, welches für chemische Analysen im Labaratorium gebraucht werden kann. Es besitzt eine Spalte mit Vergleichsprisma, Collimator und Beobachtungsfernrohr. Als Messapparat dient dazu eine photographirte Scala. – Hierzu ein Prisma mit 60° brechendem Winkel von Reinfelder & Hertel in München, ein Rutherfurth'sches von Schmiedt & Hensch in Berlin, ein Hoffmann'sches, auch mit 60° brechendem Winkel, und ein ebensolches aus Doppelspath von Schmiedt & Hensch in Berlin. –

Vorhanden sind noch ausser den beschriebenen Apparaten: eine photographische Camera mit Momentverschluss für den 10½zölligen Reflector, so auch eine zweite ohne Momentverschluss zur Aufnahme des Mondes. Ausserdem besitzt die Sternwarte einen photografischen Reiseapparat für Trockenplatten von Jonte in Paris, dann einen zweiten kleineren Reiseapparat von Deyrolle in Paris, schliesslich eine grosse Camene, mit doppeltem Blasbalg, welche auch zur Vergrösserung der Bilder dienen kann.

An photographischen Objectiven ist ein Jamin-Darlot mit 3" Oeffnung, ein Voigtländer mit 27"' Oeffnung, ein Applanat, von Steinheil mit 7"' Oeffnung und schliesslich ein Darlot'sches einfaches Landschaftsobjectiv vorhanden.

Auch besitzt die Sternwarte ein gutes Microscop von Nachet in Paris.

UNTERSUCHUNG DER STERNE NOVA ANDROMEDAE UND NOVA ORIONIS

Nova Andromedae

Die wahrscheinlichste Zeit des Auftauchens dieses interessanten Sternes ist der 19. August. Das Mondlicht übte damals einen so störenden Einfluss auf die Gestaltung des grossen Nebels, dass der eben erschienene noch schwache Stern allgemein als Kern des Nebels betrachtet wurde, dessen Grenzen infolge der Helligkeit mit dem Himmelsgrunde verschwammen. Seit September 4. wurde der Stern, so oft es anging, spektroskopisch und photometrisch untersucht; beide Untersuchungsarten waren aber des hellen Hintergrundes halber recht schwierig, und leicht ist zu befürchten, dass in den Helligkeitsmessungen konstante Auffassungsunterschiede sich bergen. Hier mögen nur die Beobachtungen der ersteren Art Erwähnung finden, da die zweiten später behandelt werden sollen.

September 4. Nahe mit dem Kerne des Nebels zusammenfallend erblickt man den neuen Stern, der mit der Masse des Nebels verschwimmt, nicht punktförmig, sondern scheibenartig erscheint. Es ist dies der einzige Punkt unserer Beobachtungen, der mit den Mitteilungen anderer Astronomen nicht übereinstimmt. Dr. v. Kövesligethy erinnert sich übrigens, dass er in Nyir Bakta am 22 August, als Baronin von Podmaniczky den Stern zuerst gesehen, denselben ebenfalls mit dem Nebel zusammenhängend gefunden, was ihn in seiner Meinung, man habe es mit optischen Täuschungen, durch störendes Mondlicht bewirkt, nur bestätigte.

Die Gestalt des Nebels unterlag beträchtlichen Veränderungen; die Spitzen der gestreckten Ellipse sind verschwunden, und der Nebel bildet schon eine ziemlich kreisförmige Masse mit rascher Helligkeitsabnahme gegen den Rand. Die Farbe des neuen Sternes ist orange-rötlich, das Spektrum erscheint im 162 mm Refraktor kontinuierlich mit sehr stark entwickeltem Rot, und fast ganz fehlendem Violett. Unmittelbar nach *F* ist das Spektrum abgebrochen.

September 5. Heute, sowie an allen folgenden Beobachtungstagen erscheint der Kern durchaus punktförmig, von der Nebelmasse ganz getrennt.

September 7. Am 254 mm Refraktor erschein im Spektrum des Sternes die helle Linie *F* recht sicher; *C* und D_3 schienen einigemale aufzublitzen. Ihr Vorhandensein ist somit wahrscheinlich, durch unsere Beobachtungen jedoch nicht zu verbürgen. Sind sie aber vorhanden, so machten sie jedenfalls, wie auch *F*, den Eindruck sehr stark erbreiterten Linien. Auch im grünen Teile des Spektrums steht eine breite helle Bande.

Das Rot des kontinuierlichen Spektrums ist äusserst intensiv. Blau fehlt.

September 15. Das Intensitätsmaximum des kontinuierlichen Spektrums has sich nach Gelb verschoben, und parallel damit veränderte sich auch die Farbe des Sternes: aus dem Rot-orange wurde ein blasses Karmin, in dem ein schwacher Stich ins Grüne unverkenntlich ist.

September 16. Das Spektrum fiel heute durch seine Schwäche auf, obwohl die Intensitätskurve des Sternes für die beiden Beobachtungstage keinen Sprung zeigt. Das Intensitätsmaximum fällt auch jetzt in Gelb, obwohl daneben Rot noch immer recht stark ist. Zeitweise blitzt die helle Linie *C* recht schwach auf. An der Begrenzung von Grün und Blau bemerkt man ebenfalls intermittierend eine feine helle Linie; es läfst sich jedoch nicht entscheiden, ob dieselbe selbständig, also etwa *F* ist, oder nur die Grenze des intensiven Mittelspektrums bildet. Die brechbaren Teile des Spektrums fehlen auch heute noch, obwohl sie im Spektrum des Nebels deutlich sichtbar sind.

September 17. Das kontinuierliche Spektrum ist im Abnehmen begriffen; doch sind die Teile geringerer Brechbarkeit noch immer hervostechend intensiv. Man kann entschieden behaupten, dass sich das Spektrum dem des Nebels nähert, und soweit Schätzung reicht, lässt sich das Intensitätsverhältnis beider Spektra für alle Punkte konstant nennen.

Oktober 1. Die Beobachtungen werden durch die Schwäche des Sternes und den Glanz des Hintergrundes sehr erschwert. Die Farbe des Sternes ist von der weisser Sterne nicht zu unterscheiden, und das Spektrum hebt sich nur schwach von dem des Nebels ab, mit dem es in allen Punkten konstantes Helligkeitsverhältnis zeigt.

Oktober 5. Der Stern ist bereits so schwach geworden, dass er nur bei direktem Hinblicken sichtbar wird. Richtet man die Aufmerksamkeit auch nur auf die nächste Nachbarschaft des Sternes, so entzieht er sich schon dem Sehen.

CHAPTER 4
A Few Pieces to Illustrate Konkoly's style of work

Nicolaus von Konkoly

Praktische Anleitung zur Anstellung Astronomischer Beobachtungen mit besonderer Rücksicht auf die Astrophysik

Vorwort

Mehr denn jede andere Wissenschaft verlangt gewiss die Astronomie einen überaus innigen Zusammenhang zwischen Theorie und Praxis. Nirgends rächt sich wohl die Nichtberücksichtigung theoretischer Anforderungen an dem technisch Arbeitenden und umgekehrt das Fehlen gründlicher praktischer Kentnisse an dem theoretisch Strebenden bitterer, als in jener Wissenschaft, die durch fortwährende, den wachsenden Kräften ihrer Jünger angemessene Annäherung, die trotz ihrer oft wunderbaren Einfachheit dem ungeschulten Verstande doch so räthselhafte Naturgesetze zu ergründen sich bemüht. Natürlich hat es nicht an zum Theil mit grösster Anerkennung zu erwähnenden Versuchen gefehlt, diese so unbedingt nothwendige Brücke zwischen den Errungenschaften der Astronomen und den Fortschritten der Mechanik herzustellen; in erster Reihe dürfte hier wohl der "Instrumentenkunde" von Dr. Ph Carl zu gedenken sein. (Die Principien der astronomischen Instrumentenkunde von Dr Ph Carl, Leipzig, bei Voigt und Günther, 1863). Ohne Zweifel bot dies Werk zur Zeit seines Erscheinen das gewünschte Hülfsmittel in vollständigster und bester Form. Seitdem aber sind auf beiden hier zu berücksichtigenden Gebieten so ungeahnte Fortschritte gemacht und in einer Anzahl von Abhandlungen niedergelegt oder in die verschiedenartigsten Werke zerstreut, dass es wohl schon längst Zeit gewesen wäre eine neue Zusammenstellung vorzunehmen.

Im vorliegenden Werke habe ich versucht, diese Lücke, so weit es in meinen Kräften steht, auszufüllen. Möchte ich durch seine Veröffentlichung doch den dreifachen Zweck, der mich bei seiner Bearbeitung leitete, möglichst erreicht haben.

Erstens habe ich versucht, einen Ueberblick und eine genaue Beschreibung des gesammten der heutigen astronomischen Forschung zu Gebote stehenden Instrumentenvorrathes zu geben. Das Hauptaugenmerk habe ich in dieser Beziehung auf eine möglichst grosse Vollständigkeit des Inhaltes gelegt. Bei jeder sich dem beobachtenden Astronomen stellenden Aufgabe habe ich das den theoretischen Ansprüchen meiner Ansicht nach am meisten gerecht werdende Instrument genau beschrieben und darauf die verschiedenen Modificationen desselben besprochen. Bei der erdrückenden Vielseitigkeit des sich der Behandlung darbietenden Stoffes konnte ich unwesentliche Abänderungen der Grundidee theils nur flüchtig andeuten und musste sie theils ganz übergehen, hoffentlich ohne dadurch irgend einen fühlbaren Mangel hervorzurufen.

Im Anschluss hieran soll das Werk für den Constructeur astronomischer Instrumente einen Leitfaden bilden, der ihn mit den Anforderungen und Wünschen der praktischen Astronomen bekannt macht, ihm zeigt, wie diesen die heutige Mechanik gerecht wird, und ihm so die Erkennung etwaiger Mängel und des zu ihrer Verbesserung einzuschlagenden Weges erleichtert. Gerade um dieses Ziel zu erreichen, wurden die dem einzelnen Instrumente von den verschiedenen Constructeuren gegebenen Formen in möglichster Vollständigkeit durchgesprochen, während für die Kenntniss des Instrumentes selbst die vorangehende ausfürliche Beschreibung der sich am meisten zum Gebrauche empfehlenden Form genügt haben würde. Eine Gegenüberstellung der Vorzüge und Mängel der einzelnen Formen und eine Vergleichung derselben mit den Anforderungen des Beobachters schien mir aber der geeignetste Weg, ohne alle bedeutende Einmischung subjektiver Anschauungen dem Constructeur die Erkennung des Besten und Praktischten zu erleichtern.

In dritter Beziehung endlich habe ich mich bemüht, dem erst in die Wissenschaft Eintretenden ein Hülfsmittel zu liefern, dass ihn über den Zweck und die Behandlungsweise der einzelnen Theile seines Instrumentes belehren und ihm so die nothwendigste Grundlage für wirklich gute Beobachtungen verschaffen könne. Wem je die Ausbildung praktischer Astronomen anvertraut war, der weiss, wie viel Mühe gewiss nicht zum Vortheile des benutzten Instrumentes auf Beobachtungen unnützt verwandt wird, die schliesslich verworfen werden müssen, weil der einen oder anderen Eigenthümlichkeit des Instrumentes nicht Rechnung

getragen wurde. Hier kann nur eine rein sachliche Beschreibung an der Hand guter Abbildungen Abhülfe verschaffen und gerade in dieser Beziehung hoffe ich durch meine Arbeit zur Ausfüllung einer sehr fühlbaren Lücke in unserer Litteratur beitragen zu können.

In der Wahl der Darstellung musste ich mich den Ansprüchen aller jener anpassen, für deren Gebrauch ich das Werk bestimmte. Ich glaubte daher bei der einfachen, nur sachlichen Beschreibung der Instrumente und ihrer Anwendung die mathematische Theorie im Allgemeinen ganz ausschliessen zu müssen und habe sie nur dort hineingezogen, wo ihre Umgehung ohne Beeinträchtigung des Verständnisses nicht möglich war. Allerdings wird in Folge hiervon für den Astronomen wenigstens die Ergänzung des hier Gebotenen durch die Entwickelung der Theorie der astronomischen Instrumente nothwendig gemacht. Diesem Bedürfnisse entsprechen aber verschiedene Werke unserer heutigen Litteratur so vollständig, dass eine neue Bearbeitung mir nur dann gerechtfertigt erscheint, wenn sie den Hauptgegenstand einer eingehenden Arbeit bildet, nicht aber, wie es hier der Fall hätte sein müssen, als etwas Untergeordnetes erscheint. Durch zahlreiche im Texte oder in Anmerkungen aufgenommene Litteraturnachweise habe ich übrigens versucht, auf die Arbeiten aufmerksam zu machen, die mir bei der Bearbeitung hülfreich waren und die weitergehende Studien erleichtern werden.

Bei der Zusammenstellung dieses Werkes waren mir die folgenden Werke von grossen Nutzen, von denen ich manches, wenn auch abgeändert, übernommen habe: Die Prizipien der Astronomischen Instrumentenkunde, von Dr. Ph. Carl; Schellen's Spectralanalyse; Carl's Repertorium für Experimentalphysik; Löwenherz: Berichte über die wissenschaftlichen Instrumente an der Gewerbe-Austellung in Berlin u.s.w.

Zum Schlusse habe ich noch die angenehme Pflicht zu erfüllen, für die würdige und zweckentsprechende Ausstattung des Buches durch eine überaus grosse Anzahl von Holzschnitten meinen verbindlichsten Dank zu sagen, sowohl dem Herrn Verleger, der allen meinen Wünschen bereitwilligst nachkam, als auch den Inhabern vieler mechanischer Institute, die mir Clichées ihrer Instrumente gütigst zur Vefügung stellten, sowie Herren Siegmund von Merz in München, John Browning, Horne und Thorntwaite in London, T. Cooke and Sons in York (England), Dr Adolf Steinheil in München, Howard Grubb in Dublin, Karl Fritsch in Wien, Secrétan successeurs in Paris und A.

Ich darf auch nicht versäumen Herrn observator Dr. Hermann Kobold meinen verbinlichsten Dank auszusprechen, der mich bei Revision so des Manuskriptes als Correctur-Druckbogen auf die bereitwilligste und eifrigste Weise unterstützt hat.

Möge das Buch in den Kreisen, für die ich es bestimmte, zahlreiche Freunde finden und zum glücklichen Vorwärtsdringen unserer Forschung nach Kräften beitragen.

Ó-Gyalla Sternwarte (Ungarn)
October 1882.
von Konkoly.

Braunschweig, 1883. p. XI-XVI.

THE ASTROPHYSICAL OBSERVATORY IN POTSDAM

Miklós Konkoly Thege

The decision to build the Observatory for Stellar Physics was made after the successful encashment of the milliards extracted from France[12]. Today the building of the observatory on 'Telegraphen Berg' is in progress and is proceeding at a good speed. At the time of my visit, the 13th of October, the walls were so high, that I am sure that by now the observatory is safely under its own roof.

About fifty-six acres are enclosed on top of a neatly forested hillock by a modest wooden fence. Next to the gate stands a pleasant single-storey building, the gatekeeper's lodge. About two hundred paces from here there follow three villas in a row. Of these the first and the third are of two storeys high, the middle one is a bungalow. The first villa is the home of Dr. Spörer, who is in charge of solar observation and the preparation of the meteorological bulletins. The offices and the assistants' accommodation are in the middle building, while the third one is Dr. Vogel's home.

But, before we reach Dr. Spörer's accommodation, our eyes will light on a splendid building, which is probably the only one of its kind. It houses the well and the machine shop. The well not only provides water for the 'scientific settlement' (perhaps this description is the most fitting), but is also available for all kinds of physical experiments. The well itself has cost thirty thousand Thalers, it is one hundred and eighty feet deep and about twenty feet of diameter. The well is approached through the machine-shop, where the pumps are also housed. After passing the entrance we find ourselves in a glass roofed rondella, whose floor is also made of two inch thick glass. This permits the outside light to penetrate down to the surface of the water, to which reasonably easy access is provided by a spiral staircase. On the outside, the rondella is surrounded by earthworks reaching up to its roof. On the north side of the well there are horizontal pipes sunk in the wall at depths of fifty, one hundred and one hundred and fifty feet, which are isolated from the air of the well-shaft by double plugs. Each of these houses a maximum-minimum thermometer, which are read and logged weekly (on every Monday) by dr. Spörer, who can thus determine the ground temperature at depths of fifty, one hundred and one hundred and fifty feet. – Another important feature is a side-shaft at one hundred feet depth, which opens into an eight inch baked clay pipe, sunk in the earth parallel to the well-shaft.

This is important if there is a need to produce high pressures during the experiments. All that is necessary is to push down one or more gas pipes to the required depth. This way by filling up the pipe with Mercury from the top, at the bottom a highest imaginable pressure can be generated. – The institute has its own gasometer in the machine shop, which also houses a small mechanical workshop.

Eventually the observatory will consist of three domes with rotating roofs. For the largest one a twelve inch, equatorial oriented and clockwork operated refractor is already on order from Schröder's of Hamburg. An 8inch refractor, also equatorial oriented and clockwork operated was ordered from Grubb's of Dublin for one of the smaller domes. The other one is reserved for the five inch 'Steinheil' refractor, used by Dr. Spörer for his solar observations. This instrument was erected by Pistor and Martins of Berlin. It is also oriented equatorial and equipped with a clockwork mechanism.

The southern side of the building will be extended by the attachment of a room with a very high window for the housing of the heliophotograph. Thanks to the size of the window, it is possible to photograph the Sun with the four inch Schröder telescope at any time between nine a.m. and three p.m.

Of the instruments already in the institute's possession, the most interesting one is indubitably the great spectroscope, also from the workshop of Schröder. This exquisite instrument contains six Rutherford type compound prisms, equipped with a self-adjusting mechanism, which automatically sets the instrument in such a manner, that the prisms are aligned with minimal deviation from the direction of every incoming ray. The unformed glass is of French manufacture, the flint is from the factory of Feil. Its refractive index is 1.7887. The prisms cut from this material are rectangular. The crown glass was made by Daguet, its refractive index is 1.5126, its included angle is thirty degrees. Three pairs of prisms so coupled form one Rutherford type prism.

Between the two Sodium lines of the solar spectrum, it is possible to see usually seven, occasionally nine lines. The Crown line in the vicinity of 'E', which was recently resolved into two lines by Young, using a giant North American instrument, can just be discerned as a double line on this instrument, under very favourable atmospheric conditions. It took Schröder three or four years to develop this splendid instrument.

In addition, the equipment of the institute includes a Vogel type spectro-photometer. Its purpose is to evaluate the intensity of some selected spectra, and, in case of several light sources being available, to compare not only their total intensity, but also the details of their spectra, and relate this to that of a standard light source.

Subject to his already existing commitments, his intention is to use an instrument of his own design to photograph the sun every day, to keep a record of the changes to be observed and relate them to the status of the earthly atmosphere.

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[12] This refers to the reparation paid by France after the 1871 Franco-German war.

The spectrum-lines are evaluated straight from the photographic negative, using a special 'purpose built' instrument. – This is a strong iron frame, standing on four feet resting on a wooden pedestal. Above there is a 'slider', carrying a microscope of low magnification, equipped with cross-hairs. The whole assembly can be very accurately positioned using a finely cut screw. The shaft of the screw carries a sizeable drum with fine divisions engraved thereon. This is so accurate, that it is possible to take position readings with the accuracy of one-thousandth of a turn. The instrument was constructed by the master instrument maker Hilger, born in Kassel, but now domiciled in London. According to Vogel the positioning screw is of such high quality that he has never handled its like before.

Of heliostats, the institute has two: one designed by Silberman and another one by Spenzer. Both of them, and the beautiful spectral photometer were built Schmiedt and Haentsch. It would appear, that the costly Silberman instrument serves only as an ornament. Vogel had the whole instrument silver-plated, so that it can reflect the sunlight to the greatest possible extent, but the real experiments are carried out using the good old Spenzer.

The equipment of the observastory also includes a sidereal spectroscope of the 'two half-prism' type, with a beautiful micrometer being one of the parts attached to the 'split'. The so-called 'half-prisms' – built by Hilger of London – are compounded from two prisms of Crown glass and flint. These are of very acute angle. One of them is fixed to the collimator lens, the other to the telescope's objective. This latter one being capable of movement, every incoming ray can be set to minimal deviation. Due to the structure of these prisms and to the micrometer, this instrument is quite different from the spectroscopes of the Browning type. The development of the 'half prism' was carried out by Dr. Christie, first assistant of the Greenwich observatory.

For the daily, quick sorting of the observations made on protuberances, dr. Schröder uses a rather poor specimen of Zöllner's 'a vision directe' spectroscope of ten prisms, made by night of Leipzig. For the observation of the more interesting protuberances, where making of measurements may be considered worthwhile, Spörer uses a tiny, six prism spectroscope, whose individual parts all bear witness to the masterly hand of Browning.

The astrophysical observatory of Potsdam will be completely finished in three years at the latest. There is no director appointed for the observatory, and it is not in any way subordinated to the observatory of Berlin. There is a 'council of directors', whose members at present are: Vogel, Förster and Auvers, who usually elect Kirchhoff as their chairman.

Besides, the government of Germany is apparently not content with one handful of glory, so they erect their splendid observatories in pairs. In Strasbourg the observatory of the university is under construction, although it has not reached the same advanced stage as the Potsdam one. An interesting item of their equipment is the instrument which was the first one the director, who is no other than Winnecke, the famed comet-chaser, could lay his hands on. The instrument is an orbital determinator with a six inch objective, in which the firm 'Reinfelder and Hertl' of Munich succeeded in creating a real masterpiece. According to Winnecke, there are some fabulous sights to be expected from the use of this instrument. The machinery associated with the mounting and operating of this instrument was made by Repsold of Hamburg. This is vastly different from other equatorially oriented equipment in having three axes of rotation. The equipment is fabulous to behold; Repsold made every effort to satisfy the requirements of modern science.

The other principal instrument is a 6inch meridian circle, also from the workshop of Repsold. I have not had the good fortune to see the actual instrument itself, only its photograph, as the instrument has not, as yet, arrived to its appointed place. But even the photograph shows that Repsold has started to succumb to the English fashion, in that he no longer places the axles on stone pillars, but uses iron legs instead.

During my stay in Munich I have also seen the third – rather the first – principal instrument of the Strasbourg observatory. This is a lens of *eighteen inch diameter, with a focal length of twenty-one feet and four inches.* The first attempt to make this lens has met with an accident. The central element of flint-glass turned out to be too thin, consequently it has suffered distortion. For this reason Merz did not hand it over, but produced two new lenses for Winnecke to choose from. The glass was made by Merz's own glass factory at Benedictbeuren. The average refractive index of the flint-glass was 1.64, that of the Crown-glass 1.53. The examination of the glass was accomplished by using artificial stars, erected on the spire of St. Peter's church. At 600x magnification the eighteen inch objective was capable of resolving twin-stars whose *distance* was only 0.05. I took this opportunity at Merz's factory to examine an additional two seven inch objectives, using the same artificial stars. I have reserved these for His Excellency dr. Haynald, archbishop of Kalocsa, to chose one of them for his observatory.

Csillag-physikai obszervatórium Potsdamban /Miklós Konkoly. Természettudományi Közlöny, Budapest 10. köt. p 26-28

A NEW PHOTOGRAPHIC SPECTROSCOPE

By Dr. Nicolaus von Konkoly
Director of the Budapest Royal State Meteorological Institute

For certain special experiments, to which I will refer later on, I required a strong light-proof spectrograph with considerable dispersive power, so I resolved to manufacture one in my own workshop with the aid of some parts I had on hand. This I did with the assistance of my friend Eugen von Gothard, to whom my thanks are due for the kindness with which he helped me, more especially as regards the final mounting and adjustment of this apparatus.

The prism used in this apparatus I obtained some years ago from my friend, Dr. Max Pauly, who ground it personally from Jena glasses. It is for direct F vision. The collimator and projection lenses are by Reinfelder and Härtel; the former has a focal distance of 8 7/8 inches by 0.98 in aperture, that of the latter being 6 3/8 inches by 1.18 inches aperture.

The instrument proper consists of six pieces:

1. Diffusing apparatus SS'F
2. Collimator tube ECDD
3. Prism-frame AA
4. Projections-lens tube B
5. Camera K
6. Plate holder K'

To insure lightness (as the instrument is to be used with my 10 inch refractor at the O-Gyallaer Observatory) the parts EE, DD, and the camera K, are made of aluminium, the plate holder K' being of mahogany with aluminium guides and flaming.

The separate parts of the apparatus are arranged as follows: The whole apparatus is built upon the aluminium ring EE, on the right and left sides of which respectively are the collimator tube and the diffuser. To strenghten the bed of the diffusing-apparatus the ring EE (which is to be screwed to a large Vogel adaptor on the telescope with three screws, the hole for one of which is shown at *a*) has the support F cast in one piece with it. Upon this the moveable diffuser-head S is placed, which, after due adjustment, is held firmly in position by the two screws cc. S' is the orifice, the sides of which are made of hammered white metal; f is the counterspring. The aperture is regulated by the screw s which projects from the adaptor, to render it easier of access. s' is a division plate, on which the index i enables 0.01m of the screw adjustment to be read off.

A further support is cast on the right side of the EE ring, and carries the strong brass tube C which is carefully fitted into it and held *in situ* by six screws □□.

At the right end of this tube C is the aluminium ring DD, in which another support is cast towards the inner side. This carries the brass telescopic tubes c'c', r'r'a, of the collimator lens L. The exterior tube cc' is carefully fitted into the supports of DD, and secured by three screws *d*. The interior tube r'r', which holds the lens L, can be moved by means of the pinion *tt*, the small window f' enabling such adjustment to be controlled. As this lens is set only once when definitely adjusted, a window C (omitted in the drawing) has been let into the main tube with this object. And, after the lens is adjusted, this window is finally closed.

The right side of DD is faced, and supports the prismframe AA by means of a flange. The prism is not set in this flange direct, but in a second tube which can be rotated to assist adjustment. When the refractive edge has been set parallel to the orifice the interior tube is fixed in position by the two screws which pass through two circumferential slits in the exterior flange.

Following up the details of construction still further, we find that the right end of the prism frame AA is fitted with a flange, exactly similar to that on the left end, which is joined by means of strong screws to the guide-tube B of the projection lens. Into this tube B the interior tube rr – which can be moved by means of the pinion T and the cog-wheel R – slides with the greatest ease. The movement of this tube can also be read off from a scale through a small window (not shown in this drawing). The tube rr carries the projection lens L'.

Finally the small conic camera K (made of aluminium), carrying the plate-holder K', is fixed upon the projection lens tube by means of the screws *hh*.

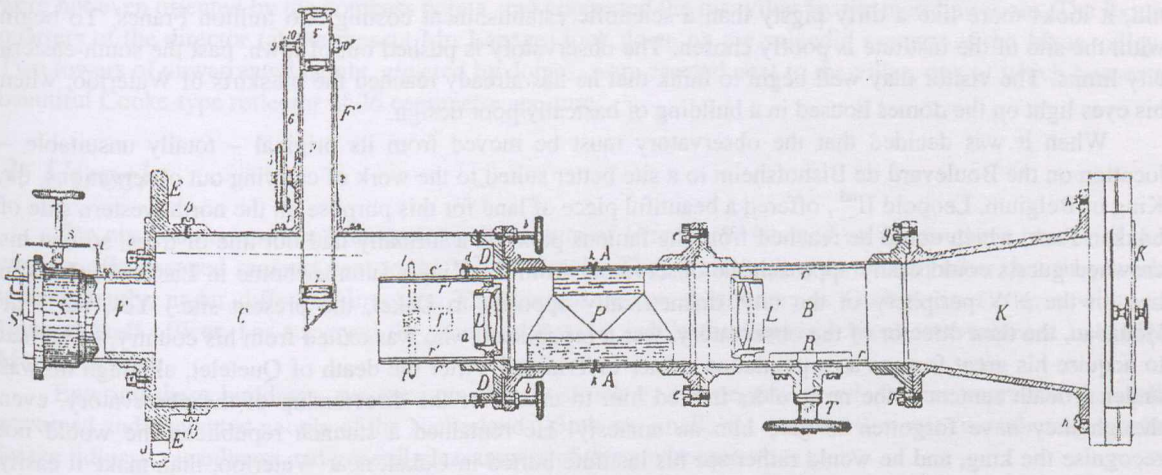
As already stated the case is of mahogany which has been well soaked before use in paraffin. It is made on the Gothard system, and this clever camera-maker was good enough to complete the whole case for me in his workshop.

It must be remarked, however, that the apparatus could be made much lighter if the flanges of AA and B were manufactured of aluminium, but, as I wished to have the apparatus completed as quickly as possible,

and had both AA as well as B and S ready to hand, I preferred to use these. It must not be forgotten, however, that no one should allow any moveable parts to run in aluminium, and especially aluminium into aluminium as, after short use, this metal corrodes to such an extent that the two telescopic pieces have absolutely to be hammered apart.

The holder takes 2 3/8 by 2 3/4 inch plates, upon which four spectra of about 2.17 inches long may be taken side by side.

There is a certain novelty attached to the collimator tube of the apparatus, viz., the telescope, or rather microscope, F', which enables the operator to determine either during the exposure or when focusing whether the object it is desired to photograph is upon the orifice. Prof. H. C. Vogel has attained this end much more satisfactorily by directing the reflected, and in any case lost, light from the primary surface of the prism into the telescope or eye-piece proper, whereby the collimator lens serves as the object lens of the eyepiece, this latter being so placed that the orifice and star are sharply defined therein. As the first part of the drawing shows, I have been prevented from doing this – firstly, owing to lack of space, and, secondly, because the prism-frame AA was already completed. I have, therefore, placed the microscope F' upon the main tube C in such a way that the orifice may be easily seen when it is pushed in. When it is required to admit the rays of light, all that is necessary is to draw back the microscope, whereby a free passage is left to them.



The microscope tube 3 can easily be pushed into the strong brass tube 2 soldered on to the support 1 which is fixed to C by four screws. The tube 2 carries the rotatory button 5 which supports the bent rod 6 by means of a screw. This rod is bent in such a way that 5 can perform a semi-revolution whereby the microscope is drawn back. The other end of the rod is adjustably attached to the arm 10 of the ring 10' by means of the screw 9. The eye-piece 4 can be adjusted separately to enable the microscope to focus the orifice exactly. The inside end of the microscope-tube 3 carries the object glass 7, with the right angled prism, which throws the image in the orifice on the microscope glass by means of reflection.

I have preferred this method of moving the microscope to the employment of mechanical gear, because the former enables the adjustment to be effected much more rapidly. The pinions *tt* and TR are both oblique.

Focusing the apparatus is effected as follows: The orifice S' is opened wide and the microscope F'3 pushed down, after its eye-piece 4 has been sharply focused on the orifice. The star is then brought between the sides of the orifice, and the eye-piece 4 is raised and lowered until the star is sharply defined in the field of vision at F'. All that now remains to be done is to close the orifice to the extent required, and to determine whether the star remains on the orifice. When this is done, draw back the microscope F' and make the exposure.

I have given the working drawings of this simple but complete apparatus to Mr. Meissner, Optician, of 16, Altmoabit, Berlin, who is willing to make such an apparatus under my further supervision.

The apparatus with case complete weighs only 6lb 10oz.

The Optician, 10, May, 1884

STUDY TOUR REPORT (1894)

Konkoly Miklós

In the following lines I want to record my observations concerning some scientific institutions I have visited during my trip.

1. Brussels

In Brussels the observatory and the meteorological station work under united management. Left on their own, they could both prosper, were they led by hands more capable than those at present. But, at the present the main emphasis is placed on the director's chicken farm, so matters like science must take the second place. The officials hardly know each other, so they carry out their duties haphazardly, without central planning or direction. They do not know the tasks allotted to each other and the director knows the tasks of no one. This state of affairs is not caused by the unification of the two institutions, but by their common director's overly theoretical cast of mind. Although the institute is not more than six or seven years old, it looks more like a dirty pigsty than a scientific establishment costing two million Francs. To begin with, the site of the institute is poorly chosen. The observatory is pushed out of town, past the south-eastern city limits. The visitor may well begin to think that he has already reached the outskirts of Waterloo, when his eyes light on the domes housed in a building of basically poor design.

When it was decided that the observatory must be moved from its original – totally unsuitable – location on the Boulevard de Bishofsheim to a site better suited to the work of carrying out observations, the King of Belgium, Leopold IInd , offered a beautiful piece of land for this purpose on the north-western side of Lacken Park, which could be reached from the famous park via a formally laid out line of trees, so that his crowned guests could easily approach the observatory from the King's summer home in Lacken[13]. (Lacken lies on the NW periphery of the city, diametrically opposite to Uckel, the present site.) Yes, but ! de Houzeau, the then director of the observatory, was a republican, who was exiled from his country, so he had to acquire his great fortune as a plantation owner in Trinidad. After the death of Quetelet, although he was under a death sentence, the new rulers invited him to take over the directorship of the observatory, even though they have forgotten to give him an amnesty! He remained a staunch republican, he would not recognise the king, and he would rather see his institute buried in Uckel, near Waterloo, than make it easily accessible to the king (this is one way to decide things). Today the observatory stands on such a swampy ground, that the institute – after having cost two million Francs to build – is now ready to be be pulled down and built anew, because it was so poorly constructed, that at present the walls of the long corridors, the living quarters and even of the domes are so badly infested with fungi, that the paint is falling off, the wallpaper is cracked and even the oil paint is dropping off, together with the plastering. The next to perish is expected to be the woodwork, as the instruments themselves are already covered by a considerable amount of rust. Huzeau started this masterpiece, Folie completed it, but De Staas, the famous French academician also plaid his part in the overbuilding of this – originally very promising – establishment. But all this is of very small importance, because next to the director's apartment there is a splendid chicken-coop, constructed of chicken-wire, with a little stream flowing through, which is fed from the water-mains. It is the object of acid comments by staff members, made to cheer up visitors dispirited by what they see. Verily, if the advisers of our wise Minister for Cultural Affairs had been so well acquainted in 1890 with these matters, as the present writer is now, then I would not be surprised if they had my idea, that is, of combining my Ógyalla observatory – to be presented by myself to the state – with the National Institute of Meteorology, quashed without discussion by a simple official edict.

Concerning the astronomical instruments, I shall touch on them only briefly, as they are, after all, outside of the scope of this report. I am only going to say, that they have three splendid domes, made by Cooke of York. The largest one is occupied by a beautiful Merz-Cooke refractor, made prematurely decrepit through neglect, lack of use and rough handling. In 1882 I have already had occasion to see and optically to examine this instrument when it was still in its temporary home. The second dome houses a sixteen centimetre refractor, also by Merz-Cooke. In the third one an old equatorial circle – made by Gambey – can be found. We find in the garden (for I have to admit it *is* a garden), two additional domes. One of them is equipped with a Grubb type astrophotograph, the other with a Steinheil-made instrument for photographing the sun. Both of them are practically unused. The roof of the library is characteristic of the architect's genius

[13] It is very gratifying for a poor Hungarian landowner to know, that it is still possible for men of science to refuse even a king's present on the grounds of high principles and reasons they believe to be right

and the astronomer-director's practical common sense. This splendid hall is covered by a glass roof, so in summertime it is hot as a hothouse, but in winter, when it is covered by snow, it is dark enough to make the turning on the lights necessary. Besides, like all other glass roofs, it leaks. The astronomers of Brussels would rather see it used for the cultivation of grapes, than as a library.

2. Liège

The observatory at Liege (Lüttich), where meteorology is also practised, was built by Folie: on one day his walks took him well past the eastern limits of the city to the undulating countryside. There he walked up to the Cointi hills, near the village of Augur. This hill is flanked on one side by the stacks of the smelting works and machine factory of Scraingi, employing over eight thousand workers, on the other by the stacks and chimneys of the whole city of Liege, spewing their effluent into the atmosphere. This amounts to having two live volcanoes, supplying an abundance of black soot and ash to the firmament. Even so, and in spite of everything, the Cointi observatory enjoys a splendid view of the verdant Maas valley, and according to Brussels gossip, this was the clincher that led the present director of Uckle to select this site. A certain credibility is lent to this gossip by the present edifice, looking as if Folie had purchased two villas, which were not even oriented by the compass points, and connected the two villas by the meridian room. The living quarters of the director (at the present Mr. Lapage) look down on the splendid scenery of the Maas valley. Two towers of unwarranted height, covered by domes, were erected next to the villas, one of which houses a beautiful Cooke-type reflector of 26 centimetre aperture.

3. Utrecht

The observatory and the Meteorological Institute of Utrecht are situated on the southern border of the city, on a landscaped rampart next to the Nieuw Gracht. They were built next to each other, but they work independently, under different directors. The director of the observatory is Oudemans, the man who, as General Staff officer, has surveyed the whole of Batavia, while the meteorological establishment is led by Maurus Snellen.

Entering these buildings, we are immediately struck by the degree, to which they represent the well governed and contented people of the Netherlands. Both are small, but our attention was immediately caught by the tidiness, cleanliness and general pleasantness of this environment.

While in Brussels they employ more than a dozen officials, in Utrecht only the director and his two assistants keep the work going, quietly and efficiently. The work allocated to the observatory is mainly educational, so they work closely with the university. The principal instruments are a twenty-four centimetre refractor, one thirteen centimetre refractor, a small meridian circle, a few universals and a nice passage instrument. There is also a side-dome, housing an asimuthally oriented reflector of sixteen centimetre diameter. Some of the instruments are the work of an Utrecht instrument maker named Olland, who, although he could still learn a few things in the first class instrument-shops of Europe, is capable of making smaller instruments of good quality.

The rotating towers of the institute are not covered by domes, but by short cylinders, which arrangement could be advantageous under some circumstances.

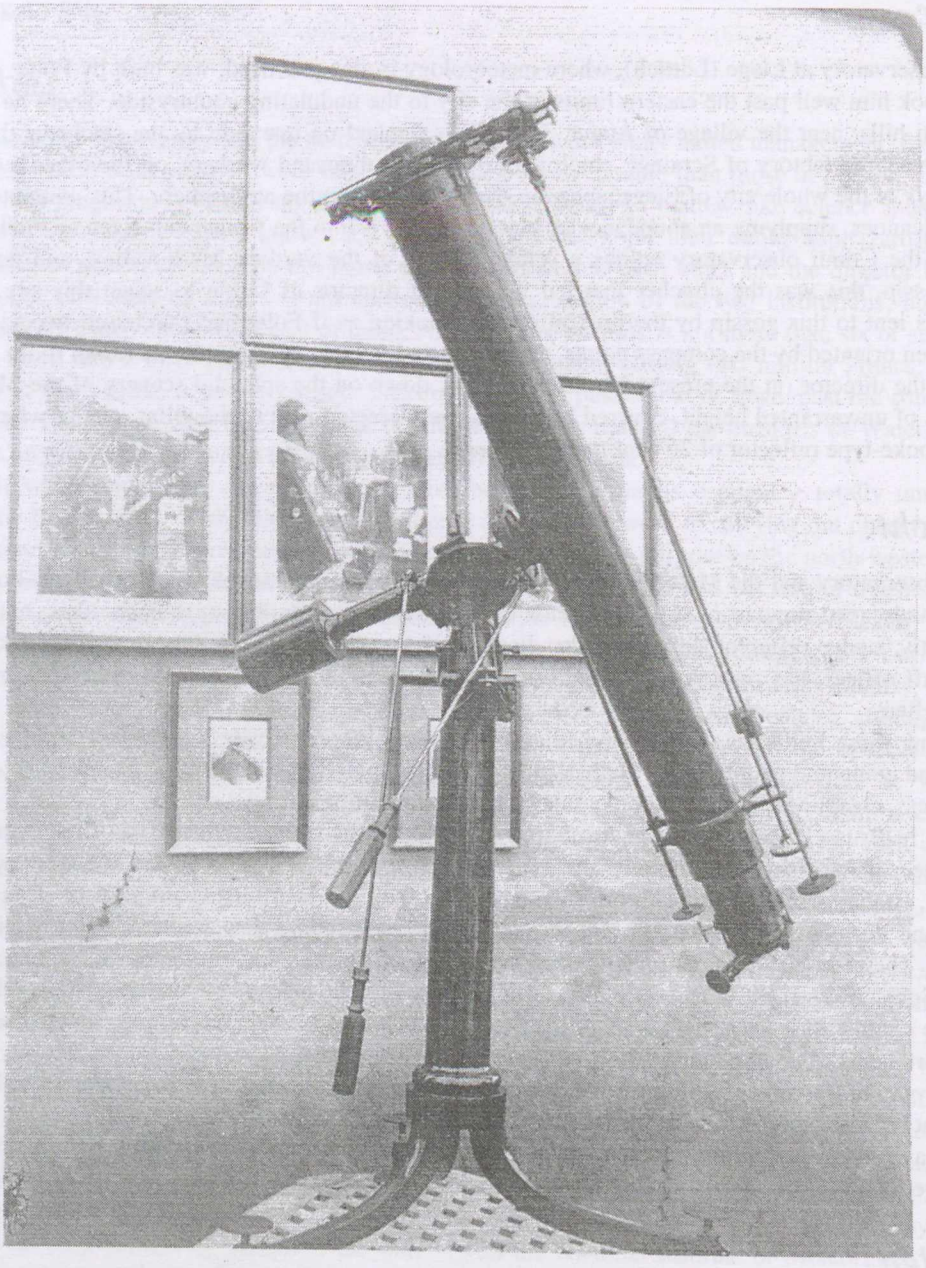
We have also seen a few valuable pendulum clocks. They are all working, which, coming from Brussels, we found rather surprising.

4. Leyden

In this observatory the meteorological activity does not exceed that what is usual in other similar establishments, so it is doubtful whether it deserves to be counted among the first class institutions of this kind. Its only claim to be called a station at all rests on three or four simple instruments.

The observatory itself is sited in a rather beautiful garden. It can be justly called a monumental building, made impressive by its restrained style and its two beautiful domes. The staff consists of three assistants working under the diector. The small state of the Netherlands has just placed an order for a photographing telescope with the Brothers Henry of Paris, whose total cost, will be about eighty thousand Dutch Guilders. It would appear, that more interest is shown by the authorities in astronomy than in many bigger and richer states.

Útijelentés néhány európai obszervatóriumban Budapest 1894. p2–



CHAPTER 5
The Surviving Letters of Konkoly Thege's Correspondence

KONKOLY THEGE'S RESEARCHES IN SOLAR PHYSICS, II.
SOME LETTERS WRITTEN TO HIM BY SPÖRER AND OTHER PROMINENT ASTRONOMERS

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As in an earlier paper[14] [1] was described, sunspot observations made at the private observatory of Miklós von Konkoly Thege (after 1899 at the Hungarian Royal Astrophysical Observatory, founded by Konkoly), were of great international significance. Starting as an amateur observatory, from a mere star (and Sun) watching, he understood, that careful scientific observations give much more use and satisfaction. For this purpose he held contacts with many prominent astronomers of the time. Recently I had the possibility (by the kind assistance of Mrs. Magda Vargha, librarian of the Konkoly Observatory) to study some copies of letters written to Konkoly, mainly by G. Spörer, but also by others. These letters give an interesting insight into the connections of Konkoly with other astronomers.

The second half of the XIX. century brought many interesting discoveries and new observing methods in the field of astrophysics, e.g. the discovery of the 11-year sunspot cycle (and its terrestrial consequences in geomagnetism), the spectroscopy and the photography to name but a few. Konkoly was interested in everything new, and as he decided to build his own observatory, he chose the observing of sunspots as one of his main task. He also organized geomagnetic measurements in Ógyalla, and used spectroscopy and photography in his astronomical observations. From 16 May 1872 the sunspot observations continued as weather permitted, until the end of the first World War, when the observatory moved to Budapest.

The publication of the observations was also of prime interest to Konkoly. From 1874, in the Proceedings in the fields of Mathematical Sciences of the Hungarian Academy of Sciences (*Értekezések a Mathematikai Tudományok Köréből*, in Hungarian) he described, from year to year, the coordinates and areas of sunspot groups, also of their morphological evolution. Firstly (until 1880) he gave the coordinates in "astronomical" sense: the differences in rectascension and declination between the center of the solar disk and the sunspot. Also on the first solar drawings the day and hour of observation are given in "astronomical" reckoning, i.e. the day begins (0^h) at noon. From the data for 1880 in the publications already the heliographic coordinates are given, reduced by Spörer's rotation elements. So the positions of sunspots, measured in Potsdam and Ógyalla are directly comparable, precise micrometric measurements of sunspots were made in this time only in these two observatories.

The cause of these changes can be followed also in the correspondence of Spörer. The 12 letters I saw are from the period from 2 February 1875 until 28 October 1881. In the first ones Spörer only politely asks, whether Konkoly really built his private observatory, and has observations on those days, when in Potsdam clouds precluded the measurement of sunspots. In later letters he also asks data for missing observing days, also thanks for the received measurements. These were significant for his research, and are also published in his tables. In No.5 of Potsdam Publications[15] [2], which contains sunspot measurements for the years 1874-79, Ógyalla measurements are used for not less than 58 days.

The received data were closely scrutinized, in several letters Spörer sends corrections for Konkoly's tables of observations, or for some measurements asks comparison with the original observation logs for obvious misprints.

Spörer gives to Konkoly practical advice too, e.g. in 21 December 1877 to use civil time in solar observations rather than astronomical, as for these data it is better if the day begins at midnight. In a later letter (9 December 1878) he suggests to use heliographic coordinates for sunspots together with the rectascension and declination differences counted from the center of the solar disc. In 26 January 1880 he writes, that as Konkoly decided to reduce the positions of sunspots using his rotation elements, from January

[14] Kálmán Béla: Konkoly Observatory Monographs 1. 1992. p. 21.
[15] Spörer, G. Publ. Des Astrophys. Obs. Yu Potsdam. Nr. 5, 1881. p. 21.

1880 he corrects the heliocentric distances also for refraction *in the solar atmosphere*(!). As we saw earlier, these advices were followed in Ógyalla.

It is very interesting to read the letter of 9 December 1878. In this letter he expresses his astonishment, that Konkoly decided to publish his results in German,

..."as I thought, that your Academy takes great care to publish in Hungarian, but so the publications became unknown to the learned world, because the Hungarian language has nothing in common with the German and Roman languages, so one vainly tries to catch the meaning. I already wanted to propose to you, that you should persuade your Academy to publish in Latin, as I thought, that the Academy maybe agrees to publish in a non-living language." A similar problem persists also until today.

Konkoly's observations so significantly contributed to the scientific research about sunspots in his time. Their significance may be not understood, because he was a man of practice, organizer, instrument maker and observer (talented in all), and did not build theories about astronomical phenomena. Rather his careful observations are incorporated in other's theories and results.

Konkoly made also spectroscopic observations of various astronomical (and meteorological, like lightnings) objects. Three letters from C. C. Vogel (from the years 1875, 1879 and 1880) contain very detailed descriptions about the use of the spectroscope, its calibration and the detemination of the wavelengths of spectral lines. Also in the letter of 1880 the changes in the spectrum of a nova are mentioned (in the beginning a continuous one, then later containing bright lines). In a letter of 23 March 1877 father Secchi answers Konkoly's questions about the spectrum of the solar corona and the prominences. There was a serious debate in that time, whether the corona and the prominences were on the Sun, belonged to the atmosphere of the Moon, or were produced by the terrestrial atmosphere. Secchi gives arguments about their solar origin.

Two other letters show Konkoly as an organizer of scientific research. In one from 7 November 1881 O. Safarik from Prague thanks for Volume 3. of the Ógyalla observations, and gives a brief account of the meeting of the *Astronomische Gesellschaft* . In an other from 14 April 1883 A. Auwers, on the letterhead of the *Commission für die Beobachtung des Venus-Durchgangs* (Commission for the Observation of the transit of Venus) asks Konkoly, that he gave the possibility to his (Konkoly's) assistent, dr. Kobold, to work in Berlin for some years in the reduction of the measurements of the transit of Venus of 1882 *"...for I want to preclude our observations to lay idle so long as the ones of the 1874 transit."* He writes, that for Kobold it was difficult to learn Hungarian, and this fact would hinder his scientific promotion. He also thanks for the receipt of Volume 4. of the Ógyalla observations, and asks for Vol. 2., which he did not receive. As a consequence, in the yearly report of the Ógyalla observatory[16] [3] we can read: *"The scientific staff of the Observatory changed considerably in this year. To the place of Observer Dr. Kobold, who in month May received a position in the Computing Bureau of the German Venus-Commission, stepped Mr. Rudolf Kövesligethy."* So from the letters we see Konkoly as an internationally renowned observer and organizer of astronomical observations.

REFERENCES

[1] Kálmán, B.1992, in: *Konkoly Observatory Monographs,* **1,** 26.

[2] Spörer, G. 1881, *Publ. des Astrophys. Obs. zu Potsdam,* Nr.5., **2,** 1.

[3] von Konkoly, N. 1884, *Vierteljahrsschrift d. Astr. Ges.* **19,** 123.

Potsdam 2 Febr.75.

Hochgeehrter Herr!

Bei Ihrer Anwesenheit in Potsdam, haben Sie mir Mitteilung der auf Ihrer Sternwarte angestellten Fleckenbeobachtungen zugesagt. Wir wollen annehmen, dass Sie es inzwischen nicht vergässen hätten. Es könnte nur sein, dass Sie die sämtlichen Beobachtungen zusammenstellen und erst dann mir zusenden wollten, aber dass würde mir nicht passen. Ich habe eine Fortsetzung der Publ. XIII d. Astron. Nachr. druckfertig gemacht und bin jetzt bis zum Juli 1870 gelangt; hier habe ich abgebrochen um zunächst eine andere Arbeit vorzunehmen. Im Juli 70 reiste ich auf den Rhein, von wo ich aber durch die Geschen bald wieder nach Hause getrieben wurde. Die Lücke der Beobachtungen ist einiger Masse ausgefüllt durch Beob. v. Prof. Weiss, aber gerade für diese Zeit könnte ich Örter recht gut gebrauchen und möchte daher bitten die zwischen Juli 4 und Juli 23 1870 etwa vorhandenen Beobachtungen gefälligst zunächst und sobald nur möglich zusammenstellen zu lassen und mir hierher zu senden.

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[16] von Konkoly, 1884. Vierteljahrschrift der astronomischen Gesselschaft. 19. 1884.

Zeichnungen der Flecken und Gruppen wären nicht gerade nöthig, aber von jeder Gruppe könnte vielleicht eine Zeichnung beiläufig entworfen werden, der Zeit näher macht bis dreiches auf d. Mitt d. Vorverschreiben befand.

Ausserdem wäre es vielleicht keine grosse Arbeit, wenn die Beobachtungs Tage des Jahres 1870 gerecht würde, nach aus der ersten Hälfte, ich möchte dann noch auf einige Tage begehren, ... mir zu Ergänzung Mitfertigt der Beob. sehr willkommen würde.

Mit der vorzüglichsten Hochachtung

ganz ergebenst

Prof A. Spoerer

Slovak Central Observatory at Hurbanovo (SCOH)

---

12 März 1875.

Dr. H. C. Vogel
Astronom
Berlin S.
Encke Platz 3

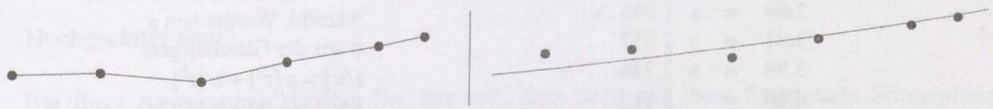
Verehrter Herr v. Konkoly!

Sie werden sich wundern anstatt von Dr. Lohse einen Brief von mir zu erhalten, aber die verschiedenen in Ihnen letzten Schreiben an Dr. Lohse enthaltenen Fragen müsse ich gerne selber beantworten, die ich mich ja nur schliesslich mit den spectralanalytischen Sachen beschäftige.

Zunächst theile ich Ihnen mit, dass es sehr angenehm wäre wenn Sie anstatt die Zone von −10° bis −20° einen nördlichen von +20° bis +40° übernehmen wollten, ich habe gern von Prof. Schmidt aus Athen, der sich längere Zeit hier aufgehalten hat für die Sache interressiert und er hat mir versprochen die südliche Sterne von −10° vv, einer spectroskopischen Durchmusterung zu unterwerfen.

Doch nun zur Beatwortung Ihrer Fragen über die Reduction von Scalantheilung auf Wellenlängen.

Bei kleinen Spectroskopen geschieht diese Reduction durch eine Tafel die nur sich mit Hülfe graphischen Vorstellung anlegt. Ich will als Beyspiel die Beobachtungen in einem kleiner Henstrenschen Spectroscop beifügen. Ich setze voraus man habe in der Sonne die Beobachtungen gemacht und für die stärksten Fraunhoferschen Linien die nutzgenfrei Scalantheile durch wiederholten Beobachtungen bestimmt. Erwarten nun Wellenlängen von oben ..., Scalantheile von rechts nach links aufgetragen; bei einem so kleinen Spectroskop reicht ob und wann man die Entfernungen für Scalantheile und Wellenlängen so nimmt an auf dem beiliegenden Kärthchen. Sind die Punkte, die man beobachtet hat, alle eingetragen, so legt man eine möglichst gleichmässig verlaufende Curve durch die Beobachtungspunkte. Die uns vermeidlichen kleinen Fehler gleichen sich aus... ...aus die Curve nicht zickzack. Nach jedem Punkte giesst sondern so, dass sie sich möglichst genau über doch nicht absolut aller beobachteten Punkten anschliesst. Z. B



nicht so sondern wahrsch. Curve

Ist das geschehen so sieht man wo die Curven die Linienbedingungen.....sicher dat., aus dem beigefügten Kärtchen möchte

folgen	5clth	netzsieht	Wellenlänge	1. Diff	2. Diff
5	"	"	545.0	−10.0	+1.7
6	"	"	531.0	−8.3	+0.6
7	"	"	522.7	−7.7	+0.7
8	"	"	515.0	−7.0	+0.5
9	"	"	508.0	−6.5	+0.5
10	"	"	501.5	−6.0	
11	"	"	495.6		

aus den Differenzen sieht man dann ob man Fehler gemacht hat,verlaufen dieselbe regelmässig, so hat man sich nicht versehen. Man bilde die 2 ≥ Differenzen und wenn dieselben erhebliche

Sprünge zeigen sollten so corrigirt man darauf die Suchtwerthe so lange nach bis dieselben gehoben sind. Zu viel darf man nicht verlangen, da sehr kleine Fehler in den Suchtwerthen schon ... Abweichungen in den 2. Differenzen hervorbringen. Zu dem Beispiel weise ungefährte Fall wäre man mit dem Reductionstafel fertig; hat man mächt für einzelnen Scalantheile die durchflechte Punkte der Curve aufgefässt, fanden für in 2 der 4 Scalantheile so hat man dann noch durch einfache Interpolation die Werthe für die einzeilnen Scalantheile zu finden. Ist endlich das Spectroscop derart, dass mann grössere Genauigkeit bei der Messungen verumfassen kann, als hier angenommen wurde, so muss man die Curve an 2 oder 3 mal grösseren Masstaben auszuführen sonst bleibt natürlich alles dasselbe.

Schwieriger und .... Bande ist das strenge mathematische Verfahren, und man glücklicheweise nur ... bei Detail, Untersuchungen an der Sonne oder sehr hellen Kernsparte ... nöthig hat auch hierum lasse ich ein Beispiel falzen. Es sind z. B. zwischen den Linien 516.16 und 523.21 (W.L.) im Sonnenspectrum. einige Hundert Linien (mit Hülfe der euere gr. Spectralapparat) gemessen werden die Ablesungen der ... sind von einem beliebigen O Punkt und gemesst dieselben in W. L. zu verwandeln kann von keine Proportionalität zwischen .... u. W. L. ... fand muss ... annehmen, dass wenn man die ...hängen als Abbeissen die W. L..als Ordinaten auftragen würde, man eine Curve bekommen würde....noch der Farben angegeben...zu verfahren dürfte zu ...worden es wird daher nur gerecht zwischen der Linien W.L. 516.16 u. 523.21 sind mehrens Parte Liniens daran W. L. von Ångstr. genau bestimmt ist ... ich habe solche in dem ...ausgesucht die möglichtst gleich weit abstehen:

	516.16	Schraube	$0^r.072$
Die Ablesungen an der	516.69		452
Schraube die den Linien	517.20		800
.....,	518.31		1.562
sind beigefügt.	519.15		129
	520.16		798
	520.75		3.184
	521.45		3.632
	522.62		4.371
	523.21		4.738

...man die W.L. mit W. die Schraubenablesungen mit R. so kann man 11 Gleichungen von der Form:

$$W=A + BR+CR^2 + DR^3+ \text{.....}$$ Aufstellung

Uns denen die ...Werthe für die Constanten A B C D etc. sich nach der Methoden der kleinsten Quadrate ableiten lassen. Ich habe die ...etwas zu.... Differenzen der Wellenlängen u, Differenzen der Schraubenablesungen von der ersten ausgehend genommen ist ... die Diff. der Wellenlängen von 516.16 Mill. Mill. 2. r. die der W.L. 516,16 entsprechende = 0.000 gesatz so konnte man zu folgendes 10 Bedingsgleichungen:

Δ	=	a	r	+	b	r^2
0.52	=	a	0.380	+	b	$(0.380)^2$
1.04	=	a	0.733	+	b	$(0.733)^2$
2.14	=	a	1.490	+	b	$(1.990)^2$
2.89	=	a	1.996	+		
3.01	=	a	2.057			
3.99	=	a	2.726			
4.60	=	"	3.112			
5.28	=	"	3.560			
6.46	=	"	4.299			
7.05	=	"	4.666			

Es ...mir bis zur 2 Δ ... zu sehen. Nach der Math der kl. Quadrate noch von die warschl. Werthe von a b aus der Gleichungen:

$[\Delta r] = a\,[r^2] + b\,[r^3]$

$[\Delta r^2] = a\,[r] + b\,[r^4]$

wo $[\Delta r]$ die Summa aller .... Δr also: $\Delta_0 r + \Delta_1 r_1 + \Delta_2 r_2 \ldots$

.... Aus den Gleichungen folgt:

$120.78 = a\ 81.15 + b\ 296.93$ und daraus

$443.66 = a\ 296.93 + b\ 1164.19$

$a = 1.4064$

$b = 0.0223$

Von zu sehen ob aller richtig ist ... man mit a und b und der Glitz $\Delta = ar+b\ r^2$ die verschiedenen Werth von Δ zurück erhält

0.53	Fine Übereinstimmung mir ...
1.04	sie besser zu erwarten ist
2.15	Mit Hilfe der Gleichung kann man
2.90	nun für jeder r selbständig nur
2.99	in dem Zwischenraum für welche die
4.00	Untersuchung gibt die Wellenlängen
4.59	berechnen, zunächst verständig nur Δ
4.59	man bricht aber nur das Gefunden
5.29	Δ zu 516.16 zu addiren um die
6.46	gesuchte W. L. zu vorstellen
7.05	

So würde gefunden:

Schraube:	W.L.
0.5000	516.16
165	516.35
205	16.44
236	16.49
298	16.58
380	16.69
466	16.82
484	16.85
606	17.02
u.s.w.	

Verzeichen Sie lieber Herr Konkoly, wenn ich etwa zu grundlich gegenst bin, ich fühlte vielleicht mancher kürzen ... können ohne unklär zu erscheinen. Verzeichen Sie ferner auch mein schlechtes ... u. die vielen Correctionen, ich bin auf der Reihe als ich ... schrieb u. ist nicht ungerechneter Lösen zu mich frei. Dr. Lohse der Sie herzlich grüssen lässt, hat mir sein Bild für Sie übergeben

Mit freundlichem Grüss
Ihr ergebenster

Vogel

SCOH

Sternwarte bei Potsdam
17 Oct. 1876.

Hochgeehrter Herr!

Bei Ihrer Anwesenheit theilten Sie mir mit, dass auch auf Ihrer Sternwarte Sonnenflecke beobachtet wurden, und sagten Sie mir freundlichst zu, mir einige Oerter senden zu wollen für die näher zu bezeichnenden Tage.

Kann ich von diesem Jahre 1876 Beobachtungen der Flecke erhalten, welcher Ende Mai sichtbar war?

Mein Observatorium wurde Juni 20 abgebrochen, und es dauerte einige Zeit bis die Beobachtungen fortgesetzt werden konnten. Ich habe Juni 22 einen hübschen Fleck mit einem kleinen Fernrohr gesehen aber der Ort derselben fehlt mir. Ob noch ein anderer Fleck bis Juli 18 sichtbar war, ist mir nicht bekannt.

Für Juli 19 habe ich eine Messung, die aber wegen Wolken sehr unsicher ist.

Kann ich zunächst für diese Zeit Oerter erhalten? und zugleich mit Ihrer zu erwartenden Antwort?

Ferner frage ich an, ob ich aus dem Jahre 1874 von Juni 12 ab Oerter erhalten kann? Es würde mir lieb sein, wenn es für eine grössere Anzahl von Tagen möglich wäre. Für alle Ihre Beobachtungstage nicht; ich würde angegeben würden.

Später würde ich mir erlauben zur Ausfüllung einiger Lücken in anderen Jahren (1872, 73, 75) anzufragen.

Mit der vorzüglichsten Hochachtung
ganz ergebenst

Prof. Spoerer

SCOH

Potsdam 28 Nov. 76.

Hochgeehrter Herr!

Für Ihre gütigen Sendungen sage Ihnen besten Dank. Zur Erfüllung der Beob. Lücken ist zunächst ... Reihe Ihrer Örter aus dem Jahre 1874 brauchet Dabei hat sich die Nothwendigkeit Frage gestellt, wegen einiger Beob. Daten nochmal anzufragen. Es sind vielleicht noch die Original-Hefte vorhanden, und möchten sich Schreibfehler oder Druckfehler angeben lassen. Ihr Herr Gehülfe würde wohl auf Ihre Veranlassung mir der Gefälligkeit erweisen in Bezug auf folgende nachsehen:

1874

Juli 9

Bei der beiden ersten Örtern muss die Rectascension beträchtig
---
ist wohl die Declination zu gross

Juli 24 Beim letzten Orte (+60,0 - 2,3) ist die Declination erheblich....

Juli 25 Die beiden Örter sind zu revidiren.

Aug. 5 Die zwei erster Örter sind falsch

Identisch sind	Aug. 3. {	−9.3	+2.4 }
	Aug .6. {	−45.9	+5.2 }
	Aug. 7. {	−54.0	+5.9 }
ferner			
	Aug. 3. {	−1.4	−0.1 }
	Aug. 6. {	−42.5	+2.6 }

Vergleichen sollen die Örter Aug. 5, welche nicht die angegebenen sein können.

Aug. 5. Beim vorletzten Örter ist die Rectascension fraglich; muss wohl kleiner sein

Aug. 7 Beim vorletzten Örter kann die Declination −8.9 nicht richtig sein.

Sept 5. Beim ersten Örter Declination 7.5?

Bald Nachricht erhalte, ob bei Revision der Manuscript in Bezug auf die angegebenenen Fallen eine Verbesserung ... zufrieden war.

Mit der vorzüglichsten Hochachtung
ganz ergebens
Spoerer

SCOH

Ill.mo Signore

Roma 23 marzo 77

Rispondo ben volentieri ai suoi quesiti sulla luce rossa che si manifesta nella luna durante l'Eclisse. L'opinione comune e' che questa sia la luce solare che refratta dall' atmosfera terrestre entra dentro il cono ombroso. Il colore sarebbe dovuto all' assorbimento della atmosfera stessa, che assorbe molto i raggi bleu lasciando una gran parte dé' rossi (dico una grande parte dé' rossi, perché anche questi sono assorbiti). A quel modo che il Monte Bianco nelle alpi e il Monte Rosa sono illuminati in rosso dai raggi cosi filtrati del sole tramontante, cosi la luna é finta dal rosso della luce penetrata dentro al cono ombroso. Questa penetrazione é' possibile, perché la nostra atmosfera fa le veci di un prisma che piega nell' immersione sola i raggi solari di 34', e se si piega altrettanto nell' emersione abbiamo una piegatura di 68', onde giá possono andare a raggiungere la luna direttamente, ma se si aggiungono le riflessioni essi potranno piegarsi anche di piú! Sicché é incontroverso che la luce del Sole puó per rifrazione entrare nel cono ombroso della terra, e arrivare alla Luna.

In tale rifrazione deve subire assorbimento, e V.S. (?). dice si devono vedere le righe di Brewster. Cioó é vero, e realmente accade cosi. Nell' ultima eclisse io osservai collo spettroscopio a fessura, e di forza moderata applicato al refrattone la luce della luna mentre era ancora parzialmente eclissata, e trovai quanto segue.

1.o Nella regione (porta ?) entra l'ombra e rossa di rame la luce era troppo debole per rilevar nulla di preciso. 2.o Nella regione chiara il solito spectro solare. 3.o. Al limite vicino alla luce ramata trovai fortemente sfumata la D, delle zone indefinite e mal taglienti nel rosso, deboli e appena discernibili. Li erano (come ella dice) visibili i gruppi del magnesio e del ferro e sopratutto una gran lacuna nel bleu: lacuna che si vede bene nello spettro dell' orizzonte la sera dopo tramontato il sole, e anche nello spettro delle stelle all' orrizonte, per la quale lacuna le stelle danno lo spettro diviso in due e come col violetto staccato dal resto. Mi pare pertanto che realmente questa luce porta l'impronta della luce che ha attraversato la nostra atmosfera. Che se non si vendono bene spiccate quelle zone nere di Brewster tanto carratteristiche nel rosso questo puó attribuirsi alla debolezza della luce ed alla oscuritá di questo stesso colore che é troppo debole ed oscuro. In ció accade il fatto stesso della luce aurorale (della aurora Boreale) che ...rossa pure nello spettro si stenta a trovare le zone rosse!

Cosi mi pare sciolta la sua difficoltá del non vedersi le zone di Brewster, perché nell giallo veramente esse si vedono e quella grande sfumatura delle righe D che io vidi non sono che le zone di Brewster in queste vicinanze.

Vengo all' altra difficoltá cioé se la corona solare abbia luce sufficiente da illuminare la luna e riuscir visibile per rifflessione e se la terra possa coprire alla Luna tutta l'aureola solare.

La risposta mi pare non difficile. La luce dell' aureola solare, é al piú doppia di quella della luce della Luna piena, e tal luce non mi pare sufficiente per dare luce per dare luce riflessa sulla Luna. Di piú la luce dell' aureola é verde argentina, e non rossa. Le protuberanze sole sono rosse, e queste danno poca luce e malamente sono distinguibili ad occhio nudo, salvo il caso che siano molto grandi, ed esse ora sono poche, e piccole. In un coso solo credo che si possa dire che si potrá .vedere la luce delle protuberanze nella Luna e della cromosfera e questa la credo nel caso che si occulta nell' ombra stessa della Luna un' alta cima di montagna lunare. Quando il sole tramonta per una alta cima come quelle del perimetro del cratere di Copernico ho veduto spesso queste punte tingersi in rosso, forse questo rosso é quello della cromosfera. Allora non avea lo spettroscopio, ma temo che difficilmente – si potrá ció verificare per la debolezza della luce.

Quanto al potesse la Terra coprire l'aureola solare ció non mi pare impossibile. La terra veduta dalla Luna ha un semidiametro eguale alla parallase della Luna arca cioé 60! Quindi un diametro di 120!

Il sole ha una aureola che non supera mai certamente il suo diametro, e la parte piú viva é appéna di 15' onde il raggio del Sole piú l'aureola é di 16+15=31' e il diametro puó essere al piú 62' cioé molto minore di quello che puó apparire la Terra ad osservatore Lunare. Quindi puó coprire non solo il globo solare, ma anche tutta l'aureola fino alle reggioni piú deboli.Tutto al piú potrebbe domandarsi se quella tinta azzura che separa il rosso dal giallo, nella Luna metá ecclissata non sia dovuta all' aureola; ma questa parmi sempre troppo debole, e per le osservazioni da me fatte, quel bleu mi pare piuttosto una tinta di contrasto che una realitá!

Eccole ill.mo Signore la mia opinione su questa materia. Ella ne faccia quel conto che crede. Io non conosco Io scritto del.' Ill.mo Schenzel, onde ... che sia da aggiungere altre cose.

Ad ogni modo io sono sempre a suoi ordini, come mi dichiara

Sua ... Secchi

SCOH

NATURE 1877 15. Feb. p. 344[17]

Dr N. v. Konkoly, the director of the O. Gyalla Observatory in Hungary, is at present engaged in an extensive series of observations upon the spectra of fixed stars. In the February session of the Hungarian Academy of Sciences he gave the results obtained with 160 stars. Vogel's division into three typical classes, white, yellow and red, is followed. An interesting observation was made upon β Lyrae. The bright bands in its spectrum detected by Vogel in 1871 have now entirely disappeared, and were probably due an astral protuberance. The same astronomer laid also before the Academy a carefully prepared record of all shooting stars observed in Hungary during the past six years. Their number amounts to about 2,000.

Königl. Observatorium
Potsdam
21 Dec. 1877

Hochgeehrter Herr!

Es ist mir sehr interessant, dass Sie einen Heliographen aufgestellt haben, und Ihre gütige Zusage der Zusendung einen Photographie hat mich gefreut. Wenn Ihnen die Wahl des Tages, an welchem photographirt ist, gleich ist, so möchte ich bitten einen Tag zu wählen an welchem die Photographie die Nov. 24. 25. 26 etc. vorhandenen Flecks besonders gelungen ist. Zu der Zeit war hier die Witterung ungünstig. In habe an den angeführten Tagen die Gruppe gesehn, aber nur in einer Wolkenlücke, Nov. 26 gelang eine Zeichnung, Nov. 27 konnte ich den Ort messen, aber ich behielt keine Zeit zur Zeichung. An den folgenden Tagen war der Himmel stets ganz bedeckt.

Janssen hat eine seiner Photographien an Dr. Lohse geschickt. Die Granulirung ist wirklich sehr schön zu sehen, und unterscheidet man allerlei Gruppirungen, aber es ist mir nichts neues, denn ich habe mich schon vor Jahren damit beschäftigt auch in den astron. Nachrichten etwas publicirt. Namentlich hatte ich angeführt dass diese Gruppirungen innerhalb einigen Stunden so beträchtliche Veränderungen erfahren, dass mann die vorher gesehenen Stellen nachher nicht identificiren kann.

Ihre Anfrage ob ich bei Publication meiner Sonnenbeobachtungen fernerhin Berliner Zeit wählen würde, beantworte ich dahin, dass ich unbedingt wie bisher Berliner Zeit wählen werde, indem auch meine Pendeluhr nach Berliner Zeit regulirt wird. Er wird mir daher angenehm sein, wenn Sie bei Ihren Publicationen Berliner Zeit wählen, nach bürgerlichen Zählung, nicht nach astronomischer Zählung. Ich finde es bei Sonnenbeobachtungen ganz unpraktisch, wenn man den Tag zerreichsst, indem man Vormittags ein anderes Datum ansetzt wie Nachmittags. Bei meinen Zeitangaben wird der Mittag mit 0,5 bezeichnet, nach Anbringung der Aberrationszeit, d. h. wenn die Zeit in Decimalen des Tages angesetzt wird.

Ich bin jetzt damit beschäftigt, eine Publication zum Abschlusse zu bringen, welche die Örter der Flecke bis zum Ende des Jahres 1873 enthält. Sie wissen, dass ich stets den Rotationsverhältnissen besondere Aufmerksamkeit zugewandt habe, und könnte jetzt die früher aufgestellte Formel $\xi = 8{,}548° + 5{,}598° \cos b$ durch Zuziehung weiterer Jahrgänge in den Coefficienten etwas ändern, resp. verbessern, indessen habe ich ein anderes Verfahren eingeschlagen. Ich habe die ξ den beobachteten Flecke mit der ξ der Formel verglichen und überall, wo die Unterschiede besonders gross oder sehr klein sind, die Details der Beobachtungen verglichen, und das nicht blos für die letzten Jahrgänge, sondern auch für die früheren. Mit letzterem bin ich noch nicht ganz fertig. Der Zweck ist wohl einleuchtend, nämlich auf diese Weise Anhaltspuncte zu gewinnen, um die Rotationsverhältnisse zu erklären. Dabei habe ich nicht erwartet, dass ich schon zu einer vollständigen Erklärung gelangen würde, aber es ist doch einiger gefunden, so dass die weitläufige Arbeit nicht umsonst gemacht ist. Die Unterschiede der beobachteten ξ und der ξ der Formel, welche ich $\Delta\xi$ nenne, sind bei beträchlicher Grösse fast immer negativ, also der beob. ξ zu gross, und immer dieselben ganz bestimmt angebbaren Verhältnisse fanden alsdann statt. Dies führe ich an als Andeutung des eingeschlagenen Weges,

[17] After reading this short notice Secci turn to Konkoly with a letter.

bei dessen weiterer Verfolgung sich wohl noch mancher wichtige und interessante wird finden lassen, aber der Weg ist lang und wird nur langsam zum Ziele führen.

Für Ihre frühere Zusendung habe ich noch besten Dank auszusprechen.

Mit der vorzüglichsten Hochachtung

Prof. Dr. Spoerer

SCOH

Astrophysikalisches Observatorium zu Potsdam 17 Juli 1878

Hochgeehrter Herr!

Bei den wenigen Flecken, welche in diesem Jahre vorgekommen sind, ist mir eine Fleckenreihe durch ungünstige Witterung entgangen, welche ich gern aufnehmen möchte, und erlaube ich mir anzufragen, ob Sie mir die Örter mittheilen können.

Februar 5 habe ich auf der Mitte der Sonnenscheibe 9 kleine Flecke gesehen. Die Zeitdauer der Lücke zwischen Wolken war zu kurz, so dass ich keinen Ort bestimmen konnte. Ich möchte die Örter haben für die beiden (links und rechts) an der Grenze stehenden Flecke.

Schon Fbr. 3 und 4 hatte ich nicht beobachtet, darauf nicht von Febr. 6 bis Fbr. 11. Es konnte sein, dass nach Fbr. 5. die Gruppe bedeutender geworden ist.

Zeitangabe nach Berliner Zeit, welche Sie nach Ihrem geehrten Schreiben adoptirten.

Bei Gelegenheit der gefälligen Antwort könnte noch angegeben werden für März 16 und 17 der Ort der in der Gruppe voran gehenden behoften Flecke, vorausgesetzt, dass die Örter an deren Tagen besonders gut erhalten sind. Der Fleck ist durch starke Längenzunahme interessant. Gute Oerter habe ich für März 13, 14, 15.

Sobald ich Ihre geschätzte Antwort erhalten habe, werde ich die mittlere Breite für die ersten 4 1/2 Perioden dieses Jahres abschliessen. Es ist schon zu sehn, dass sie niedrig ausfallen wird, also ohne Rücksicht auf die geringe Fleckenzahl ein Kennzeichen, dass wir noch nicht über das Minimum hinaus sind.

Unsere Bauten sind nun soweit vortgeschritten, dass mit der Aufstellung der eisernen Kuppeln bald begonnen wird, vielleicht nächsten Montag.

Mit vorzügl. Hochachtung
ganz ergebenst

Prof. Spoerer

SCOH

Astrophysikalischen Observatorium zu Potsdam

3 Dec. 78

Hochgeehrter Herr!

Besten Dank für gütige Übersendung der Photographen.

Wiederum frage ich wegen eines Sonnenflecks bei Ihnen an. Am 20 Nov. Vormittags hatte sich auf sehr lange Zeit der Himmel aufgeklärt, und Dr. Kempf war schnell genug beim Instrument gewesen und einen Sonnenfleck in 26" Abstand vom Rand zu erblicken. Die Positionswinkel konnte nicht mehr gemessen werden. Dr. K. meint, es könne vielleicht 100" gewesen sein. Darauf habe ich am 23 Nov. nachgesehen, aber keinen Fleck gefunden, indessen war ein .... Wolkenschleier vorhanden. Ferner habe ich Nov 26, 27, 28 keine Fleck gefunden. Seitdem ist der Himmel unveränderlich grau. Haben Sie vielleicht den ... Sonnenfleck gesehen; und können Sie mir den Ort mittheilen?

Wenn Sie erlauben werde ich im Laufe des Winters wieder anfragen wenn wir hier in Folge ungünstiger Witterung längere Lücken haben.

Ist eine Wolkenlücke zu erwarten so passen wir wohl auf, aber noch geht uns die Zeit vor 10 1/4 Uhr Vormittags verloren, ... mein Fernrohr noch immer in der Holzbände steht, und keine Käppe fertig ist.

Hochachtungsvoll und vergebenst

Prof Spoerer

SCOH

Astrophysikalisches Observatorium zu Potsdam

1878 Dec. 9

Hochgeehrter Herr.

Von dem Sonnenfleck, welchen Sie an den Tagen Nov. 5. und Nov. 8 beobachteten, sind hier an den Tagen Oct. 28, 29, 30, 31, Nov. 1. 2. 5. 6. 8. 9.

Oerter erhalten {	Nov. 5,459	p = 311°,32	ρ = 385"	L =	266,67	b = +10°,3
	Nov. 8,448	302,60	858		266,56	+10,1

Nov. 10 habe ich ihn auch nicht mehr gesehen.

Für Nov 20 werde ich nur den bekannten Abstand vom Rande mit einem beiläufig abgeschätzten Positionswinkel verbinden.

Als Ihr geehrtes Schreiben eintraf war Herr E. Regler wieder von hier abgereist. Dem von Ihnen brieflich ausgesprochenen Wunsche war aber schon nach Möglichkeit entsprochen. Ich habe Herrn Dr. Kempf veranlasst, einen Sonnenflecken Ort vollständig mit H. Regler durchzurechnen. Die Constanten sind H. Regler mitgetheilt, und erklärte mir daselbe, dass ihm nichts mehr zweifelhaft sei. Nachträglich fällt mir ein, dass ich nicht erwähnt habe, in welcher bequemen Weise der Einfluss der Refraction berücksichtigt wird. Ist z. B. bei richtigen Sonnenstande die Declination der Flecke = +12.3" beobachtet und der Durchmesser105,4 mit der Constanten des Netzes das Durchmesser sein sollte 107.0, so wird bei der Declination die Correction +12,3· 1.6/1,.4 angebracht.

Sollte sonst noch etwas vergessen sein, so würde Herr Regler auf Anfrage bereitwillige Auskunft erhalten.

Dass Sie Ihre Beobachtungen in deutsche Sprache veröffentlichen wollen, hat mir überrascht, weil ich glaubte, dass Ihre Akademie einen sehr grossen Werth auf Publikation in ungarischer Sprache legt, wobei allerdings die Publikationen in der gelehrten Welt unbekannt bleiben denn mit den germanischen und romanischen Sprachen hat die ungarische Sprache nichts gemein, so dass man vergeblich den Sinn zu erraten sich bemüht. Ich wollte schon den Vorschlag machen, dass Sie für Ihre Publikationen die Akademie zur Wahl der lateinischen Sprache veranlassten, indem ich dachte, dass vielleicht die Akademie darauf einginge, indem eine nicht lebende Sprache gewählt würde. Indem aber Ógyalla der Hauptstadt Wien so nahe liegt, und Sie in steter Verbindung mit Wien sind, ist es gewiss am einfachsten die deutsche Sprache zur Publikation zu wählen.

Die Frage, ob ich errathe die (Sonnen) Flecken Örter in heliographischen Coordinaten anzugeben und nicht in R. und Decl. – diese Frage hängt ab von der Möglichkeit der Durchführung. Wie ich auch dem H. Regler sagte, behalte ich mir zwar vor, die Örter einzelnen Flecken in Gruppen zu messen, und zu berechnen für den besonderen Fall, dass ich über die verschiedene innerhalb der Gruppen vorkommende Ortsveränderung eine Untersuchung ertheilen will, aber in Allgemeinen beschränke ich mich darauf die am Anfange und Ende (westl. u. östl.) befindlichen Kerne zu messsen, ferner einen vornehmen Kern, von welchen ich erwarte, dass er sich später zu einem gesonderten befassten Fleck entwickeln werde. Auf weiters lasse ich mich im Allgemeinen bei den Gruppen nicht ein. – Denn messen kann man leicht noch mehr, aber berechnen! Wird die Anzahl der Flecken grösser, so muss man sich beschränken, um die Masse der Rechnungen bewältigen zu können.

Ich erlaube mir daher den Vorschlag, von den geoc.- Coordinaten nicht abzustehen, – ich wähle .... – daneben könnte L und b angesetzt werden, also immer doch (incl. Zeit) 5 Columnen nur in nächsten Jahre, wo die Flecke noch nicht so zahlreich sein werden, mit der Ortsberechnung zu beginnen für alle Flecken – mit angegebener Beschränkung bei den Gruppen.

Später macht sich dann die weitere Beschränkung von selbst, wenn es nicht mehr möglich ist, das ganze Material zu bewältigen. Dann können bei minder wichtigen Flecken die geoc. Örter angegeben werden, die Columnen der hel. Örter leer bleiben, aber so dass von jeder Gruppe mindestens einmal oder zweimal mit Bevorzugung der auf der Mitte d. Sonnenscheibe befindlichen der Ort berechnet ist. Wer dann Lust hat, kann sich nach den angegebenen geoc. Örter die hel. auch für die andere Tagen berechnen.

[Spoerer]

SCOH

Astrophysikalisches Observatorium zu Potsdam

18 August 79.

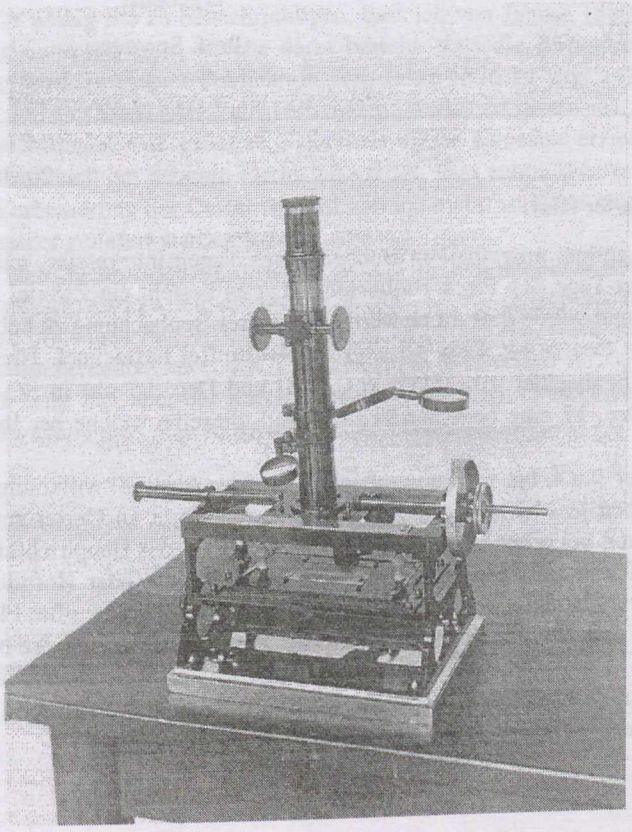
Hochgeehrter Freund!

Ich gehe gleich nach der Astronomenversammlung fast nachdem Süden, bin also in der 2-ten Hälfte des Septembers nicht hier. Ich würde mich sehr freuen Sie zu sehen u. denke Sie werden es so einrichten können, dass Sie auf der ... mich hier besuchen. Das grosse Fernrohr Repsold– Schröder, steht bereit, es gibt also etwas ... zu sehen. Das Observatorium ist nahezu fertig, es wird October wohl ganz fertig werden. Ihrer Beobachtungen werde ich mich auf der Astronomen Versammlung gerne annehmen, ob ich sie alles selbst vorlage, oder durch einen anderen vorlegen lasse, kann ich nicht angeben. Ich bin kein Redner, es würde mir sehr schwer fallen, selbst etwas ordentlichst über Ihre Beobachtungen zu sagen u. das wohl verrichtet jemand anders damit zu benutztragen.

Mit den besten Grüssen
Gruss der Ihrige

H. Vogel

SCOH



Astrophysikalisches Observatorium zu Potsdam

12 Januar 1880.

Hochgeehrter Herr!

Zu nächst besten Glückwunsch zum neuen Jahre.

Haben Sie auch mit so argem Nebel begonnen wie hier ist? Seit Dec. 30 ist die Sonne nicht sichtbar gewesen, und es sieht noch gar nicht so aus, als ob es bald besser wird. Ich habe eine so arge Lücke in meinen Beobachtungen kaum gehabt und bitte freundlich um Angabe der Tage, an welchen bei Ihnen beobachtet ist, und wenn Flecke vorhanden waren, um Angabe der geocentrischen Position.

Bei dieser Zusendung wollen Sie gefälligst noch Ihre Örter aufnehmen lassen, welche Sie von dem Anfangs Dezember vorhandenen hübschen behoften Fleck erhalten haben.

Ich habe die Örter

Dec. 1,432	p =	151.15°	ρ =490°
3,429		208.78	359

dazu ist zwischen Wolken ganz beiläufig erhofert

Dec 4,530		255.7	444

Kann ich für Dec. 4 einen genaueren Ort erhalten? und vielleicht noch einen für einen anderen Tag?

Wenn wir neblige Monate bekommen, wie es fast den Anschein hat, so werde ich mir wohl gelegentlich wieder Auskunft erbitten müssen.

Mit freunlichem Grusse
ergebenst

Prof. Spoerer

SCOH

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20. Januar 80.

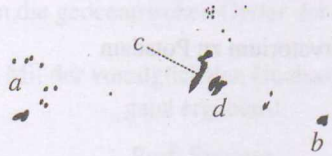
Hochgeehrter Herr!

Von der gütigst mitgetheilten Beobachtungs Tagen interressiert mich zunächst Dec. 3. Ich habe an diesem Tage den Fleck beobachtet, aber es besteht ein Zweifel wegen einer Angabe im Beob. journal und würde dies durch Mittheilung Ihrer Beobachtung zu heben sein.

Die Tage Dec 6. bis Dec. 16 sind als fleckenfrei bezeichnet. Hier ist Dec. 9. Vorm. ein kleines Fleck beobachtet [p = 211° ρ = 318] und Dec. 16 war in SO eine kleine Gruppe aus welchen bis Dec. 17 eine bedeutendere entstand, dieselbe welche bei Ihnen Dec. 19 beobachtet wurde.

Die Oerter Jan 4. bis 14 wären mir mit folgender Auswahl willkommen. Es ist z.B. für Jan. 7 und 8 angegeben je 14 Flecke, aber ich berechne nicht je 14 Oerter sondern nur die vereinzelt vorkommen, und bei einer Gruppe diejenigen welche in der Hauptrichtung am Anfang und Ende liegen nebst demjenigen Fleck, welcher sich durch Grösse oder Hofbildung auszeichnet, zumal wenn zu erwarten ist, dass aus diesem später ein regelmässiger behofter Fleck ensteht.

Ich kann dies für Jan 15 erläutern, wo Sie angeben, dass 9 Flecke beobachtet waren. Davon befanden sich 2 nahe der Westrande, und beide Örter werden berechnet. Aus Ihrem früheren Beobachtungen werde ich ersehn wo die Gruppe vorher gewesen ist. Die übrigen 7 Flecke kamen auf die Gruppe, welche wie folgt gezeichnet ist.



Hauptrichtung

Die Hauptrichtung ist bestimmt durch die Fleck *b* und den Mittelpunkt *a* der westlichen Fleckenbogens. Es wird also *b* als Ende der Gruppe angesetzt und *a* als Anfang, dabei also *a* als Anfang, obwohl an dieser Stelle kein Fleck vorhanden war. Wollte man nicht *a* als Anfang nehmen, so müsste man 2 Örter, den nördlich von *a* und den südlich von *a* befindlichen Fleck berechnen, was wegen der Veränderlichkeit keinen Zweck hat.

Der Ort der beiden Kerne c und d ist auch gemessen und wird berechnet, um zu vergleichen, was später daraus wird.

Wenn Sie gefälligst danach verfahren lassen, wird die Anzahl der mitzutheilenden Örter auf einige wenige reducirt. Ich würde nur noch darum bitten eine kleine Zeichnung beizufügen, welche mir wertvoll ist, auch wenn sie ganz oberflächlich d. h. mit wenigen Strichen gezeichnet ist.

Mit vorzüglichen Hochachtung
der Ihrige

G. Spoerer

SCOH

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26 Januar 1880.

Hochgeehrter Herr!

Ihre gefällige Zusendung habe heute erhalten und sage dafür besten Dank.

Weil Sie bei Berechnung der Fleckenörter sich meinen Constanten angeschlossen haben, halte ich es für nöthig Sie zu benachrichtigen, dass ich von Januar 1880 ab eine kleine Änderung der Rechnung eintreten lasse, welche darin besteht, dass die Refraction der Sonnenatmosphäre berücksichtigt wird. In meiner Publication vom Jahre 1876 ist pag. 142 als Resultat angegeben, dass dg'= O°,122 tg (3'+3) (AG Publ 13/II 142 p. szerk.) zu setzen sei. Zwar soll erst noch durch spätere Beobachtungen eine grössere Sicherheit dieser Constant erzielt werden, aber ich habe mich inzwischen auch bei neueren Oerter überzeugt, dass schon die Anbringung der obigen eine wesentliche Verbesserung der Oerter ist, und will ich nicht, so lange warten, bis die Verbesserung noch zuverlässiger geliefert werden kann.

Es geht aber höchst bequem, dass für geoc. S H Sonnenradius R hat man 3/R = sin. (3'+3) wo ... heliocentrisch, also zu dem erhaltenen Winkel (3'+3) ist dem Refr. Betrag zu addieren.

Für jeden einzelnen Fall +0°,122 tg (3'+3) zu berechnen, wäre unbequem; weshalb ich ein kleines Täfelchen berechnet habe, das ich Ihnen anbei übersende.

Nunmehr wird hier aber der Refractionsbetrag bei allen Oertern angebracht, auch wo er nur klein ist, in Erwägung dass man so geringe Mühe davon hat.

Mit der vorzüglichsten Hochachtung
ganz ergebenst

Prof. Spoerer

SCOH

Astrophysikalisches Observatorium zu Potsdam

Jun. 16. 1880.

Lieber Herr v. Konkoly

Ich freue mich sehr, dass Sie meinen groben Brief freundlich aufgenommen haben, es war gut gemeint. Gegenwärtig habe ich keine Zeit Ihnen die Fehler mitzutheilen, ich würde Ihnen aber empfehlen, dieselbe vor Ihnen jetzigen ... aufsuchen zu lassen, ob es doch ein guter Stufstein für seine Zuverlässigkeit sei. Über die Sterne der Cl. I. Bl. finden Sie eine ganz genaue Beschreibung in Nr. 2000 der Astr. Nachrichten; es ist dort alles auf der genauesten gezeigt. Ich empfehle Ihnen stets, wenn Sie keinen dunklen Banden oder deutliche Linien im Spectrum erkennen können, hinzuschreiben "continuerlicher Spectrum" – vorausgesagt, dass es wirklich continuerlich ist. Es ist damit schon viel gesagt. Gesetzt der Fall Sie hatten keinen gegenwärtigen Apparat um in Schmidt Nova (...) anfänglich Linien erkennen zu können, so hätten Sie doch bestimmt erkannt, dass der Spectrum continuerlich sei, später hätten sie aber bestimmt, auf mit geringen Hilfsmitteln gefunden, dass der Spectrum aus eine Linie bestand, also nicht continuerlich sondern fast monochromatisch war. ... Gewiss bloss eine höchst werthvolle Beobachtung.

Lass genug davon
Mit herzlichen Gruss

Ihr Vogel

SCOH

Astrophysikalisches Observatorium zu Potsdam 24 October, 1881

Hochgeehrter Herr!

Indem ich das neue Manuscript der Beobachtungen seit Anfang 1880 anfangen wollte, nahm ich in Rücksicht darauf dass ich an der ersten Tagen des J. 1880 wegen trüben Witterung nicht beobachten konnte, die von Ihnen publicierten Beobachtungen vor, wobei ich zuerst gar nicht zurecht finden konnte. Sie haben früher die Güte gehabt mir etliche Beob. d. Tage Jan. 7 und 8 in R. und. Decl. zu senden, wonach ich Oerter berechnet hatte. Der stimmte nun alles nicht. Die pag. 72 mit gleichen Nummern bezeichneten stimmen durchaus nicht unter einander, die Reduction A-L passt nicht.

Darauf fand ich heraus, dass bei Jan. 8 die in derselben Zeile stehenden A und L nicht zusammengehören, aber wenn man theilweise schiebt, so muss doch noch A-L- geändert werden.

Dazu ergab sich, dass bei ziemlich vielen Oertern nicht die Breite b abgedruckt ist, sondern die Correction der β (heliocentrische Breite) nach der Tafeln, d. h. die Beträge welche in meinen Tafeln (pag. 4 und 5) mit m bezeichnet sind.

Ich möchte Sie daher freundlichst erreichen mir die R. und. Decl. für die Tage 1880 Jan. 4. 6. 7. 8. 10. 12. nach der Originalbeobachtungen ausschreiben zu lassen oder nach Belieben Positionswinkel und geoc. ρ. Ich werde mir dann die Örter von dem ich Gebrauch machen will (bei Gruppen der Anfang und Ende etc) abermals berechnen, bei dieser Rechnung auch den Betrag für Refr. anbringen.

Von der folgenden Oertern sind auch noch manche bedenklich, besonders kommt vor, dass etliche mit denselben Nummern bezeichnet überaus stark von einander abweichen. Sollte ich nun von anderen noch Gebrauch machen wollen und dabei Bedenken haben, so werde ich mir erlauben anzufragen.

Das Examplar habe ich nun von der Buchhandlung erhalten nur muss es wieder zurückgeben, weil vom Institut dasselbe nicht gekauft werden soll, zu Erwartung nähmlich, dass Sie nur ein Exemplar zusenden. Ich möchte Sie noch bitten, im Falle Sie die Absicht haben, mir recht bald das Exemplar zu senden,

zunächst bitte ich um die geocentrischen Oerter der bezeichneten Tage.

Mit der vorzüglichsten Hochachtung
ganz ergebenst

Prof. Spoerer

SCOH

Astrophysikalisches Observatorium zu Potsdam

Hochgeehrter Herr!

Für Ihre gütige Zusendung besten Dank. Umstehend übersende die berechnete Oerter mit Hinzufügung einigen von mir beobachteten.

Nach meinem gewöhnlichen Verfahren erhalte ich für die mittlere heliogr. Breite des ersten Drittels 1878 für jede der beiden Halbkugel 6.9° also gegen früher eine beträchtliche Veränderung.

Seit Juli 22 habe ich an mehrere Tagen auffallend schöne Protuberanzen beobachtet.

Mit vorzügl. Hochachtung
ganz ergebenst

Prof Spoerer

Febr.	6.472	251.05°	383'	23.04°	175.79	281.96	−5.8°	Am Anfange der Gruppe 3.
	7.494	251.63	590	37.12	190.95	282.54	−5.0	
	8.522	250.84	754	50.47	205.40	282.32	−4.5	
	6.472	252.97	351	20.99	173.71	279.88	−5.5	andere Flecke derselben Gruppe
	"	252.75	327	19.51	172.24	278.41	−5.6	
	"	250.29	322	19.23	171.98	278.15	−6.5	
	7.494	252.04	543	33.74	187.56	279.15	−5.1	
	"	251.24	521	32.19	186.04	277.63	−5.6	
	8.522	251.20	721	47.58	202.49	279.42	−4.5	
	"	250.90	710	46.63	201.56	278.48	−4.8	
	"	250.28	698	45.56	200.52	277.44	−5.3	
	6.472	252.75	151	8.89	161.57	267.74	−6.0	*Gruppe b*
	"	246.49	115	6.75	159.39	265.56	−8.6	
	7.494	251.70	343	20.52	174.30	265.89	−5.9	
	6.472	255.31	39	2.30	154.94	261.11	−6.0	*b'*
	"	148.28	41	2.41	152.04	258.21	−8.5	
	7.494	244.48	250	14.81	168.50	260.09	−7.9	*b'*
	8.522	248.05	456	28.08	182.98	259.90	−6.7	

Von: 4

März	13.593	334.75	239	14.26	188.40	153.52	+7.4	*behofter Fleck am Anfange der Gru*
	14.550	292.20	325	19.55	202.52	153.99	+7.4	
	15.457	273.72	778	29.50	215.95	154.48	+7.3	
OG	16.452	264.72	644	41.68	230.42	154.75	+7.3	
"	16.605	263.98	671	43.81	232.69	154.84	+7.5	*des gl.O.G.*
"	17.419	259.69	783	54.02	244.27	154.80	+7.3	
"	18.511	256.36	899	68.47	260.23	155.19	+7.5	*verkleinert* "
"	15.457	277.21	427	26.14	212.20	150.73	+7.0	*behofter*
OG	16.452	265.64	610	39.04	227.72	152.05	+7.0	*Fleck nach März 13*
	16.605	264.55	639	41.21	230.0	152.21	+7.0	*entstanden*
	17.419	260.04	764	52.13	242.36	152.90	+7.1	
	14.550	316.99	286	17.13	194.58	146.05	+9.4	*Ende der Gruppe*
	15.457	286.29	387	23.53	207.81	146.34	+8.7	*Kron im östl.Zeile*
	16.452	272.76	552	34.73	222.08	146.41	+9.2	*OG*
	16.605	271.55	577	36.56	224.79	146.94	+7.8	"

SCOH

Hochgeehrter Herr College!

Empfangen Sie meinen verbindlichsten Dank für Ihr werthvolles Geschenk, den III. Band der Ógyalla-Beobachtungen, der so viel Interessantes enthält. Ich erlaube mir Ihnen eine Lithographie von dem einzigen zu Prag vorhandenen Originalporträt von Tycho Brahe zuzusenden, die ich für die Strassburger Versammlung zur Vertheilung an die anwesenden Mitglieder machen liess; leider ist sie etwas grob ausgefallen. Dass nähere darüber finden Sie im nächsten Hefte der VJS. Die Versammlung war sehr interessant; es waren seltene Gäste da, O. Struve, Schiaparelli, CHF Peters aus Clinton. Schiaparelli sagte mir, Ihre Zeichnung der Venus sei gut, er habe selbst derartige Flecken gesehen; Schade dass Sie das Instrument und die Vergrösserung nicht angegeben haben, doch wohl der 10 1/4 inch Browning.

Ich habe leider ein schlechtes Jahr, kränkte viel, hatte auch schon seit der Rückkehr von Strassburg einen vehementen Rheumtismuserfall. Mit besten Wünschen für Ihr Wohlergehn

Ihr hochachtungsvoll ergebenster

O. Safarik

Weinberge bei Prag 252
1881 XI 7

SCOH

Comission für die Beobachtung des Venus Durchgangs
Berlin, 1883 April 14.

Hochgeehrter Herr,

vor einiger Zeit habe ich an Ihren Observator Herrn Dr. Kobold eine vorläufige Anfrage gerichtet ob er geneigt sein würde, ... Reduction der Beobachtungen unserer Venus Expeditionen einige Jahre hier zu arbeiten. Ich habe mich nur zögernd zu dieser Anfrage entschlossen, weil es

mir peinlich war Ihre grosse Gefälligkeit, mit welcher Sie Herr Kobold für unseren Dienst beurlaubten, dadurch zu vergolten, dass ich Ihnen eine Hülfe für die Dauer entzüge; ich habe sie aber schliesslich gethan, theils aus Interesse für Dr. Kobold, da ich früher, von Dr. Lakits, gehört habe, dass derselbe absolut ausser Stande, sei ... der ungarischen Sprache zu bemächtigen, und darin doch ein grossen Hindernis für ein Fort... in Ihrem Lande finden wird, theils weil ich augenblicklich sonst niemand wüsste, der ich zur Reduction unseres Materials anstellen könnte ohne nach jedem Detail selbst sehen zu müssen, wozu ich keine Zeit mehr habe; und ich wünsche doch dringend zu verhindern, dass unsere Beobachtungen wieder zu lange wie seit 1874 liegen zu bleiben.

Wollen Sie freundlichst mir der gewiss auch von Ihrer anerkannten Wichtigkeit des Gegenstandes, und der Nothlage, in der ich mich der Aufgabe gegenüber befinde, entschuldigen, dass ich einen Schritt gethan habe, der Ihnen vielleicht vorübergehend einige Umbequemlichkeit schafft.

Ich schreibe heute wieder an Hrn. Kobold um ihn anzuzeigen, dass es mir ... swerth sein wird, wenn er Anfang Juni hier entritt, falls Sie ihr so bald entlassen können. Er schrieb mir, dass Sie im Mai Ihre Sternwarte abbrechen, und später im Pesth wieder aufbauen wollten, und wünschte Ihnen dabei noch zu helfen; mit dem Abbruch würde er sich auch zu machen, die Wiederaufbau steht aber wohl erst - oder wenigstens die Aufstellung der Instrumenten in dem wiedererrichteten Bau - in erheblich späterer Zeit zu erwarten, deren Abwarten ... Dr Kobold die Aufnahme unserer Reductionen sehr verzögen würde?

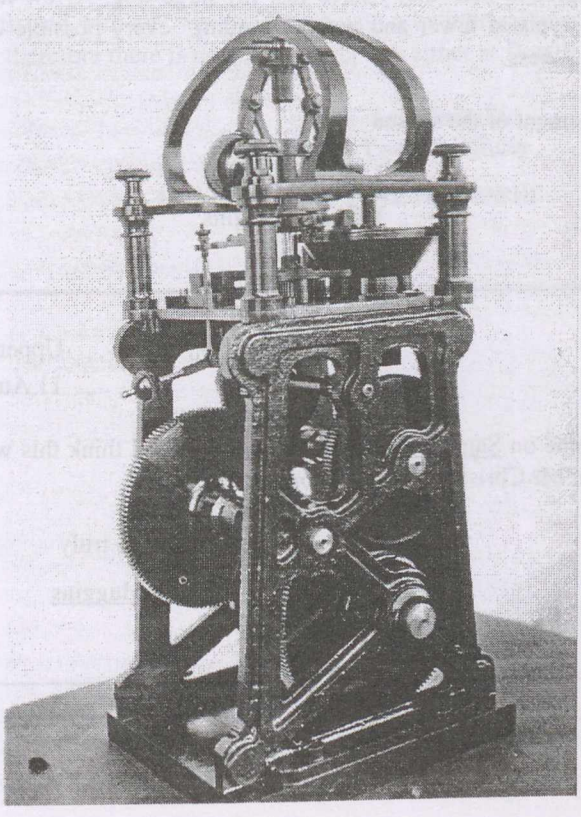
Vor etwa 14 Tagen erhielt ich den 4. Band der Publicationen Ihres Observatoriums, für dessen gefällige Sendung ich Ihnen meiner verbindlichsten Dank ausspreche. Früher hatten Sie die Güte mit den 1. und den 3. zu senden, den 2. erhielt ich nicht – besitzen Sie noch hinreichenden Vorrath, so würde ich in gefälliger Uebersendung die Completierung der schätzbaren Reihe und zugleich ein Zeichen erhalten, dass Sie mir wegen Dr. Kobold nicht zürnen.

Hochachtungsvoll bin ich

Ihr ganz ergebener

A. Auwers

SCOH



Upper Tulse Hill S.W.
London

Dear Sir, Juny 15, 1875.

I ought to have acknowledged long ago your letter about my dog. It came just as I was leaving for Scotland. The dog remained at home, but the Empress did not come.

Kepler (the dog) is now rather larger and stouter than when you saw him. I have to thank you very much for the books you have been so good as to send me.

I made some observations on Coggia comet and I have sent them to the Royal Society. They are not yet printed. I will send a copy when I receive it.

The weather here has been exceedingly unfavourable for astronomical observations.
"Kepler" and "Tycho Brahe" (the small dog) bark their love to you

Believe me
Yours very sincerely

SCOH

Upper Tulse Hill S.W
London
Dec 27, 1877

Dear Sir,

I received your observations of shooting stars, I have sent them to Mr Glaisher the president of the Luminous Meteor Committee. I was so sorry not to be in London to receive you when you called at Tulse Hill.

I enclose a copy of a letter preliminary ... ... photographs of star and planetary spectra. I have had such bad weather that I have not yet got a sufficient number of observations for a ... complete paper. I am trying some new arrangements and when I am able to send to the Royal Society a full account of the... and results, I shall have very much pleasure in sending a copy to you.

You will regret to hear that I have lost my large dog. A few months since he was taken suddenly ill with typhoid fewer and notwithstanding every possible care and attention he died after a fortnight's illness.

With complement of the season

yours very truly
William Huggins

SCOH

Upper Tulse Hill. S. W.
11 Augt. 1881

Dear Sir,

Will you come on Saturday 20th to lunch at 1 p.m.? I think this will suit your arrangements. Do you know that Mr Christie is now Astronomer Royal?

yours very truly

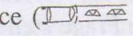
William Huggins

SCOH

Astro-physikalisches
Observatorium
in Ó-Gyalla, Ungarn

1883 22 12

Dear Sir!

I beg you for the great kindness to let show by Dr. Maunder or Yourself as you have the ... with a spectroscope on η Ceti. I think to see in the spectrum of these stars the F_1 B_3 and C lines bright. I have made the observation with a 10 inches refractor by Merz and a Zollner star Spectroscope with two sets of prisms before eyepeace ( so) wihout cylindrical lens, and with very moderate dispersion (circa 6-8° between D–H). Later I have observed the star also with other spectroscop, with the same result.

I beg Dear Sirs for your kindness, and beg after observing the star for a few words kind answer in interesting of result of your investigations.

I me reverend and am Sir
yours very faithfully

Dr. N. de Konkoly

RGO

1884 Febr.

Dear Sir,

I have delayed communicating to you the results of Mr. Maunder's examinations of the spectrum of η Ceti in the hope that he might have a more favourable opportunity of examining it.

His observations on this star were made in 1883 Dec. 11 and 1884 Januar 28, the latter might being more favourable. On the Half-Prism spectroscope one half precise reversal (so as Dr. v. Konkoly to give great purity of spectrum with a dispersion of 5°) and without a cylindrical lens, the appearence with a power of 14 was such as might be caused by bright lines near D. and J. but this was not confirmed with a power of 28, nor with a cylindrical lens of power of 14 and 28. Mr Maunder thinks therefore there is no actual bright line either at D or J.

I am Dear Sir
Yours faithfully

N. H. Dr. Christie

RGO

Ogyalla Sternwarte 1882 16/11

Euer Hochwohlgeboren!

Sie werden mir verzeihen, dass ich als Fremder Sie mit meinem Schreiben belästige und mich mit einem Bitte zu Ihnen wende. Das ich dies zu thun wage dürfen Sie so erklären, dass mich dazu Prof. Krueger in Kiel angeregt hat.

Meine Bitte und Frage were: ob jemand schon für das Directorium der Sternwarte in Gotha destiniert is?

Warum ich diese Frage stelle ist einfach darin zu suchen, dass ich nicht abgeneigt were für den Posten zu concurieren, falls ich so glücklich sein konnte Sie Euer Hochwohlgeboren als Protector zu gewinnen.

Verzeihen Sie dass ich abermals langweilig werde und Ihnen einiges ganz aufrichtig zu wissen gebe. Falls Sie überhaupt meine Verhältnisse kennen würden, so möchte Ihnen mein Entschluss vielleicht gar etwas lächerlich scheinen, da ich hier in der Mitte meines Parkes auf meinem Landgute von circa 6000 Morgen meine schön eingerichtete Privatsternwarte ausgerüstet mit ein 9 Zöller von Merz, ein 6 Zöller von Merz und viele Andere Apparate, eine Sammlung von etwa 20 Stück verschiedene Spectralapparaten u.s.w. habe; einziger Sohn meiner Eltern bin, vor denen ich noch ein Erbschaft von wieder soviel als mein jetziges Vermögen ich zu erwarten habe, und doch als Director Gothaer Sternwarte werden will.

Wenn ich aufrichtig sein darf, so will ich Ihnen ganz einfach gestehen, dass ich aus diesem Sportlande, wo für die Wissenschaft ins Besondere für die Astronomie so wenig gethan wird wegg ziehen will, was ich ohne einem wichtigen Grunde doch nicht unternehmen will. Ich hoffe dass mein Streben und Wirken bei fremden Regierungen besseren Anklang finden würde als bei uns!

Sollten mich Euer Hochwohlgebohren als mein Protector mit einen Schreiben beehren, so were ich geneigt sofort mich Ihnen vorstellen, was ja auch meine Pflicht und Schuldigkeit were. Was die fernere anbetrifft, möchte ich selbstverständlich, meiner grossen Refractor und alle diese Modernen Instrumente welche in Gotha fehlen mit nehmen, und den dortigen Arbeitskräften zur Verfügung stellen, solange ich dort Director bleibe. Ausserdem, würde ich mein gegenwärtigen Observator als Privat Secretair mitnehmen den ich natürlich aus eigenen Sacke zahlen würde.

Was mein Gehalt in Gotha anbetrifft dass ich nebensache.

Ich bin eben 41 Jahre alt, habe meine Studien in Budapest und Berlin absolviert, was meine Thätigkeit anbetrifft, so kann rch mich auf die 4 Bände der Annalen meiner Sternwarte: Beobachtungen angestellt am Astrophysikalischen Observatorium in O Gyalla (Ungarn) I, II, III, IV, von eine 56 Bogen (Halle bei H.W. Schmiedt), ferner etwa 36 Abhandlungen welche die R.U. Annalen veröffentlichte, viele Aufsätze in den Astronom. Nachrichten, "Observatory" und anderen, sowie der I. Bd: "Anleitung zur Anstellung Astronomischer Beobachtungen, nebst einer modernen Instrumentenkunde; I Bd. Instrumentenkunde"; etwa 60 Bogen, mit 340 Illustrationen (bei F. Vieweg und Sohn Braunschweig). Dürfte in 4-6 Wochen erscheinen.

Sollten Sie meine literarische Thätigkeit sehen wollen, so bin ich bereit Ihnen alles was gesagt sofort einsende.

Über meinen Person darften Ihnen näheren Bescheid geben: Prof. Oppolzer, oder Weiss in Wien, Prof. Förster Berlin, Prof. Spõrer Potsdam, Prof. Carl in München u.s.w.

Indem ich mich bestens empfehle; um meinen langweiligen Brief um Vergebung bitte verbleibe mit ausgezeichneter Hochachtung

Dr. N. von Konkoly
Mitgl. der R.U. Academy , J. R. d. S.
u. s. w.

STAATSARCHIV Weimar Staatsministerium Gotha

O Gyalla den 24ten November 1882

Excellenz!

Excellenz werden es wohl sonderbar finden, dass ich mich wage ohne einer geringsten Anemfehlung mir Last zu fallen. Dass ich nur diese Freiheit nehme dürfte dem Herren Professor Dr. W. Scheibner in Leipzig zuzuschreiben sein, der mir den Rath gab mich mit einem directen Schreiben an Euer Excellenz wenden zu trauen.

Ich habe keine Anemfehlung an Euer Excellenz, bin ein prinzipieller Feind von diesen Recomendationen; als aufrichtigste und klarste Emfehlung erlaube ich mir Euer Excellenz die 4 Bände der Beobachtungen meiner Privatsternwarte, nebst 33 Abhandlungen (leider in Ungarischer Sprache) zu übersenden welche letztere durch die Ung. Academie der Wissenschaften deren Mitglied ich zu sein die Ehre habe, veröffentlicht wurden wogegen die 4 Bände der Beobachtungen theils auf meine eigene Regie publicirt worden sind.

Als selbständiges Werk werde ich Euer Excellenz in kurzer Zeit meine "Practische Anleitung zur Anstellung Astrophysikalischer Beobachtungen, nebst einer modernen Instrumentenkunde." I. Band (57 Bögen) Instrumentenkunde, zusenden dessen letzter Correctour Bogen schon vor 8 Tagen den Verleger zugegangen ist.

Das Werk erscheint bei J.Vieweg und Sohn in Braunschweig in Deutscher Sprache, auf Kosten des Verlegers.

Dies ist meine Emfehlung welche ich Ihren Excellenz bringen kann.

Weshalb ich diese geringe Emfehlung zu bringen wage hat den folgenden Grund.:

In unserem Sportslande wird auf die Wissenschaft nicht viel verwendet, auf die Astronomie gar nichts. Der Staat besitzt seit 1849 absolut keine Sternwarte; die einzige wo beobachtet wurde war meine Privatsternwarte auf meinem Landgute in Ógyalla bei Comorn. (N.W. von daselbst). Auf meine Anregung entschliess sich Sr. Eminenz der Cardinal Dr. L. von. Haynald, Erzbischof von Kalocsa eine zweite Sternwarte in seiner Residenzstadt am Jesuiten Collegium zu errichten, welche ich die Ehre hatte dem Geistreichen Cardinal zu errichten, und mit Instrumenten auszurüsten; und endlich bauten im Jahre 1881 meine zwei jungen Freunde, die Gebrüder Eugen und Alexander von Gothard nahe der Steuerischen Grenze ein nettes Privatobservatorium, von welchem ich viel erwarte.

Seit vielen Jahren bemühe ich mich unseren Cultusminister dazu anregen in der Hauptstadt eine Sternwarte zu errichten, jedoch gelingt dies nicht einmal so, dass ich meine sämtlichen Instrumente übersiedle und nach meinem Tode dem Staat vermache, welche doch einen Werth von nahe 80-100.000 Mark representieren. Es ist kein Geld bei uns für die Wissenschaft, jedoch sehr viel für die Pferde-Zucht. u. s. w.

Ermüdet und disgustiert von unserem Sportlande entschloss ich mich eine neue Heimat in Deutschland zu suchen und meine Thätigkeit in fremden Lande, wo diese besser gebilligt wird, weiter zu entwickeln, weshalb ich Euer Excellenz bitte auf meine Geringfügigkeit, bei der Ernennung eines Directors zur Herzoglichen Sternwarte in Gotha gnädigst reflectieren zu wollen, falls diese Stelle noch nicht besätzt ist.

Ich erlaube mir noch vor Schlusse meines Schreibens Euer Excellenz einiges über meine Person sagen zu können.

Ich bin 41 Jahre alt, protestantist, meine Studien in Budapesth und Berlin absolviert, bin der Besitzer meines Landgutes von circa 5000 Morgen, einziger Sohn meiner Eltern von denen ich noch abermals eine Erbschaft von 5000 Morgen zu erwarten habe.

Aus dem Gesagten werden Excellenz ersehen dass ich mich nicht wegen dem Gehalte des Directors nach Gotha bewerbe, wieviel dieser Gehalt ist, ist mir sogar ganz gleichgültig, ich bewerbe mich daraus, um der Wissenschaft dienen zu können, vielleicht auf einem fruchtbareren Felde als in Ungarn.

Meine Ungarische Geburt schreckt mich nicht zurück, da ich vieler Sprachen mächtig bin, und ausserdem, falls mich Excellenz zum Director nach Gotha ernennen würden, were ich der zweite aus Ungarn gebürtige Director daselbst (von Zach).

Ich halte es endlich für nicht überflüssig Euer Excellenz erwähnen zu dürfen das ich im Besitze eines 9 1/2 zölligen und ein 6 zölligen Refractors bin (Photographien beiliegend der Abhandlungen) sowie für die Astrophysik ein Sammlung von circa 20 Stück Spectralapparaten der verschiedensten Construction, welche Sie in solcher Auswahl niergends finden werden.

Die Refractore sind beide von Merz in München, die Spectroscope, von Merz, Browning (London), Schmied-Haensch (Berlin) u.s.w.– Alle diejenigem Instrumente welche man in Gotha benöthigen würde, möchte ich mitbringen, und Selbe zur Benützung auf der Sternwarte frei geben, solange ich mich in Gotha aufhalten wurde.

Ich möchte meinen gegenwärtigen Observator Dr. H. Kobold (aus Hannover) falls für ihm daselbst keine frei Stelle were als privat Secretair mitbringen, da er ein äusserst thätiger Mann ist (gegenwärtig in America mit einer Deutschen Venus Expedition).

Sollte Euer Excellenz meine Person zu passen scheinen, bitte mit mir zu disponieren, auf den Tag wann Euer Excellenz es schaffen erscheine ich bei Ihnen in Gotha oder wo Sie es befehlen.

Wenn Euer Excellenz über meine Person etwas erfahren wünschen, wollen Sie sich gütigst an Prof. Dr. Theodor Ritter von Oppolzer in Wien (Alterstrasse 25) oder an Dr. Professor Edmund Weiss, Director der Sternwarte in Wien, Prof. Dr. Th. Carl in München, (Theresienstrasse 158), Baron B. von Engelhardt in Dresden, (Liebig Strasse 1), oder an Dr. Prof. Houzeau, in Bruxelles (Director der Sternwarte) u.s.w. wenden.

Indem ich für meine Zudringlichkeit, und langes Schreiben von Euer Excellenz um Vergebung bitte, emfehle mich in Eure Excellenz hohes Gnades und verbleibe mit Hochachtung

Euer Excellenz
unterthänigster

Dr. Nicolaus von Konkoly
F.R.A.S., Mitgl. der R.U. Acad.

STA Weimar Staatsministerium Gotha

O gyalla 1882 den 19te December

Excellenz!

Empfangen Sie meinen besten Dank für Ihre Güte und Wohlwollen, welches ich immer ausserordentlich hoch schätzen werde.

Was meine Reise nach Gotha anbetrifft so werde ich diese gerne unternehmen, umsomehr, dass ich mich nach vollendeter Reise so glücklich schätzen kann mit Euer Excellenz die Bekanntschaft gemacht zu haben, und meinen Dank persöhnlich abzustatten.

Ich werde nicht versäumen, falls ich von Euer Exzellenz keine Zuschrift in anderem Sinne bis dahin erhalten sollte am 8ten Januar 1883 bei Euer Excellenz zu erscheinen, um die Angelegenheit persönlich besprechen zu dürfen.

Erlauben Sie Excellenz, dass ich Ihnen, bis ich mich selbst vorstelle, meine Photographie, als Zeichen meiner Hochachtung zusenden durfte.

Indem ich mich Euer Excellenz um meine Dienste Ihrem Landesherren Sr. Hohe dem Herzog bestens empfehle verbleibe

Euer Excellenz

unterthänigster Diener
N. von Konkoly

STA Weimar Staatsministerium Gotha

Astrophysikalisches Observatorium
In Ó gyalla. Ungarn

Excellenz! 1882 29/12.

Indem sich die Zeit unserer mündlichen Berathung herannaht, binn ich so frei Ihnen den Register meines Instrumentenparkes ergebenst über zu senden, um dass Excellenz sehen, mit welchen Mitteln ich hier verfüge, und welcher ich bedarf um mein Programm fortsetzen zu können, schliesslich um seinerzeit, falls ich die Ehre haben werde als Direktor der Herzogl. Sternwarte ernannt zu werden, zu entscheiden welche dieser in Gotha untergebracht werden können, und wie?

Indem ich mich Excellenz Gewogenheit bestens emfehle verbleibe mit Hochachtung
Excellenz

Unterthänigster
von Konkoly

STA Weimar Staatsministerium Gotha

Verzeichnis

jener Instrumente welche sich auf der Sternwarte in Ó Gyalla befinden.
1882 December

1. Refractor mit Objectiv von G. und S. Merz in München 10 Englische Zoll Öffnung 14 fuss Brennweite mit 1 Stunden, und 2 Declinationskreise, wovon der eine vom Ocularende des Fehrnrohres ablesbar. Sucher 30"' Öffnung 30" Focallänge, nebst Beobachtungslampe, Parallactometer, ein Hängechronometer am Ocularende u.s.w. Alle Klemmungen und Feinbewegungen werden von Ocularende ausgeführt. Hiezu 22 Oculare, welche von 75 bis 942 mal vergrösseren, und zwei Solariscope. Ferner ein Doppelbildmicrometer von John Browning in London, nebst einem grossen Positionskreise, ein Fadenmicrometer von Browning mit einem kleinen Positionskreise; ein kleiner Positionskreis mit Breithaupt'schem Glasnetze von G. und S. Merz, und ein Ringmicrometer. Zum Instrumente gehört noch ein Polarisationshelioscop von Merz. Die Bewegung im Sinne der täglichen Bewegung wird mittelst einem ausserordentlich kraftigen Uhrwerke besorgt. Die Montierung ist eine nach Repsold's Ideen.

2. Refractor mit Objektiv von G. und S. Merz vom 6 1/2 Englische Zolle Öffnung und 6 für Brennweite. Aequatoreal montiert nach Grubb's Ideen. Stunden und Declinationkreis, alle Bewegungen vom Ocularende, mit Schlüsseln und Schnüren. Sucher, Parallactometer, Beobachtungslampe am Ocularende des Fernrohres. Die Aequatorealbewegung wird dem Instrumente mit einem sehr kräftigen Uhrwerke nach dem Prinzipien von Leon Foucault (Regulateur isochrone) entheilt. Zum Instrumente gehoben: Ein Fadenmicrometer von John Browning in London, ein Doppelringmicrometer von Merz, ein Positions-Doppelringmicrometer nach Dr. Hermann Kobold, mit einem grossen Positionskreise, ein Declinograph nach Dr. Knorre in Berlin von Fuess in Berlin, ein Bradley'sches Micrometer und ein Satz von circa 15 Ocularen, welche von 27 bis 504 vergrössern.

3. Kleiner Refractor mit Objectiv von Reinfelder und Hertl in München, mit 3" Öffnung und 46" Focaldistanz, mit einem sehr kräftigen Aequatoreal welches mit Stunden und Declinationskreis versehen ist. (Die Montierung von O. Scheffler in Wien.) Dazu ein Projectionsapparat für die Sonnenbeobachtung, und ein kraftiges Uhrwerk nach Browning.

Dieses Instrument wird ausschliesslich für die Beobachtung des Sonnenfleckenpositionen benützt.

4. Photoheliograph, Objektiv (24") und Projectionssystem für Chemische Strahlen achromatisiert von Steinheil in München. Aequatoreal montiert mit Uhrwerk, Stunden und Declinationskreis. 2 Casetten aus Mahagoni Holz, Momentverschluss mit elektrischer Auslösung.

5. Hansen'scher 3 Achsen Stativ für variable Polhöhe für Photoheliograph mit Declinationskreis und die nöthigen Feinbewegungen (ohne Fernrohr).

6. Meridiankreis mit gebrochenem Fernrohr von Christian Starke in Wien. Objectiv 34"; Kreis 18" mit 4 Microscopen versehen. Dazu: eine Rectenlibelle, 2 Hängelibellen, ein Kreisniveau, Beleuchtungslampe, 3 Oculare, Künstlicher Horisont.

7. Passageinstrument nach Pistor und Martins, mit gebrochenem Fernrohre, Objectiv 18" von Reinfelder und Härtel in München mit einem Einstellungskreis, Schnellumlegevorrichtung, Beleuchtungslampe und ein Hangeniveau.

8. Ein Universalinstrument, besser Hohenkreis, mit Schnellumlege-Vorrichtung, Fernrohr excentrisch 15" Öffnung. -

9. Cometensucher. Objectiv 51" Öffnung 30" Brennweite, in einem drehbaren Stuhl montiert, nach den Ideen von Professor Wiennecke in Strassburg.

10. Cometsucher von 42" Öffnung 26" Brennweite mit Feinbewegungen versehen an der in Metall ausgeführten azimuthalen Aufstellung.

11. Fernrohr mit 48" Objektivöffnung und 56" Brennweite auf azimuthalen Stative jedoch mit Feinbewegungen.

12. Fernrohr von Fraunhofer mit 18" Objectivöffnung, in Metall montiert ohne Feinbewegungen.

13. Chronograph mit 3 Hebeln zum Aus und Einlösen des Laufwerkes vom Beobachtungsorte des Astronomen, wird für die Beobachtung der Sonnenflecke verwendet.

14. Chronograph von Mayer und Wolff in Wien, mit 2 Hebeln versehen.

15. Chronograph mit 2 Hebeln, in der eigenen Werkstätte angefertigt.

16. Chronograph von E. und A. von Gothard mit 2 Hebeln und automatische Aus und Einlösung des Laufwerkes, mit Dr. Arzberger'schen Magneten.

17. Contactuhr mit Escapement System Jürgensen. Construirt von Konkoly, mit Quecksilber compensierten Pendel, schliesst jede 2te Secunde. (Sternzeit).

18. Contact-Uhr mit Quecksilberpendel, und einem Contactapparate nach Professor F. Osnaghi in Triest versehen. (Sternzeit).

19. Normaluhr von T. Cooke and Sons in York, (England) mit Quecksilberpendel versehen. (Sternzeit).

20. Pendeluhr (unbekannte Firma) mit neu Construirten Quecksilberpendel 30 Tage gehend. (Sternzeit). -

21. Pendeluhr von der Wiener "Grossuhrmacherei" mit selbstconstruirtem Jürgensen'schen Rostpendel. (Sternzeit).

22. Pendeluhr von der Wiener "Grossuhrmacherei" mit selbstgefertigtem Rostpendel nach Jürgensen. (Sternzeit)

23. Kanzlei Pendeluhr mit selbstgefertigtem Rostpendel und Contactapparat. (Mittlere Zeit).

24. Boxchronometer in doppeltem Kasten von A. Arvay (No 18) Wien. (Mittlere Zeit).

25. Taschenchronometer von Calame-Robert in Chaux de Fond (Schweiz). (Sternzeit)

26. 2 Secundenzähler. Eine von Jaques Wolff in Chaux de Fond, der Andere Französischer Abstammung.

27. 2 Duplexuhren in Kasten montiert, warscheinlich Schweizer'scher Abstammung.

28. Astrophotometer nach Zöllner auf kräftigen eiesernen Dreifuss und Feinbewegung.

Spectroscope

29. Grosser Spectralapparat mit 10 schwehren Flintglasprismen von John Browning in London. Dazu: ein Positionskreis, Automatische Bewegung und 5 Oculare.

30. Grosser Sternspectroscop von John Browning mit 2 schwehren Flintglasprismen, Scalenrohr, Fadenmicrometer, Schraubenmicrometer, Vergleichsprisma, Elektrodenhalter mit einem Spiegel, Cylinderlinse und 6 Oculare.

31. Universal Spectroscope von G. und S. Merz in München mit 3 Sätzen Janssen-Hoffman'scher Prismen "a Vision directe" Positionskreis, Elektrodenhalter, Cylinderlinse, Reversions-Ocular, Schraubenmicrometer, und 2 Ocularen nebst Cylinderlinse und 2 Sonnengläsern.

32. Grosses Spectralphotometer nach Prof. Dr. H. C. Vogel in Potsdam, von F. Schmiedt und Haensch in Berlin complet.

33. Spectroscop mit Colorimeter nach v. Konkoly's Ideen ausgeführt von E. und A. von Gothard, mit Micrometer (Scala).

34. Sternspectroscop nach Professor H. C. Vogel (erstes Modell) von Henstren in Kiel (Nr. 40), mit Micrometer (Scala)

35. Sternspectroscop nach Mc' Clean von John Browning in London mit Schraubenmicrometer.

36. Sternspectroscop mit einem 60° igen Kalkspathprisma von F. Schmiedt und Haensch in Berlin, und Quarz Linsen, mit Cylinderlinse und Micrometer (Scala) von E und A. von Gothard.

37. Sternspectroscop nach Prof. Dr. H. C. Vogel (2tes Modell) von G. und S. Merz in München. Ohne Micrometer.

38. Reversionssternpectroscop nach Prof. Klinkerfuess. Optik, von R. Fritsch in Wien, Mechanik, von August Becker in Göttingen.

39. Grosses Reversions Spectroscop. Theilweise nach Zöllner's Ideen, umconstruirt von Konkoly, Optik von G. und S. Merz, die Mechanik wurde in der eigenen Werkstätte ausgeführt.

40. Zöllner'sches Ocularspectroscop von G. und S. Merz in München mit einem Prismensatz.

41. Dasselbe mit 2 Prismensätzen, zu 3 Prismen "a vision directe".

42. Cabinet Spectroscop mit einem Merz'schen "Kalbprisma" und einem Schaubenmicrometer, und Vergleichsprisma.

43. Cabinet Spectroscop mit einem 60 grädigen Prisma. Optik von Reinfelder und Härtl in München. Scalen-Micrometer.

44. Cabinet Spectroscop mit einem Rutherfurth'schen Compound Prisma von Schmiedt und Haensch in Berlin; die weitere Optik ist von John Browning in London, ohne Micrometer.

45. Cabinetspectroscop "a Vision directe" Optik von K. Fritsch in Wien, ohne Micrometer. (Ein Amici'sches Prisma).

46. Cabinet Spectroscop "a Vision directe" mit einem Flüssigkeits Prisma nach Prof. Wernicke in Berlin, von F. Schmiedt und Haensch in Berlin. Weitere Optik von Reinfelder und Hertel in München. Ohne Micrometer.

47. Spectrummappierungsapparat, auch für Fixsternbeobachtungen verwendbar, mit Schraubemicrometer, einem Satze Amici'schen Prisma und Cylinderlinse von John Browning in London.

48. Miniaturspectroscope von John Browning nebst Scalenmicrometer und verstellbarem Stative.

49. Taschen Spectroscop, kleinstes Modell von John Browning in London.

50. Meteor Spectroscop zur Beobachtung der Spectra von Feuerkugeln und Sternschnuppen.

51. Heliostat nach Joonston von Schmiedt und Haensch in Berlin mit Uhrwerk.

52. Heliostat nach Mayerstein mit Planspiegel und Uhrwerk.

53. Gramm'sche Maschiene.

54. Damfmaschiene von 1 Pferdekraft dazu

55. Ruhmkorf'scher Inductor, eine Sammlung von Spectralröhren von Geissler, Rohrenthalter Stative u. s. w.

56. Photographischer Reiseapparat von Jonte, einer von Deyrolle in Paris, ersterer mit Voigtländer'schen Objectiv, ferner ein grosser photographischer Apparat, dessen Objectiv von Dorlot in Paris, nebst allem denkbaren Zugehör Reisezelt u. s. w.

57. Zwei Complete Telegraphenstationen (Taster, Bousole, Wechsel) (gross und klein) Blitzableiter, Relais, Morse Schneckapparat u.s.w.

58. 2 Telephonstationen complet, bestehend aus 4 Siemens'schen Telephonen, 2 Wecker, 2 Taster, 2 Stromwechseln u.s.w.

Ausserdem eine grosse Anzahl grosserer und kleinerer physikalischer Apparate, ein completes chemisches Laboratorium u.s.w.; u.s.w.

Bibliothek enthält etwa 2000 Bände von Wissenschaftlichen Werken, Katalogen, Abhandlungen, Annalen und Zeitschriften.

STA Weimar Staatsministerium Gotha

Ó-Gyalla Sternwarte 1883. Jan. 30.

Excellenz!

Dass ich so unbescheiden war, und auf mein Schreiben so lange warten liess, möge seinen Grund darin haben, dass mein 70 Jahre-alter Vater in der vorigen Woche einen Schlaganfall hatte.

Dank dem Schicksale geht es ihm augenblicklich genügend behaglich, allerdingst ist laut der Aussage seines Leibartztes zu befürchten, dass sich der Anfall wiederholen kann, und was das traurigste, dass eine traurige Catastrophe eintreten kann, indem er schon sehr herabgekommen ist!

Nach der telegraphischen Depesche meiner Mutter eilte ich selbstverständlich sofort in das Elterhaus, und als mich mein Vater erblickte fing er an zu weinen und bat mich, dass ich ihn nicht verlassen möchte!

Der Arzt behauptet, dass er, seit dem 3ten Januar, wo ich mein Elternhaus verliess um mit Ihrer freundlichen Einladung gemäss nach Gotha zu begeben, immer unwohl war und wie auch meine Mutter sagt, immer sagte dass sie mich telegraphisch bitten soll die Direction der Gothaer Sternwarte nicht anzunehmen, sondern heimkehren, und in seiner Nähe zu bleiben. Er konnte sich nur etwas beruhigen als ich von Wien meiner Mama schrieb, dass ich wieder in Oesterreich bin. Kurz nach meiner Heimkehr bekam er den Schlaganfall.

Excellenz sind selbst Familien Vater und wissen recht gut wie Ihre lieben Kinder an Ihrer Hochgeehrten Person hängen und es Ihrem warscheinlich in Ihnem Alter auch schwehr fallen würde, wenn Sie Ihr einziger Sohn verlassen würde, um eine Ehrenstelle in Oesterreich anzunehmen!

Es möge mir also Ihrerseits auch verzieht werden, wenn ich jetzt zu Excellenz mit der unterthänigsten Bitte komme, mir gütigst nachzusehen, dass ich meinerseits die für mich so ehrenvolle Verhandlung mit der Gothaer Regierung mit den Worten schliesse, dass ich mit ausserordentlich glücklich fühlte mit Ihnen Excellenz die ehrenvolle Vehandlung zu treiben, mit Ihrem Landesherren, Sr. Hoheit des Herzogs und Excellenz persönlich bekannt zu werden dürfen, sowie die Gnade des Herzogs und Ihre Güte gewinnen zu können, jedoch ist es mir gegenwärtig wegen meinen Familienverhältnissen nicht möglich meine Heimat zu verlassen.

Meine unterthänigste Bitte erstreckt sich Excellenz dahin, dass ich Sie bitte mein Bedauern in dieser Hinsicht Ihrem Landesherren, Sr. Hoheit dem Herzoge gütigst dolmetschen zu wollen, für seine Gnade mit der er mich auszeichnete, meinen innigsten und ehrfurchtsvollen Dank, mit der weiteren Bitte sagen zu wollen, er möge seine Gnade für meine Geringfügigkeit für die Zukunft nicht ablehnen, sondern mich mit derselben auch fernerhin beglücken!

Excellenz bitte ich auch, mich in Ihrer gütigen Erinnerung behalten zu wollen, und auf mich nicht böse zu sein, dass ich Sie mit meiner Antwort so lange warten liess!

Indem ich mich bestens emfehle verbleibe mit Hochachtung

Excellenz

unterthänigster Diener
von Konkoly

STA Weimar Staatsministerium Gotha

Ogyalla Sternwarte 1887 25.IX

Excellenz!

Verzeihen Sie mir dass ich so frei bin Excellenz mit meinem Schreiben zur Last zu fallen und Ihre theure und kostbare Zeit zu rauben.

Ich habe heute mit Bedauern gelesen, dass Dr. E. Becker zum Direktor der K. Sternwarte Strassburg ernannt worden ist, und auf diese Weise die Direktorstelle Ihrer Herzoglichen Sternwarte wieder vacant geworden ist.

Ich nehme mir Freiheit Euerer Excellenz allerunterthänigst anzufragen ob Sie jemanden schon für diesen Posten in Aussicht genommen haben, und ob Sie mir erlauben dass ich concurrieren dürfte?

Meine Verhältnisse haben sich seitdem ich so glücklich war bei Eurer Excellenz sein zu dürfen können durchaus nicht geändert, blos insoferne dass ich seitdem meinen alten Vater verlohren habe, dessen Tränen mich damals von der Übersiedelung nach Gotha zurückgehalten haben. Meine Pekuniären Verhältnisse sind auch die selben, was ich deshalb ganz aufrichtig zu betonen wage, dass ich heute ebenso nicht für den Geldgehalt, sondern für die Ehre diesen Posten annehmen würde, um zu zeigen unserer hohen Regierung, dass ein Herzogthum Gotha mehr für die Wissenschaft leisten kann als unser Sportsland.

Indem ich Eurer Excellenz gütiger Rückantwort allerunterthänigst bitte verbleibe ich mit Hochachtung

Excellenz!

Ergebenster
Dr. Nicholas von Konkoly

Ritter des Eisernen Kronenordens III cl.
Ehrenmitglied der. K. Ung. Academien u...

STA Weimar Staatsministerium Gotha

OGyalla 1887 10. X.

Excellenz!

Erlauben Sie mir, dass Ich Ihnen meinen aufrichtigsten Dank für Ihre gütige Mitteilung aussprechen dürfte. – Ich bedauere von Herzen dass ich die Ernennung Beckers nach Strassburg so spät erfahren habe.

Ich habe die volle Absicht gehabt Ihre Sternwartengelegenheiten derart zu reformieren, dass wenn ich heute oder morgen von Gotha weggegangen wäre, dass sich dort solche herausgebildet hätten, dass die Herren Astronomen den Posten in Gotha nicht nur als einen Transistorposten (wie dies schon seit Hansens Tod leider der Fall ist) betrachten würden, sondern sich ein jeder zu freuen hätte hinkommen zu dürfen.

Ich hoffte dies durch Liberalität Sr. Hoheit, und durch die allerhöchste Protection von Eurer Excellenz erlangen zu können.

Nun aber kann ich nichts weiter thun als mich allerunterthänigst in die wohlwollende Erinnerung von Eurer Excellenz zu empfehlen.

Indem ich bitte Excellenz in deren wohlwollender Gnade zu behalten empfehle mich und verbleibe mit aller Hochachtung

Excellenz!

allerunterthänigster Diener
Dr. N. von Konkoly

STA Weimar Staatsministerium Gotha

Königliche Sternwarte Göttingen, den 3. 3. 1907

Hochverehrter Herr von Konkoly!

Bei Ihrem Besuch in Göttingen im letzten Herbst sprachen Sie davon, dass Sie eventuell die Fortführung der photographischen Durchmusterung der Sternhelligkeiten mit der Schraffiercasette übernehmen würden, die wir hier für die Zone 0-20 Grad begonnen haben. Unsre Arbeit geht jetzt mit der neuen Schraffiercasette sehr gut, es hat sich auch gezeigt, dass interessante statistische Resultate zu erwarten sind, doch ist volle Homogenität der Arbeit erforderlich, wenn der schliessliche Catalog first rate werden soll. Ich bitte Sie daher um eine freundliche Auskunft, ob Sie an dem Plane festhalten, einen Theil der Arbeit zu übernehmen, und ob Aussicht zu baldiger Inangriffnahme besteht. Wir müssten uns dann auf ein genaues Programm einigen. Wenn Sie aber diesen Plan nicht mehr haben, so beabsichtige ich, unsre Regierung um Mittel zu seiner raschen Durchführung an einem climatisch möglichst begünstigten Ort zu ersuchen. Für eine baldige orientierende Antwort würde ich Ihnen sehr dankbar sein, da ich die betreffenden Schritte in allernächster Zeit unternehmen müsste.

Herrn Dr. Tass schicke ich gleichzeitig
eine Abschrift dieses Briefes.

Mit den besten Osterwünschen
Ihr ergebenster

K. Schwarzschild

Konkoly Observatory Library (KOL)

CHAPTER 6
Bericht über die Versammlung der Astronomischen Gesellschaft zu Budapest

1898 September 24 bis 27.

An der siebzehnten ordentlichen Vesammlung der Astronomischen Gesellschaft nahmen mit Einschluss der erst durch die Versammlung aufgenommenen Mitglieder, welche zum Theil noch nicht die vollen Rechte des §10 der Statuten erworben haben folgende 53 Herren Theil:

Bauschinger, Bidschof, Bodola von Zágon, Brendel, Buschbaum, F. Cohn, Dunér, v. Eötvös, Fényi, Föerster, Franz, v. Gothard, v. Harkányi, Hartwig, Hecker, Holetschek, Kempf, Knopf, v. Kövesligethy, v. Konkoly, Kostersitz, Kreutz, Lakits, Lehmann-Filhés, Ludendorff, Marcuse, Miesegaes, Müller, Neugebauer, Nyrén, Oertel, Paul, Pauly, Pechüle, Peter, v. Pfafius, Porro, Schorr, Schrader, Schram, Schroeter, Schur, Schwarzschild, Seeliger, Stechert, Steiner, Valentiner, Wanach, Weiss, Wislicenus, Witt, Wolf, Wonaszek.

Von den Mitgliedern des Vorstandes waren sechs, nähmlich die Herren Dunér, Lehman-Filhés, Müller, Nyrén, Seeliger, Weiss, anwesend, während die Herren Bruns und Oudemans am Erscheinen verhindert waren.

Die öffentliche Sitzungen sowie die Vorstandssitzungen fanden in den Räumen der Kgl. Ungarischen Akademie der Wissenschaften statt.

* * * * *

Hierauf erhält der Präsident der Kgl. Ungarischen Akademie der Wissenschaften, Herr Baron v. Eötvös, das Wort und heisst die Versammlung in Namen der Akademie, sowie in Namen der Universität und der gelehrten Gesellschaften Budapest's mit folgenden Worten wilkommen:

Hochgeehrter Herr Präsident! Geehrte Versammlung!

In Namen der ungarischen Akademie der Wissenschaften begrüsse ich die hochgeehrte Astronomische Gesellschafte in diesen Hallen, welche die ungarische Nation der Pflege der Wissenschaften errichtet hat. Sie sehen hier an unserer Seite auch die Vertreter der Budapester Universität, des Josef-Polytechnicums, der ungarischen meteorologischen Anstalt sowie auch die der ungarischen naturwissenschaftlichen und geographischen Gesellschaften und des mathematischen und physikalischen Vereins, Körperschaften, die in diesem Lande Ihrer erhabenen Wissenschaft verwandte Wissenzweige pflegen.

Wir sind erschienen um Ihnen ein herzlichen Wilkommen entgegenzurufen: unser Bestreben soll es sein, das Mögliche aufzubieten, um Ihnen den Aufenthalt in unserer mitte angenehm zu gestalten.

Imposante Heimstätten Ihrer Wissenschaft können wir Ihnen nicht zeigen, grosser Ihre erhebene Wissenschaft beförderder Thaten können wir uns nicht rühmen, lieber wollen wir es offen eingestehen, dass wir in langem und stetem Kampfe für unsere nationale Existenz nicht immer die Musse fanden, den Anforderungen der Wissenschaft in vollem Masse Genüge zu leisten. Konnten wir doch die stolze Warte, die oben auf den Blocksberge stand, nach ihrer unheilvollen Zerstörung nicht wieder aufbauen oder durch eine andere ersetzen, und mussten wir so lange unthätig zusehen, wie ungarische Astronomen, ihrem Wissensdrange folgend, in die Fremde zogen.

Fest steht aber heute unsere Entschluss, das Versäumte einzuholen. Wir wollen lernen und wir wollen arbeiten in reiner Liebe zur Wissenschaft, welche sich über die Liebhaberei des Dilettanten hoch erhebt, mit jenem echten Ehrgeize, der sich an knechtischer Reproduction nicht genügen lässt und nach selbstständigem Schaffen strebt. In diesem unserem Bestreben sind Sie uns ein leuchtendes Vorbild; die Fussstapfen, die Sie hier zurücklassen, solle unseren Schritte lenken und dem Ziele näher führen.

Seien Sie uns daher nochmals willkommen als theure Gäste, als nachahmungswürdige Meister, richten Sie sich hier für die Dauer Ihrer Vesammlung recht häuslich ein, und möge auch Ihre hiesige Arbeit die Wissenschaft fördern, uns den Stolz gewährend, dass Ihre weisen Beschlüsse aus diesen Räumen in die Welt hinausgedrungen.

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Hierauf findet die Abstimmung über die definitive Aufnahme der von Vorstande bereits vorläufig aufgenommen 27 Mitglieder, nämlich der Herren Baron v. Harkányi, Wonaszek, O. Hofmann, S.O. Hoffmann, Brown, Baron von Podmanitzky, Baron von Lipthay, Krenedits, Graf v. Majláth, Villiger, Abetti, Ludendorff, Paetsch, Seares, Bodola von Zágon, Mader, Paul, B. Cohn, Kosteritz, Buchholz, Koss, Witt, Wilsing, v. Kövesligethy, Monroe B. Snyder, Neugebauer, Volterra statt. Die Eröffnung der 33 abgegebenen Stimmzettel ergibt die Aufnahme aller Angemeldeten.

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Vierteljahrschrift der AG 33. p.17 250-251 .

PART II
New Home of Konkoly Observatory

CHAPTER 1

THE KONKOLY OBSERVATORIUM'S NEW HOME ON THE SVÁBHEGY

The Beginnings

After the peace treaties following the First Word War Hungary lost two thirds of its territory. Three million Hungarians found themselves under alien rule, but the remaining eight million were also experiencing great hardship, caused by the deepening economic crisis. The fact, that under such circumstances the nation could find the energy for the creation of a new observatory, borders on the miraculous. Between the years 1922 and 1929 three new domes and a central office building were erected on the Svábhegy near Budapest. In addition to the two telescopes brought from Ógyalla, a third instrument was also installed, in the form of a 60 cm Cassegrain-Newton type telescope.

Since the death of Konkoly the Institute worked under Dr. Antal Tass. It was his achievement that not only a major part of the instruments was brought to Budapest, but also that the observation records were also salvaged. Dr. Tass received his official appointment as the first director of Astrophysical Observatory of the Konkoly Foundation in 1923. The Observatory on the Svábhegy also inherited the international contacts made by the old observatory of Ógyalla.

Antal Tass' determination and strength of purpose can be compared only to that of Miklós Konkoly Thege himself. While Konkoly Thege, as a well to do landowner, spent his own fortune to start the cultivation of modern astronomy in Hungary, during the post-war depression it was Antal Tass, who managed to persuade contemporary Hungarian society to support the erection of a new observatory.

It was he, who, with his friends, founded the Stella "Astronomical Society", whose members did everything within their powers – including financial sacrifices – to support the new establishment.

He has also proved himself a worthy pupil of Konkoly by firmly rejecting any half-measures. For example, the central building of the institute (built in 1926) was so amply designed, that even now – more than seventy years later – it is still doing good service as the home of astronomical research in Hungary.

As an old member of the Ógyalla establishment – from 1899, the year when Ógyalla became property of the nation – Tass had a talent for building the lasting personal relationships, which were proving so useful for him as the director. His personality was an important factor in having he new observatory accepted as the rightful successor to Ógyalla. Tass' closest colleague, Dr. Lajos Terkán, also joined the new establishment from Ógyalla.

Konkoly's friends also honored Antal Tass with their goodwill. This is demonstrated by a letter of Max Wolf, in which the astronomer from Heidelberg proffers some good advice to the new director about the installation of the new telescope.

The scientific programmes were essentially the same as those started at Ógyalla, as they also shared the same instruments, also salvaged from the old observatory. So, astrophotometry became the principal activity, with special emphasis on the photometry of variable stars. On the other hand the regular observation of the Sun was left out of the new program, together with the study of meteors. The observation of the bright stars was completed in 1932, using the Zöllner photometer attached to the six inch refractor, originally also from Ógyalla. Then the telescope was dismantled. Its replacement was a seven inch Cooke type refractor from Kiskartal, donated by the Baroness Podmaniczky, which was augmented by a six (or five) inch astrograph.

The scientific library of Konkoly could not be retrieved from Ógyalla. It is characteristic of the optimistic outlook of Tass, that the new – to be established – library was allocated a huge and impressive three-level combination of rooms. He did not have to wait for results. In 1929 the institute acquired the bulk of the old library from the old St. Gellért Hill observatory. This consisted of about a thousand scientific books, maps, old periodicals, internal publications, all printed before 1915. The greater part of these were stored in the university's cellars, awaiting for the last eighty years, for the finding of a new home. The other part of the library was donated by the heir of the Kiskartal Observatory, Count Pál Dégenfeld. Books were donated from all parts of the country and from observatories abroad. The valuable gift by Baron Béla Harkányi, given in 1932, is worthy of a distinguished place in the history of our library.

The gifts received were not restricted to books. Thanks to the generosity of many donors, the observatory has a valuable collection of old instruments and time-pieces. The institute's museum will be described in this volume, in an article from the pen of Júlia Balázs.

In 1930 the AG paid their respect to Hungarian astronomy by holding their meeting in Budapest. The conference was also attended by a few members of the IAU, among them Sir Arthur Eddington. The participants have also visited the observatory, and expressed their satisfaction with what they saw.

Even though they were citizens of one of the losers of the war, some gifted young Hungarians were given the opportunity to do some post-graduate work abroad. In 1924-1925 Károly Lassovszky had a chance to work in several observatories of the USA on a Rockefeller Scholarship Grant. László Detre spent 1926-1927 in Berlin as a research student. The personal contacts they established during their student years served them well in their later careers. From 1938 until 1943 Lassovszky, from 1943 until 1974 Detre served as directors of the observatory.

In all probability it was due to Lassovszky's student years spent at Harvard, and the personal contacts resulting therefrom, that Edward Pickering, the director of Harvard Observatory, paid the Svábhegy observatory a visit during his European tour of 1927, and returning home he described his experiences in the periodical Popular Astronomy in glowing terms.

Antal Tass was pensioned off in 1934, but he took an active part in the running of the institute until 1936. Although he was not in the best of health, he did not cope well with the change occurring in his life. In 1936 the colleague, who followed him from Ógyalla and was closest to him, Lajos Terkán, has also retired. Also in 1936 Károly Móra, a student of Radó Kövesligethy and a researcher working at the university was appointed as deputy director and later as director of the Svábhegy observatory.

Unfortunately, this gifted young astronomer met an untimely death in 1938.

Slowly, but inexorably, the astronomers who had personal memories of working with Konkoly departed from this life. Baron Béla Harkányi died in 1932, Radó Kövesligethy in 1934, Antal Tass in 1937. The roll-call came to an end with Lajos Terkán in 1940.

A complete generation-change became an accomplished fact.

However, the old "Ógyalla tradition" did not disappear completely without a trace, as the new generation of astronomers grew to maturity under the tutelage of two old "Ógyalla hands", Radó Kövesligethy and Baron Béla Harkányi.

On the 30th of July 1938 Károly Lassovsky was appointed as director of the Svábhegy observatory.

The Directorship of Károly Lassovszky

Károly Lassovszky defended his doctoral dissertation in 1920. He was employed in the Svábhegy observatory since 1921, as a principal assistant. His main interests were the observation of variable stars and the development of new methods for the measurement of their brightness. In 1922 he visited five observatories in Austria and Germany. After this, in 1924-25 he did postgraduate work in the great observatories of the USA (Harvard, Lick, Yerkes, Mt. Wilson) on a Rockefeller scholarship. In 1931 he worked in Berlin-Babelsberg on a Hungarian scholarship grant, under the guidance of Prager.

It follows from the above mentioned facts, that the mantle of Tass has fallen on the shoulders of a highly gifted, well trained, knowledgeable and industrious director, not lacking in contacts abroad, who could continue the scientific programmes of the institute in a consistent manner.

Lassovszky's personality was steeped in the love of order. Since the retirement of Tass, many things have fallen into various states of decrepitation. Lassovszky had repaired the damaged furniture and rebuilt the instruments. In this work he was greatly helped by Lajos Sanyó, the institute's capable and conscientious instrument-maker. The observatory was held in high esteem in Budapest, it had about three thousand visitors every year, each of them wanting to have a look through the telescope.

It is to Lassovszky's great credit, that in his capacity of editor of the periodical "Csillagászati Lapok" (Astronomy Letters)[18], he gave young astronomers a chance to publish papers to popularise their science. In addition, the periodical regularly published papers on the history of science. The most noteworthy among these were the ones dealing with the bibliographical researches, at home and abroad, of József Jelitai.

Another proof of the institute's popularity is a one hour long educational movie, made in 1938 for the benefit of the interested public.

During Lassovszky's tenure the institute employed two excellent young astronomers as permanent scientific workers. One of them was Dr. László Detre, who, after returning from his Berlin study tour, spent his whole life (apart from short visits abroad) working at the Svábhegy. The other one was his wife to be, Dr. Júlia Balázs.

Two young, out of work teachers, Dr. György Kulin and Dr. Richard Abaházi have also found employment (of a sort) at the institute. They received a minimal fee from a special state fund, created to help unemployed schoolmasters. Kulin's primary interest was the discovery of comets and the determination and mathematical analysis of the orbits of small satellites, and the development of the required mathematical tools. Using a passage instrument, Abaházi was in charge of the "time-service" provided by the institute.

The observatory always attracted unpaid collaborators, working on a voluntary basis. Tivadar Haefner, who did the silver-coating of the telescopes' mirrors without remuneration, was one of them.

The institute was situated out of town. To reach it – except for visitors equal in rank to ministers, such as Prof. József Wodetzky, who came by automobile or coach – a forty minute walk was necessary from the terminal of the cog-wheel trams, but this was not enough to hinder anybody in fulfilling his required work. Postgraduate researchers had rooms allocated to them, where they could sleep after finishing their nightly work. Before the war there was a grocer, who regularly visited the institute to take their orders, which were delivered on the next day. Naturally, when the war started and rationing was introduced, I presume this all had to change. Towards the end of his turn as director Lassovszky became gradually isolated in his own institute. László Detre was a commanding personality, and his, both external and internal, colleagues gravitated to him, leaving the director to work on his own in his room, while the young scientists worked as young people would, to spend their youthful energy.

His congenital lameness might have been one of the reasons why he was reluctant to take part in the sometimes noisy pastimes of the young folks. The young scientists, although they have really put their heart into their observations and studies, did as young people used to do, and added colour and spice to their lives by giving a free rein to their sense of humour and perpetrating some practical jokes on each other. They were not shy of argument either. Some of their debates had the aspect of minor battles, and if anybody took offence, he had only himself to blame. This group of young enthusiasts was no place for shrinking violet.

In 1943 both Lassovszky and Detre applied for the professorship of the University's Astronomy Department. The appointment went to Lassovszky. After a stay of seventeen years as a research officer and six years as director, he departed from the hill. This was the beginning of the Detre era, which was to last for three decades.

The era of Detre in the observatory

Lajos Sanyó, the knowledgeable and industrious head of the institute's workshop, had, since 1926, kept a diary everything that concerned his workshop.

The last entry is dated 1943, when, on his first day as director, Detre made Sanyó write in his diary: "From now on we are to work, not to write diaries".

This text is characteristic of Detre's mentality. It was slightly unfair, because – as shown by contemporary photographs – the workshop of Sanyó was no less tidy than his diary. They could not stand each other very long. In 1946 Sanyó, who was used to living in the pedantic world of Lassovszky, had resigned and applied for his pension.

The instrument-park of the observatory in the 1940s consisted of:

- ***One sixty cm Newton-Cassegrain type telescope with a thirty cm guiding telescope.*** This instrument was used mainly to photograph globular clusters (M3 M56 M15), for the study of the variable stars found inside them. The data resulting from these observations were carried out for the study of small satellites and comets, to establish their location and orbits. This was Dr. Kulin's work, who, between 1938 and 1948, discovered two new comets and thirty-five small satellites.

[18] Csillagászati Lapok, Budapest. 1-6. köt. 1938-1943.

- ***One sixteen cm astrograph with an aperture of 1:14, augmented with a nineteen cm guiding telescope.*** This was the instrument used in the examination δ Cepheids and the RR Lyrae, which was, from its inception, one of he most important programme of the institute. After evaluating forty thousand photographs Dr. Detre, together with his wife, Dr. Júlia Balázs, managed to clarify several aspects of the changes occurring to the light emission curve of the RR Lyrae type stars. During their work they have maintained close contact with the subject's authorities abroad, P. Th. Osterhoff, Otto Struwe, Harlow Shapley, William Becker and others.

- ***One twenty cm Heyde type refractor from Ógyalla, equipped with two small photographic cameras.*** Among others, this instrument was used for the investigation of eclipsing binaries.

When, after finishing the mathematics-physics course of Budapest University and Detre was sent to Berlin on a scholarship – together with Ferenc Krbek – people had already predicted a great scientific future for them.

After Berlin Ferenc Krbek worked in Bonn and after the war he was appointed professor at the University of Greifswald. His friendship with Detre lasted for several decades. Dunst, who otherwise had a judgmental cast of mind, often made complimentary remarks about his friend's abilities. At that time the University of Berlin was blessed with a number of excellent professors, and was attended by several students from abroad. László Detre – Dunst, as he then was – established close friendship with many of the great astronomers of the coming years. These contacts stood him in good stead during the whole of his life.

Letters – published in this volume – show, that even before WW-II, Detre had a close working relationship with luminaries, such as Otto Struwe, Harlow Shapley and T. Oosterhof.

During the Second World War he lost most of its international contacts. Beside the German observatories it was only Leyden, with which contact could be maintained during the whole duration of the war. The German astronomers, such as Wilhelm Becker, Karl Wurm, or P. Ter Bruggencate, made use of the available opportunities to give and hear lectures of excellent quality. The Royal Hungarian Association for Natural Sciences regularly created opportunities for the holding of such lectures.

During the war-years one of the "refugees of intellect" was provided by the Physics Seminars, regularly held by Rudolf Ortvay, where the latest accessible achievements of Physics were made known and discussed.

Life in the institute was very informal. The most important rule was – according to the old Ógyalla tradition – that observations must be continued during every clear night. When the weather was cloudy, or before and after the taking of observations, merriment was the rule in the director's office, and time flew fast amidst music or gay conversation. These moments of recreation were followed by hard work. Work was taken very seriously. Incompetence was counted a mortal sin. But if somebody, for any reason, was left out of the band, he found life very hard in the following years.

In the summer of 1944 the winds of war started to blow hard in Hungary. When the siege of Budapest became a certainty, Detre made the artillery officer in charge agree, that in the moment of immediate danger he will remove his battery from the institute's garden, and if, in spite of the agreement there would be fighting in the vicinity, he will not shell the institute's territory. The military commandant fully kept his word, and this way made a substantial contribution to the preservation of the institute.

As, during the air attacks several bombs were dropped in the institute's vicinity. In June the optical parts of the telescope were removed. The astrograph remained in use until the 5th of December, 1944.

On the Christmas Day six hundred Soviet soldiers and one hundred horses were quartered in the observatory. Their stay lasted only a few weeks, but the main Soviet army left the country only forty-five years later.

The observatory during the post-war decades

While the soldiers were present, the domes were used either as horse-stables or as field-kitchens. The soldiers burnt the observation stands, the domes' furniture, ruined the electrical systems of the instruments and also did a lot of harm to the mechanical parts of the instruments, specially of the 20 cm refractor. Library, the museum and the optics removed from the main telescope escaped unharmed, only the tools disappeared from the instrument workshop. They have taken all the electric batteries, the warm clothing used to keep warm during observation, the meteorological instruments and many other removables.

Lack of water and electricity delayed the start of repairs until June 1945. The astrograph was back in operation by June, and in July the observations restarted on the other instruments, according to the original research plan. The restoration of the 60 cm. telescope and its measuring equipment could not be completed before 1947. The fact, that, for a long time, the institute's monthly allocation did not rise above five or ten Dollars/month was also a retarding factor.

After the siege and during the time of the inflation the life of the institute's personnel was made easier by the director's decision to divide the land belonging to the institute among the workers, and permitted the unlimited keeping of animals. Somehow supply of flour and oil was also found.

The damage done by the siege was rectified mainly through the institute's own efforts.

The Observatory's struggle for survival

In August, 1948 Detre was the first Hungarian astronomer who was allowed to join the IAU. He returned from the meeting, held in Zürich, carrying in his pocket a photomultiplier, a gift from Harlow Shapley.

After 1948 it became evident, that under "cold war" conditions the upkeep of international contacts would be impossible, and that the division of the world into two opposing camps will remain an accomplished fact for a long time. When László Detre made it his task to keep alive, and, if possible, even to expand Hungarian astronomy under the inexorable, but still unpredictable conditions. Our astronomer friends living in Western countries saw, better than the politicians, the dire straits Hungarian astronomy was in, and left no stone unturned in their effort to continue their contacts with us.

The director has managed to maintain the standards of scientific work even in the most hopeless of times. The library, continually expanding even under the most adverse conditions, was a great help to the scientists in their effort to maintain standards.

On the other hand, many of our memorabilia were lost during these difficult times.

Some items had to be sold for lack of money, as, for example the old transit instrument that used to provide the time-signal during the war.

Some extremely valuable items vanished, when, occasioned by a reorganization, they were handed over (without receipt) to the "Association for the Popularization of Scientific Knowledge", from where they were handed over to some provincial branches of the organization. A significant number of these valuable instruments is found in the basements of the National Museum of Technology, stored in bulk.

The most painful was the loss of one of the institute's first telescopes (a Cooke type refractor, originally installed at Kiskartal), which was given away as a present. This regrettable event was connected to the signing of an agreement of co-operation between the Hungarian and the Cuban Academies of Science. The telescope arrived in Cuba in completely restored condition, where it has never been installed, and after a short passage of time it was lost without a trace.

Although the maintenance of personal contacts with Western astronomers was prohibited, the observatory never really lost contact with the international society of astronomers. Access to our collection of specialist literature published abroad, which, even in the post-war years remained complete, was a "good medicine" against isolation. Publications of other institutes also kept arriving regularly. This way we could at least follow the achievements of the outside world.

Although Detre was a member of the IAU since 1948, he had to wait for seven years for the next chance to meet his Western colleagues. During this time important events took place, touching almost every aspect of the institute's life.

The observatory under the authority of the Academy. Piszkéstető under construction.

In 1951 the Hungarian Academy of Science assumed authority over the observatory by ministerial decree. The institute has also received a new name, it became the Astronomical Institute of the Hungarian Academy of Science. This raised certain hopes about the institute's financial fortunes and of procuring new equipment. Plans for the acquisition of a new telescope were mooted since 1951, since latest acquisition of a major instrument took place in 1927.

In 1952 the Academy has placed the order for the new telescope, and paid half of its price in advance. In the same year the preliminary meteorological survey was initiated at "Piszkéstető", one of the peaks in the Mátra Mountain, the site chosen for the new telescope.

Even so, there was no possibility for László Detre to take part in the 1951 meeting of the IAU, held in Rome. Still, he was re-elected "in absentia" as member of the Variable Stars Commission.

During the first premiership (1953–1955) of Imre Nagy some changes were made in the country's foreign policy. Later on, regular contact with western observatories was again discouraged, but the previous total isolation from our colleagues abroad could not be brought back.

In 1955 László Detre participated in the General Meeting of the IAU, held in Dublin. Here he had a chance to meet with many of his old friends, among others with Wilhelm Becker, one of his closest ones. On this meeting Júlia Balázs was also admitted to membership of the Variable Stars Commission, even though permission for her personal participation could not be obtained.

During the Dublin Meeting a decision was formulated, according to which Western research on variable stars should also involve eastern scientists, working in the same field. Plans were made to hold the first international meeting of scientists working on variable stars in Hungary.

On his way home Detre had an opportunity to visit the Leyden observatory, where he made so many friends.

In 1956 the Detre family was able to take part in the Hannover Meeting of the AG. Their expenses were borne by the AG.

From now on there were opportunities for Detre in every year (sometimes more than once a year) to take part in international meetings, where he was counted as a popular personality.

The Conference on Variable stars, held in Hungary in August 1956, was an important occasion for Hungarian astronomers. The conference was also attended by several astronomers from western countries.

After the revolution in 1956, three of Hungary's gifted young astronomers: Dr. Imre Izsák, Dr. István Osváth and Dr. Tibor Herczeg have left the country. The former director of the institute, Dr. Károly Lassovsky also went to live abroad. In 1957 he emigrated to the USA on a Rockefeller grant, and, working for the Smithsonian Centre at Harvard, he introduced some important modifications into the method of calculation of the orbits of artificial satellites. Later on he was joined by his erstwhile pupil, Imre Izsák. Both have made important contributions in the field of simplifying the methods of orbital calculations.

After the defeat of the revolution, even though the relaxation of political oppression was slow, keeping in contact with Western countries became somewhat simpler.

In July, 1957 Detre delivered some lectures at the observatories of Bonn and Hamburg, and later in the same month he took part in the Astrophysics Colloquium in Liege. In August he was the guest of the Bamberg Meeting of the AG. Another sign of the firming up of our international contacts was a visit, in 1957, of two respected astronomers from West Germany : H. Elsässer from Heidelberg and H. Schmidt from Bonn.

After a few years of delay, the matter of acquiring a new telescope came up again. In July, 1957 the Academy placed an order for the purchase of a 90/180/160 cm Schmidt type telescope with correction plate.

Taking into consideration the deterioration of the atmospheric condition around Budapest due to pollution, it was decided that the new telescope is to be installed at Piszkéstető, near Gallyatető, in the Mátra Mountain of northern part of Hungary. The Academy voted nine million Hungarian Forints for the building of the mountain station of the observatory.

The same year saw the beginning of work on an access road, to make the new observatory approachable.

The Academy also allocated a separate fund for the purchase of the "Mount Palomar Sky Atlas", which was indispensable for he evaluation of the photographs made with the new instrument.

One of the most important events in the life of the observatory took place in 1961, in Berkeley, California, where the General Meeting of the IAU entrusted Detre with the editorship of the "Information Bulletin on Variable Stars". From now on all the latest results obtained in the field were routed here. The isolation of the Konkoly observatory from its western partners was reduced in severity almost day by day. This year the observatory had regular channels for the exchange of information with four hundred and twenty partners.

Following the Berkeley meeting, László Detre paid a visit to the observatories on Mt. Palomar and M. Wilson and the Lick Observatory.

In the same year, on Piszkéstető, the building of the first dome has finished.

The Schmidt telescope became operational in 1962. After six years another Zeiss telescope, a 50 cm Cassegrain type refractor was erected at Piszkéstető.

The Detre family had more and more opportunities to take part in scientific meetings abroad, such as the Weimar Meeting of the AG in 1960, the Bamberg conference on Variable Stars in 1962 and a few months later the Freiburg Meeting of the AG.

It was counted as another step forward, that young Hungarian astronomers became eligible for western scholarships. Béla Balázs spent the year 1962 in Hamburg. Béla Szeidl spent ten months working in Heidelberg on a scholarship grant.

It was a great step forward for Hungary in the field of international relations, when a Hungarian delegation of nine members could participate in the Annual General Meeting of the IAU, held in Hamburg in 1964.

The existence of the new research station on Piszkéstető was also an asset in expanding the international contacts of the institute. The Schmidt telescope proved to be a good instrument, the working conditions were good and the scenery was attractive.

The Mátra station soon became teeming with visitors from abroad, such as Merle Walker from the USA, Werner Pfau from Jena, Hoppe from Babelsberg, Kukarin and Luria from Moscow, Kreiner, Kordylevsky from Cracow, Tremko and Antalova from Skalnate Pleso and many others.

Although official decrees emanating from the Academy always put great emphasis on the "proportionality" between eastern and western contacts, the observatory outside Budapest frequently plaid host to visitors from western countries. Consequently, more an more Hungarian astronomers could visit more and more places. Invitations to visit Peking, Cuba, Florence, Padua, Asiago and Helsinki were received with increasing frequency. Béla Balázs spent a few months at Kitt's Peak, while Márton Ill had an opportunity to spend a study-trip in the Observatory of Meudon.

In 1968 the IV^{m} Colloquium on Variable Stars was held in Budapest under the title of "Nonperiodic Variable Stars". This Meeting has enyojed the support of the IAU and was an event of great significance in the life of our institute. The meeting held between the 5th and the 9th September, was attended by eighty-seven astronomers from abroad, out of which forty-eight came from western countries. Seven of Those came from USA, nine from West Germany. Until this meeting, contacts with these two states were not allowed.

After this meeting it looked as if the ice were broken. most of the participants revisited us, sometimes returning as a private person.

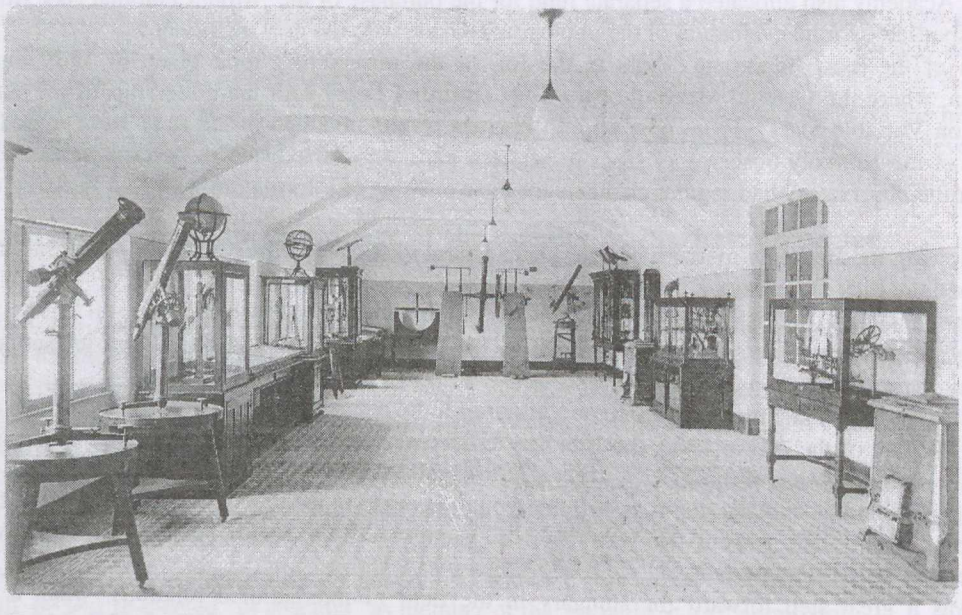
F00urther possibilities opened up for Hungarian Academy had also made a similar treaty with West Germany. On this occasion Detre designated the Max Planck Institute in Heidelberg, the Remeis Sternwarte in Bamberg, the Faculty of Astronomy of the University Kiel and Hocher List Observatory in Bonn as the Hungarian Academy's most important partners in West Germany.

After this become possible to accept appointments abroad.

In recognition of his achievement, the Hungarian Academy of Sciences enrolled Dr. László Detre among its full members. In the autumn of same years a 1 m Ritchey-Chretien-Coudet telescope was installed at the Mátra Station. This telescope introduced a new era, with its use of computational resources to facilitate observations.

Dr. László Detre did not live to see the ceremonial inauguration of this telescope. In the morning of 5th October 1974 he was taken seriously ill, as a result of a drug overdose. He died on the 15th October 1974, at the age of sixty-eight years.

His place was taken by his close co-worker, Dr. Béla Szeidl.



CHAPTER 2
The circumstances in the First Few Years

APPENDIX TO "PHOTOMETRISCHE BEOBACHTUNGEN VERÄNDERLICHER STERNE"

Antal Tass

After the nationalization of the Konkoly-Observatory in Ógyalla in 1899, besides pursuing the traditional works, the main stress was laid upon visual photometry, to which a decennary later photographic photometry was added. In the first years after the nationalization variable stars were observed, and later the "Photometric Durchmusterung" of the southern sky from 0° to 15° southern declination was undertaken, a continuation and extension to the South of the Potsdam Durchmusterung. In the beginning of the last decennary a photographic Durchmusterung, as the continuation of the Göttingen Actinometry was intended, which should embrace on the one side the photographic brightness of stars of the north polar region as far as 60° northern declination, down to the Bonn magnitude of 7.5, on the other side the photographic magnitude of the stars of the visual catalogue of Ógyalla.

From this programme only the belt between 0° an 10° south declination could be executed. The observations appeared in the year 1916 as Vol. I of the Royal Hungarian Astrophysical Observatory, Konkoly-Foundation, in Hungarian and German edition under the title: "Photometric Durchmusterung of the Southern Sky, containing all stars of the BD down to the magnitude 7.5. Part I. Zone of from 0° to –10° declination". By A. Tass and L. Terkán.

As one of the observers, the Observator Prof. Dr. Terkán was called to military service at the outbreak of the war the undersigned undertook the continuation of the work: the observation of the belt from –11° to –15°. – The number of stars to be observed amounted to 1064, and besides 723 stars of the northern sky from 0° to + 4° declination were placed on the programme of observational work, in order to get a direct connection with the Potsdam catalogue. From July 20, 1914 to November 23, 1918, 1245 zone stars and 36 fundamental stars have been observed belong to RA 9^h to 2^h those which are still to be observed lie between RA 2^h to 9^h. The observations were excecuted with the 16 cm refractor in connection with a Zöllner photometer, but on account of the war they had often to be interrupted, as the electric plant of the Observatories of Ógyalla was frequently out of working. By this reason and because of the absence of one of the observers actionometric observations have been suspended since the outbreak of the war.

After Vol. I of the Publication was issued, the undersigned collected the observational material of the variable stars in order to publish them as Vol. II of the Publications. In the second quarter of 1918 the manuscript was ready for printing and at the end of the same year 20 sheets have been already printed and the rest put to proof. The breakdown and the following political revolution at the end of the year 1918 prevented the publication of the Volume. All working had to be suspended in order to bring the chief instruments in security, since Ógyalla was menaced to be invaded by Czecho-Slovak troops.

At the very beginning of 1919, Ógyalla was occupied by military force, but the representative of the Checho-Slovak republic took possesion of the Institute only on March 14, and thus the astronomers, refusing to enter the service of the new State by taking oath of allegiance, became "astronomes étrangers" in their own home. In their quality of "astronomes étrangers" they intended to measure the photographic plates of the Sun and the actinometric observations.

Adjoint Dr Ernest Hoffman, entrusted with the observations of the Sun, left Ógyalla and removed to Budapest at the beginning of 1920.

The observator Dr. Terkán and the undersigned left at the end of July 1920 the service of that part of the Foundation, which came under foreign reign, since after the determination of coordinates of the stars for the actionometric work the electric plant of the Observatories could not be brought in working condition in spite of all efforts and there was no hope to finish the measures of the blackening of the photographic Plates.

The undersigned inventorially surrendered to the interim Chech leader the library, instruments and movables left in Ógyalla and removed at the end of the year with Dr Terkán to Budapest.

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In spite of the hard financial conditions of mutilated Hungary the preparatory works for a new Observatory were finished in the first half of the year 1921 and in the second half of the same year the building of the transit-room of an area of 4 × 5 m and of the dome of a diameter of 5 m for the 8 inch refractor were beginning. Thanks to social subsidies and assistance, the erection of both the objects has been finished at the end of 1922 and the 8 inch Heyde-refractor as well as a transit-instrument of 70mm aperture

could be installed. In the second half of the year 1923 the construction of the main building was begun and will be finished in 1926. The new home of the Foundation lies on a plateau of the NS range of the mountain Svábhegy, in the altitude of 480 m. An area of 40.000 square metre has been ceded to the Foundation by the Municipality of the Capital and resedential town of Budapest.

We also desire to record our great indebtedness to the Town-Council of the Capital and especially to the Mayor Dr. Eugene Sipőcz and to his substitute Mr. Lewis Folkusházy, distinguished patrons of the Institution, for the extension of the electric cables and waterpipes up to the ground of the new Observatory. At the initiative of the Major Folkusházy the Town-Council also resolved to grant 100.000 gold-crowns for the building works and equipment of a second dome bearing the name of the Capital. We shall begin the construction of this dome this year.

The reviving of the Foundation is now secured, as His Excellency the Minister of Public Instruction, Count Kuno Klebelsberg lays special stress upon that the objective conditions of working of the Institute may be secured. To this purpose it was put under the survey of the Senate of the Hungarian Scientific Collections which is composed of the Chief-Directors of the Royal Hungarian Public Record Office, the Hungarian National Museum, the Hungarian Museum of Fine Arts and the Hungarian Museum of Decorative Arts and was created on the initiative of His Excellency by the Act XIX of the year 1922 with the intention to develop the Institutes belonging to his organisation on autonomic way and thus to secure their liberty.

Under the presidency of his Excellency the Minister of Public Instruction the Hungarian Astronomical Society was founded to the purpose of maintaining the interest for astronomy in the public and of promoting the rebuilding and equipping of the Konkoly-Foundation by organising social assistance.

The first Director of the Foundation was de Konkoly, the founder himself. At the nationalization of his observatory he explicitly stipulated that his Observatory may form as the Royal Hungarian Astrophysical Observatory, Konkoly-Foundation the inalienable property of the Hungarian State and may serve the fostering and promoting Astronomy in our country, the Hungarian State being obliged to care for maintenance of the Institute and to secure its development, thus being also entitled to transfer the Observatory. After the death of de Konkoly on February 17, 1916, the Foundation was near its ruin and amidst the most difficult circumstances it could only be revived by the painstaking work and unselfish assistance and cogency of many.

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On account of financial reasons the definitive publication of the present volume could be thought of only in the year 1924. – The publication was rendered possible before all through the sacrifices of the Stephaneum-Printing-Office Co. Ltd.; it did not only keep the matter standing since the end of 1918, but has also granted considerable reductions from the present prohibitive printing prices, that the contents of the Publication may not become antiquated. The most sincere thanks of the Institute are due to the Board of Directors of the Stephaneum-Printing-Office.

A German edition like that of Vol. I could not even be thought of in 1918. It was therefore our intention to give an explanation of the Contents and plan of this Volume in an Appendix written in German. Through the kindness of the Board of Directors of the Stephaneum-Printing-Office this Appendix can be issued now in German and English language.

Hungarian astronomical literature being small, it was desirable to bring the principal notions about Variable Stars in general Introduction (p. 11-40) in order that Hungarian readers may get a general view of the scope and method of these observations. The Chapters of this Introduction are: Historical Summary (Importance of the works of Argelander and of the Bonn-school, Catalogue of Variable Stars, Hartwig's Ephemerides, A.G. Catalogue of Variable Stars) p. 13.-15. – Denomination of the Variable Stars (notation of Bayer, Argelander, that of the A.G., of the Annuaire, of Nyland, Chandler and Pickering; the first provisional notation) p. 15.-17. – Classification of the Variable Stars (The light curve, elements of the variation of light, number of Variables, classification according to the length of period, after Pickering, Hagen, Nyland and Hartwig) p. 17-22. – Period-formulae and light-equation (p. 22-23). - Methods of observation (Light-power of the telescopes) Argelander's step-method for estimating brightness of stars. Selection of Comparison Stars. Step scales and their connection with photometric scale. Errors of the visual determination of brightness. Light-electric methods. Importance of the works of Guthnick and Prager p. 23-25. – Auxiliary resources (Identification of Variables, Hagen's charts. Catalogue of Brightness for selecting Comparison Stars) p. 35-37. – Scope of the observations. (General scope. Special scopes according to the classification. Colour-scales. - Necessity of the publication of the Observations) p. 37-41.

It may be observed that in the Introduction of Vol. I of these Publications the principles of photometry, the psychophysic law, the notion of magnitude-class, the notion of extinction etc. have been given in detail, and these can now be supposed to be known; besides, the principles of photographic photometry were shortly reviewed in the Minor Publications of this Institute, and it was intended to give a more exhaustive discussion in the Photographic Catalogue of Brightness.

Part II. of the Present Publication contains the results of observations made with a wedge-photometer in the years 1900-1902. Observers were: Baron Harkányi, A.Tass and L. Terkán. - After the description and a short theory of the wedge-photometer the observations, made to the purpose of determining the constants of

the wedge, are given in Tables I and II. The arrangement of both the Tables is the same. The first column gives the day of observation, the second: name of the observers, the third: number of the stars (in Table I p. 47-48 according to the Star-Catalogue of Potsdam in Table II p. 49-50 after A.N. Vol. 150 (1899), Müller and Kampf: "Bestimmung der Helligkeit von 96 Plejadensternen"), the fourth: zenith-distances; the fifth: mean of 5 readings; the sixth: the difference of brightness in mm and in magnitude; the seventh: the single values of the Constant of the wedge. – From the two series of observations we get:

$$K = 0.1693 \overset{M}{+} 0.0014 \overset{M}{.} \text{ (p. e.)}$$

With this value the quantities in column eight were calculated and finally column nine gives the difference between observation and calculation. The tables before may facilitate the understanding

Explanation of the Tables I-II

...

With the wedge-photometer on the whole 22 Variables were observed. The results of the observations are given on pages 55-99. The small Tables under the name of the Variables contain the data of the Comparison Stars. The arrangement of the Tables of the results of observations is shown below.

Explanation of the Tables pg. 55-99.

...

Name of variable

When observational data are missing, the star was inmeasurably faint, or it was upflashing or invisible. On pages 100-101 the state of air and other remarks are given. The denominations are: ködös = foggy, igen ködös = very foggy, levegő nyugodt = calm air, levegő nyugtalan = agitated air, levegő átlátszó = air transparent, levegő átlátszatlan = air opaque, rossz (életlen) képek = bad (vague) images, holdfény= moonshine.

Part III (p. 103-286) contains the observations, made with a Zöllner astrophotometer in the years 1902 to 1913. Observers were

in the years: 1902 - 1903 Tass, Terkán and E. Pick
" " " 1904 - 1905 Tass, Terkán and S. Fejes
" " " 1906 - 1908 Tass, Terkán and E. Czuczy

and in the subsequent years two constant observers Tass and Terkán.

As the theory of Zöllner photometer has already been given Vol. I of these Publications, after some introductory remarks the observed 129 Variables are here enumerated in Table I (p. 106-108), their coordinates for 1900,0 and the maximum and minimum of their brightness given. The column headed "Megfigyelések száma" gives the number of observations, made by the different observers, the fifth column contains the total number of the observations of the Variable, and the last number gives how many times the star was immeasurably faint, upflashing or invisible.

The arrangement of the Table containing the observational data is as usual

On pag. 281-286 the state of air is given.

...

In Part IV we find the determination of brightness of such 55 comparison stars, the magnitude of which, according to BD was less than 7.5. They were determined by connection with the Potsdam or Ógyalla Photometric Catalogues. In Table I (p. 280-290) these comparioson stars are enumerated in order of increasing declination. Column "Egyes értékek" gives the results of single observations, and that headed "Összközép" the mean of the single values as shown below

On p. 290-313 the observations themselves are given.

...

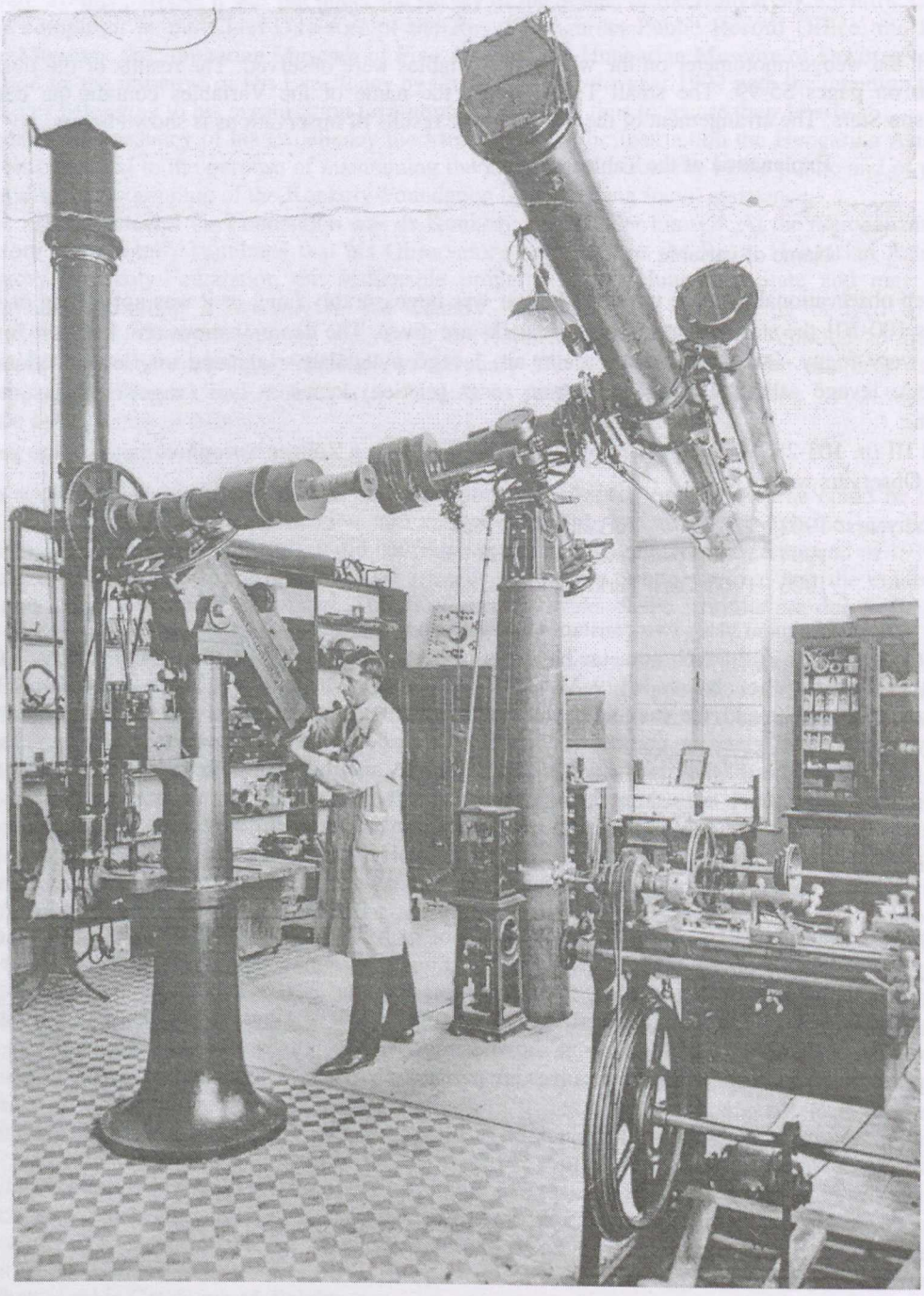
*

Finally we may observe that the wish emphasized by Mr. G. Müller in Vol 38 of the Vierteljahrsschrift der A.G. (p. 229-230) concerning the publication of the observations of variable stars served us as a direction in compiling the observational data.

Budapest, March, 1925.

A. Tass
Director.

In: Publikation des Kön. Ung. Astrophysikalischen Observatoriums v. Konkoly's Stiftung en Budapest. Bd. 2. Ógyalla, 1918–Budapest 1925



BUDAPEST (STIFTUNG VON KONKOLY)

DIE ERRICHTUNG EINER NEUEN UNGARISCHEN STAATSSTERNWARTE AM SCHWABENBERGE IN BUDAPEST (*JAHRESBERICHT* 1921)

Antal Tass

In Nr. 5084 (Bd. 212) der Astronomischen Nachrichten wurde von ihrem Herausgeber, Herrn Prof. H. Kobold, bereits angezeigt, dass infolge Übergangs Ógyallas in den Besitz der tschecho-slowakischen Republik die einzige ungarische Staatssternwarte, das Ógyallaer Astrophysikalische Observatorium von v. Konkolys Stiftung am Schwabenberg bei Budapest beabsichtigt.

Über die Übergangsperiode und die vorbereitendem Arbeiten kann Unterfertigter folgendes berichten.

Vor allem möchte er in Erinnerung bringen, dass bei der im Jahre 1899 erfolgten Verstaatlichung der Ógyalllaer Observatoriums Konkoly, die ausdrückliche Bedingung stellte, dass seine Sternwarte als königl. ungarisches Astrophysikalisches Observatorium von v. Konkolys Stiftung als unveräusserliches Eigentum des ungarischen Staates nur für das Gedeihen und Aufblüchen des Pflege der Astronomie in Ungarn dienen kann, und dass der ungarische Staat für die Weitererhaltung und Sicherung der Entwicklung des Instituts verplichtet sei und berechtigt ist, die Sternwarte zu verlegen.

Im Jahrang 52 (1916) dieser Zeitschrift wurde in Tätigkeitsbericht erwähnt, auf welche Weise der ungarische Regierung dieser Verplichtung nachgekommen ist. Es wurde auch dort beklagt, dass es Herrn Konkoly nicht mehr vergönnt war, die erhofften Neuerungen zu erleben. "Welche Umwandlungen sein Hinscheiden in der Zukunft der Sternwarte zur Folge haben wird, ist vorläufig nicht zu übersehen", schrieb dort Unterfertigter. An die erfolgte war aber damals nicht im entferntesten zu denken.

Nach dem Zusammenbruch 1918 und kurz vor der Besetzung Ógyallas wurden die hauptsächlichsten Instrumente – um die Intentionen des Stifters zu wahren und den ausdrücklichen Bedingungen der Stiftungsurkunde gerecht zu werden – nach Budapest überführt, das Personal des Instituts verblieb aber auch fernerhin in Ógyalla, wo es nach der am 14. März 1919 erfolgten Übernahme des Institut durch die Vertreter des cs. Staates, als "astronomes étrangers" sich der Aufarbeitung des bis dahin gesammelten Beobachtungsmaterials nach Möglichkeit widmen wollte. Erst Ende Juni 1920 trat es aus dem Dienste des in Ógyalla gebliebenen und unter fremde Herrschaft gelangten Teiles der Stiftung, da es die Hoffnung, in absehbarer Zeit zum Ziele zu kommen, wegen Mangel an Unterstützung verlor.

Unterfetigter übergab daher in den darauf folgenden Wochen inventarmässig die in Ógyalla gebliebene Bibliothek, die Instrumente und Einrichtungsgegestände der Stiftung dem tschechischen interimistischen Leiter, Herrn Dr. G. Kaván, ferner einen von Anfang 1918 bis Ende Juni 1920 sich erstreckenden Tätigkeitsbericht, für dessen Erscheinen Herr Kaván beizeiten zu sorgen versprach.

Gegen Jahresende 1920 übersiedelte Untervertigter mit Herrn Observator Dr. Terkán nach Budapest, da noch vorher vom vorgesetzten Ministerium für Kultus und Unterricht für die provisorische Beherbergung des Institutes und seines Personals mehrere Gebäude am Schwabenberge zugewiesen wurden, unter welchen das Schwabenberger Haus (Budapest, I. König Mathias-Strasse 32) des Budapester Grossindustriellen Herrn Marczell Nagel als provisorisches Direktionsgebäude benutzt wird.

Nach Erledigung vorbereitender Arbeiten wurde am 1. März 1921 im vorgesetzten Ministerium unter Vorsitz des Staatssekräters Dr. Ludwigh Tóth eine Beratung unter Zuziehung der interessierten amtlichen Behörden und wissenschaftlichen Vertreter abgehalten. Nechdem von diesen die Akademiker und Hochschulprofessoren Ilosvay, Staatssekretär D. I. Fröhlich, G. Rados und Baron Harkányi aufs wärmste die dringende Wiederherrstellung der Stiftung befürworteten und der Vertreter des Budapester Magistrats die Überlassung eines geeigneten Areals am Schwabenberge in Aussicht stellte, konnte der Vorsitzende den einstimmigen Beschluss verkünden, dass im Interesse des Kulturniveaus des verstümmelten Ungarns die Wiedererrichtung der obdachlosen Stiftung eine Pflicht des ungarischen Staates sei, dass daher Sorge getragen wird, um die abgebrochenen Beobachtungen möglichst bald wieder aufnehmen zu können, die Kosten eines Passagenhauses und einer Kuppel zu sichern. Gleichzeitig wurden diplomatsiche Schritte um Herausgabe des in Ógyalla gebliebenen und inventarmässig übergebenen Teiles der Stiftung. ferner um Vergütung des Gelände- und Gebäudewertes derselben eingeleitet, die bis zur Zeit noch nicht abgeschlossen sind.

Im seiner am 14. Juli 1921 abgehaltenen Versammlung überliess das Munizipium der Stadt Budapest am Schwabenberge ein Areal von 40.000 qm mit dem Vorbehalte, dass dieses nur für Zwecke der Stiftung und deren wissenschaftlicher Entwicklung benutzt werden kann, und dass als Anerkennung des Herrenrechtes der Stadt jährlich eine silberene Krone zu zahlen ist.

Die Gelände der neuen Sternwarte liegt auf einem 464 m hohen Plateau eines NS-Flügels des Schwabenberges, von dem ringsherum die Umgebung sanft abfällt. Von drei Seiten mit Wald, in der SO-Richtung von Ackerfeldern und einer tiefer gelegenen Villa umgeben, ist der ausgewählte Platz vor Umbau geschützt. Und da der Schwabenberg eine stark frequentierte Sommerfrische ist, wo keine industriellen Anlagen errichtet werden können, da ferner das überlassene Gelände von den industriellen Anlagen Budapests mehrere Kilometer entfernt ist und über dieselben um 300 Meter höher liegt, ist auch Reinheit und Ruhe der Luft zu gewärtigen. Der Horizont ist in allen Richtungen frei, ausgenommen die NW-Richtung, in welcher der etwa 2 km entfernte, 529 m hohe Johannesberg etwas hervorragt. Der Verkehr mit der Stadt wird durch eine seit 1874 bestehende Zahnradbahn erhalten. Die Schwabenberger Endstation dieser ist vom Gelände des Institutes in 45-50 Minuten zu erreichen.

Das überlassene Areal wurde am 10. August der Stiftung übergeben. Mit der Ausführung der Vorarbeiten des projektierten Kuppel- und Passagenhausbaues wurde am 17. August begonnen da die Pläne schon vorher nach Angaben des Unterfertigten vom Architekten Ministerialrat Schwab ausgearbeitet waren, dem auch die Bauleitung übertragen wurde.

Zur Zeit, d.h. Ende April 1922, sind sämtliche Bauarbeiten dieser beiden Objekte beinahe vollendet. Im Juni kommt daher der Achtzöller zur Aufstellung, ferner ein Heydesches Passageninstrument, das uns von der ungarischen Triangulierungsanstalt nebst einer Pendeluhr und einem Nardinschen Chronometer zur Verfügung gestellt wurde. Die Objektivöffnung des Passageninstruments beträgt 70 mm, die Brennweite 90 cm, und es ist mit einem Horrebow-Talcott-Libellenpaar und einem Okularmikrometer versehen. Die Fortsetzung unserer aktionometrischen Durchmusterung, ferner die südliche visuelle photometrische Durchmusterung, die Ausführung der Polhöhenbeobachtungen und der astronomische Zeitdienst sind daher gesichert.

Der Durchmesser der ersten Kuppel der projektierten neuen Sternwarte beträgt 5 m, die Spaltbreite 1.5 m. Der Kuppel ist eine kleine Dunkelkammer von 4 qm angebaut. Die Dimensionen des Passagenhauses betragen 4×5 m bei einer inneren Höhe von 3.5 m und einer Spalbreite vom 1 m. Alle beweglichen Teile wurden von der ungarischen staatlichen Maschinenfabrik geliefert. Dem Passagenhause musste eine provisorische Dienerwohnung angebaut werden, um die Bewachung der einsam stehenden beiden ersten Objekte zu sichern.

Dass es unter den gegenwärtigen unsäglich schweren Verhältnissen gelang, innerhalb eines Jahres die Fundamente des neuen Heims der Stiftung niederzulegen, ist for allem der tatkräftigen Unterstützung des vorgesetzten Ministeriums, dem verständnisvollen Interesse der Budgetabteilung des Finanzministeriums, dem Herrn Oberbürgermeister Dr. Eugen Sipöcz und dem Magistrat der Hauptstadt, der Fabriksleitung der staatlichen Maschinenfabrik und vielen andern massgebendenen Persönlickeiten zu verdanken. Der eindrucksvollen Befürwortung des Präsidenten des Budapester Baurates, Herrn Dr. Konstantin Zielinsky, Prof. der technischen Hochschule, und dem hochlöblichen Magistrate ist es zu verdanken, dass die Schwabenberger Wasserleitung und das elektrische Beleuchtungsnetz bis zum Gelände der Sternwarte verlängert wurde. Wegen unserer ungenügenden Mittel wäre die Ausführung des Kuppel- und Passagenhausbaues ohne die Hilfe der Fabriksleitung der staatlichen Maschinenfabrik nicht möglich gewesen. Der von der Fabriksleitung mit der Durchführung betraute Dipl.-Ing. Hugó Ulbrich und sein Personal arbeiteten mit patriotischer Begeisterung, um das erstrebte Ziel zu fördern.

Zufolge des Überganges Ógyallas in den Besitz des čs. Staates ging Ungarns einziges Observatorium für Meteorologie und Erdmagnetismus in Verlust. Da Ungarn schon eine bedeutende Vergangenheit auf diesem Gebiet aufweisen kann, und da das ungarische erdmagnetische Observatorium das letzte Glied im Netze dieser Observatorium gegen SO war und da ferner mannigfache wissenschaftliche und praktische Gründe dafür sprachen, ein kleines erdmagnitisches Observatorium zu errichten, wurde in einer am 14. December 1921 im ungarischen Ackerbauministerium abgehaltenen Beratung auf Vorschlag des Direktors des Budapester Instituts für Meteorologie und Erdmagnetismus, Herrn S. Róna, und infolge der befürwortenden Unterstützung der Herren Professoren Fröhlich, Kövesligethy, Tangl, Baron Harkányi, und Ministerialrat Dr. Pekár, Direktor des geophysikalisches Instituts, beschlossen, Schritte einzuleiten, um die Errichtung eiene kleinen, aber modernen erdmagnetischen Observatoriums auf dem Gelände der Sternwarte zu sichern. Es wäre zu wünschen, mit dem Bau dieser Anlage noch in diesem Jahre zu beginnen, wenn es gelingt, die Kosten hier für noch in das Budget 1922/23 einzustellen.

Von seiten der Stenrwarte wurde auch die Bitte an das vorgesetzte Ministerium gerichtet, den Bau des Hauptgebäudes für das nächste Budgetjahr zu sichern, denn die gegenwärtige provisorische Unterbringung des Institutes ist für längere Dauer unhaltbar, abgesehen davon, dass Personal gegenwärtig von dem Gelände der neuen Sternwarte 25-30 Minuten entfernt wohnt, sprechen auch viele sachliche Gründe dafür, dass in erster Reihe das Hauptgebäude und die Dienstwohnungen des Personals errichtet werden, und dass erst nach diesen zu der Ausführung weiterer Beobachtungsgebäude geschritten werde. Das Hauptdienstgebäude und die Dienstwohnungen sollen auf der NOO-Seite des genau quadratförmigen Areals gebaut werden; die Aufstellung der Kuppeln is isoliert geplant.

Vom Ogyallaer Personal steht ausser unterzeicheneten Vizedirektor nur noch Observator Dr. Terkán im Dienste der Stiftung, Adjunkt Dr. Hoffmann, der noch im Frühjahr 1920 von Ógyalla nach Budapest übersiedelte, und an der technischen Hochschule einen Assistenposten provisorisch bekleidete, ist im Jänner 1921 definitiv aus dem Dienste der Stiftung getreten. Der Laborant Tóth und Institutsdienster Fodor sind in Ógyalla verblieben, und später definitiv in den čs. Staatsdienst übergegangen. Die hierdurch vakant gewordenen Stellen wurden den Bedürfnissen gemäss besetzt. Im Sommer 1921 wurde zum Adjunkten Dr. Karl Lassovszky, Assistent des kosmographischen Instituts der Budapester Universität, ernannt, im Herbste wurde der Stiftung aus dem Diener-Personal der vorgestzten Ministeriums ein Diener zugewiese, im Februar 1922 wurden die beiden andern Institutsdienerposten besetzt. Nur die Mechanikerstelle muss vorläufig wegen Mangel eines geeigneten Raumes für eine mechanische Werkstatt unbesetzt bleiben, obwohl unter den gegenwärtigen Verhältnissen die Besetzung dieser Stelle doch sehr dringend und lohnend wäre.

Wie aus früheren Jahresberichten bekannt, wurde noch vor einem Jahrzehnt ein Reflektor von 60 cm Öffnung, ausgerüstet mit einen Leiternrohre von 30 cm Öffnung, bei der Dresdner Firma G. Heyde bestellt, der in der zweiten Hälfte 1914 geliefert und aufgestellt werden sollte. Wegen Kriegsausbruch verschob sich nicht nur die Ablieferung, sondern auch die Vollendung des Instrumentes, und bei unsern ungemein schweren Verhältnissen und wegen Verschiebung der Valutawerte müssen die Verhandlungen von neuem eingeleitet werden.

Da, wie erwähnt, die Bibliothek der Stiftung in Ógyalla zurückblieb und wir aller literarischer Hilfsmittel entblösst waren, trachtete Unterfertigter auch das Fundament einer neuen Fachbibliothek anzulegen. Seine diesbezüglichen Bemühungen waren auch von einem teilweisen Erfolg begleitet, da Ende April 1922 das Institut über eine Bibliothek, bestehend aus 975 Bänden und 532 Broschüren, dank zahlreicher Zusendungen von Fachgenossen und Instituten, verfügte. Unter letzteren sind zu nennen: Allegheny Observatory, Obs. Fabra (Barcelona), Sternwarte Berlin-Babelsberg, Berliner Astronomisches Recheninstitut, Budapester Meteorologisches und Erdmagnetisches Institut, Harvard Observatory Cambridge, Cincinatti Observatory, Die Sternwarten Cordoba, Frankfurt, Göttingen, Hamburg-Bergedorf, die Hamburger Seewarte, das Astronomical Laboratory Groningen, Khedivial Obs. (Heluan), Union Obs. (Johannesburg), die Sternwarte Kis-Kartal, Kopenhagen, La Plata, Lund, Lisboa-Tapada, Dominion Obs. Ottawa, Astrophysikalisches Observatorium Potsdam, Geodätisches Institut Potsdam, Sternwarte der deutschen Universität Prag, Flower-Obs. Philadelphia, Princeton Univ. Obs., die Hochschule die Pannonhalma, die Vatikanische Sternwarte Rom, Obs. do Rio de Janeiro, Obs. del Ebro Roquetas, Obs. de Marina San Fernando, Die Sternwarten Stockholm, Österberg-Tübingen, Dominion Obs. Victoria, Mc. Cormick Obs. Virginia, Naval Obs. Washington, Smithsonian Institution Washington, Washburn Obs. Wisconsin, Hector Obs. Wellington, Sternwarte Zürich. – Die Società degli spettroscopisti italiani überliess eine Serie der Memorie, die Royal Astronomical Society in London sendet die Monthly Notices von Bd. 82- an. Herr L. Tolnay schenkte uns den vollständigen Katalog der Astronomischen Gesellschaft, Herr Dr. Steiner einen Teil der Publikationen der A.G. das Budapester Meteorologische und Erdmagnetische den astronomischen Teil seiner Bibliothek, wodurch wie unter andern auch in den Besitz von. bd. 85 bis 189 der Astronomischen Nachrichten gekommen sind.

Herr Baron Geyza v. Podmaniczky überliess der Stiftung den kleinen Meridiankreis seiner Sternwarte und zwei Uhren.

Für diese Spenden erlaubt sich Unterfertigter an dieser Stelle den wärmsten Dank der Stiftung auszusprechen und bittet ergebenst alle Fachgenossen, insbesondere aber die Institutsleiter, durch Zusendung ihrer Publikationen die astronomischen Bestrebungen in Ungarn wohlwollend weiter zu unterstützten.

Da in jüngster Zeit nicht nur im amtlichen, sondern auch gesellschaftlichen Kreisen das Interesse für das Institut erwacht ist, ist zu hoffen, dass binnen einigen Jahren der astronomischen Forschung in Ungarn wieder ein festes Heim gesichert ist. Seit einem Jahrhundert ist dies der dritte Versuch, die Pflege der Astronomie in Ungarn zu sichern. Die in den Jahren 1813-1815 erbaute Gerardsberger Sternwarte fiel im Jahre 1849 dem ungarischen Freiheitskriege zum Opfer. Nach einer 25jährigen Pause war es dem Bemühen Konkolys gelungen, neues Interesse für die Astronomie zu erwecken die unter seinem Einfluss entstandenen Observatorien gehören leider schon der Geschichte an. Seine Stiftung war dem Untergang nahe und konnte nach längeren Stillstand nur mit harter Mühe und der selbstlosen Hilfe vieler Mitwirkenden wieder ins Leben

gerufen werden. Es sei dem Unterfertigten gestattet, allen jenen, die hilfreich dabei waren, wiederholt den innigsten Dank der wiedererwachenden Stiftung auszudrücken. Möge und Interesse nicht verschwinden, die Hilfe nicht versagen, und möge der Stiftung in ihrem neuen Heime eine lange, erfolgreiche Zukunft beschieden sein!

In Vertretung: A Tass.

Vierteljahrschrift der Astronomischen Gesellschaft. Bd. 57. 1922. p82-88

UNGARISCHE STAATSSTERNWARTE IN BUDAPEST

Hermann Kobold

Infolge Übergangs der Sternwarte in O-Gyalla in den Besitz der tschecho-slovakischen Republik beabsichtigt der ungarische Staat die Errichtung einer neuen ungarischen Staatssternwarte am Schwabenberge in Budapest. Die Sternwarte in O-Gyalla war 1899 von Herrn v. Konkoly dem ungarischen Staate geschenkt mit der ausdrücklichen Bedingung, dass sie der ungarischen Wissenschaft dienen solle. Die hauptsächlichsten Instrumente der Sternwarte sind nach Budapest überführt und dort vorläufig in einem Herrn Marcell Nagel, einem sich in seinen Mussestunden schriftstellerisch betätigenden Budapester Fabrikanten, gehörenden Hause untergebracht. Mit der Leitung dieser Sternwarte ist, nachdem die ungarischen Astronomen, die solange noch als astronomes étrangers in O-Gyalla gearbeitet hatten, Ende vorigens Jahre nach Budapest übergesiedelt sind, Herr Professor Tass beauftragt. Da die ganze Bibliothek der Sternwarte in O-Gyalla zurückgelassen werden musste und die Mittel der Sternwarte unter den gegenwärtigen Verhältnissen einen Ersatz nicht möglich machen, würde durch Schenkung entbehrlicher astronomischer, physikalischer und mathematischer Hand- und Lehrbücher die Wiederaufnahme und Weiterführung der wissenschaftlichen Arbeiten der Sternwarte sehr erleichtert werden. Auch wird um die Zusendung der wissenschaftlicher Publikationen an die Sternwarte unter der Anschrift: Ungarische Staatssternwarte, Budapest, I. Mátyás király-ut 32 herzlichst gebeten. Die Redaktion der Astronomischen Nachrichten empfiehlt diese Bitte der wärmsten Aufnahme der Fachkreise. Sie ist gern bereit die Weiterleitung ihr zugesandter Schriften und Bücher an die Sternwarte zu Budapest und jede andere gewünschte Vermittlung zu übernehmen und nach Möglichkeit dazu beizutragen, dass durch kraftvolle Unterstützung der ungarischen astronomischen Wissenschaft die Wege geebnet werden möchten, die Bedeutung, die sie durch die Arbeiten der O-Gyallaer Sternwarte sich erworben hatte, wieder zu erlangen.

Astronomische Nachrichten Bd. 282 1921. no. 5084. p. 383

Königstuhl/Heidelberg 28/2.1926

Hochgeehrter Herr Kollege!

Leider kann ich Ihnen nicht auf alle Fragen antworten, da ich nicht die nötige Erfahrung besitze. Aber einiges kann ich Ihnen doch sagen.

1) Leitrohr: Ein Leitrohr ist unbedingt erforderlich, wenn Sie Aufnahmen von Planetoiden, Kometen u. dgl. machen wollen. Ohne dieses geht es überhaupt nicht, oder nur sehr umständlich. Das Okular muss allerseits Schlittenbewegung und Positionsdrehung besitzen. Ebenso ist der grosse Pointer nötig für feinere spektroskopische Sachen, wenn es nicht sehr langsam gehen soll. Da müssen Sie das Leitrohr jeweils genau auf den Spektrographen justieren und können dann die zu untersuchenden Einzelteile (z.B. des Nebels) auch bequem auf den Spalt bekommen und dort verschieben.

Es währe wohl nicht nötig 300 mm Durchmesser zu nehmen, 250 oder 200 mm würde wohl ebenfalls genügen. Aber es ist zu bedenken, dass Sie mit 300 auch andere Sachen arbeiten könnten, besonders dann, wenn der Spiegel versagt, was doch vorkommt. Ich würde 300 nehmen, wenn ich könnte.

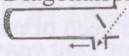
2) Als Sucher würde sicher auch ein Rohr von 60 mm Φ genügen.

3) Es ist ein sehr guter Gedanke von Ihnen, für Leitrohr und Reflector gleichartige und gleichgrosse breech-Stücke zu nehmen. Das bietet sehr viele Möglichkeiten. Aber, wenn es sich noch machen lässt, würde ich den Durchmesser der Auszüge grösser als 60 mm wählen. Denn, wenn Sie 9x12 cm Platten verwenden wollen, so ist deren Diagonale 15 cm. So gross sollte dann eigentlich die innerste Weite der Auszüge sein. Unter 13 cm würde ich nicht gehen. Anderseits ist zu bedenken, dass je weiter der Auszug wird, umso schwieriger das Seitenlicht abzuhalten ist. (Vergl: 5.)

4) Ich kenne Ihre Montierung nicht. Doch habe ich die Zeichnung für ein ganz ähnliches Instrument seinerzeit gesehen, die für Ó-gyalla (Kaván) bestimmt war. Sie hat mir recht gut gefallen. Nur muss darauf gesehen werden, dass der Beobachter die Möglichkeit hat, von oben (beim Okular des Newton) aus die Kuppel zu bewegen sei es durch Kette oder durch Elektricität.

5) Auf Eines muss ich noch aufmerksam machen.

Der Okularkopf des Reflektors muss so gebaut sein, dass kein Himmelslicht auf die Platte fallen kann. Sonst verschleiern die Platten, einseitig!, und auch jede schärfere photometrische Arbeit wird unmöglich. Das wird erreicht, entweder durch sehr langer Rohr oberhalb des Diagonalspiegels, oder durch langen Okularauszug, wobei dieser relativ viel tiefer herunter gegen,



denn grossen Spiegel geschoben werden muss, um in dem Fokus zu kommen. – Noch schlimmer ist dieses Seitenlicht bei der Cassegrain-Konstruktion, wenn nicht übersichere Dimensionen gewählt werden. Ich habe gerade von Heyde und Merz-Cassegrain solches gehört. Aber auch bei Zeiss muss man noch vorsichtig sein.

6) Soviel ich weiss, ist dass einzige grössere Telescop, das Heyde's geliefert haben, bei Herr Dr. J. Rosenlicher, Höchst am Main, Zeilsheimer-Weg 18. Vielleicht schreiben Sie einmal an diesen Herrn. Ich glaube es hat aber nur 30 cm. Man könnte nicht viel daraus sehen.

7) Das wichtigste von dem ganzen Instrument ist die Lagerung des grossen Spiegels. Sie ist sehr schwierig, ist aber jetzt wohl in Babelsberg gut gelungen. Fast ebenso wichtig ist das genaue Rundlaufen des grossen Drehstückes, welches Newtonspiegel aus und Breechpiece des Reflektors trägt. Das bringt nur eine Firma 1te Ranges fertig. Als Bedingung stellen!!!

8.) Über das Arbeiten mit Cassegrain habe ich keine Erfahrung, da ich nur mit Newton arbeiten kann. Jedenfalls ist es für das Spektroskop eine grosse Wohltat. Ich weiss nur, was ich in Mt.Wilson Veröffentlichungen gelesen habe und das wissen Sie besser.

9) Der Preis unseres Reflektors (71'0 nun freie ϕ) ist schwer genau anzugeben, da das Instrument nach und nach zusammengebaut ist. Doch betrug er ohne Kleinoptik, Spektroskop u.s.w. im Jahre 1906: rund 45.000 bis 50.000 M. Heute sind die Preise naturlich auf ein Vielfaches gestiegen? Es würde mich sehr interessieren, zu erfahren, was Heyde und Zeiss Ihnen verlangen: Bitte!

Mit ergebenste Grusse

Ihr M. Wolf

Ich lege ein Bittschreiben eines Landsmannes von Ihnen hier bei, dessen Sie sich vielleicht etwas annehmen können. Mir ist es von hier aus unmöglich.

KOL

THE ASTRONOMICAL FRATERNITY OF THE WORLD

By David B. Pickering

Part VI.

Few of the peoples of our race can boast of national life of over a thousand years. Of these few, none are more justifiably proud of their continuity as a nation than the Magyars, for none have struggled more against desperately odds.

Since those first barbaric, Slavic tribes emerged from the wilderness in that dim long ago, and were forced by influences of civilization into a crude cohesive entity, the Hungary that was to be has ever been a foot-ball of ungentle fate. Lacking every advantage of geographical prestige of political stability, buffeted and bruised between Occident and Orient, Hungary seems ever to stand with her back to the wall, with set teeth and clenched fists, maintaining her integrity through the inherent character of her people as well as by the force of her great leaders.

One recalls a scene in a beautiful square of Budapest, rich in sculptured monuments. A huge gray-haired, square-shouldered man, his arm about one of the score of diminutive lads that are grouped around him, stands facing a statue that pours out in stone its age-old story of some early heroic deed of patriotism in the life of their nation. The venerable teacher is feeding the flames of racial and national pride in the youthful breasts of his pupils.

From the Pesth side of the broad, dark Danube, spanned here by its four great bridges, one looks across to the heights of ancient O-Buda, upon one of which stands that vast and beautiful palace built by Maria Theresia, now awaiting a king, yet to be chosen. Pesth itself, the newer and more rapidly growing quarter, with its surprisingly modern structure, stretches far back from the east bank of the river. The uniqueness and beauty, the majesty and enterprise of this dual municipality both astound and thrill the traveler of continental Europe, who, for the first time, enters the capital of Hungary. The delicacy of its music, the beauty of its art, the strength and grace of its architecture, above all the smiling bravery of its devoted and patriotic people, recall days of delight that one hopes to live again other than in memory.

"Csillagvizsgáló Intézet" was the scramble of letters in the local telephone book that one had to translate into "Astrophysical Observatory" before telephoning for an appointment to see that interesting institution. Five miles from the Hotel Hungaria in Pest, high on the hills back of O-Buda, there is being developed a national institution for astronomical research of which the people of Hungary may well be proud. The Treaty of Versailles took from Hungary two-thirds of her territory and her people. When the red dust of war began to settle she saw her erstwhile national observatory at Ógyalla standing far beyond her borders in Czechoslovakia. Not a single instrument, not a book from the library, was left in the possession of the new Hungarian state. Crushed, maimed, humiliated, the pride of her people reasserted itself for the hundredth time. Despite their suffering and poverty, with their backs again to the wall, they demanded a national observatory for Hungary. The city gave the land, 600 feet square at 1500 feet above sealevel, and built the road to connect it with the nearest highway. It also provided for the largest of the several domes. The state gave the other edifices and the instruments.

Traveling through hilly, wooded country, along the ever winding road, upward and outward beyond the outskirts of the city, one arrives at last before the portal of the main building of the Observatory. This edifice, of beautiful proportions and details, is separated from the new street by wide smooth lawns. The character displayed in its 150-foot façade bespeaks the experience and taste of its modern architect. At the time of my visit, in April 1927, the plaster in parts of the finished structure was barely dry and only necessary executive and living quarters were fully furnished and in use.

Dr. Charles Lassovszky, a slender young man of about thirty years of age, assistant to Dr. Tass the Director, was waiting to greet me and aid in the adjustment of pingos and fillers sufficient to satisfy the taxi driver. Dr. Lassovszky had obtained his degree in 1920 and in 1923 was engaged by the Observatory. The Rockefeller Foundation sent him to America for the year of 1925, five months of which he spent at the Harvard College Observatory. He led me through expansive halls and up wide stairways to the Director's room on the second floor. Dr. Tass was most cordial in his greeting. The Director is a ruddy-complexioned, square-faced man of about fifty, stocky and of medium height. His heavy mustache crowns a constant smile, and in his mouth is always one of those good little Hungarian cigars, a box of which he at once placed before me. The room was a cheery one, with massive desks and centertable, and well lighted, as all other quarters were found to be, since the building is but two rooms deep, these being deviled by a broad central hall that parallels its front.

Dr Tass spoke no English, but with Lassovszky to act as interpreter and the occasional use of German, with which everyone seems familiar, we had no difficulty in conversing. They proceeded to tell of their

misfortune in losing so much to Ogyalla, which Observatory, up to that time, had not again been put into service.

They explained the friendship of their people for the Germans and spoke of their relief at being freed from the ties of the dual monarchy. They informed me that this new institution was began late in 1921 and that it was expected to be finished in 1932. The Director presented me with a copy, in German text, of the work of their first three years. There were but three members of the staff actively engaged at that time, but at the University of Berlin, were two young men being specially trained for the work. Dr. Lassovszky later impressed upon me the great organizing power of the Director; indeed, as the moving force of this project, developed under existing conditions, this was very obvious. He told of the Director's efforts, to keep the Secretary of Agriculture informed of meteorological conditions and of his aim to cooperate every way with the government whose aid in this important enterprise had been so generously given and so desperately needed. Knowing the work of Dr. Tass in the field of Variables, it was natural to inquire regarding the activities of local amateurs along that line. This elicited the information that, although there was an amateur astronomical association in Budapest of 1000 members, each of whom subscribed to a year book and received the official almanac, none among them was known to do any observing. Here, as was later found to be the case in all Germanic countries, the potential powers of the amateurs for helpfulness had not been awakened. The lovers of stars among the lay-men remained unorganized; their aid unsolicited.

Leaving the Director's office at length, we proceeded to inspect this handsome new edifice, which faces the east and overlooks the city far below. At the southern end the wide second floor hall opened into a splendid auditorium, 25 by 66 feet finally adopted for lecture or demonstration purpose. At the northern end are living quarters for members of the staff, each centrally heated, with private bath, good light and ventilation. These have their outlook toward the front while across the hall and facing the west are the dark rooms with their red glass doors, and the studios, all well equipped for modern photographic work. On the ground floor, in a room below the auditorium, were stored many of the instruments whose housings were at that time under construction. Here were the 10, 8, 7, and 6-inch telescopes, as well as many instruments of other character. Among the latter was a beautifully mounted 4-inch Zöllner photometer as well as wedge photometers and various micrometers of great refinement and precision. Below the ground are extensive dynamo and battery rooms, all to be connected with the outside telescope houses and planned to furnish auxiliary power should the city service fall. Here too, are the rooms for radio equipment and the even temperature chambers for the clocks. Ascending to the topmost floor, we visited the library at the northern end of the building. All the space in its three large sections is well economized: shelving is built around the pillars and the low ceilings tend to make all volumes reachable. Few books adorned its shelves at that time, for like all else, they had gone to Ogyalla. From the library we stepped out upon the wide platform in the center of the roof and from its stone balustrade looked down upon the grounds in the rear. Not far back from the southern end of the building, stands the completed dome that was soon to house the 6 inch Cooke refractor. Farther off and to the left is that for the 8-inch Heyde, whose fine equatorial mounting we had seen below stairs. Directly in the rear of the main building was being erected a large housing, as yet domeless, which will contain a splendid photo-visual reflector by Zeiss of 24 inches aperture. With this will be mounted a 12-inch refractor by Gustav Heyde of Dresden, who will also make the mounting for the large mirror. To dome will be constructed by Zeiss, who will also furnish the oculars for both instruments. The house was being planned for an elevating floor with a rise of 8 1/2 feet and modern chair stands are to be provided the Newtonian observation, when the instrument is used in this manner. Dr. Tass, when we met last summer in Leiden, stated with pride that this fine instrument was then in service.

At the northern end of the grounds stands the transit house containing three instruments by Heyde which are used for the determination of time and the variation of longitude. Here also are sun glasses, photometers, and micrometers.

We later inspected these buildings at closer range and it was astounding to note the ease with which the smaller, hand-operated domes could be moved. The Director stated that the wind alone would at times turn that of the 8-inch. This dome rides on one-inch steel balls, each of which maintains its approximate position by spiral springs secured horizontally on either side of each ball. The shutters of all the domes, even the smallest, break vertically and slide apart.

The dome of the 6-inch telescope is attractively covered with those miniature "fish-scale" shingles that one sees so often on the buildings of old German towns.

It was mid-day when we again repaired to the Director's office, where Dr. Tass gave me notes of introduction to the directors of museums and art galleries in the city. Dr. Lassowszky had sent for his swift little motor-car and after bidding adieu to the smiling Director, with cordial mutual felicitations, he conveyed me along wood-bordered roads to the highest point in the vicinity. Upon this height rises that gray stone monument a veritable temple of love, erected by the people as a memorial of their affection for their late queen Elizabeth. Her devotion to the cause of Hungary will endear her memory to them forever. Thereafter,

at an inn in the hills overlooking the city, came a luncheon of goulash, with more than a touch of the inevitable garlic, followed by the bits of that delicious Hungarian pastry, so famed for the variety and flavor of its little cakes, that we demand it, even in America.

Leaving the auto at the inn, we boarded a nearby tram for the steep descent into O-Buda, and before long were applying for admission to one of the more imposing residences facing the broad boulevard that lines the west bank of the Danube. A trim maid ushered us up the broad, heavily carpeted stairway to the floor above, where, in a large, richly furnished room whose deep windows gave upon the dark river, we were greeted by a very tall and very stately gentleman. His hair and pointed beard were white and there was a world of feeling in his deep-set eyes, whose soft glance from that fine old countenance bespoke strength and gentleness. He was the person whose influence and efforts had contributed so largely to make possible all that I had seen that morning. The Baron Béla Harkányi, or as his card would read "Báró Harkányi Béla" seemed to personify the spirit of Magyar. He seemed typical of those people who, fed with difficulties and constantly thwarted, had nevertheless, achieved character and developed strength; who accepted the inevitableness of conflict and oppression as their heritage, but who faced their fate leveled eyes and squared shoulders and counted it all as worth the cost of maintaining the national life of Hungary.

Baron Harkanyi was of the real aristocracy. At the close of the war he had taken a position in the local university as Assistant Professor in Astronomy and discussed with pride and animation the progress and prospects of the new observatory.

Later he told of those dark days in 1919 when the terror-ridden city was dominated by the Bolsheviki. He laid his finger upon a clean round hole in the plate glass of one of the front windows and told how nearly his life had been forfeit to one of the red snipers. He had been one of a group of the nobility, who for weeks had been herded together awaiting execution, their jailors inpatient to have it over and done with. Day by day the order was stayed. The turn came and by the closest margin their lives were saved. Budapest, in the far east of Europe, could afford no reprisals. The Reds were packed into box-cars, which lumbered back into the Orient. In a short while this war-shocked, poverty-stricken people were crying loudly – for what? Not only for those things which make for physical rehabilitation, but also for improved institutions for art and science and the dissemination of knowledge, and for a new national astrophysical observatory.

Well may we uncover and sense humility before such pictures of pride, patriotism, and progress.

From our little table on the sidewalk café in front of the Hotel Hungaria, on the other side of the dark, swift Danube. Dr. Lassovszky and I watched the light fade out the sky behind that magnificent palace of past kings that stretched its imposing length on the hills of Buda. We had finished our coffee and cakes and our talk had been of his people, their hopes and aspirations, their art and science, their music, their intense racial integrity and, what I sensed so well, their charm.

So ended another of those days that tend to develop a finer understanding of distant friends and help so much to enrich our memories.

Popular Astronomy 37. 1929 p. 204

ASTRONOMICAL CONFERENCES HELD IN THE YEAR 1928.

Antal Tass

The first organized community of Astronomers, aiming at harnessing international co-operation in the solution of ambitious scientific projects, is the "Astronomische Gesellshaft", based in Germany, founded in Heidelberg in the year 1863. Because of its excellent organization and leadership, in a short while its scientific importance not only approached, but in some cases surpassed that of the oldest similar organization, the "Royal Astronomical Society of London", which was founded in 1820.

The first work of fundamental importance produced by the A. G. (the internationally used abbreviation of the "Astronomische Gesellschaft") was, as it is well known to our readers, the Great Stellar Catalogue, which was the outcome of the co-operation between sixteen observatories[19]. It consists of nineteen quarto volumes, and defines the position of 178 000 heavenly bodies. As it is well known, during a conference of the A. G., held in Leipzig in 1924, a committee was formed to make preparations for the repetition of this

[19] *These were: The observatories of Albany, Berlin, Kuffner's of Vienna, Bonn, Cambridge in England, Cambridge in America, Christiania, Gotha, Helsingfors, Kazan, Leyden, Leipzig, Lund, Nikolaev, Strassburg and Washington D. C.*

important work of fundamental significance. It is also well known, that at the plenary meeting of the A. G., held in Copenhagen in 1926, a firm commitment was made for the repetition of the work[20].

We are not going into the details of the A.G.'s contribution to the literature. We want to mention only one of its publications, the "Astronomischer Jahresbericht", which has the well merited reputation of being a "first-rate" bibliographical tool for all of those, who intend to delve deeply into scientific work.

Thanks to their achievements, the importance of, and the respect accorded to the A. G. grew year by year. The direct outcome of these natural developments was, that by the end of the last century the institute was in the position to attract astronomers from every nation, and its biennial conferences were always regarded in the scientific community as significant events. All the civilized nations were represented at these conferences.

This trend continued until the last conference convened before War[21]. The Hamburg conference of 1913 was attended by about one third of the 422 members. A great part of those taking part were astronomers from abroad, who came to Hamburg after taking part in the "Solar Union" conference held in Bonn.

These conditions were drastically changed during and after the War.

The War separated the hostile powers like an iron gate, and after the entry of America and Italy into the War, the isolation of the Central Powers became total. Only in the field of Astronomy was this isolation somewhat less than complete, thanks to the efforts of Prof. Strömgren, the director of the Copenhagen observatory, who kept open a channel of direct and indirect communication between the observatories and the astronomers of the Central Powers and their opponents.

In the interest of international science, the maintenance of the "Astronomical Telegraph Service" remained essential. As it is well known, this service is based on the obligation that every new discovery in the field of Astronomy be communicated telegraphically to the Astronomy Centre in Kiel, which, in turn, is obliged to disseminate the new discovery also by telegram to every institution which subscribes to the service. The outbreak of war proved a great hindrance to this service. To get around this restriction, a "substation" was established at the Copenhagen Observatory under the leadership of Prof. Strömgren, mainly at the request of the neutral powers[22]. In addition to the Astronomical Telegraph Service, the centre continued to facilitate the exchange of important new books, periodicals and other publications even after America and Italy entered the ranks of belligerents. This indicates beyond doubt, that the governments of hostile powers attributed a great importance to preventing the total severance of the lines of communication between their astronomers.

This "substation" was not closed after the War, in fact it is still in existence. The conditions then prevailing made necessary its further operation. It is commonly known that, as early as 1918, scientists of the Allied powers, mainly French and Belgian, started a campaign for the establishment of new scientific organizations, out of which the scientists and scientific institutions from the Central Powers would be excluded, because they regarded all the international scientific organizations based in Germany as springboards for the propagation of Pan-Germanic ideas. In consequence of this movement the "Conseil Internationale de Recherches" (International Council of Scientific Research) was brought into being in Brussels, in the year 1919. Under its tutelage a number of international institutes and unions were organized for the international co-ordination of research work and for practical utilization of inventions in the different branches of science. One of these organizations was the Astronomical Union, "Union Astronomique Internationale" (abbreviated as U. A. I) in French, founded in Brussels in 1919, which was intended to replace the A. G. in the life of the international scientific community.

Neither the "Conseil du Recherches", nor any organization working under its aegis was allowed to enroll individuals as members, only states, and out of those only those which were members of the League of Nations. For this reason Germany, Austria, Hungary and Russia were not accepted as members of the Astronomical Union until their membership in the League of Nations was settled. This Astronomical Union convenes its conferences in every third year. The first of these was held in Rome in 1922, the second in Cambridge (England) in 1925, the third one in the current year in Leyden.

Protest was raised against the exclusion of the Central Powers not only by the former neutral states, but also some scientists from the "entente" states. Thus Pickering, the Emeritus Director of the Harvard Observatory, one of the most highly respected American Scientists said immediately before his death :

I disapprove the creation of organizations, from which some states or individuals are excluded, particularly in cases which are in no way involved in their nations war effort.

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[20] *"Stella" I, page 80. 1*

[21] *The First World War of 1914–1918*

[22] *At the time in question America was still non-belligerent.*

In the present time there is still no rapprochement between the A. G. and the Astronomical Union, even though the Council of International Scientific Research suspended the chapters of its constitution dealing with the exclusion of the Central Powers. When the post-victory euphoria stared to vane, even the most rabid French and Belgian nationalists begun to realize, that without the participation of the excluded states all the efforts of the different unions were fated to remain one-sided and cannot be regarded as truly international. Thus the previous sessions of the Astronomical Union can not be classed as international events, because the Central Powers could not take part. On the other hand, the conferences organized by the A. G. could still be regarded as international, because the entente powers were represented, albeit only by a sort of "advance guard", and the Copenhagen conference was attended by a greater number of English and American scientists.

It was the Astronomers of these two nations, who, in the interest of international science, exerted themselves trying to achieve not only a formal rapprochement, but a true meeting of hearts between the A.G. and the U.A.I.. A favourable opportunity to do this presented itself this year, when both organizations planned to hold their respective conferences, the U.A.I. in Leyden, the A.G. in Frankfurt. In the interest of promoting international co-operation, negotiations were initiated between the two institutes. The outcome was that Prof. de Sitter, the director of the Leyden Observatory, exercising his rights as chairman of the U.A.I., extended an invitation to German, Austrian and Hungarian astronomers to attend their conference. We have already made this known in the pages of "Stella", page 53–55.

The German members of the A.G.'s presidential council and the most highly respected German astronomers recommended that the invitation be accepted. Their decision was endorsed by an open session of the Prussian Academy of Science. This favourable outcome was due to a great extent to the negotiating skills of Prof. Strömgren, president of the A.G., who handled the difficult work of negotiations between the opposing camps with exemplary selflessness. It is only natural, that the Austrians followed the German example, so the Hungarians had also to follow suit in order to avoid the danger of isolation. They were also obliged to follow this course because the International Council of Scientific Research has already invited the Hungarian Academy of Science to join, and the latter has already take this step.

After the event, the participants of both conferences paid homage to Strömgren and de Sitter, to whom the merit for making a start in establishing the old, pre-war spirit of co-operation between the astronomers must belong.

The congress of the U.A.I took place in Leyden, between the 5^{th}-13^{th} of July, 1928. The conference of the A.G. took place not in Frankfurt, as planned, but in Heidelberg, straight after the Leyden event, between the 18^{th}-21^{st}.

The internal organization of the two organizations is entirely different, and this was visible in the way the conducted their conferences.

The U.A.I. is divided into thirty-four committees, each of them specializing in specific branches of Astronomy[23]. Each committee is usually chaired by an outstanding practitioner of the relevant branch of science. They regularly submit printed reports about topics relating to their speciality to the other committees. This way all those participating in the conference have a chance of being informed about all of the subjects to be discussed, so, of the different meetings held at the same time they can select those in which they are most interested.

From this it can be easily seen, that the scientific work of these conferences is done during the sessions of the various committees. The official languages of these sessions are English and French, in such a manner, that every proposition and remark must be delivered in both languages. There were sixteen German, Austrian and Hungarian members participating in the conference of the A.G., so, in consideration of this fact, German was also introduced as the third official language. The U.A.I. handled administrative matters during the plenary and closing sessions of the conference.

The U.A.I. conference in Leyden and its official opening were held under lavish circumstances.

The Dutch-government, the municipalities of Leyden and the Hague, the University of Leyden, civic social organizations contributed to the honour and splendour of the occasion by organizing various festivities, receptions, soirees and excursions, all of which helped to bring together again the members of the two opposing camps. The decision of the University of Leyden was similarly motivated in making two outstanding practitioners of Astronomy, Deslandres, a pioneer of Astrophysics and Küstner, an exemplary

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[23] *For example, the Sun has the following committees handling the problems associated with it, one each for Solar Physics, Rotation and Distance (Solar Parallax). Separate committees are devoted to work on the big satellites, the small satellites and shooting stars. There exist committees for the different aspects of Astrometry (the principal ones are : the meridian-service, stellar parallax, double stars, the clock service, differences in longitudes, changes in latitude, the Astronomical Telegraph Service, the ephemera, etc.). Separate branches of astrophysics also have their own committees (photometry, wavelength, spectroscopy, radial velocities, variable stars, etc.). There are committees for Einstein's theory, instruments, stellar statistics, bibliography, etc.*

research worker and outstanding practitioner of the art of observation, honorary Doctors of the University. The handshake, which Frenchman and the German exchanged, was taken as the symbol of rapprochement between the two nations.

The same spirit already manifested itself at the opening of the A.G. conference at Heidelberg. During the opening session, held in the assembly-room of the university, Prof. Dibelius, the rector, pointed out that in his opening remarks, that dealing with laws and quantities on the cosmic scale is needed to enlarge the horizons of the human mind, and this is one of the principal tasks of Astronomical conferences. Due to a mishap in history, mankind became divided within itself. We can hope to control our fate only if we rise above the arbitrary motion of our immediate atmosphere, and direct our eyes to the starlit sky, which shines on all of us without discrimination, holding us together. So, when we, astronomers, saw that the spirit of rapprochement between nations is rapidly gaining ground, it was the cause of great rejoicing. Mr. Leers, the Minister for Foreign Affairs, speaking for his government, emphasized in his opening speech, that conferences of the A.G. must become a pillar of such an edifice, in which the peoples of every nation, while preserving their individual traditions, can still feel at home. In his speech, welcoming the conference to the city of Heidelberg Mr. Walz, the Chief Magistrate of the city extolled the meritorious achievements of Prof. Wolf, the director of the Heidelberg observatory. Prof. Strömgren, responding on behalf of the A.G, discussed the relations between the U.A.I. and the A.G. He pointed out, that when he could see French and Belgian scientists attending the conference of the A.G., then the circle of nations can indeed be regarded as complete once again. So, it is possible to establish friendly relations between the old A.G. and the young U.A.I., all the more so, because the internal organisation of the two institutes can be said perfectly to complement each other. While in the case of the latter, the bulk of work is done during the committee meetings, while in the case of the former, the formal lectures are the dominant method of communication.

The series of these lectures was interspersed with announcements concerning the foundation of the A.G., reporting on the progress of work initiated by them, elections, and other matters touching on the life of the institution. Twenty-eight of the participants reported on new methods developed and results achieved by them. The names of the most distinguished astronomers, such as Strömgren, Wolf, Schorr, Lundmark, Wilkens, Courvoisier, Rodés and Schwassman ornamented the roll-call of lecturers. The large number of contributions underlined the need for an early decision on the proposal of holding some of the lectures simultaneously during future conferences. If this is not done, it will be necessary either severely to curtail the time given to each contributor, or considerably to expand the duration of the conferences.

The quality accommodation and social life at the conference was not eclipsed by those experienced at Leyden. The sequence of working sessions was twice interrupted by excursions. There was a visit to the birthplace of Kepler, where a wreath was placed to commemorate the 450th anniversary of the great astronomer's birth. On this occasion the local Wolf and the English Eddington acted as interpreters. After this, the conference went to Stuttgart, to view the local planetarium. After finishing with the lectures, on the 21st, the participants visited Mannheim, where the Lord Mayor of the city welcomed the guests in the castle. He pointed out that in the Mannheim Observatory several astronomers were working between 1774 and 1880. The visit to the observatory of the City of Heidelberg itself was also one of the highlights of the conference. The institute was built on the Königstuhl, near Heidelberg, at an elevation of 570 meters, within a few minutes' walking distance from the upper terminal of the electrically driven cogwheel-assisted train. Some of the conference's participants had their first opportunity to have a closer look at the "Waltz-refractor" (with an aperture of 80 c.), made famous by Wolf, the "Bruce-refractor" and other items special equipment of this magnificently endowed establishment. Many of the participants were surprised to see, that one of the minor instruments is of Hungarian origin. It is a meridian tube, the work of Eugen Gothard, the last owner of the now defunct observatory at Herény.

At one of the gala-evenings a certain sensation was created by the toast given by Mascart, director of the Observatory of Lyons, in which he, in a few well chosen French words, expressed his hope that in he near future the goodwill and understanding between the German and the French astronomers will be re-established.

It can be added to he history of the two conferences, that both were attended by the representatives of twenty-four nations. The number of participants was nearly four hundred in Leyden and nearly two hundred in Heidelberg. Dyson, the director of the Greenwich Observatory, became the new chairman of the U. A. I.. Their next, that is the fourth of their conferences is scheduled to be held in America, in 1932. Strömgren was re-elected as the chairman of the A.G.. Their next, that is nineteenth conference will be held in Budapest, in the year 1930.

Az 1928. évi csillagászkongresszusok. Stella. Budapest, 3. évf. 130p–

Bericht

über die
Versammlung der Astronomischen Gesellschaft
zu Budapest 1930, August 8-12.

An der neunundzwanzigsten ordentlichen Versammlung des Astronomischen Gesellschaft nahmen mit Einschluss der erst durch die Versammlung aufgenommenen Mitglieder folgende 106 Mitglieder teil:

Alter, Andersen, Angehern, Araki, Armellini, Asplind, Bauschinger, F. Becker, Beer, Bernheimer, Boda, Bohrmann, Brunner, Comrie, Courvoisier, Dick, Drapczynski, Dunst, Eddington, Esch, Galle, Gleissberg, Gondolatsch, E. Grabowski, Graff, Green, Frl. Güssow, Guthnick, v. Harkányi, Hartner, Heckmann, Heyde, Hoffmeister, Holm, Hopmann, Hügeler, Iwanow, Jackson, Kahrstedt, Kepinski, Kienle, König, v. Kövesligethy, v. Krbek, Krumpholz, Kruse, Kučera, Labitzke, Larink, Lassowszky, Lindow, Ludendorff, Lundmark, Mac Donald, Michailow, Moravetz, K. Müller, R. Müller, Mündler, Nijland, Nordenmark, Odermatt, Ohlsson, v. d. Pahlen, Frl. Palmér, Peters, Posztoczky, Prager, Prochátzka, A. Prey, Reinmuth, Riem, Rodés, Roux, Werner Schaub, Schembor, Schiller, Schoenberg, Schorr, Siedentopf, Stein, Steiner, Sticker, Stobbe, Stracke, B. Strömgren, E. Strömgren, Struve, Stumpff, Sundman, Svoboda, Tass, Terkán, Thomas, Thüring, Frl. Vinter Hansen, Vogt, Wachtl, Walter, Frau Wiesinger, Wildt, Wirtz, Witkowszki, Wodetzky, Wolf.

Durch diese Mitglieder waren folgenden 16 Lände vertreten, Dänemark, Deutschland, England, Finnland, Italien, Japan, Jugoslavien, Niederlande, Österreich, Polen, Russland, Schweden, Schweiz, Spanien, Tschechoslovakische Republik, Ungarn.

Vom Vorstand waren anwesend die Herren Bauschinger, Eddington, Guthnick, Ludendorff, Strömgren, Wolf. Herr Donner konnte aus Gesundheitstrücksichten nicht an der Versammlung teilnehmen.

Die Eröffnungssitzung fand in der Aula der Technischen Hochschule statt, die übrigen Sitzungen wurden in Auditorium 82 abgehalten.

Der Vorzitzende, Herr Strömgren, eröffnet die Sitzung ... und erteilt zunächst das Wort dem Herrn Minister für Kultus und Unterricht, Exzellenz Dr. Grafen Kunó von Klebelsberg, der die Versammlung im Namen der ungarischen Regierung mit folgender Ansprache begrüsst:

Im Namen der Königlich Ungarischen Regierung heisste ich Sie, meine hochverehrten Herren, herzlichst wilkommen. Ich möchte vorerst wärmstens danken, dass Sie diesmal die ungarische Hauptstadt zum Versammlungsort Ihres Kongresses erwählten, und ich glaube, dass Sie damit jene Opfesfreudigkeit honorieren wollten, mit welcher Ungarn in der Zeit der schwersten Not seine nationale Sternwarte neu erbaut hatte. Die Tragik der ungarisches Geschichte spiegelt sich nicht nur in den grossen Begebenheiten und im allgemeinen Laufe unseres nationalen Lebens, sondern auch im einzelnen, in dem Schicksale unserer Institutionen wieder. Die Péter Pázmány-Universität hatte schon in ihrem früheren Sitze, in Tirnau, eine Sternwarte, welche Königin Maria Theresia im 18. Jahrhundert mit der Universität in die Landeshauptstadt verlegt hat, wo derselben am St. Gerhardus-Berge ein Observatorium erbaut wurde. Auf dem schönen Berge, einer Zierde unserer Stadt wurde aber in der Mitte des 19. Jahrhunderts eine Zwingburg errichtet, und die Sternwarte fiel dem Bau der Zitadelle zum Opfer. Um diesen Verlust zu ersetzen, hatte der edle Patriot Nikolaus Konkoly Thege auf seinem Gute in Ógyalla aus seinen eigenen Mitteln eine neue Sternwarte errichtet, welche er später seinem Vaterlande geschenkt hat. Infolge des Trianoner Vertrages haben wir Ógyalla und die Sternwarte verloren und Ungarn musste sich zum drittenmal anschicken nunmehr die dritte Zentralsternwarte zu errichten, welche als organischer Bestandteil der Universität der öffentlichen Sammlungen und Forschungsinstitute eine autonome Verwaltung geniesst. Es gereicht zu ganz besonderer Freude, dass wie dem Kongresse melden können, dass unser Schwabenberger Observatorium in seinen wesentlichen Bestandteilen nunmehr fertig dasteht.

Ich wünsche, dass Ihre Beratungen hier in der ungarischen Donaustadt erfolgreich und fruchtbar werden, un dass Sie angenehme Erinnerungen über Ihre hiesigen Impressionen in Ihre Heimat mitnehmen mögen.

* *

Der Vorzitzende der Gesellschaft, Herr Strömgren, erwidert mit folgende Rede:

Excellenz! Herr Vizebürgermeister!
Herr Vizepräsident! Herr Protektor!
Hochansehnliche Versammlung!

Die Astronomische Gesellschaft wurde im Jahre 1863 gegründet. Sie hält jetzt in Budapest ihre 29. Versammlung ab; sie hat über 500 Mitglieder – in allen zivilisierten Ländern – ; sie hat seit der Stiftung ihre Vereins-Zeitschrift, die "Vierteljahrschrift der AG", ununterbrochen herausgegeben. Sie hat eine Reihe internationaler astronomischer Unternehmen ins Leben gerufen, bzw. unterstützt, und sie hat unter 67 Jahre als ein unentbehrliches Bindeglied zwischen den Astronomen gedient.

Zum zweitenmal tritt die AG in Budapest zusammen. Das erstemal war es im Jahre 1898, also vor 32 Jahren. Eine lange Spanne Zeit; und doch: von der 53 Theilnehmern der vorigen Budapester Versammlung sind noch 14 am Leben und von diesen 14 sind heute nicht weniger als 8 hier anwesend: die Herren Bauschinger, Bodola, v. Harkányi, Kövesligethy, Ludendorff, Schorr, Steiner und Wolf. Ein nicht schlechtes Zeichen von Kontinuität und Treue innerhalb unserer Gesellschaft.

Seit 1898 hat Ungarn erregte Zeiten durchlebt. In seiner Begrüssungsrede als Präsident der Akademie der Wissenschaften an die AG-Versammlung 1898 sagte Ihr berühmter Eötvös u.a. folgendes: "Imposante Heimstätten Ihrer Wissenschaft können wir Ihnen nicht zeigen; grosser, Ihre erhabene Wissenschaft beförndender Taten können wir uns nicht rühmen; lieber wollen wir es often eingestehen, dass wir in langem und stetem Kampfe für unsere nationale Existenz nicht immer die Musse fanden, den Anforderungen der Wissenschaft in vollen Masse Genüge zu leisten."

Wer etwas von der Geschichte der ungarischen Astronomie weiss, weiss auch, dass diese Äusserung allzu bescheiden war. Alle Astronomen kennen die Namen v. Konkoly, v. Gothard, Pater Fényi, Hell, Pasquich; und was ungarische Sternwarten betrifft, hat. u.a. die Sternwarte Ógyalla eine wichtige Rolle gespielt. Aber wahr ist es, dass die ungarische Astronomie immer wieder durch politische Verhältnisse und Ereignisse behindert und geschädigt wurde.

Für uns Astronomen ist es ein erhabenes Schauspiel gewesen, dass gerade die letzte Periode ungarischer Geschichte, die so voll von Enttäuschungen war, dass gerade diese Periode eine schöne moderne Sternwarte, die Budapester Sternwarte auf dem Schwabenberg, hat aufwachsen sehen - durch die Energie unseres verehrten Kollegen Tass und durch die verständisvolle, tatkräftige Hilfe einer ganzen Anzahl hervorragender Männer vor allen Dingen des jetzigen ungarischen Unterrichtsminister Grafen v. Klebelsberg.

Heute abend werden wir alle Gelegenheit haben, die neue Sternwarte zu besichtigen und zu bewundern. Ich weiss, dass Kollege Tass, der Direktor, diese Sternwarte nicht als fertig betrachtet; wenn er dass täte, wäre er schlechter Direktor, Das, was erreicht ist – unter besonders schwierigen Verhältnissen - ist aber bewunderungswürdig. Wenn wir hier heute dem Unterrichtsminister unseren herzlichen Dank für sein Wohlwollen diesem Kongress gegenüber aussprechen, so erhält dieser Ausdruck des Dankes deshalb eine besonders warme Betonung, weil der Herr Minister durch schöne Taten bewiesen hat, dass sein Interesse für die Astronomie und für die Wissenschaft überhaupt kein ephemeres Interesse ist, sondern tief in seiner Seele wurzelt.

Wenn wir heute dem Herrn Unterrichtsminister für all das danken, was er für die ungarische Astronomie getan hat, und für das, was er in diesen Tagen für uns ist, so dürfen wir die Stadt Budapest nicht vergessen.

Wenn wir nur an die Astronomie denken: die Stadt Budapest hat der Sternwarte das Gelände geschenkt; einen Weg zur Sternwarte gebaut; elektrische Leitung und Wasserleitung gelegt und noch dazu eine der Kuppeln gestiftet und mehrere Jahre hindurch eine jährliche Subvention gegeben. Was die Stadt Budapest für uns tut, können Sie teilweise – aber auch nur teilweise – aus dem Program ersehen. Wenn wir heute für das alles dem heutigen Vertreter der Stadt, Herrn Vizebürgermeister Berzell gegenüber unseren tief empfundenen Dank bezeugen, so gilt dieser Dank der ganzen Stadtverwaltung mit dem Herrn Oberbürgermeister Ripka an die Spitze. Wer die Entstehungsgeschichte der Schwabenberger Sternwarte kennt, denkt dann auch mit besonderem Gefühlen des Dankes an den Früheren Vizebürgermeister Fokusházy, der den Gründern der Sternwarte immer tatkräftig zur Seite stand.

Die Budapester AG-Versammlung 1898 wurde seitens der Akademie der Wissenschaften von Ihrem Präsidenten Baron v. Eötvös begrüsst; heute begrüsst uns den jetztige Vizepräsident, der grösste jetz lebende ungarische Schriftsteller, Herr Herczeg. Ein grosser Dichter ist immer ein Freund jeder Form von intellektueller Tätigkeit. Ich habe selber das Glück gehabt, zu dem grössten schwedischen Dichter, August Strinberg, in persönlichem, freundschaftlichem Verhältis zu stehen; einem Manne, dem nichts Menschliches fremd war; einem Manne, dessen Geist nie davon müde wurde, aus neuen Gedankenwelten zu schöpfen.. Es

ist mir eine ganz besondere Freude, den berühmten Dichter als Vertreter der Akademie zu begrüssen und ihm zu danken.

Nebst dem Unterrichtsministerium und der Stadt Budapest ist dieser Kongress der Technischen Hochschule zu ganz besonderem Danke verplichtet. Die schöne Aula, das Auditorium, wo wir unsere Arbeitssitzungen abhalten sollen; Zimmer für Vorstandssitzungen und Komissionsberatungen, alles hat sie uns zu Verfügung gestellt.

Das mächtige Gebäude der Technischen Hochschule, eins der vielen grossartigen in dieser wundervollen Stadt, zeugt allein für sich von Arbeit und von Ernst, beide bezeichnend für den festen Willen des ungarischen Volkes, trotz allem Unglück vorwärts und auswärts zu streben.

Und schliesslich einen herzlichen Dank, an die Vertreter der Universitäten: Budapest, Debrecen, Pécs und Szeged und des geologischen, des kartographischen des meteorologischen Instituts und des Triangulierungsamtes, die uns die Ehre erwiesen haben, hier zu erscheinen, und die dadurch den Glanz dieser Festlichkeit erhöht haben.

Hochansehnliche Versammlung!

Durch Schwierigkeiten und Enttäuschungen verschiedenster Art hindurch hat das schöne Land, dessen Gäste wir heute sind, das Leben gerettet. Wenn wir an unsere Gesellschaft denken, können wir sagen, dass auch sie nur mit Mühe und Not – und buchstäblich nur mit dem nackten Leben, – durch die Stürme der Zeit gekommen ist. In beiden Fällen, dem grossen und dem kleinen, gelang es durch den festen Willen am Leben zu bleiben. Und wenn wir in der AG heute Ungarn danken und Ungarn Glück wünschen, so möchte ich – als scheidender Vorsitzender der Gesellschaft – im stillen, für meine Person, den Wunsch hinzufügen, dass unsere Gesellschaft ihre alten Traditionen bewahren und, diesen Traditionen treu, den Willen zum Leben nie aufgeben möge.

Vierteljahrschrift der Astronomischen Gesellschaft 65. 1930

THE GÖTTINGEN COLLOQUIUM

László Detre

To compensate for the cancellation of the Bonn meeting of the Astronomische Gesellschaft, the German astronomers extended the scope of their Göttingen meeting, held on the 2nd of October, by inviting astronomers from abroad. In addition to the seventy German astronomers there were seven Italian, one Bulgarian, one Danish and three Hungarian astronomers also took part.

The two main topics of the Colloquium were Solar Physics and the spectra of the stars. Ten Bruggencate in his lecture summarized the latest researches on Solar Physics, concentrating mainly on the work carried out in the Potsdam Institute of Solar Physics, on granulation and on the spectroscopy of the sunspots. Following this Seidentopf presented new arguments in support of the idea that granulation may be caused by convection currents of cellular structure, while sunspots are to be found on the boundary where stable convection changes to turbulence. In the course of the discussion following the presentations attention was drawn to the difficulty of reconciling the eleven year periods of the sunspots and the more or less unchanging nature of granulation.

Kiepenhauer presented his new theory about the surplus of ultraviolet found in sunlight. It is well known, that the ultraviolet content of sunlight is about 10^6 times greater than what can be predicted from the application of Planck's formula to the visible and photographable part of the solar spectrum. This surplus is caused by the protuberances Occasionally, small eruptions in the chromosphere, occurring in the vicinity of sunspots, can gave a short boost to the ultraviolet radiation, thereby causing the Dellinger effect. According to Kiepenhauer the fast moving gaseous masses suffer a strong deceleration in the magnetic fields of he sunspots. The energy thus liberated is absorbed by the ionisation of atoms. The radiation, generated by the recombination of the ions and electrons – which consists mainly of the Lyman continuum and the L_α line – is responsible for the strong overabundance of ultraviolet radiation.

Bierman spoke about the convection model of stars. Unsöld related his explorations into the chemical structure of the atmosphere of a B-type star, τ-Scorpii in great detail. It is easier to determine the prevalence of the light elements for stars that are very hot, than for, for example, the Sun, because at elevated temperatures the lines of ionized elements also make their appearance, and for these the transitional properties are well known. According to Unsöld, in the atmosphere of τ-Scorpii the hydrogen is about one order of magnitude more prevalent, than helium, but the other light elements are represented by numbers three orders of magnitude less than helium. The prevalence of carbon and nitrogen is as predicted by Bethe's theory of energy production.

It would appear that the overabundance of hydrogen is not characteristic of all stars. In his lecture Wurm pointed out that, in the atmospheres of R-type stars the prevalence of hydrogen is hardly higher than that of carbon, and what is more, in the star D. G. 182040 it is actually lower. (Since then Wurm's lecture has been published in the periodical 'Die Naturwissenshaften', and it will be the subject of another article.)

The subject of Kienle's lecture was continuous spectra, specially the spectropohotometric investigations which were recently finished in Göttingen. An interesting new finding about the continuous spectrum of the Sun is, that the intensity distribution follows the 6000° Planck curve up to λ 2900.

The participants of the colloquium visited he observatories of Göttingen and Hamburg, the mathematical institute and Pohl' department of Physics.

Csillagászati Lapok. 4. 1941. 156.
Göttingeni kollokvium

NEWS FROM THE MUSEUM

What shall we see – The museum of the Konkoly-Thege Observatory

Júlia Balázs

Nowadays, in every major country, but mostly in America, gigantic modern telescopes are being used for photographing the sky, revealing a depth and a plethora of hitherto hidden facts, which were in the recent past nearly inconceivable. The majority of older, smaller instruments became obsolete and relegated to the museums of the observatory.

Although many people may think so, these kinds of museums may prove not so dull and boring after all. For the initiate these old instruments are telltale relics of the development of astronomy, the oldest of all sciences.

The still extant instruments, used by Hungarian scientists in the older observatories, are preserved in the museum of the Konkoly Thege Observatory. Let us see what they tell us.

The instruments from the observatory on St. Gellért's Hill: Comet-finders, passage instruments, vertical circles and goniometers. It is not much longer than a hundred years ago, that these instruments were installed in the observatory on St. Gellért's Hill. At the time this was one of the most up-to-date and the best equipped observatories in Europe. Everything, the buildings, the equipment and the instruments, was brand new, richly mounted and of the best quality. Whatever happened to this fabulous observatory and where are now its splendid instruments? The few remaining pieces are cared for by the museum of the observatory in the Buda Hills. During the 1848 war of liberation, when the Hungarian Army marched on Buda, the Austrian officer in command, General Hentzi, used the telescopes of the observatory to keep an eye on the troop movements of the Hungarians. The Hungarians, in turn, took possession of the observatory, from where they bombarded the castle with their artillery. The defenders, naturally, replied in kind. The majority of incoming shells fell on the observatory. The rest can be left to the imagination.

What survived is now in the museum of our observatory. It is strange to think that it might have been one of this instrument through which the Austrian general observed the approaching Hungarians. All the same, these are still fine instruments, but progress in its seven league boots passed them over, leaving them to obsolescence. And when they were new and up-to-date, the harsh Hungarian fates condemned them to serve not Uranus, but Mars.

Last summer, when Finsler's comet passed close to the Sun, the people of the metropolis came to the observatory in such numbers, that, even with the best will in the world, it proved impossible to let everyone take their turn at the telescopes. To cope with the rush, the old instruments from the old St. Gellért Hill observatory were pressed into service and erected in the garden for the interested folks to view the comet through. The spectacle was of course not in any way inferior to that seen through the modern instruments, but the degree of comfort was not the same. These old instruments were not equipped with a clockwork mechanism, so when one managed the get the celestial object into the instrument's field of view, he is bound to see it leaving again due to the virtual diurnal rotation of the sky, caused in fact by the rotation of the earth.

Next to the instruments from the well equipped but ill fated St. Gellért Hill Observatory, stand the telescopes from the observatory at Bicske. Unfortunately Bicske is another sad milestone on the road followed by Hungarian astronomical science. The splendidly equipped observatory, built due to the unparalleled generosity and the, then unusual interest for matters scientific, of Károly Nagy, the local landlord, suffered a tragic fate similar to that of its sister institute at St. Gellért's Hill. Although it was not bombarded by artillery, after the War of independence was lost, the victors confiscated it and terminated its operation. Károly Nagy went abroad as a refugee. Later, in 1863, during the slackening of the oppression, the emperor Franz Joseph has donated the instruments from Bicske to a Hungarian National Observatory, as yet to be founded. Until then, they were placed in the custodial care at the Department of Physics of the University. By the time the observatory was actually built in the Buda Hills, the only place for these instruments was in the institute's museum. There is food for thought in strolling among and looking at these fine, hardly used instruments.

The collection of sundials, also housed in the museum, presents a perhaps less tragic but very interesting story. Old and ancient sundials of different construction, all of them with special features and individuality, talk of the well-deserved pride of the master instrument-makers in their handiwork. It is extremely interesting to browse among them today, in the age of quartz timepieces and digital watches.

In one of the corners there is a thin telescope, several meters of length, whose origin probably dates back to the early pioneering days of telescope making, but its history is unknown. It is probable that at the time this telescope was made, the science of optics was in its primitive state, so the makers had to build long tubes if they wanted to achieve even a moderate measure of magnification. There were telescopes in existence of fifty or sixty metes of length, which had to be supported on special frames and scaffoldings, and needed a platoon of soldiers to change their alignment. It must have been incredibly difficult to maneuver these monstrosities. Can you imagine our work without the clockwork mechanism? And the saddest thing is that all the hard work needed to operate these telescopes yielded practically no results, because of the imperfect optics. Compared to these telescopes even those installed at the St. Gellért's Hill observatory represented a great leap forward. The Plössel telescope at Bicske was already equipped with a clockwork mechanism.

Let us stop at one of the instrument tables. What is this contraption? It is a photometer from the pioneering days of stellar photometry (it was not so long ago, but already regarded as the pioneering times). A kerosene lamp acted as the source of light. An oil lamp of all things! It is enough to make modern astronomer shudder. Many annoying inaccuracies of photometric observation can be forgiven by the modern astronomer, just by beholding a kerosene lamp. What is more: their use was not restricted to the field of photometry. In an other case we can see another kerosene lamp, which was used to illuminate the instrument-reading station, and a small meridian instrument, whose field of view was also illuminated by a kerosene lamp. Messing around with these lamps could not have been an easy task.

For the astronomers of the last century the heliometer was the most important instrument. The principal use of this interesting instrument, now fallen into desuetude, was the measurement of angular data. Considering, that in the last century the main occupation of astronomers was the collection of data of such nature, the importance of the heliometer can be appreciated. Its basic component is an objective, split in two, where the two halves can be moved relative to each other. Its original purpose was to determine the Sun's diameter and record its changes, and this is how its name came about. In our days such problems are investigated by taking photographs of the celestial environment, and measuring the angles (arcs) on the photographic plate. The heliometer was a splendid instrument that yielded very accurate data, and the only reason for its being replaced by photography is the convenience of the latter method. The use of heliometers ceased long time ago. The heliometer used in the old observatory on St. Gellért's hill is now exhibited in the museum of the Konkoly Thege Observatory. It was one of the best instruments of its kind, and it is the object of great fascination to visiting astronomers from abroad.

In one of the glass exhibition cases there is a glass prism, which retains a greatly honoured place in the history of science. When the great Fraunhofer made his discovery of the fundamental absorption lines in the Sun's spectrum, which ever since bear his name, he was using the very same prism that is on exhibit here. It was bequeathed to our museum.

An other glass case is reserved for very old books, of which only a very few copies exist in the whole world. How much these pioneering astronomers argued between themselves, and how extremely rude their debating manners were!

Today the erection of a five metre telescope is in progress in California. If this rate of progress is maintained in the field of instrument-development, perhaps on a not very far day the medium sized instruments will also be exhibited in museums. But it can be a reason for some satisfaction, that the instruments, which we presently use, have given yeoman service to one or two generation of astronomers, and will not have reached obsolescence without having been of any use to anybody, as was the ill-fated destiny of some of the splendid instruments of the Hungarian observatories.

"Búvár", Budapest 1939. V. évf. 1. sz. p.64-66.

CHAPTER 3
Correspondence of László Detre

Department of the Interior

Dominion Astrophysical Observatory

J. S. Plaskett, F.R.S.
Director

Victoria B.C. 13th February 1931

A. Tass, Esq.
Director,
Konkoly-Alapítvanyu M.Kir. Astrophysikai Observatorium
Budapest, Svabhegy

Dear Sir,

I have your acknowledgment of Vol. IV. No 16-18 of our publications and your letter stating that you have certain numbers of Vols. I. and II. of our publications, and asking to be put on our mailing list.

Our publication have been sent from the beginning to the Library, University Observatory Budapest, and since the beginning of Vol. III to the Academy of Sciences, but, so far as I can find, to no one else in Budapest. I assume that you have received Nos. 16 and 18 of Vol. IV. sent to University Observatory, which has acknowledged most of the numbers of all four volumes issued.

I would be glad if you would advise me whether the library of the University Observatory, Múzeum Körút, 6, Budapest, VIII, corresponds to your institution and, if so, to have a careful look through your files to see if you have not a nearly complete set.

If however, your institution is a separate one and interested in our publication, I will be glad to add your name to our mailing list, though I cannot promise you a complete set as some of our earlier issues are exhausted.

Yours very sincerely

J. S. Plaskett

KOL

Harvard College Observtaory
Cambridge Massachussets

The Editor
"Stella"
VIII, Szentkirályi-Utca 28
Budapest, Hungary

January 3, 1933

Dear Sir:

When the cornerstone of the building for Harvard's new 61-inch reflector was laid in the presence of the members of the International Astronomical Union by the Astronomer Royal, Sir Frank Dyson, we placed in the wall a copper box containing various photographs and journals representing the current activity and development in astronomy. Szam 1-2, 1930, of your journal were included in this record. I would be very glad if you should be able to send us second copies of these issues to replace the ones taken from our library for inclusion in the cornerstone box.

Very sincerely yours

Harlow Shapley

KOL

Harvard College Observatory
Cambridge, Massachussets

Dr. L. Detre
Astrophysical Observatory
Budapest, Svabhegy

7 September 1937

Dear Dr. Detre:

I think there has been no rediscussion of the light curves and magnitudes of the variable stars in Messier 15 since Bailey's discussion. The variables are being actively worked in America chiefly at the David Dunlap Observatory by Mrs Helen Sawyer Hogg, and here in the Harvard Observatory where we work mostly with the southern clusters that are not available to northern observers.

I am interested in your general analysis and I should like to have personal copies of any of your publications on clusters that have appeared or that will appear.

I am having sent to you a copy of Harvard Annals, 78.

Very truly yours,

Harlow Shapley

KOL

Die Sterne
Monatschrift über alle Gebiete der Himmelskunde

An die Herren
J. Balázs und
L. Detre
Budapest-Svabhegy
Observatorium

Potsdam,
Neubabelsberg, den 28. Febr. 1938

Sehr geehrte Herren.

Ich danke Ihnen vielmals für die Übersendung Ihrer Arbeit "Untersuchungen von kurzperiodischen δ Cephei-Sternen I."

Ihre Ergebnisse interessieren sicher auch den Kreis der Leser unserer Zeitschrift "Die Sterne", und ich wäre Ihnen dankbar, wenn Sie für unsere Zeitschrift ein Referat darüber schreiben würden. Zahlen und Formeln sind natürlich nicht so sehr von Interesse, aber ein oder zwei Zeichnungen, die ich nach Ihrer Angabe Ihrer Arbeit entnehmen könnte, würden sicher das Verständnis erleichtern. Als Referat sollte der Text eine Seite nicht überschreiten. Vielleicht aber haben Sie Lust, einen grösseren Artikel etwa mit dem Thema "Periodenveränderungen bei δ Cephei-Sternen" zu schreiben, der über Ihre Arbeit hinaus, ganz allgemein auf die diesbezüglichen Fragen eingeht. Ein solcher Artikel könnte gut 6-7 Seiten lang sein und mehr Abbildungen enthalten. Da sich unsere Zeitschrift in erster Linie an Liebhaberastronomen wendet, ist populäre Abfassung erwünscht. Das übliche Honorar würde Ihnen nach Antrag bei der Devisenstelle zugehen.

Ich hoffe eine Zusage zu erhalten und zeichne als Ihr

sehr ergebener

Rolf Müller

KOL

Cambridge, Mass. 1939 Dec.13

Harvard College Observatory

Lieber Herr Kollege! Ihnen und Frl. Balázs sage ich für die freundliche Übersendung Ihrer Arbeit über AR Herculis meinen besten Dank. Die überaus interessanten Ergebnisse lassen mich mit Spannung die Bearbeitung der übrigen Sterne Ihres Programms erwarten.

Mit herzlichen Grüssen Ihr sehr ergebener

Richard Prager

KOL

Universitäts-Sternwarte
in Wien

Wien den 25. VI. 41.

Lieber Herr Dr. Detre!

Ueber die Einladung, zum hundertjährigen Bestehen des Ungarischen Naturwissenschaftlichen Verein in Budapest einen Vortrag zu halten habe ich mich sehr gefreut und danke auch Ihnen dafür. Ich sage, wie ich auch Herrn Prof. Lassovszky schrieb gerne zu und möchte im Einvernehmen mit Herrn Prof. Thüring als Termin den September oder Oktober angeben. Wir würden gern zusammen reisen, aber wenn Sie die beiden Vorträge zeitlich nicht so dicht aufeinander folgen lassen wollen, dann können wir natürlich auch getrennt kommen. Das Thema gebe ich später dann noch genauer an. Ich müsste dazu erst noch wissen, mit welchem Zuhörerkreis ich es zu tun haben werde. Soll der Vortrag über die interstellare Materie fachwissenschaftlich oder mehr allgeimeinverständlich gehalten werden? Wohnung würde ich gern, wenn möglich, in Eötvös Kollegium nehmen, da nach ihren Brief an Herrn Prof. Thüring zu urteilen, die Hotels sehr teuer sind.

Ich freue mich sehr darauf, Sie und Ihre Gattin wieder zu sehen, denn Ihr Besuch in Potsdam ist mir in angenehmer Erinnerung geblieben. Auch auf Budapest freue ich mich. Ich kenne es nur von einen nächtlichen Besuch und zwar vom Donaudampfer aus her. Das war auf meiner Donaureise zum Schwarzen Meer im August-September 1939. Die Reise musste ich dann wegen des Kriegsausbruchs vorzeitig abbrechen. Damals war ich in Budapest gerade Ihr Nationalfeiertag und die festlich illuminierte Stadt machte einen herrlichen Eindruck.

In der Hoffnung, dass wir Sie und Ihre Gattin bald auch einmal hier in Wien begrüssen können verbleibe ich mit.

den besten Grüssen

ihr ergebener

Wilhelm Becker

KOL

Columbia University
in the City of New York
Rutherfurd Observatory

New York, den 31. 7. 41.

Sehr geehrter Herr Detre!

Ich habe kürzlich die Arbeit von Ihnen und Ihrer Frau über AR Herculis von 1939 gelesen und war sehr beeindruckt von der Fülle and Genauigkeit Ihres Beobachtungsmateriales. Ihr Resultat, dass sich der beobachtete Lichtwechsel nicht durch eine einfache Superposition zweier völlig unabhängiger Variationen darstellen lässt, scheint mir sehr überzeugend. Dass jedoch 31.5 und nicht 0.46311 die wahre Periode der sekundären Variation sei, scheint mir aber doch nicht wahrscheinlich. Ich möchte meinen, dass man – gerade wegen Ihres obigen Resultates – Ihr

Material mit .46311 ebenso behandeln sollte, wie Sie das mit 31.5 getan haben. Die Kurven die man mit .46311 anstatt Ihrer Abb. 4. erhalten würde, würden scheint mir genau so wie Ihre Kurven in Abb. 4. aussehen, nur dass sie gegen einander verschoben wären.Wenn man in Ihrer Abb. 4. die Maxima der sekundären Variation verfolgt, findet man ein kontinuerliches Rückwärtsverschieben der Maxima durch den ganzen Cyklus der Kurven, so dass man nach Durchlaufen des Cyklus (d. h. einer Primär-Periode) nicht auf dem selben Sekundär-Maximum endet, mit dem man angefangen hatte, sondern auf einem um eine Sekundär-Periode früheren Maximum, was mir ein starkes Zeichen zu sein scheint, dass der rezibroke Wert der sekundären Periode um einmal die rezibroke Primär-Periode zu vergrössern ist. Die mit .46311 berechneten Kurven würden, scheint mir, nicht eine solche monotone Verschiebung der Maxima zeigen, wenn auch eine erhebliche Schwankung der Phase des Sekundär-Maximums beim Durchlaufen des Kurven-Cyklus übrig bliebe – eine Schwankung, die einerseits das klare Auftreten der Periode .46311 bei der Kombination aller Residuen von der mittleren Lichtkurve verhindern könnte, und die andererseits ebenso wenig unerwartet ist wie die Schwankung der Sekundär-Amplitude in dem Cyklus von Abb. 4. Äusserst gerne würde ich hierüber Ihre Meinung hören.

Aus einer vorläufigen Reduktion der vorhandenen Beobachtungen von RR Lyrae – die mir an Qualität durchaus nicht Ihrem Material nahezukommen scheinen - scheine ich für RR Lyrae ein sehr ähnliches Verhalten wie Sie für AR Herculis zu finden.

Sind Sie wohl schon dabei oder haben Sie vor weitere Cepheiden zu beobachten?

Da ich hier die "Budapester Mitteilungen" nur schwierig zur Verfügung bekommen kann, dürfte ich Sie vielleicht bitten, mir Sonderdrucke Ihrer Cepheiden-Arbeiten zu senden, falls Ihnen das ohne zu grosse Unannehmlichkeiten möglich wäre?

Mit besten Empfehlungen

Ihr sehr ergebener

Martin Schwarzschild

KOL

Budapest, dem 15. Aug. 1941.

Sehr geehrter Herr Schwarzschild!

Für Ihre wertvollen Bemerkungen danke ich Ihnen bestens. Beigelegt sende ich Ihnen eine vor paar Tagen erschienene Arbeit über δ Scuti. Wie Sie daraus sehen können (S. 229.), bin ich inzwischen auch zu der Überzeugung gekommen, undzwar aus denselben Gründen, die Sie in Ihrem Brief erwähnen, dass die Lichtkurvenänderungen durch die – allerdings nicht lineare Zusammensetzung zweier kurzen Schwingungen von nahe gleicher Periode entstehen.

Wenn schon das kontinuerliche (obgleich nicht gleichmässige) Rückwärtsverschieben der Maxima in Abb. 4. der Arbeit über AR Her oder in Abb. 1. in dem beigelegten Abdruck es wahrscheinlich macht, dass die sekundäre Variation eine kurze Periode besitzt, muss ich Ihnen zugeben, es wäre überzeugender gewesen das Material mit der kurzen Periode entsprechend darzustellen. In der Tat zeigen die mit .46311 (AR Her) bezw. .186876 (δ Scuti) berechneten Kurven keine monotone Verschiebung, obgleich eben infolge der Nichtlinearität der Zusammensetzung der Schwingungen, die Stelle des Maximums besonders bei AR Her beträchtlich schwankt. In meinen nächsten Arbeiten werde ich Ihre freundliche Bemerkung erwähnen und das Material entsprechend behandeln.

Wir sind jetzt eben daran, unser Material über RR Lyrae, bestehend aus mehr als 7000 Aufnahmen, zu bearbeiten. Auch nach unseren vorläufigen Ergebnissen verlaufen die sekundäre Variationen ganz ähnlich wie bei AR Her. Übrigens können wir dasselbe sagen, nach den vorläufigen Ergebnissen über XZ Dra. XZ Cyg, RW Dra. Wir bemühen uns eben das entsprechende Material über RW Draconis zu erhalten, da die sekundären Variationen bei diesem Stern die grössten sind. So hoffen wir die Eigenschaften der sek. Variationen hier besonders klar zu bekommen.

Ich bearbeitete auch das von anderer Seite vorhandene Material von Radialgeschwindigkeiten und photoelektrischen Helligkeiten über die β Cephei – (oder ζ Canis Majoris) – Sterne. Wie bei δ Scuti, so scheinen auch bei den übrigen Vertretern dieser Klasse die Verhältnisse analog denen bei AR Her zu sein. Obgleich bei den meisten Sternen dieser Art aus den vorhandenen Material die sekundäre Periode nicht zu bestimmen ist, kann die Analogie auf Grund der Abb. 4. in der beigelegten Arbeit über δ Scuti aus der Streuung der Beobachtungen in den einzelnen Phasen erschlossen werden. Ich werde Ihnen aus allen meinen diesbezüglichen Arbeiten ein Exemplar schicken und würde Ihnen sehr dankbar sein, wenn Sie mir dasselbe tun wollten.

Mit besten Empfehlungen

Ihr sehr ergebener

[Detre]

KOL

Universitäts-Sternwarte
in Wien

Wien den 23. 8. 41.

Lieber Herr Dr. Detre!

Haben Sie herzlichen Dank für Ihren Brief vom 15. 7. Ich habe inzwischen begonnen, die Formalitäten wegen der Auslandsreise zu erledigen, jedoch liegen die Dinge so, dass es im allgemeinen längere Zeit dauert, bis die Genehmigung zur Ausreise beim Antragsteller eintrifft. (Das gleiche gilt auch für Prof. Thüring). Da ich aus Ihrem und Prof. Lassovskys Brief weiss, dass Sie auch mit einem anderen Zeitpunkt für den Vortrag einverstanden sind, wäre es zweckmässig, ihn auf ein späteres Datum zu verschieben. Würde es mit Ihren Dispositionen auskommen, wenn wir ihn, um eine nochmalige Verschiebung zu vermeiden und ihn nicht in den Winter fallen zu lassen, auf den Monat April 1942 legten? Dieser Zeitpunkt wäre mir jetzt auch aus dem Grunde angenehmer, weil ich gerade erfahre, dass ich zu Beginn des Wintersemesters an der Wiener Universität Dozent werden soll, wofür ich einen Vortrag und eine Vorlesung vorzubreiten habe. Bitte wollen Sie mir mitteilen, ob Ihnen dieser Vorschlag recht ist und wollen Sie auch so liebenswürdig sein und Herrn Prof. Lassovsky darüber informieren. Ich denke, das Herr Prof. Thüring Ihnen auch noch deswegen schreiben wird. Er is zurzeit gerade in Urlaub und kommt Anfang September von München nach hier zurück. Grüssen Sie bitte Herrn Prof. Lassovsky von mir und seien Sie selbst und ihre Gattin

herzlich gegrüsst
von Ihrem
Wilhelm Becker

KOL

Universitäts –Sternwarte
Geismarlandstr. 11
Göttingen

Göttingen 19. 3. 43

Lieber Herr Detre!

Herr Prof. Thüring hat Ihnen bei seiner Budapester Besuch sicher mitgeteilt, weshalb ich plötzlich so verstummt war. Ich hatte ihn gebeten, Ihnen das zu sagen oder zu schreiben. Es war einfach so, dass ich ganz plötzlich zum Militärdienst eingezogen worden war und schon bald nach Russland kam. Vor kurzem bin ich nun vorläufig aus dem Wehrdienst entlassen worden und mit anderweitigen kriegswichtigen Arbeiten betraut worden, die mich nach Göttingen gebracht haben. Jetzt kann ich Ihnen daher wieder schreiben und möchte das auch gleich tun. Vor allem bitte ich Sie um Entschuldigung, dass ich damals nicht mehr rechtzeitig Sie darum bitten konnte, den Vortrag verschieben zu dürfen. Da ich auch im Augenblick meine Arbeiten hier nicht unterbrechen darf, möchte ich Sie fragen ob es möglich ist, ihn auch weiterhin noch zu verschieben, vorausgesetzt, dass infolge der langen Zwischenzeit und irgendwelcher Organisationsschwierigkeiten die Einladung nicht verfallen ist. An sich würde ich sehr gerne kommen und Ihnen dort etwas aus meinen Interessengebieten erzählen und mir von Ihnen über ihre wichtigen RR Lyrae Arbeiten berichten zu lassen. Prof. Thüring war von seinem Budapester Besuch sehr beeindruckt. Jetzt ist er soviel ich weiss wieder beim Militär.

Mit den besten Grüssen auch an ihre Gattin
Ihr
Wilhelm Becker

KOL

Absender:
P. Gutnick
Universitätssternwarte Berlin-Babelsberg
Potsdam-Babelsberg 2.

Babelsberg 11. Mai 1943.

Sehr geehrter Herr Kollege!

Empfangen Sie vielen Dank für die beiden Mitteilungen Nr. 17 und Nr. 18 mit den Untersuchungen über RR Lyrae von Ihnen und Frau Julia Balázs. Ihre schöne Untersuchungen haben mich ganz besonders interessiert und ich werde in jenen Gegenstand eines unserer Kolloquium machen. Ein Umstand hat meine Aufmerksamkeit angezogen: in den von Ihnen behandelten Fällen RR Lyrae, RW Draconis, AR Herculis, XZ Draconis ist die sekundäre Periode sehr wenig von der Hauptperiode verschieden, die Periode der Schwebung, ausgedrückt in Einheiten der Hauptperiode also relativ lang. In allen diesen Fällen scheinen die Hauptperiode und die sekundäre Periode beständige nebeneinander hergehende Helligkeitschwenkungen zu erzeugen. Bei den von mir behandelten Fall V 389 Cygni ist der Unterschied der beiden Perioden so gross, dass die Periode der Schwebungen nur 20^P beträgt; in diesem Falle treten die Helligkeitsbeschwenkungen der beiden Perioden nicht mehr gleichzeitig auf, sondern stören sich gegenseitig δ Scuti mit $27^P.1$ dürfen vielleicht ein Zwischenstadium sein?

Mit freundlichen Grüssen
Ihr
P. Gutnick

KOL

Göttingen d. 20 5. 43

Lieber Herr Dr. Detre!

Für die freundliche Übersendung Ihrer und Herrn Balázs Untersuchungen über die Perioden und Lichtkurvenänderungen von RR Lyrae Sternen meinen herzlichen Dank! Ich bedauere dass ich noch nicht die Zeit gehabt habe, in ebenso intensiv zu studieren wie Ihre früheren Arbeiten zu diesem Problem. Jedenfalls aber interessieren mich Ihre Untersuchungen sehr, bringen sie doch einmal frischen Wind in das einförmige Einerlei immer wieder mittlerer Lichtkurve von Veränderlichen. Ich bin der Überzeugung, dass es längst Zeit ist, mir einmal wenige Veränderliche zu untersuchen, diese dann aber mit allen Mitteln und bis zur restlosen Ausschöpfung der beobachtungstechnischen Möglickeiten.

Mit herzlichen Grüss
Ihr W. Becker

Vor drei Wochen sandte ich Ihnen und Herrn Lassovsky einen Brief (je). Haben Sie ihn erhalten?

KOL

STERREWACHT TE LEIDEN
7 Juni 1943

Sehr geehrte Dr. Balázs und Dr. Detre,

Ihre Arbeit über RR-Lyrae habe ich mit Interesse gelesen. Sie könnten mir eine Freude machen, wenn Sie mir ein Separat senden würden.

Ich habe in den letzten sechs Jahren eine grössere Anzahl Beobachtungen von RS Bootis gemacht und diese haben ein interessantes Resultat ergeben. Zwar ist die Arbeit noch nicht ganz abgeschlossen, aber die folgenden Folgerungen werden wohl nicht mehr geändert werden. Der Stern hat eine sekundäre Periode, und die Form der Lichtkurve ändert sich mit dieser in der selben Weise wie bei RW Dra, AR Her und RR Lyr. Die sekundäre Periode ist aber besonders lang und beträgt beinahe 1400 Hauptperioden. Für einen a-Typus Stern ist diese Periode kurz. Nähmlich 0,377 Tage und die sekundäre Periode beträgt deshalb etwas weniger als ein und ein halb Jahr.

Wenn ich diese Arbeit abgeschlossen haben werde, werde ich Ihnen davon in Kenntnis bringen.

Mit ergebenen Grüssen
P.Th. Oosterhoff

KOL

Universitäts-Sternwarte
Göttingen

Göttingen, d. 9. 6. 43

Liebe Herr Detre!

Haben Sie vielen Dank für Ihren Brief und für die Wiederholung Ihrer Einladung zu einem Vortrag. Ich werde, was ich schon sagte, sehr gerne kommen und zwar habe ich, wenn es dort auskommt, die zweite Hälfte der October vorgesehen. Sie haben dann Semester und bei uns hat es noch nicht angefangen, sodass man leichter wegkommen kann. Voraussetzung ist natürlich dass ich nicht vorher werde plötzlich eingezogen werden. In diesem Falle würde ich Sie aber rechtzeitig benachrichtigen. Ich will auch gern nach Klausenburg kommen und freue mich auch darauf. Ich habe hier schon die Formalitäten der Reise begonnen, denn es ist gut, früh damit anzufangen. Als Vortrag würde ich am liebsten meine Arbeiten über die δ Cephei-Sterne nehmen. Ich hoffe dass Ihnen das Recht ist. Man könnte das Thema so formulieren: Zur Deutung des

Lichtwechsels der δ Cephei-Veränderlichen. In Klausenburg würde ich den gleichen Vortrag halten, denn ich fürchte, dass ich nicht genügend Zeit haben werde noch einen zweiten vorzubereiten.

Am 5. Juli hält Herr Schneller über Ihre RR Lyrae-Arbeiten im Babelsberg einen Kolloquiumsvortrag. Ich werde wahrscheinlich hinfahren.

Seien Sie herzlich gegrüsst und empfehlen Sie mich auch Ihrer Gattin

Ihrs
W. Becker

KOL

Universitäts-Sternwarte Göttingen den 11. 11. 43
Göttingen

Lieber Herr Detre!

Vorgestern bin ich von meiner Reise hierher zurückgekommen, nun, nachdem ich ein paar Tage noch an der Wiener Sternwarte verbracht hatte. Zufällig habe ich dort auch Herr Thüring getroffen, der gerade unerwartet auf Urlaub gekommen war. Hier angekommen, habe ich Prof. ter Bruggencate gesprochen und ihm von Ihrer Absicht, ihn zu einem Vortrag einzuladen, erzählt. Er lässt Ihnen vielmals danken und ist sehr gerne bereit zu Anfang der nächsten Jahres am liebsten Ende April oder Anfang Mai, jedenfalls aber wenn bei Ihnen noch das Semester in Gang ist, nach Budapest zu kommen. Sie können also die offizielle Einladung ergehen lassen. Ich selbst denke sehr gerne an die schönen Tage in Budapest und Kolozsvar zurück und bedauere dass sie nur hinter mir liegen. Ihnen möchte ich nochmals ganz besonders danken für die Mühen die Sie mit mir gehabt haben und für die grosse Gastfreundschaft, die ich dort genossen habe. Bitte grüssen Sie auch Ihre Gattin von mir und seien Sie selbst

herzlich gegrüsst von

Ihrem
W. Becker

KOL

Universitäts-Sternwarte Göttingen d. 18. 11. 43
Göttingen Geismarlandstr. 11

Lieber Herr Detre!

Vor kurzem habe ich bei der Agfa angefragt, ob es Tatsache ist, dass ihre Astroplatten jetzt sensibilisiert sind. Prof Eggert, der Leiter des Laboratoriums teilte mir nun mit, dass das ein Irrtum sei. Astroplatten werden normalerweise als nur blau empfindlich hergestellt. Auf Wunsch werden sie dagegen auch sensibilisiert für gelb oder rot geliefert. Wenn man ganz sicher gehen will, dann kann man bei der Bestellung dazusetzen: Astr. (blauempfindlich). Stobbe war damals wohl nicht genau unterrichtet. Sie können also Agfa Astron so verwenden wie früher

Herz. Grüssen
Ihr
W. Becker

KOL

Universitäts-Sternwarte
Göttingen

Göttingen, den 10. 2. 1944
Geismarlandstrasse 11

Herrn
L. Detre

Budapest Svábhegy
Csillagvizsgáló

Sehr geehrter Herr Detre!

Ihre liebenswürdige Einladung, am 10.5 oder am 27. Sept. d. J. im Ungarischen astronomischen Verein einen Vortrag zu halten, habe ich heute mit besten Dank erhalten.

Ich teile Ihnen mit, dass ich gerne bereit bin, am 10. Mai in Budapest zu sprechen und möchte als Thema meines Vortrages vorschlagen:

"Protuberanzen und Eruptionen auf der Sonne."

Ich werde dabei versuchen, den Protuberanzenfilm von Lyot mitzubringen. Für die Besorgung eines Hotelzimmers wäre ich Ihnen sehr dankbar.

Ihr Schreiben vom Ende November 1943 ist in der Tat nicht in meine Hände gelangt, sonst hätte ich Ihnen selbstverständlich umgehend geantwortet.

Zu Ihrer Ernennung zum Direktor der Sternwarte in Budapest möchte ich Ihnen meinen herzlichen Glückwunsch aussprechen.

In der Hoffnung, dass meine Reiseformalitäten bald erledigt werden können, bin ich

mit den besten Grüssen!

Ihr sehr ergebener
G. ter Bruggencate

KOL

Hamburger Sternwarte
Dr. Karl Wurm

Hamburg-Bergedorf, 15 Febr. 44

Sehr geehrter Herr Prof. Detre!

Haben Sie vielen Dank für Ihre freundliche Einladung zu einem Vortrag im ungarischen astronomischen Verein. Ich komme dieser Einladung sehr gerne nach.

Ich schlage Ihnen nachfolgend zur Auswahl den Themen vor und möchte Sie bitten mir mitzuteilen, welches derselben Sie für den Zuhörerkreis am geeignetesten halten.

1. Neuere Ergebnisse der Kometenforschung.
2. Die Deutung des interstellaren Spectrums.
3. Ergebnisse der Erforschung der äusseren Sternatmosphären.

Ich glaube, dass für Physiker und Chemiker das erste Thema am reizvollsten wäre. Was der Zeitpunkt des Vortrages betrifft, so ist mir jede Zeit ausgenommen die Wochen vom 25. Juli bis 25. August passend. Der Vortrag kann selbstverständlich in Ihrer Zeitschrift veröffentlicht werden.

Ich nehme an, dass Gelegenheit gegeben ist einige Diapositive (8 ? 10 cm und 9 cm ? 12 cm) zeigen zu können. Die Dauer des Vortrages denke ich auf 1 1/2 Stunden zu bemessen. Eine geringe Überschreitung der Zeit würde wohl nicht tragisch sein.

Mit besten Grüssen

ergebenst
K. Wurm

KOL

Ungarischer Astronomischer
Verein

Herrn
Observator Dr. K. Wurm

Hamburg-Bergedorf
Sternwarte
Gojenbergsweg 112

Sehr geehrter Herr Dr. Wurm!

Wir haben die Ehre, Sie in Namen des Ungarischen Astronomischen Vereins nach Budapest mit der Bitte einzuladen, hier einen Vortrag über ihre grundlegenden Arbeiten auf den Gebiete der Kometenforschung halten zu wollen. Der Vortrag könnte am 27 September stattfinden, wir sind aber bereit, jeden anderen, von Ihnen vorgeschlagenen Termin anzunehmen.

Die Kosten des hiesigen Aufenthaltes werden von dem Verein übernommen.

Budapest, den 10 März 1944

Sektretär Vorsitzende

KOL

Der Direktor der Universitäts-Sternwarte Göttingen 24, 4. 1944
Göttingen Geismarlandstr. 11

Herrn
Prof. Dr. L. Detre
Budapest-Svabhegy
Csillagvizsgalo Intezet

Sehr geehrter Herr Kollege!

Zu meinen Bedauern muss ich Ihnen mitteilen, dass es mir wegen der Reiseschwierigkeiten leider nicht möglich ist, am 10. Mai d. J. nach Budapest zu kommen. Dass ich sehr gerne im Astronomischen Verein in Budapest einen Vortrag über mein Fachgebiet gehalten hätte, brauche ich Ihnen nicht besonders zu versichern.

Ich hoffe sehr, dass es nach Eintritt normaler Verhältnisse möglich sein wird, den geplanten Besuch nachzuholen.

Mit den besten Grüssen!
Ihr
ter Bruggencate

KOL

Hamburger Sternwarte Hamburg-Bergedorf
9 Mai 1944

Sehr geehrter Herr Prof. Detre!

Bestätige hiermit den Empfang Ihres Briefes von 10 März einschliesslich der offiziellen Einladung zum Vortrage für dem 27 September d. J.

Ich bin gerne bereit, in Ihrem Kolloquium in der Sternwarte über das Thema "Ergebnisse der Erforschung der äusseren Sternatmosphären" zu sprechen. Das Thema "Neuere Ergebnisse der Kometenforschung" gilt also dann für den Vortrag im Ungarischen Astronomischen Verein.

Sie werden zur gegebenen Zeit von mir hören.

Mit dem besten Grüssen
und nochmaligem Dank für Ihre freundliche Einladung

Ihr Karl Wurm

KOL

Leiden 31 May 1944

Dear Miss Balázs and Dr. Detre

My observations of RS Bootis have now been completed and I am preparing an article about this variable. The secondary variations of RS Boo are of the same character as those of AR Her of which you made such a fine study.

I should like to reduce your observations in the same manner as I have treated my observations of RS Boo. Therefore I am very glad that you have published the individual observations. However I am not certain weather your J.D.'s are heliocentric or not. I have not found any remark about it in your article, which probable indicates that they are not heliocentric. I hope that you will let me know whether I am right.

In order to derive the most probable value of the secondary period for AR Her I have made use of the observations on the ascending branch of the light curve, which yield more accurate epochs than the maxima. From these observations I have derived 39 epochs for a point of magnitude 11,20. These epochs were then used in a least squares solution of the following type:

Epoch $= A + B \cdot E + C \cdot \sin \psi + D \cdot \cos \psi$

E is the number of periods elapsed and ψ is the phase in the secondary period. B is the ordinary period of the variable. The secondary period was adopted and the solution carried out. The results obtained are:

Adopted sec. period	Computed period	$(O\text{-}C)^2$
67,02 P	0, 4700208	0,001372
	± 13 m.e.	
67,25	0,4700190	0,000804
	± 10 m.e.	
67,48 P	0,4700176	0,001134
	± 12 m.e.	

Only your observations have been used in this computation. From the last column it is clear that the most probable value of the the secondary period is 67,28 periods or 31,62 days.

The deviations of these epochs from a linear ephemeris agree very closely with a sine curve.

With kind regards

sincerely yours
P. Th. Oosterhoff

KOL

H.M. Nautical Almanac Office
Block "E" Ensleigh,
Landsdown, Bath
9th October 1945.

The Director
Hungarian State Observatory
Svabhegy Mountain
Budapest 1,
Hungary.

Dear Sir,

I am sending you herewith the list of stars occulted by the Moon visible at Budapest during 1946 and 1947.

Since the Nautical Almanac Office ceased publishing Occultation Reduction Elements in the Almanac from 1943 onwards, we undertake to complete the reduction of observations, which

have been reduced to a form incorporating the position of the observer and which are communicated to the Office within six months of the quarter in which they are observed.

The work of compilation and discussion of reductions of observed occultations, which was performed by Dr. Brouwer of Yale University previous to 1943, has now been taken over by this office.

We hope that you will bewilling to co-operate in this scheme and that you will send us your partially reduced observations, or if you prefer to complete your own reductions, that you will send us your results for inclusion in the annual compilation and discussion.

Yours faithfully,
Flora M. McBain
for SUPERINDENTENT.

KOL

Hamburg Bergedorf den 24. 6. 46

Lieber Herr Detre!

Dieser erste Brief nach dem Ereignissen trifft hoffentlich Sie und Ihre Familie bei bester Gesundheit an. Sie werden sicher schwere Tage hinter sich haben und auch jetzt noch unter drückenden Lebensumständen stehen, aber es wird doch wenigstens nicht mehr geschossen und bombardiert. Hoffentlich haben Sie und Ihre Mitarbeiter auch das Heim und die Sternwarte mit in eine bessere Zukunft hinüberretten können. Sie würden mir eine grosse Freude machen, wenn Sie mir darüber schreiben würden, damit ich auch von Ihnen ein Lebenszeichen erhalte.

Sie sind gewiss erstaunt, von mir aus Hamburg zu hören. Damit Sie das verstehen will ich Ihnen kurz die Umstände schildern. Nachdem die Amerikaner Göttingen am 8 April 1945 besetzt hatten (die Stadt und Sternwarte blieben fast unversehrt), riss alle Verbindung nach Wien ab. Ich blieb noch bis zum Herbst in Göttingen und nahm dann eine Angebot Heckmanns an, als Observator und Dozent nach Bergedorf zu kommen. So sitze ich hier auf dieser noch ganz erhaltenen und abgesehen von Mangel an photographischen Material voll arbeitsfähigen Sternwarte, und es geht mir gut (zeitgemäss!). Aber ich werde wohl nicht mehr lange hier bleiben. Vor einigen Wochen bekam ich von Graff, der wieder Direktor in Wien ist, die ebenso herzliche als dringende Aufforderung, meine Wiener Stellung wieder anzutreten. Die Sternwarte dort ist heil und meine Wohnung noch komplett vorhanden. Ich werde also wohl demnächst nach Wien zurückgehen. Aber man will mich auch in Deutschland behalten, und möchte dass ich als Nachfolger Gutnicks nach Babelsberg, oder nach Tübingen, oder vielleicht auch Heidelberg als Direktor gehe. Aber ich ziehe Wien allen vor, da ich Österreich mehr liebe als das Reich. Ich hoffe und wünsche sehr, dass es möglich sein wird, von Wien aus auch wieder Verbindung mit Ihrer Sternwarte zu nehmen auf eine gutnachtbarliche und freundschaftliche Zusammenarbeit hin. Hier noch einige Berichte aus Deutschland. Die Babelsberger Sternwarte ist ziemlich ausgeräumt. Die grosse Spiegel der Astrograph und 2 Meridiankr. fort. Potsdam arbeitet Sonnenphysikalisch mit Kienle, Klüber, Hassenstein, Grotrian, Wempe, H. Müller. In München sind alle bis auf Kraus entlassen und Schoenberg ist dort jetzt ordinarius. In Heidelberg Vogt, Klauder, Bormann entlassen, wenn auch die beiden letzteren noch nicht definitiv. In Bonn Kohlschütter emeritiert aber Sternwarte heil, dergleichen Heidelberg aber München völlig zerstört. Göttingen unverändert, Hamburg ist jetzt die grösste Sternwarte mit viel Personal. Über die Astronom. Gesellschaft verlautet noch nichts. Die Zeitschriften (AN. und ZfA zusammengelegt) werden in der zweiten Jahreshälfte wieder erscheinen. Die Verbindung mit dem Ausland ist noch kaum wieder in Gang gekommen.

Wie geht es Ihren Kollegen, Lassovszky, Dezső, Kulin? Grüssen Sie bitte alle von mir und seien Sie selbst und Ihre Gattin herzlich gegrüsst von

Ihrem W. Becker

Thüring ist in Wien entlassen und Schulte auch. Sie sind beide noch Stellungslos.

KOL

München, 6 Juli 46

Sehr geehrter Herr Professor!

Ihren lieben, hochinteressanten Brief haben wir zu unserer grössten Freude und Überraschung Anfangs Mai erhalten und danken Ihnen recht herzlich für Ihre lieben Zeilen und übersandten Grüsse. Am meisten freuten wir uns über die Mitteilung, dass Sie sich wohl fühlen und Ihr Institut so gut wie unverzehrt blieb, da kann man nur von Herzen gratulieren! Ich muss Ihnen aber doch gestehen, dass wir grösstes Bedauern mit Ihnen haben, weil Sie unter so misslichen inflatiösen Verhältnissen zu leben gezwungen sind. Wollen wir hoffen, dass eine stabile Währung recht bald wiederkehrt!

Herr Guman hat Ihnen je erzählt, dass wir am Leben sind und es uns gut geht, doch gar so gut war uns das Schicksal nicht gesinnt. Am 11. Juli 44 riss eine Sprengbombe einen Teil des Direkt.-Gebäudes samt der Treppe weg, wobei Prof Rabe 2/3 seiner Habe verlor und mit dem Rest zu uns herüber zog, wo er am 13. Juli 44 dann Alles verlor. Da schenkten sie uns noch 8 Bomben von denen eine von 1 Tonne mitten in dem Hof fiel (der Trichter endete 3 m vor dem L. Kellerfenster), eine 2. gleich schwere begrub unser Schlaf-und anstossendes Zimmer (in dem Sie damals schliefen) unter Trümmern. Das Dach des Ostflügels brannte vollständig aus. Leider bekam meine Frau einen Nervezusammenbruch, so dass ich sie auf das Land schicken musste, es dort aber auch nicht besser wurde, so dass sie im April 45 mit einer hochgradigen perniciösen Anämie und einem Gewicht von 45 kg ins Krakenhaus nach Schlehdorf a/Bochelsee kam, wo sie volle 10 Monate ausharren musste und ihr Leben öfter nur einem Faden hing. Seit Anfang Jan. ist sie wieder bei mir und es geht ihr Gott sei dank wieder ganz gut. 18 volle Monate war ich allein und habe mir selbst Kartoffeln gekocht, fühlte mich wohl dabei und wiege heute 78 kg (früher 103!). –

Die Sternwarte sieht bose aus, doch hatten auch wir Glück.Unversehrt blieb: Refraktor, Vertikalkreis und der alte "Reichenbach'sche M.Kr. Der Repsold'sche M.Kr u. Astrograph sind beschädigt, doch reparaturfähig. Die Uhren habe ich während des Dachtstuhlbrandes abmontiert und später im Kisten verpackt. U 23 und 33 haben standgehalten. Meine Werkstätte hat nur Deckenschäden. Im Übrigen sieht es bei uns noch genau so aus wie anno 44, der Trichter im Hofe ist ständig halb voll Wasser, jede Nacht ist Froschkonzert. Zum Wohnen haben wir ein beschädigte Zimmer und die Küche. Meiner Frau ist sehr ärgerlich über die daurende Unordnung.

Mitte Mai kam Prof. Schönberg aus Göttingen (früher Direktor in Dorpat and Breslau) und übernahm die Direktion und den Wieder-Aufbau. Er bewohnt mit seiner Gattin Ihr Zimmer im 1. Stock. Eine Sekretärin (Frl. Lukaschkowitz) und einen Hausdiener (Ankoviak) hat er bereits mitgebracht, der Mechaniker von Breslau kommt demnächst. Die Universität hat Prof. Wilkens wieder eingeladen, er soll bereits schwimmen! Ob er wohl auf den schlechten Tausch eingeht? Hoffen wir das Beste! Ich möchte nicht mehr gerne mit ihm zusammen sein, die Erinnerungen sind für mich recht unlieb.

Nächste Woche soll mit dem Aufbau begonnen werden mit Hilfe von 15 Studenten des Bau'trupps. Prof. Schönb. ist bereits 64 Jahre, aber noch sehr tatkräftig, also "Glück auf"!

Prof. Rabe ist seit 10. Jan. suspendiert, seine Frau war seit Nov. v. J. im Lager und liegt seit 5 Monaten im Lager-Hospital in Garmisch an Magenerkrankung, sie wiegt noch 41 kg. Prof Thüring war kürzlich in Wien und hat 2 Waggons Möbel nach Karlsruhe gebracht, er hat ein grosses Glück gehabt. Seine Frau hat ihm begleitet, sie mussten dort viel hungern, sind auch entsprechend dünn geworden. Dr Rügemer lebt bei seiner Familie in Neustadt a/Waldnaab, er war kürzlich hier, es geht ihm ausgezeichnet, er verdient mit Malerei viel mehr als bei der Astronomie. Dr. Jahn, (der heute Observator in Strassburg sein könnte), betätigt sich ökonomisch auf dem Gute seines verstorb. ehemaligen Reg. Kommandeurs, er ist eine Prachtmensch und strotzt vor Gesundheit. Er ist bei Wolfratshausen, und besucht uns fleissig. – Rothballer ist auch suspendiert, er scheint von Astrologie zu leben, man sieht ihm ganz selten.

Das Leben bei uns wäre erträglich, wenn es etwas zu rauchen gäbe, das Bier ist nicht so schrecklich dünn (1%)! und das Brot mehr wäre, doch das werden noch lange fromme Wünsche bleiben. Zucker gibt es pro Periode 1/4 fund (125 gr), Brot 4 kg, Marmalade überhaupt keine. Das deutsche Volk hätte wohl besser getan, wenn es mit der Liebe zu dem sogenannten Führer etwas sparsamer umgegangen wäre. Warum hat man nicht schon im Jahre 40 oder 41 Schluss gemacht mit diesem elenden Morden? Es wäre für die Generalität ein Leichtes gewesen, auch sie sind mithin Schuld an unserem grossen Elend!

Wie Sie sehen, lieber Herr Professor, bin ich auf der Sternwarte des einzige politische Unbelastete. Es hat ja allerdings viel Standhaftigkeit von mir verlangt und war nicht angenehm,

als Aussenseiter schief angesehen zu werden, aber es hat sich doch gelohnt. Ich hasste von allem Anfang an den aufgezwungenen blöden Gruss und den offensicht terroristischen Aufbau des ganzen Systems. Nun ist es aus damit und man muss sich schämen, ein Deutscher zu sein. Wir dürfen froh sein, dass wir die Ami's im Lande haben, sonst hätten wir totsicher einen furchtbaren Bürgerkrieg.

Schliessend muss ich um Entschuldigung bitten dass ich mit der Antwort auf Ihre lieben freundlichen Zeilen so lange gewartet habe, doch Sie wissen ja, dass die neuen Besen gut kehren, es gab in den letzten Monaten viel viel Arbeit, da auch Herrsching abgebaut werden muss.

Nehmen Sie bitte mit der Versicherung, dass wir mit Freuden des schönen Zusammenseins mit Ihren und Ihrer humorvollen Frau Gemahlin gedenken, von mir und meiner Frau die allerbesten Wünsche für eine glückliche Zukunft und Ihr, Ihrer sehr verehrten Gattin und der lieben Kinder Wohlergehen entgegen!

Mit herzlichen Grüssen
Ihr
Georg Kraus und Frau

KOL

Herrn Dr. L. Detre
Direktor der Sternwarte
Budapest Svábhegy

Leiden, Sterrewacht
den 28, September 1946

Hochgeehrter Herr Detre,

Ich höre dass es wieder möglich ist, von hier aus Briefe nach Ungarn zu senden.

Jetzt will ich Ihnen herzlich danken für die Zusendung der Mitteilungen 17 und 18 der Sternwarte Budapest-Svábhegy, die ich mit grössten Interesse gelesen habe. Es ist schön, dass es Ihnen gelungen ist, nicht nur die Budapester Beobachtungen des Helligkeit, sondern auch die früheren Beobachtungsreihen so durchaus befriedigend dar zu stellen. Es ist interessant, dass Sie die Abhängigkeit der beiden Argumente von der Zeit so genau haben bestimmen können; die Abbildungen 19 und 21 sind sehr überzeugend. Man fragt sich, ob der Sirius der in Abbildung 21 ziemlich deutlich angedeutet zu sein scheint, durch spätere Beobachtungen bestetigt werden wird.

Neulich hat Herr Dr. Oosterhoff eine Arbeit über R.S. Bootis veröffentlicht (Bulletin of the Astronomical Institutes of the Netherlands No 369), wo er auf Grund eines umfangreichen Beobachtungsmaterials auch auf die Existenz einer sekundären Periode schliesst, der aber 1424 ... länger ist als die Hauptperiode von d. 37733657; Herr Oosterhoff hat Ihnen ein Separat dieser Arbeit geschickt. Unsere Kenntnisse des Lichtwechsels dieser merkwürdigen Sterne hat in den letzten Jahren, zum grossen Teil durch die Arbeit von Ihnen und Ihrer Mitarbeiter sehr zugenommen.

Ich hätte früher schon versucht in der Beobachtungen der Radialgeschwindigkeit von RR Lyrae die Sanford auf dem Mt. Wilson Observatory gemacht hat, die sekundäre Periode nachzuweisen, aber ohne Erfolg. Jetzt, wo die beiden Argumente so gut bekannt sind, habe ich es wieder versucht, aber es stellt sich heraus, dass die Beobachtungen ziemlich ungenau sind, wahrscheinlich zu ungenau für dieser Zweck. Es wäre durchaus wichtig, eine Anzahl genaue Werte der Radialgeschwindigkeit zu bestimmen, die gut über die 40-tägige Periode verteilt sind; es scheint nicht ausgeschlossen zu sein, dass wir in nicht zu ferner Zukunft über derartige Beobachtungen verfügen werden können.

– Die Sternwarte in Leiden hat keine Kriegsschäden gelitten, nur haben die Umstände, besonders in Winter 1944-45, uns nicht immer erlaubt, regelmässig zu arbeiten.

– Sie wissen vielleicht schon dass Herr Dr. Woltjer am 28. Januar 1946 verstorben ist?

Ich wünsche Ihnen viel Gutes, und insbesondere hoffe ich dass Ihre Umstände bald wieder normaler sein werden.

Mit vorzüglicher Hochachtung
H. A. Kluyver

KOL

INTERNATIONAL ASTRONOMICAL UNION
(UNION ASTRONOMIQUE INTERNATIONALE)

Executive Committee
H. Spencer Jones President
G. Abetti Vice-President
A.A. Mikhailov
W. Brunner
A. Danjon
J.H. Oort, General Secretary

Leiden Sterrewacht
den 6 Januar 1947

Herrn Dr. L. Detre
Konkoly Observatory
Budapest, Szabadsaghegy

Sehr geehrter Herr Detre,

Frl. Kluyver hat mir mitgeteilt, dass Sie schrieben dass Ungarn gern der Internationalen Astronomischen Union beitreten möchte.

Dies wird gewiss den andern Mitgliedern der I. A. U. sehr angenehm sein, da die Union doch immer bestrebt ist, möglichst international zu sein. Ich sende Ihnen einige Exemplare der Statuten, voraus Sie ersehen werden können wieviel der Jahresbeitrag für Ungarn betragen würde. Die Einheit ist jetzt drei hundert Goldfrank, das heisst 97.98 U.S. dollars.

Falls die Ungarischen Astronomen entschliessen würde, dass Ungarn tatsächtlich der I. A. U. beizutreten wünscht, möchte ich gerne wissen, welche Ungarische Organization Ihr Land representieren wird, und ob es ein Ungarisches Nationalkomitee gibt, und aus welchen Astronomen dieses besteht.

Mit vorzüglicher Hochachtung

J. H. Oort

KOL

INTERNATIONAL ASTRONOMICAL UNION
(UNION ASTRONOMIQUE INTERNATIONALE)

Executive Committee

H. Spencer Jones President
G. Abetti Vice-President
W.S. Adams
A.A. Mikhailov
W. Brunner
A. Danjon
J. H. Oort, General Secretary

Leiden Sterrewacht

February 15, 1947.

Dr. L. Detre
Konkoly Observatory
Budapest Szabadsághegy
Hongarije

Dear Dr. Detre,

I have received, on February 13, your letter of January 27. I am very glad to learn that Hungary has decided to join the International Astronomical Union.

A check for annual subscription should be made out in U. S. dollars and be payable into the account of the I.A.U. with the Corn Exchange Bank Trust Co, University Branch, Broadway and 113 Street, New York City, U.S.A., or in pounds and be payable into the Union's account with Barclays' Bank, Cambridge, England.

I shall be obliged if you will send me the names and addresses of the members of your national committee in due time. Should the Hungarian Academy of Sciences be considered the body representing you country? If so, could you give me the exact address of this Academy?

The Next General Assembly will be held in Zürich in the 2nd half of August 1948.

Yours sincerely

J. H. Oort

KOL

Leiden, den 19. März 1947

Sehr geehrter Herr Detre,

Gestern erhielt ich Ihren freundlichen Brief vom 10 Februar: ich beeile mich, sofort zu antworten um ein Missverständnis zu beseitigen. Das grosse Packet was Ihnen nähmlich von Herrn Oosterhoff geschickt worden; natürlich habe ich ihm gleich Ihrer Brief gezeigt.

Die Lebensmittelverhältnisse sind hier nicht schlecht, zwar sind Brot, Fleisch, Butter u.s.w. Zucker und Genussmittel noch nicht frei, aber man bekommt ganz beträchtliche Quantitäten davon, und demgegenüber kann man Kartoffel, Gemüse, Fisch, Erbsen u.s.w. Haferflocken in beliebiger Menge kaufen so dass es gar nicht schwer ist sich gut zu ernähren. Gerade weil wir aus Erfahrung wissen was es heisst, nicht genug zu haben, hat es uns so Leid getan als wir im Herbst von Ihrer schwieriger Verhältnissen hörten.

Es hat uns sehr gefreut, dass Sie schreiben, dass bei Ihnen schon Anzeichen für die Normalerwerden der Verhältnisse vorhanden sind. Der strenge Winter soll für Sie aber doppelt schwer gewesen sein. Hier war es auch länger kalt als gewöhnlich und wir hatten viel Schnee. Aber seit einigen Tagen ist das alles vorüber, und man bekommt ein richtiges Frühlingsgefühl.

Es freut mich auch sehr, dass Sie für die Sternwarte auch wieder einigermassen ausreichende Zulegen erhalten, und dass Sie so schöne Voraussichte für neue Instrumente haben. Haben Sie augenblicklich auch einige gute Mitarbeiter?

Offenbar schrieb ich Ihnen sehr undeutlich über die Radialgeschwindigkeiten von RR Lyrae. Nicht wir werden sie machen, sondern ein Amerikanischer Astronom war so liebenswürdig uns zu versprechen es für uns zu tun, ich hoffe das er bei der starken Beanspruchung der grossen Instrumente Zeit dazu finden wird. Unseres Klima is für derartige Beobachtungen viel zu schlecht, und wir haben auch kein Instrument dafür.

Inzwischen haben Sie auch wahrscheinlich Herrn Professor Oort's zweiter Brief über die IAU erhalten.

Haben Sie und Ihre Frau auch die Absicht die Generalversammlung in der Schweiz beizuwohnen? (Es ist noch nicht ganz sicher in welcher Stadt diese gehalten werden wird). Ich weiss noch nicht ob ich werde gehen können, obgleich ich viel Lust dazu habe; aber es ist jetzt noch ziemlich schwer von der Regierung die Bewilligung zum erkaufen ausländischen Geld für solche Zwecke zu erhalten. Übrigens würde ich dann wahrscheinlich auch nicht viel Zeit für den eigentlichen Kongress haben, da ich Herrn Oort behilflich bin in seiner Arbeit als Generalsekräter. Aber es würde mich freuen Ihre Frau und Sie kennen zu lernen.

Mit den besten Grüssen auch für Ihre Frau

Ihr

H. A. Kluyver

KOL

The W. J. McDonald Observatory of
The University Texas
Fort Davies of Texas

June 22, 1947

Dr. L. Detre
A Svabhegyi Observatory,
Budapest, Svabhegy
Hungary.

Dear Dr. Detre:

Through the initiative of Miss Kluyver of the Leyden Observatory I have recently started a program of spectrographic observations of RR Lyrae, in order to determine whether the effect of the 41-day period can be detected in the radial velocities and also in the spectral types and the line intensities. In this connection I have read with great interest your fine papers in Budapest Publications No. 17 and 18.

I am wondering whether any further work on RR Lyrae has been carried out in Hungary since this publication. I note that on page 34 of the second article you thought it probable that a new series of observations would be undertaken by Mr. I Guhman. Has this been done, and if so, what are his results?

I should greatly appreciate it if you would let me know whether the elements which you have been give are likely to be correct within a few minutes during the present summer. My observations started on June 2 and will be concluded on July 15 of this year. I am getting a series of spectrograms, as nearly as I can, every night, so that I should have one complete cycle in the 41-day period.

Among the more interesting results which I have already obtained is the discovery that on June 6 and 7 of this year the hydrogen lines became very peculiar in structure at almost precisely the time of median increasing brightness. The absorption lines became extremely weak and narrow – giving the impression of shell-lines, their equivalent widths being only about like those of the stronger lines of Fe I., Ca I., etc. – At the same time there appeared strong violet emission lines and probably also weak red emission lines. These emission features had not previously been observed, and they throw a new light upon the entire problem of Cepheid variation.

Since June 6 I have observed the rising branch of the light curve with my spectrograph, whenever conditions were suitable. The phenomena of peculiar hydrogen lines gradually became less conspicuous, and at the present time it is hardly noticeable. I do not yet know, whether it is related to the 41-day period, or is of irregular character, but from the evidence thus far collected it is at least probable that the former hypothetis my be the correct one.

In connection with this observations any information concerning the prediction from the light curve would be of value to me. It is true that photoelectric observations are now in progress in Leiden and at the Yerkes Observatory (which is connected with the McDonald Observatory); and another series, also with the photoelectric photometer, has recently been secured by Dr Kron at the Lick Observatory. But these new data will not soon available; and in the mean time I should appreciate having your advice. In particular, it would be helpful if you would tell me on which data during the present summer I should expect your phase, psi equal to zero, as used in your illustrations 4 page 30 of the second article. I could then very readily reconstruct the course of events during the period of my observations.

I expect to remain at the McDonald Observatory until July 15, and shall after that return to the Yerkes Observatory, William Bay, Wisconsin, USA. Hence, it would probably the best for you to write to me at the latter address.

Incidentally, I should much appreciate it if you could send me reprints (if you have any) of your papers on AR Herculis, delta Scuti and RW Draconis. Also, if your supply is not exhausted, a copy of the two papers on RR Lyrae would be appreciated.

I hope that your work and that of your colleagues is progressing satisfactorily. Do you know what has happened to Lassovszky? I knew him years ago at the Yerkes Observatory.

Very sincerely yours
Otto Struve

KOL

THE UNIVERSITY OF CHICAGO
YERKES OBSERVATORY
July 21, 1947

Dr Laszlo Detre
Konkoly Observatory
Budapest, 12, Hungary

Dear Dr. Detre:

I acknowledge with thanks the arrival of your letter of July 8 which contains exactly the information I shall need when I come to discuss the spectrographic observations of RR Lyrae. Since I wrote you in June I have completed a period of forty three nights of observing at the McDonald Observatory. As I wrote you then the remarkable phenomenon of peculiar hydrogen lines was conspicuous early in June having been first discovered during night of June 5. In the latter part of June I was not able to detect any conspicuous anomaly in the contours of the hydrogen lines even though I had a number of excellent nights during which I was able to cover the entire rise of the light curve. Early in July the hydrogen lines again began to show the strange weakening which I had first seen on June 5. Succesive nights made this feature appear still more prominent and on my last occasion on July 14 it was similar to what I had observed on June 5.

There can be little doubt that the variation in this phenomenon is correlated with your period of forty-one days. Incidentally, I was able to show that as the light of the star begins to increase the hydrogen line of the minimum type spectrum, which is always narrow but strong, begins to get weaker, narrower and more like the line of a shell. It is thus the line of the F-type spectrum which is transformed into the absorption core during the anomalous stage. As this core repeatedly becomes fainter there is in appearence an exceedingly shallow and broad, underlying line whose radial velocity is much more negative than that of the F-type spectrum. For approximately twenty minutes the broad line and the narrow core can be seen simultaneously. After that the core disappears and that broad line rapidly increases in intensity and ultimately becomes the normal H line of the A-type spectrum which we see at maximum light. The occurence of an emission border on the violet side of the sharp core during the peculiar stage is as yet unexplored.

I should be greatly indebted to you if you would keep me informed concerning the results of this year's observations and I should like to recommend that this work be published promptly so that it could be used by myself and others who are now working on this remarkable object.

I hope that conditions will make it possible for me to make your personal acquaitance in next year's meeting of the International Astronomical Union which is scheduled for the summer of 1948 in Switzerland.

Very sincerely yours
Otto Struve

KOL

Sterrewacht Te Leiden

Leiden, den 13. August 1947

Sehr geehrter Herr Detre,

Jetzt will ich Ihnen herzlich danken für Ihren Brief von 10. Mai.

Ich gratuliere, Sie und Ihre Frau Ihnen recht herzlich zum Geburt Ihrer zwei Söhne, und hoffe dass es Ihrer Frau und ihnen gut geht.

Mit grössten Interesse habe ich von Herrn Oosterhoff über Ihre neuen Untersuchungen über RR Lyrae gehört; werden Sie die Resultate bald veröffentlichen können?

In diesem Sommer wird RR Lyrae sehr intensiv beobachtet. Herr Dr Struve hat auf der McDonald Sternwarte zwischen Anfang Juni und Mitte Juli (also während einer sekundären Periode) beinahe 400 Spektrogramme erhalten die jetzt bearbeitet werden. Es wird wohl noch

einige Monate dauern, bis die Bearbeitung fertig ist. Sicher wird dieses schöne Material unsere Kenntnisse sehr vermehren, und ausser den Radialgeschwindigkeiten noch mancherlei andere Resultate liefern. Dr. Struve hat zum Beispiel schon beobachtet dass die Wasserstofflinien, während der Stern auf dem "steigende" Ast der Lichtkurve ist, bei einer bestimmten Phase in der sekundären Periode ein eigetümliches Verhalten zeigen; dies hat Herr Struve sowohl am Anfang als am Ende seiner Beobachtungszeit wahrgenommen.

Herr Walraven, der auf der hiesigen Sternwarte RR Lyrae photoelektrisch beobachtet, erhält sehr genaue Resultate, und hat auch schon manche Besonderheiten gefunden. Er beabsichtigt die Beobachtungen während der ganzen jetzigen Opposition fortzusetzen.

Auf der Yerkes Sternwarte wird RR Lyrae auch photoelektrisch beobachtet von Dr Hiltner.

Herr Struve wird sicher sehr daran interessiert sein Ihre neuesten Resultaten zu wissen; vielleicht können Sie ihm selber mal darüber schreiben?

Mit den besten Grüssen, auch für Ihre Frau,
Ihre

H. A. Kluyver

KOL

International Astronomical Union

Leiden Sterrewacht
March 4, 1948

Dr. L. Detre
Director of The Konkoly Observatory
Budapest-Szabadsaghegy

Dear Dr. Detre

I thank you for your letter of February 27. All members of the National Committee are automatically members of the IAU, and are hence entitled to assist at the General Assembly. It has not been customary to send official invidual invitations. However, if you think it would be expedite arrangements on your side if we did so, we shall be glad to co-operate.

Last week the first circular, containing the programme and a card which should be returned to Professor Waldmeier in case one wishes to attend, have been sent to all members. I am forwarding another copy Professor Dezső, because the one which was sent to his former address may not reach him.

Yours very sincerely

J. H. OORT

KOL

Harvard College Observatory
Cambridge 38, Massachussets
March 24, 1948

Dr. L. Detre
Konkoly Observatory
Szabadsaghegy
Budapest XII, Hungary

Dear Dr. Detre:

I have your undated letter telling of the situation at your observatory at present and in the past. It is a very moving story, but one that we have expected to hear.

I am asking the mailing department of the Harvard Observatory to send you our publications of recent date. There have not been very many of them. We have had demobilize our observatory a good deal to help the national operations since 1940. Now we are again at work, but cosiderable disturbed by the international situation.

I am expecting to go to the meetings at Zurich in the second week of August. I hope that you also come to the meetings of the International Astronomical Union.

I assume that you are publishing soon your new results on RR Lyrae. It is an old friend of mine, as you know: but apparently it needs to be worked on continuously for a century or two if we are to get every thing out of it that the light curve is willing to give us.

There has been a good deal of development of photoelectric photometry here in America, using the 1P 21 multiplier, or something similar to it. We have made one such photometer for Dr. Piotrowszki in Poland, and it is now in Poland. We made one photometer for ourselves and are making another one.

Good luck to you in your efforts.

Very sincerely yours,

Harlow Shapley

KOL

University of California

Lick Observatory
Mount Hamilton, California
April 15, 1948

Dr. L. Detre
Konkoly Observatory
Budapest XII

Dear Dr Detre:

Mrs Kron and I made a few photoelectric observations of RR Lyrae about a year ago. The work has been published as a Lick Contribution, but it is not yet available for distribution. I am enclosing a printer's proof of the paper, which you may keep. The proof does not have the plotted light curve, but the data are tabulated, so you can plot the light curve.

Our results agree closely with the data in the Figure 1, which you sent with your letter.

I am sorry to learn that you have not been getting our Contributions. Our librarian, Dr. Neubauer, has placed your Observatory on the distribution list, and has sent you all back issues, so you will have a complete set. Dr. Neubauer asked me to tell you that Band 1. No. 2 of your publication is missing from our files. He would like to have a copy of Band 1. No 2. so that the volume can be bound, and he would appreciate it if you would send a copy.

Photoelectric observations of such stars as RR Lyrae are by far the best of any, and we feel that you are wise to consider making photoelectric equipment for your 24-inch reflector, and I hope that you will be able to get a 1 P 21 multiplier.

Sincerely Yours

Gerald E. Kron

KOL

Hamburger Sternwarte
Der Direktor

Den 18. 6. 1950.
Hamburg-Bergedorf

Lieber Herr Detre!

Haben Sie vielen Dank für die Übersendung Ihrer und Ihrer Gattin Arbeit über RR Leonis. Die Ergebnisse über die RR Lyrae-Sterne sind immer wieder interessant und ich glaube, Sie haben sich da ein Forschungsgebiet geöffnet, auf dem eine fruchtbare Weiterarbeit möglich ist, die vor allem auch für die Theorie der Cepheiden von grosser Bedeutung sein wird. Darüber

hinaus habe ich mich gefreut, von Ihnen ein Lebenszeichen zu erhalten. Ich hoffe, dass es Ihnen und Ihrer Familie recht gut geht.

Meine Verhältnisse haben sich insofern konsolidiert, als ich die Berufung nach Wien als Nachfolger Graffs abgelehnt habe. Es war nicht möglich eine Zusage für eine bescheidene Erneuerung der Instrumente zu erhalten und ausserdem war mir eine Stellung zugedacht, die wirtschaftlich gesehen, sehr weit unter meiner hiesigen liegen sollte. Ich bedauere die Notwendigkeit der Ablehnung sehr, denn ich hätte sehr gern in Wien gewirkt.

Es ging finanziell vor allem auch deswegen nicht, weil ich geheiratet habe und nicht mehr nur auf mich allein Rücksicht nehmen kann.

In der nächsten Woche werde ich für 5 Wochen für Cambridge (England) gehen, um mit Redman photometrische Dinge zu besprechen. Es wird der erste Auslandsaufenthalt nach der Kriege sein. Ich freue mich sehr darauf. Auslandsreisen fangen jetzt an, für uns wieder leichter möglich zu werden. Mein Buch "Sterne u. Sternsysteme" ist jetzt in zweiter Näherung (vb. Auflage) erschienen. Ich habe den Verlag angewiesen, der Budapester Sternwarte ein Exemplar zu senden, zwecks Besprechung in einer ungarischen Zeitschrift.

Wie geht es den dortigen Kollegen? Was macht Lassovszky, was Dezsö (ich habe wohl falsch geschrieben den Namen, bitte um Verzeihung).

Ich erinnere mich immer gerne der schönen Tage, die ich an Ihrer Sternwarte verbringen konnte und hoffe, dass ich doch mal wieder eine Gelegenheit bieten wird, sich wiederzusehen.

Mit herzlichen Grüssen für Sie und Ihre Gattin

Ihr

W. Becker

KOL

Franz von Krbek 11. 6. 1946.
Dozent an der Universität
(3) Greifswald, Fischstr. 18

Lieber Laci, hoffentlich hast du alles gut überstanden! Greifswald kapitulierte und blieb deshalb heil. Seit dem 25.3. läuft das Sommersemester mit mehr als 700 Hörern. Wie steht es um die Budapester Universität und um die Sternwarte? Hast du dich habilitiert? Wer liest Mathematik und Physik? Wenn mein Verlag die Lizenz bekommt, soll meine Geschichte der Mathematik in Druck gehen. Es werden über 400 Druckseiten. Es steht darin manches Neue, aber auch manches, vorüber engstirnige Kollegen sich aufregen werden. Was sind deine Pläne? Hast du Nachricht über Kudar? Mit Handkuss an Deine Frau, stets Dein

Feri

KOL

Prof. Dr. v. Krbek
(3b) Greifswald
Käthe Kollwitzstr. 8. 29. 4. 1948

Lieber Laci

besten Dank für deine freundlichen Zeilen vom 6.3., über die ich mich sehr freute, denn sie sind das erste Lebenszeichen von Dir seit langer Zeit! Deine Nachrichten interessierten mich sehr. Das Kudar geheiratet hat, wusste ich gar nicht. Könntest Du seine jetzige Anschrift mir mitteilen?

Über unseren Astronomen-Freund weiss ich nichts. Über mich ist zu berichten, dass ich hier Professor mit Lehrauftrag wurde. Ich habe inzwischen eine Geschichte der Mathematik geschrieben, die für einen grösseren Leserkreis berechnet ist und etwa 400 Druckseiten Umfang hat. Der Verlag meiner Erlebten Physik beabsichtigt diese Mathematikgeschichte im Sommer herauszubringen. Und Teubner möchte zur gleichen Zeit ein rein wissenschaftliche Monographie von mir über die verschiedenen Bewegungslehren drucken.

Vor einigen Monaten empfahl in meinem Verlag, Dein ungarisches Buch ins Deutsche übersetzen zu lassen. Vielleicht haben sie sich mit dir schon in Verbindung gesetzt. Es freut mich, dass die Sternwarte auf dem Schwabenberg unbeschädigt blieb. Auf diese Weise kannst Du ja ungestört arbeiten. Beziehst Du schon ausländische Literatur? Wir hier kamen in den letzten Kriegsjahren an keine heran. Es wird Zeit, das Versäumte nachzuholen.

Ich hoffe, es geht Dir und Deiner Frau gut. Hast Du inzwischen neuen Familienzuwachs bekommen? Ich würde mich freuen, wenn Du mir bald und ausführlich schreiben würdest! Bis dahin mit den herzlichsten Grüssen

stets Dein
Feri

KOL

Prof Dr. Krbek 30. 8. 1950
(3b) Greifswald,
Käthe Kollwitz-Str. 8

Lieber Laci,

es ist schon lange her, dass ich nichts von Dir hörte! Wie geht es Dir und Deiner Familie? Und wie sieht es an der Budapester Universität aus? Gab es bei Euch oder Matematikern eine Tagung? Prof. Kochendörffer aus Rostock soll zu Euch gefahren sein, ich weiss aber nichts genaueres. Hast Du etwas über ihn gehört oder kannst Du etwas in Erfahrung bringen? Mit Kudar, der in London lebt, korrespondiere ich. Er publiziert fleissig, natürlich auf Englisch. Das Sommersemester habe ich mit 17(!) Wochenstunden hinter mir und geniesse die Ferien, die ich zu eigenen Arbeiten benutzen möchte. Die Beschaffung der Literatur macht freilich nicht geringe Schwierigkeiten. Habt Ihr damit ebenso zu kämpfen? In unserer Zone sind die Kolleggelder abgeschafft, dagegen gibt es Stundenhonorare, die für unsere Fächer günstiger sind. Für Mediziner mag das anders sein. Lesen noch Fejér und. F. Riess? Hast Du Dich habilitiert oder ist es Dir zu unbequem zu den Vorlesungen immer herunter zu müssen? Weder die Neuaflage meiner Erlebten Physik, noch meine Geschichte der Mathematik konnten bisher erscheinen; der Büchermarkt ist noch immer genug aufnahmebereit. Inzwischen wartet auch eine rein wissenschaftliche Monographie von mir auf den Druck, sie gefiel v. Neumann in Princeton gut und behandelt Mechanik, Relativitätsheorie und Quantenmechanik, undzwar einwandfrei, was bisher wohl nicht recht der Fall war. Auch in den besten Darstelllungen gab es logische oder mathematische Schwächen; denke nur an die Definition der Inertialsysteme. Schreibe mir recht ausführlich und sei herzlich gegrüsst von Deinem

Feri

KOL

15. 12. 1950

Kedves Laci,

kellemes karácsonyt és boldog újévet kívánok Neked és Tiéidnek! So, und jetzt setze ich den Brief deutsch fort, denn es fällt mir dann bedeutend leichter. Über Deine Nachrichten freute ich mich sehr, vor allem über Deine Erfolge! Vielleicht könntest Du auf Deiner Reise nach Leningrad hier Station machen. Nach so langer Zeit wäre es schön, wieder einmal sich auszuplaudern. Oder wenn das nicht geht, komme ich nach Berlin, und wir treffen uns dort.

Kudar schrieb mir dieser Tage von Schiff "Queen Elisabeth", dass er seinen Wohnsitz nach Newyork verlegte. Von einer geistigen Störung war in seinen Briefen nichts zu merken, so dass ich vor einem Rätsel stehe. Es würde mich besonders interessieren, wenn Du von zuständigen ungarischen Mathematikern ein Urteil über Kochendörffers Vortrag hören könntest. Er ist Extraordinarius in Rostock und selbst sein Habilitationsvater scheint ihn nicht für ein Kirchenlicht zu halten, nach einem dünnen Gutachten zu urteilen, das er seinerzeit zur hiesigen Fakultät

schickte. Um die ausländische Literatur steht es hier noch nicht gut. Ich kenne die Publikationen der letzten 10 Jahre mehr als mangelhaft.

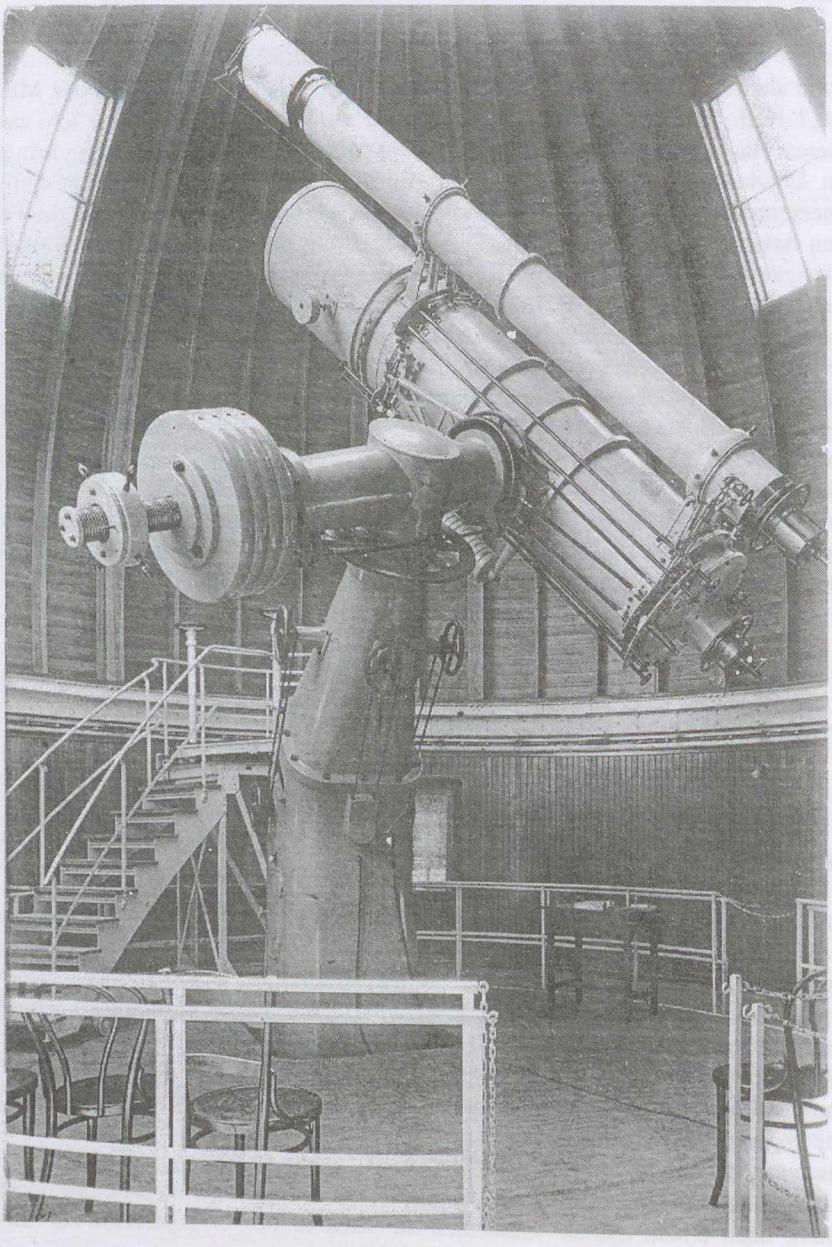
Wie steht es um Dein Buch "Üzenetek a világűrből"? Hat es inzwischen eine Neuauflage erlebt? Wer is Nachfolger der "Természettud. Társulat" geworden? Was ist aus dessen Sekräter Aujeszky geworden? Das Papier ist bei uns noch immer knapp. Hoffen wir, dass das neue Jahr auch darin eine Besserung bringt.

Sokszor ölel

Feri

Ich hoffe, dass im nächsten Jahr das eine oder andere Buch von mir endlich erscheinen kann. Dann schicke ich Dir selbstverständlich sofort je ein Exemplar.

KOL



CHAPTER 4
CONVERSATION BETWEEN MAGDA VARGHA AND BÉLA SZEIDL (DIRECTOR OF THE INSTITUTE 1975–1997)

Magda: *Director, Sir, Dear Béla, I am very glad that you could find the time to talk to me. We are going to publish a small volume to commemorate the centenary of the birth of our Institute, and this conversation is intended for this volume. László Detre was the Institute's director for more than thirty years. This was followed by the twenty-two years, when you were in charge. So, between the two of you, you were responsible for the Institute for more than half of its history. You had a good working relation with Detre and you were also personally close to him. This, and your personal memories of the Institute is the subject about which I should like to talk to you in the next hour.*

To begin with, the first question I should like to ask you, – I am not sure, I have probably asked it before, but, in any case, I have forgotten what you said – When was it that you have first set foot in the Observatory?

Béla: The first time I ever set foot in the Institute was during an educational excursion, in 1951, when I attended the eighth grade of General School. At that time there were no houses around us, even the Hotel Olympia had not yet been built. We had to walk from the terminus of the cogwheel railway. There were beautiful chestnut trees outside the observatory. It was a very pleasant autumn, there was radiant sunshine. We trooped up to the domes where we were received by a man in a white coat, who explained things to us. He was really wasting his time, as all we wanted was to look through the telescope. He told us, to no avail, that we shall see nothing. We insisted, and saw nothing, just as it was foretold. As a matter of fact I have really forgotten that I have ever been here. Only during my following visit, in 1960, did I recollect, that I have already been here once before.

Magda: *Who was the man in the white coat?*

Béla: I have no idea.

Magda: *Could it have been Detre?*

Béla: I am sure it was not he.

Magda: *Then who could it be? Imre Izsák or Ozsváth?*

Béla: Could have been Miklós Lovas or Tibor Herczeg, perhaps Péter Sárkány.

Magda: *I do not even remember this name. Did you like the Observatory?*

Béla: The question of liking it or not did not even arise. We came on an excursion. Afterwards we went up to the lookout point at Jánoshegy (St. Johannes Hill). That was all.

Magda: *When did you come next?*

Béla: In 1960, in early July. I have spent my summer practical here.

Magda: *Even then, you still did not think, that one day you might be working here?*

Béla: Of course I did not. Naturally I did not think so. I had no desire to become an astronomer.

Magda: *So, how did you end up here after all?*

Béla: I was training to be a teacher of mathematics and physics. As such, I was interested in everything, so among others, I attended the astronomy courses of Miklós Marik. At the end of June he sent me a telegram to the effect that there is a possibility of spending the summer practical at the Observatory, and if I wanted to come, I should be welcome.

Magda: *Of course one had to do the summer practical anyway.*

Béla: I have spent the next two months here, but this did not count towards my compulsory summer practical. Officially you had to spend it in industry. In September I have spent my official time at the TUNGSRAM Factory.

Magda: *So, for what you did here, you received no payment.*

Béla: Not a penny.

Magda: *What did you do here?*

Béla: Observations.

Magda: *With Detre?*

Béla: No. With György Paál, Károly Gefferth and Koppány Thaly.

Magda: *How did you get appointed to work here?*

Béla: When I received my degree, there was a law, according to which one could choose his field of work from a centrally prepared list. Usually the number of jobs was the same as the number of new graduates. It was a good policy. The observatory was one of the possibilities which one could apply for.

Magda: *So you applied?*

Béla: Yes, so I got a job here in 1961.

Magda: *When did you first meet Detre?*

Béla: In 1960, during the summer practical. Or, rather, before we started on our practical, Marik took us to see the director, so we could be introduced.

Magda: *It is said that at the time in question the old man was like a Santa Claus. Is this true?*

Béla: He was always like that to me. Truth be told, he knew me since my university days. He used to teach at the university and I have attended his lectures. After the 1960 summer practical he was already of the opinion that it would be a good thing for me if I came to work here, so he went out of his way to smoothen my path. He arranged to have a vacancy, so that I could come to join his team.

Magda: *And now, after you have joined, what was it like during your first few weeks?*

Béla: Detre was not at home, he was at the General Meeting of the IAU in America.

Magda: *This was when he was entrusted with the editorship of the Information Bulletin?*

Béla: Yes. Right after I have arrived here, I immediately became involved in this work.

Magda: *Who was in charge of scheduling observations in Detre's absence?*

Béla: Detre has listed the stars he wanted to have observed in advance. In the absence of an advance list, we could choose for ourselves the star we wanted to observe.

Magda: *What did you think of the Institute?*

Béla: I had no experience about working in a different institution, so I had no basis for comparison. I had no idea of conditions elsewhere. Questions, such as whether this institute was good or bad, have never occurred to me.

Magda: *When did you decide, or who decided for you about the field you should specialise in?*

Béla: It was self-evident that I should go to work on variable stars, it was then our main field of activity. At the time the Piszkéstető Observatory was already being built. In December 1961 Zeiss delivered the Schmidt telescope. In 1962 it was erected and commissioned. This was the time when the Stellar Statistics Group was formed. I was assigned to this group, but only nominally, because I was excused by Detre from taking part in the work on stellar statistics. Instead of working in this group he entrusted me with the observation of variable stars in Budapest, as I was at the time the only colleague who knew what he wanted, and could observe things Detre thought important.

Magda: *I have known you since 1965. I seem to remember that you were taking observations every night, and went home only on Wednesdays.*

Béla: This was not quite so. There were many overcast days, in an average year you could count on only about hundred and fifty clear nights. Conceding that Vecsés was very far, going home every night would have meant a great waste of time. Consequently I went home only twice a week, on Wednesdays and on Saturdays. On Wednesday nights I usually returned. When I went home on Saturdays, I usually stayed until Sunday.

Magda: *I also remember that after your nights of observation you used to spend your nights at the blinck-comparator.*

Béla: When one is young his capacity for work is limitless and he just wants to get on with the job.

Magda: *What did you publish first within the Institute?*

Béla: An Information Bulletin about the SZ Lyncis.

Magda: *And your first "Mitteilung"?*

Béla: One about the VS Pegasi, together with Katalin Barlai.

Magda: *When did you first go abroad?*

Béla: In 1963, to Moscow and Odessa. It was a two weeks study-trip to the Soviet Union.

Magda: *Would you go a little more into the details?*

Béla: First I flew to Moscow, on a TU-103. I have spent a week there, after which I spent three days with Cessevich in Odessa. Then back to Moscow and then home. In Moscow I stayed at the Sternberg. Kukarkin was its director.

Magda: *Did you manage to establish a working relation with them through your shared interest in variable stars?*

Béla: No, practically none. Nothing worth mentioning. Naturally, we did have a formal relation, they were always very pleasant to me if we met, and they regularly sent me their variable star catalogue, but as for a true working relation, of that we had none.

Magda: *I have just received a book. It was made to commemorate Massevich's eightieth birthday.*

Béla: Yes, time flies.

Magda: *Did anybody visit us from abroad in 1963?*

Béla: Of course. Schneller visited us in 1961.

Magda: *I remember that Anneliese Schnell visited us quite a few times. When was her first visit?*

Béla: In 1968. She came for the meeting on variable stars.

Magda: *You did not take part in the Meeting on Variable Stars in 1956, perhaps because you were only a boy then?*

Béla: If you can call a young man of eighteen "only a boy".

Magda: *And you had no thinking about later becoming an astronomer.*

Béla: Even the existence of the observatory was unknown to me.

Magda: *Let us return for a moment to your study-trip to the Soviet Union. Were you in a position to form an opinion about the quality of their work? Did you think that they had done much serious work?*

Béla: I could not get a real insight. My information on what they were doing came mostly from their published work. There were some who did some serious and useful work. Anyway, I did not have enough time to acquire an "in depth" look. One just smiled, said a few words and that was that. When one visits a place for the first time, then he also wants to see something, the buildings, equipment and things similar.

Magda: *I very much doubt that your hosts wanted you to have a deeper insight into everything that went on there.*

Béla: No, it was not that. The idea of us getting the chance to look into anything did not cross the mind of anybody.

Magda: *Who visited us? For example I remember Kordylevski quite well.*

Béla: Kordylevski, Mirzoyan, Markaryan, Ambartzumyan, Kukarkin and Massevich.

Magda: *And from the West?*

Béla: In 1957 Elsässer has already paid a visit to Budapest. Schneller an old friend of Detre came in 1961. He was an extremely pleasant man. Kienle, who was then the director in Heidelberg also came. He was on good terms with the East Germans. The 1 metre Schmidt telescope at Tautenberg was acquired with his help.

Magda: *Did you visit any other places beside Heidelberg?*

Béla: I have travelled there at the end of September 1964 and I stayed for eleven months. That was my base. From there I have made excursions to Munich, Frankfurt, Stuttgart and Hamburg. I have returned home in August 1965. Officially I have never visited Hamburg, nor did I participate in the IAU meeting.

Magda: *What was it like for you, as a scientist?*

Béla: Humanely it was excellent. The Germans – mainly my coevals – were very kind to me. They helped me to have access to the library and the student refectory.

Magda: *If I remember correctly, You had a very good relation with Elsässer.*

Béla: Yes, it is true. He was the director and I had lunch with him and his family every week-end. The others were also very kind.

Magda: *Did you make any comparisons in your mind? Did the thought ever cross your mind, that this might be a good place to work in?*

Béla: Yes, it was a good place to work in, but I had no difficulty with working at home either, so I have never thought of staying. I never experienced any hindrances at home, nobody obstructed my work, so I returned home and carried on working.

Magda: *Now for another type of question. How did you see Detre during your first years?*

Béla: When a young man starts work in an institute, in the speciality of which he is rather under-trained, the idea of forming an opinion of the professional competence of his superiors is just nonsense. In my case, I knew almost nothing of the field I was destined to work in, so it did not even occur to me to sit in judgement over any of my colleagues. What I knew was, that entrusting him with the editorship of the Information Bulletin could be taken as an indication of the high esteem Detre was held by the scientific community. I knew that he had some important publications to his credit, that he was quoted by important people on important occasions. His style also struck a chord, he was not interested in appearances and there was never a serious conflict between us. The worst that happened between us were small differences of opinions concerning small matters.

Magda: *Now, after having had an opportunity to study a part of Detre's correspondence, I felt, that amongst the letters written to him, those from Wilhelm Becker have shown the highest level of intimacy. I should like to know if Becker visited us after the war. Did you ever meet him?*

Béla: No, I do not think so. I am sure he never visited us after 1961, although it is possible that he visited us during the time I spent in Heidelberg or Canada. This is the only possibility.

Magda: *I must admit, that I thought, that our Becker type photometer might have been his gift.*

Béla: I do not believe so. It is too valuable for that. I am sure that we acquired it by purchase. When we bought it and how, I do not know.

Magda: *It was only with Oosterhoff, that he could have such a close relation. After the war the Oosterhoffs did everything in their power to help him. They even sent him food parcels.*

Béla: Detre had an excellent relation with his coevals, mainly with Germans, who were his fellow students in Berlin. He had such a close connection with Schneller, but he was very popular with the others too. I saw it myself at various conferences, how they enjoyed his company and invited him to join their circle whenever the opportunity arose.

Magda: *During the Weimar Republic the University of Berlin had a broad range of international contacts. It is possible that Detre may have met his American friends this way.*

The observatories of Babelsberg and Potsdam were also very famous. Detre also received some postcards from there, from Gutnick and from Prager.

Béla: Gutnick and Prager were his seniors. They were professors in Berlin when Detre studied there, and on the subject of variable stars they were authorities of the first rank. Shapley and Struwe met Detre only after the war. They have been corresponding previously, because Detre's work on the Blashko effect in the 1930s raised many problems, which were also of interest to them.

Magda: *In one of the letters somebody recommends Mrs. Sawyer Hogg as a possible partner in some project. The Detres were also in contact with her.*

Béla: Mrs. Sawyer Hogg was interested in the variable stars of globular clusters. We have also had a similar program going. She visited us in 1965 and in 1968. She was very pleasant to me. When I spent a year in Canada in 1970, she invited me to visit her at her home.

Magda: *I remember that Sergei Gaposchkin sent Detre a manuscript copy of his biography with a generous dedication. When did they meet?*

Béla: Gaposchkin and Detre met at the University of Berlin. He was Detre's senior by a few years, but he was a Soviet refugee. So they attended the same classes.

Magda: *Detre also mentioned Cecilia H. Payne quite a few times.*

Béla: Cecilia H. Payne met Gaposchkin in Germany. She was a young woman in her twenties.

Magda: *Detre often mentioned Margaret Burbidge, remarking on what a beautiful woman she was in her time.*

Béla: I do not think the Detres and the Burbidges were very close. They used to meet at the IAU conferences. Margaret was a fine looking woman indeed, well groomed and attractive even in her mature years.

Magda: *I think that the contacts with the University of Leyden are very old. I have just read it somewhere that Antal Tass also visited them as early as 1926.*

Béla: The programme of the University of Leyden was very similar to ours. Both of our observatories produced very accurate photometric observations of the RR Lyrae stars. Detre maintained close working relations with the Leyden group, first of all with Oosterhoff. There was also Walraven, who was Detre's junior by a decade. Their contact was also very close.

Magda: *Was he the inventor of the Walraven photometer?*

Béla: Yes. Detre's photometric investigations of the RR Lyrae stars were well known to the Leyden group. They shared a mutual respect. Detre was always receptive to new ideas.

Magda: *Even during the last, fateful months of 1944, Detre was still receiving letters from Oosterhoff on the subject of Detre's observations on RR Lyrae.*

Béla: It was a very important post-war event when Detre, at the 1948 sitting of the IAU in Zurich, received from Shapley a photomultiplier as a present. He smuggled it back to Hungary hidden in his pocket.

Magda: *Did he use it?*

Béla: I think so.

Magda: *It was a few days ago that I had showed a letter Géza Virághalmy, leader of our Technical Department, in which Shapley rather mysteriously announced, that after Warsaw it is now Hungary's turn for a goodwill present, to Géza Virághalmy. Two days later Géza produced a well packed object, looking rather like an electric light bulb, from his pocket. It was a gift from fifty years ago.*

Béla: If I remember correctly, at first the instrument could not be used, due to the sorry state of electronics in Hungary. The solution came in the shape of an amplifier, a gift from Walraven.

Magda: *When did photoelectric photometry start in Hungary?*

Béla: It started in 1950. Later on it continued with the Walraven amplifier until the 1970-s.

Magda: *You have used it in your observations, did you not?*

Béla: Yes.

Magda: *I should be very interested to know what sort of a relation existed between our institute and Bamberg?*

Béla: Bamberg was engaged in searching for variable stars under the directorship of Strohmayer. Kippenhahn and Geyer also worked there. Detre had maintained good contacts with Strohmayer since their Berlin days. Strohmayer also visited us in the 1960s.

Magda: *Our colleagues also visited Bamberg.*

Béla: Not for very long, only occasionally.

Magda: *I know that the meetings on variable stars were held alternately in Bamberg and in Budapest. Was there a system behind this?*

Béla: The first meeting was held in Budapest. There were numerous visitors from abroad, also a few from the West. The next meetings, in 1959, in 1962 and in 1965 were held in Bamberg. It was planned previously that these meetings be held in Budapest and Bamberg in alternating order. The 1968 meeting was held here, the one in 1971 in Bamberg. The following meeting was planned for 1974 in Budapest, but the date shifted and the meeting was held only in 1975. It was Bamberg's turn again in 1977. The next one was planned for 1981 in Budapest, but it had to be cancelled due to the changes in the political situation.

Magda: *In 1975 you were already in charge. It was rather difficult to arrange visas for the visitors, was it not?*

Béla: In those times the rule was, that for any meeting held by an organisation belonging to the ICSU – such as the IAU – the host country was under an obligation to make it possible for scientists from all other member countries to attend the meeting. So for scientists coming from countries, with whom Hungary had no official contact, for example Israel, Chile, South-Korea, South-Africa, it was up to the Academy to arrange the necessary formalities and obtain their visas. This was only possible if the Academy had the necessary applications two months before the intended entry. This happened on every occasion. Difficulties were encountered only once, when a scientist from Israel communicated to us his intention to attend just before the conference. His visa could not be

arranged in time. He lodged a complaint with the IAU, but Edith Müller had realised that this was the way things were in Hungary, and treated the matter with understanding.

Magda: *I seem to remember receiving from her a sharply worded letter*

Béla: Just so. But when I explained the situation to her, she did understand.

Magda: *When was the first meeting of the AG held, which East- and West-Germans could attend together?*

Béla: In 1965 West-German scientists made an attempt to hold the AG meeting together. The meeting was organised in East-Germany. Unfortunately, the political situation took a turn for the worse, consequently the scientists attached to the East-German Academy had to resign from the AG. It is interesting to note, that this ruling did not apply to those working at universities. For example the astronomers from Jena could take part.

Magda: *Just now, it is Werner Pfau, an astronomer from Jena, that is the present president of the AG.*

When did the regular meeting of East- and West-German scientists in Hungary begin?

Béla: This was not characteristic of astronomers. Sometimes there occurred meetings, but they were usually by coincidence.

Magda: *I shall never forget the scene, when Rössiger and Brosche met, after a twenty year separation, at the Piszkéstetõ Observatory. I cannot describe their mutual joy over this unforeseen meeting.*

Béla: A great many German astronomers left the Eastern part of their country before the building of the Berlin wall. Schefler, who was otherwise a very pleasant personality, and Peter Brosche belonged among these. Our Institute enjoyed cordial relations with Sonneberg. This is the background to the unexpected meeting of Rössiger and Brosche at Piszkéstetõ.

Magda: *What was it like, when Westerners and Easterners came together during these "variable star" meetings?*

Béla: In 1968 a really big East-German delegation visited us, but in those times they were rather apprehensive about meeting their Western counterparts.

Magda: *I had a similar experience in 1975. The Estonian astronomer, Undo Uus, was always a welcome guest at our observatory. When we were in our library, he was disconcertingly open about conditions in the SU. We counted him among our family friends. He visited us whenever he came to Hungary. At the place of the meeting, I went up to him, to confirm our invitation for him to come and have dinner with us. He hardly returned my greeting. His behaviour was so strange, that we were convinced that he would not turn up for dinner. I was very surprised, when he did turn up, with the old intimacy of his manner, carrying flowers and numerous other small presents.*

Now, when I had a chance to study many of the old official papers, I was astounded to read the official rules of the Academy, governing contacts with the outside world. It gave official guidelines, discreetly ruling, that the number of study-trips to Western countries must be kept as low as possible, and that a correct balance must be kept between inviting visitors from Eastern and Western countries. It was done very inconspicuously. I have lived here for thirty-five years, but I have not noticed anything untoward. I remember seeing that we had some visitors from the West, and that it was possible for our colleagues to visit the West, although not so easily as nowadays.

Béla: It is true. Most activities were governed by official rules. For example, it was necessary to obtain official permission to invite our Western colleagues, but in case of Eastern visitors it was sufficient to notify the authorities after having issued the invitation. Even so, the Hungarian Academy never created any difficulties for us with regards to Western visitors.

Magda: *I remember, that sometimes the Institute had to engage in a long correspondence with the Academy, as, for example, in the case of Kippenhahn and an even longer one in the case of Szebehely.*

Béla: The Kippenhahn case did not present a serious problem. Perhaps he has made a formal error in the filling out of his official forms, leaving out something like his mother's maiden name or his date of birth. Kippenhahn has visited Hungary with his wife several times, in one case travelling in the Max Planck Institute's official car and driven by their official driver. Szebehely was a different kettle of fish. He has left Hungary in 1947. At that time he was on the teaching staff of the University of Technology in Budapest, working under Prof. Egerváry. In such a case the issuing of an invitation was not so straightforward. Detre invited him in 1972 or 1973. Both he and his wife were American citizens. In such cases there were formalities that had to be enacted in the approved manner. We had to give reasons for wanting to invite him, etc.. After all this, he visited Hungary in every year, accompanied by his wife or his daughter, or just on his own. He paid us several visits even after Detre's death.

Magda: *Now we have come to a question which is difficult to talk about. Even so, I should like to ask you about how Detre died. I can recall only that before his death his manner became incredibly mellow, gentle and kind. I know that he was always on excellent terms with you, but now, before his death he extended his tolerance and forbearance to everyone. I also remember that even at the time when his illness was still latent and free of symptoms, and when we only knew that he was undergoing some medical tests, there were already straws in the wind, harbingers of approaching disaster. One day Boriska, the cleaner, came to me in the library and begged me to talk to you, because she was afraid that something very bad is going to happen to the director. A few days later Sándor Kanyó came to me, saying that something must be done. I also remember that the disaster came to pass just when he was given a clean bill of health by his doctors.*

Béla: It is hard, difficult and dangerous to recall memories of twenty-five years ago, our memory is likely to play tricks on us. One thing is certain, in the spring of 1974 he was still full of the joy of life, we spent a merry evening at the institute after Kanyó's successful defence of his candidate's thesis.

Magda: *We always used to gather around him on his name-days.*

Béla: Towards the end of June, 1974, his mood changed for the worse. It was usual for the leaders of the Academy to visit us from time to time, to acquaint themselves with the Institute's problems. In this year there were important issues to discuss, the great capital investment for the erection of the new dome and the approaching delivery time of the new 1 m telescope. Páris, the divisional head, Hazai, his deputy, Attila Kiss, the economic manager and Detre himself had a meeting on Piszkéstetõ, of which I have also been a participant. This was not really a "good" meeting. We were all anxious about the possible late completion of the dome, and at the same time Zeiss wanted to start with the deliveries in September and wanted to start with its mounting in October. There were a lot of worrisome matters cropping up. All this took place towards the end of June, on the 28th or 29th . Kiss drove himself home in his own car, Páris in an academy car. Three of us, Detre, Küller and myself, we drove home together. On the way home we felt hungry as we had eaten nothing all day, so we stopped at the inn called "Sárga Csikó" ("The Yellow Colt"). This was Detre's last trip to Piszkéstetõ. Why, or why not, the reasons we cannot even guess. Those, who were close to him began to feel that everything was not right about him as soon as August. He did some work at the dome, observing RR Lyrae, on the 12th of August. This was the last time he went out there, he had never set foot in the dome again. He has shown some interest in the observations for a while, he has even written out a timetable. We have followed it until early December.

Magda: *According to hearsay, he was talking about Piszkéstetõ even in hospital.*

Béla: I can not confirm this. In hospital only his family was allowed to visit him. Even his funeral was a strictly family affair. Only a later ceremony, when, after the death of Júlia Balázs, his remains were transferred to join hers, was a little more open, where not only family members were allowed.

Magda: *There are some letters in my possession, which show, that well known astronomers, such as Struwe, Wilhelm Becker, Shapley and Oosterhoff never omitted to send their personal greetings and best wishes to Júlia Balázs. The letters also show, that the results obtained in researching RR Lyrae were regarded as their shared achievement. I know, we both have unpleasant memories. I came too late to know the Júlia who was bursting with talent and knowledge. When you arrived, did you still have a chance to see the talents in Júlia?*

Béla: I always discussed professional matters with Detre himself. My talks with Júlia were mainly about prime numbers, as she was very interested in those. Later on I came to realise that there were quite a few things Júlia could rightfully complain about. I tell you an example: When, in 1954, a large delegation of astronomers was sent to the Soviet Union, people such as György Hajós and others were allowed to go, in spite of them not being astronomers, while both Julia Balázs and Imre Izsák had to stay at home, even though after Detre himself, Julia Balázs was the next in seniority. Also, in 1959 she was denied the chance to visit Bamberg. These were rightful grievances. After all, she was past fifty, so it is understandable that these slights affected her very seriously. This was perhaps the reason why she ceased productive work relatively early. It was astounding to see, that people far less gifted than she was – I am not talking about astronomers – had no problems with getting their candidacy, with far less achievement and ability to their credit. In the end, Júlia was given this grade when she was sixty-four. I am convinced that she felt slighted not without sufficient reason. Detre and Júlia complemented each other, many of their papers were published under their joint names

Magda: *I have some recollections about their working together. When Detre was preparing to lecture abroad and needed Júlia's help, she always felt better. Perhaps she knew more languages.*

Béla: Detre spoke English and German well.

Magda: *Júlia could speak French.*

Béla: Detre could read French, even though nowadays the knowledge of French is not very important for an astronomer.

Magda: *When did you become deputy director?*

Béla: Acting in 1973, appointed in 1974.

Magda: *I have an interesting personal observation about Detre. When I joined the Institute, he knew what and where can be found in the library. We did not even had a catalogue. When I started to impose some sort of order on the chaos, and establish a proper system, he occasionally rebelled against the new order, but later put the whole thing out of his mind. If he wanted to find something, he sent for me.*

I think that when you became deputy director, your situation might have been similar. Did he not feel that he could shed some of his more odious burdens by delegating them to you?

Béla: Memory distorts and beautifies. Not for a moment did Detre let the reins of the scientific program and of his own researches out of his hands. Such a possibility could never occur to him. His keeping the library list in his head for some while is another matter. When our wise and forward looking founder had built a spacious library, but the Institute did not have many books, Tass entrusted Detre with the supervision of the library. He did practically the whole work. The duties of others involved in the running of the library did not go further than looking after some administrative details. The information explosion in the 1960s coincided with your arrival. It was getting more and more difficult for Detre to keep the library catalogue in his head, so when somebody appeared on the scene who could accept responsibility for the competent running of the library, he regarded it as a good thing. This has also made things easier for others.

Magda: *Your case was different. Was he at all pleased to be able to farm out some of his worries to you?*

Béla: Only small and unimportant matters were relegated to me.

Magda: *Sure. I remember well that our colleagues brought their problems to you, then it was you who took their problems to Detre.*

Béla: I do not believe this to have been so. Everybody had his lines of communication to Detre, either through Júlia or directly. I do not remember anybody coming to me

Magda: *What did the 1m telescope mean for the Institute?*

Béla: It was a more up-to-date telescope, better sited and equipped with better optics, so we could observe fainter stars. We could also do the already existing programs better. This was due not only to the 1m telescope, but also to the synchronously achieved access to computing facilities. In Hungary the widespread use of computers started during the late sixties and early seventies. It was then, that the Central Physical Research Institute developed the program, which made it feasible. The automatic listing of measured data became possible. The installation of the 1m telescope proceeded simultaneously with the development of the necessary software. Virághalmy also felt very strongly about guiding the Institute in this direction.

Magda: *If I remember correctly, our institute had excellent working arrangements with Zeiss, ever since the old days at Ógyalla.*

Béla: The basis of our contact with Zeiss was a good business arrangement. A manufacturer always wants to sell his product.

Magda: *Were these good products?*

Béla: Yes. Optics of comparable quality were made only by the Leningrad Optical Factory, but they were not interested in small telescopes. Zeiss had built up an excellent team in their "Astro-Abteilung". Their Schmidt telescope is a splendid piece of work, full of excellent qualities. Unfortunately, the other telescope at Piszkéstető is only 50 cm of diameter, instead of the 60 cm, which was what we should have liked to have. They had also made a good job of the one m. telescope. A contact with a manufacturer should never turn into an emotional relationship.

Magda: *It was a correct relationship, they delivered good instruments, and they kept their deadlines.*

Béla: Zeiss are a good company, proud of their name and reputation. They produced reliable instruments, they delivered on time and their telescopes, besides having excellent optics, came also equipped with superb mechanical parts.

Magda: *We should not forget, that in the Eastern countries it was not easy to find a manufacturer, which made good products and delivered them on time.*

Béla: We placed an order, we paid and they delivered on time. That was all.

Magda: *And quality was never a problem.*

What did you find the most important thing during your twentytwo years as director?

Béla: Our most important task was to maintain the Institute's standing even under the worsening economic circumstances. If we wanted the quality of our research to increase, we had to educate and train our newcomers until they reached the Institute's existing standards. Towards the end of the 1970s this became more and more difficult. We could not finance the necessary changes, we had to cope with more and more economic problems of the kind that led eventually to the fall of the old system. The change of regime was caused not by the build-up of human emotion. It was an economic collapse.

Magda: *When we entertained foreign visitors, we tried to show them that we were taking them seriously, we fed them well and plied them with traditional Hungarian drinks. They returned home convinced that within the walls of the Institute there was freedom, work is being done, we are well acquainted with what they were doing and we preserved our national cultural heritage. We had shown them our library, the envy of many of our visitors. I think that this was part of an unwritten program for impressing the visitors with the quality of our culture and traditions.*

Béla: The fact, that we enjoyed a considerable degree of freedom does not mean that we were an island in this respect. In fact similar conditions prevailed in all of the research institutes of the Academy, particularly the smaller ones. For these institutes it was an important task to impress on the foreign visitors that the work is progressing, the instruments are in good condition and well looked after and the institute is up to its commitments.

Magda: *There are a few more questions I should like to put to you.*

What was your worst experience. I seem to recollect that you once said: all of them.

Béla: No, no, I did not have any real bad experiences. I can remember some annoying events, but they must be swept aside. The Institute's international standing did not diminish in my time. It was rather discouraging, that many people identified Hungarian astronomy with a person of Detre. My aim was to maintain the scientific standards of the Institute, acknowledging and building on the work of László Detre. I think that we succeeded in this. The Bulletin, which started in 1961 is still published after thirtyeights years. The instruments are available and working, and we are keeping pace with the forward march of technology. The library had its budget seriously cut in 1982, but we managed to weather this storm too. So, I have never had really bad memories.

Magda: *And what was the best?*

Béla: In the absence of the extremely bad there is no need for the extremely good to balance it. In general, it was a time of contentment.

Magda: *Please tell me about Detre as a scientist. What was he like?*

Béla: I knew him only after 1960, so I cannot say what he was like before that. He was an outstandingly gifted man, a talented physicist and mathematician, and let people say what they may, an industrious man with an unbelievable capacity for work. We can look at the immense amount of data he produced by visual observation during the early 1930s, and wonder at his untiring energy. He used the best technology available at the time, and he produced data of the outmost accuracy. In 1933-34 he introduced photographic photometry at the Institute, and from 1950 onward the methods of photoelectric observation. He was extraordinarily well-read, he kept up-to-date with the literature of his subject, which, at that time, was not an easy task. His personality was not one of an educator, he did not surround himself with young people eager to be taught and he did not give them pre-set programs to follow. To those, who stood out in a field which was also of interest for him, he was available and always willing to engage them in conversation.

Magda: *Let us say a few words about his human qualities. I remember that he was well liked by the foreign visitors. This can be discerned from the letters he received from abroad. He could also speak the language of women. The scientific letters of Miss Kluyver are full of human warmth. What do you think, what made his personality so attractive?*

Béla: Basically he was a pleasant man. He was not temperamental, he was friendly and generous, he never was petty. He was gregarious, he liked to invite people for the pleasure of their company. To women, he was always polite and friendly from the youngest to the oldest, so why should they not like him in return? He was a pleasant conversationalist. He was not embarrassed if the conversation

had turned to science, but he also liked to speak of old things and he liked to tell anecdotes. His ability to speak English and German was also a factor contributing to his popularity. Of course he was liked. He never had any stressful situations involving outsiders. That he was not universally liked within the Institute, is another question. He always knew how to behave in any given situation. I do not want to tell anecdotes, but I must tell this: somebody has once asked Lajos Jánossy, why did he always attend the sittings of the Astronomy Committee, while neglecting the sittings of the Physics Committee? For the cognac, said he. It was a habit of Detre to extract a bottle of cognac from his briefcase if the occasion demanded it. Every time he took a foreign visitor to Piszkéstető, he produced a bottle of wine, which was an effective way of melting the ice.

He was good at talking to simple folks, he liked them and he liked children. He had the common touch, he never had any problems with handling outsiders, but his relations with his colleagues were occasionally rather stressful. He was well liked in the neighbourhood shops. I only have good memories of him. Naturally, we had the occasional differences of opinion but they were always confined to minor matters. He wrote fifteen letters to me in Heidelberg, which will be made available after my death. They show his real feeling towards me, and the friendly and unpretentious way he always treated me. He really did like me.

Magda: *But not everybody else.*

Béla: Time will tell.

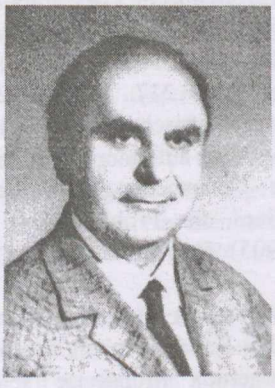
PART III
Supplement

Br. Béla Harkányi
(1869-1932)

Radó Kövesligethy
(1862-1934)

Antal Tass
(1876-1937)

Károly Lassovszky
(1897-1961)



László Detre
(1906-1974)

Imre Izsák
(1929-1965)

CHAPTER 1
BIOGRAPHIES

BÉLA HARKÁNYI

Todesanzeige

Am 23. Januar [1932] verschied in seinem 63. Lebensjahr nach langer, tückischer Krankheit, die ihn jedoch nur kurze Zeit ans Krankenlager fesselte, *Baron Béla von Harkányi.* Nach seinen mit glänzenden Erfolg im Jahre 1896 absolvierten Studien an den Universitäten Budapest, Leipzig und Strassburg, wo er Mathematik, Physik und Astronomie hörte, besuchte er noch 2 Jahre hindurch in Paris an der Sorbonne und dem College de France Vorlesungen und arbeitete am Observatoire National und im Laboratorium des Comité International de poids et mesures in Breteuil. Im folgenden Jahre, 1899, widmete er sich am Astrophysikalischen Observatorium Potsdam astrophysikalischen Beobachtungen und begann dann nach einer so vortrefflichen Vorschule seine wissenschaftliche Laufbahn als Observator an der gerade damals verstaatlichten von Konkolyschen Ogyallaer Sternwarte. Über die dort angestellten Beobachtungen, von denen ich besonders die auf die Nova (3.1901) Persei bezüglichen hervorhebe, berichtet er selbst in den Bänden 36 und 37 der Vierteljahrschrift der Astronomischen Gesellschaft und in Band 155, p. 155, und Band 156, p. 79, der Astronomischen Nachrichten. Nach 3 Jahren legte er sein Amt als Observator nieder und zog wieder nach Budapest, wo er sich in Ciceronischen otium cum dignitate steter eigener Forschung und fleissigem Studium – er interessierte sich auf das lebhafteste für alle Äusserungen des menschlichen Geistes – hingab.

Im Jahre 1907 wurde er Privatdozent an der Universität Budapest und vier Jahre später korrespondierendes Mitglied der ungarischen Akademie der Wissenschaften. In ersterer Eigenschaft las er über alle wichtigen Teile der Astronomie und Astrophysik und verblieb seinen Hören auch im späteren Leben ein liebevoller Leiter und Berater.

Dank seiner theoretischen Bildung und seines durch zwei Studienreisen in Nordamerika noch verfeinerten eminent praktischen Scharfblickes konnte er bei der Umsiedelung des Ogyallaer und der Neugründung des nun "K. ungarische Staats-Sternwarte von *v. Konkoly* Stiftung, Budapest, Svábhegy" benannten Observatoriums auch auf das Arbeitsprogramm bezügliche wertvolle Winke und Ratschläge geben.

Von seinen Arbeiten möchte ich besonders hervorheben: *"Über die Temperaturbestimmung der Fixsterne auf spectralphotometrischen Wege",* AN **158.** 18 (1902), und hiermit zusammenhängend AN **185.** 33-48, **186.** 1161-176 (1910), in welcher die ersten *Vogelschen* spectralphotometrischen Messungen an 6 Sternen aller vier Spectraltypen auf Grund der neuen Emissionformeln bearbeitet zum ersten Male zu einer zuverlässigen Kenntnis der Sterntemperaturen führen. Mit scharfem Blicke erkennt der Verfasser die Bedeutung dieser Daten für die Bestimmung den Dimension und im Falle bekannter Doppelsterne auch der Dichtigkeit. Diese Arbeit wirkte besonders anregend auf die astronomische Forschung, und die abgeleitete, auch heute noch benutzte Formel ist eine enge Annäherung an die spätere *Hertzsprungsche* Gleichung. Wichtig ist noch unter anderen Arbeiten "Über den Einfluss der absoluten Grösse auf die effektive Temperatur der Sterne, Beiträge zur Theorie der Sternwickelung" (AN **217.** 365) (1922).

Harkányi nahm auch Teil an den interessanten gravi-variometrischen Messungen, die Baron *Eötvös* auf dem störungsfrei gebildeten Eise des Balaton- (Platten)-Sees, also auf einer solidifizierten Geoidfläche in den Jahren 1901 und 1903 ausführte, und eine hübsche Untersuchung behandelt im Rahmen der monumentalen wissenschaftlichen Erforschung desselben Sees das Problem der "Lichtbrücken", die leuchtende Gestirne über bewegte Wasserflächen werfen (1905). Er bekundete nicht minder auch tätiges Interesse für rein mathematische Fragen.

In dem Verewigten paarten sich mit grosser Liebenswürdigkeit und, obwohl ihm irdische Güter in reichem Masse beschieden waren, mit Anspruchslosigkeit, wahre Bescheidenheit des Gelehrten. Ein kleines zeichen seiner heiteren Natur wohl auch, dass Cyrano de Bergerac's "Mondreise" seine reiche Bibliothek zierte.

Seelenschmerz blieb auch ihm nicht erspart. Seine Frau, Tochter der ehemaligen Handelsministers *Hierynomi*, starb früh und im zartesten Kindersalter auch sein einziger Sohn. Obwohl erblichen Mitglied der früheren Magnatenhauses, hielt er sich von der Politik vollkommen fern, und doch musste er in den traurigen

Zeiten des Umsturzes nach dem Kriege Verfolgungen erdulden, deren auch "Popular Astronomy" (Vol. 37. p 204 (1929) mit so markanten Worten gedenkt.

Es wird schwer sein, die Lücke zu füllen, die sein Hinscheiden hinterlassen.

Rudolf von Kövesligethy

AN 245 p. 47, 1932

ANTAL RÉTHLY

IN MEMORIAM KÖVESLIGETHY (1862-1934)

We are celebrating the 100th anniversary of his birth. *Radó Kövesligethy* was born in Verona on the 1st of September 1862. His father was stationed there. For him these were turbulent times, and his mother too was waiting full of anxiety for their life to take a more peaceful turn. Part of the Italians longing for freedom regained their liberty already in 1859. Verona, however, was liberated in 1866 only. At that time the 4-year old boy went with his parents to Bavaria where they lived in Munich. for seven years, and afterwards, in the course of their wanderings they got to Pozsony (Bratislava). He became a pupil of he Royal Catholic Grammar School, and for eight years i. e. from 1873-1881 he was known under the name *Rezső Kövesligethy*.

History did not very much captivate his attention. He was taught in physics by D. *Fridrik* and was introduced into mathematics by F. *Dohnányi* who at the same time was teaching him shorthand during four years. The knowledge of shorthand proved to be very useful to him throughout his life. Dohnányi was teaching the so-called, "pan-stenography" which can be applied to all languages and for three years in succession *Kövesligethy* was awarded a golden memorial medal as the "best" pupil.

The 8th September 1879 was a significant day for their school as on that very day. A. *Trefort*, minister for public education, in company of Dr K. Than and Dr. R. *Eötvös*, university professors visited the grammar school. That was the first occasion for the 17 years old student to meet his later chief and benefactor and even later his fellow professor and fellow academician R. *Eötvös*.

When still a grammarian he showed a very lively interest for astronomy and had already succesfully solved some astronomical problems. His teachers *Fridrik*, *Dohnányi* and his head-master *Wiedermann* encouraged him, no doubt so that when it came to choosing a profession he decided to study astronomy although the medical job had also an attraction for him.

He spends his first free summer at Ógyalla and works for some time in the private observatory of M. *Konkoly Thege*. Already in the first year here there, in 1881 he makes some colorimetric observations on one of the comets which have been recorded in the Annales of Ógyalla. Thus he embarks on his astronomic carreer. He registers for philosophical studies at the Vienna University. He has no difficulties whatsoever as regards the language as he speaks perfectly well German, even the classical languages, as well as French, English and Italian.

His professor in Vienna *Theodor Oppolzer, Josef Stephan, Emil* and *Edmund Weiss* were all astronomers and he became very soon their favourite pupil because of they discovered in this modest student much promising talents. He always spent his summer holidays in the home of Konkoly Thege from whom he learned a great deal and whom he honoured very much and claimed to be one of his pupils. The years he spent in Ógyalla had no doubt a decisive influence on his future. In 1882 as a university student in Vienna he was active on one of the chairs for physics, and in 1883 at the Observatory of the university. He worked together with the renowned director of the Potsdam Observatory H. C. *Vogel* in Vienna, who offered him the post of an assistant at Potsdam, but Kövesligethy preferred to give way to the invitation of *Konkoly* and thus he became observer in Ógyalla. He terminates the 3rd year of his university studies as a private student resident in Ógyalla. On the 18th July, 1884, he obtained his doctor degree of philosophy in Vienna, "summa cum laude".

His dissertation entitled *"Prinzipien einer theoretischen Astrophysik auf Grund mathematischer Spectralanalyse"* (Principles of a theoretic astrophysics on basis of mathematical spectro-analysis, *in German.*) remained but a manuscript, although in his great work forming the basis of his reputation he uses these results. Then the world-known *Oppolzer* also encouraged him to stick to his astronomic career, and so he did. Vienna, Ógyalla and later Kiskartal (*Podmaniczky's Observatory*) were the starting points of the young scientist, and everywhere the extremely polite young man met with great sympathy.

At that time Kövesligethy was already 25 years old; he entertained the idea of founding a family, and he almost lost his heart for a young girl from Érskújvár. First, however, he had to secure some job ensuring

his subsistence. His application addressed to *Trefort* had already been favourable accepted by the Minister for public education *A. Csáky*, and thus he was appointed asssistant at the Institute for Meteorology and Terrestrial Magnetism in Budapest. Here he was active from October 1887, but at that time the research conditions at the Institute were so poor that after a year's service he had to abandon this post. Nevertheless, his interest for meteorology remained alive and later on he wrote a number of studies in this field. As a university professor he often delivered lectures both on meteorology and climatology.

As regards his career it is only in 1888 that he hit the target. He was appointed assistant in the Institute for Physics of *R. Eötvös*. The great scientist became aware of Kövesligethy's ability already as early as 1889 when he was but 27 years old and he accepted him as Privatdozent in "*cosmography and geophysics*". He delivered his trial lecture on 21. 11. 1889. The connection of these two subjects appeared to be a wonderful coincidence; the study of the universe and the inner forces of the Earth – astronomy and seismology – reached development on new grounds closely connected with his name. This has been proved by a great number of his books, some hundred lectures and his activity as a university professor which post he assured for nearly 40 years. In one of the summer half-year terms, in 1908 he gave a series of lectures on seismology at the Rome University as a guest.

In 1897 he was named professor of cosmology. In the fall of that very year when the professor of astronomy *G. Kondor* died he was entrusted to give lectures on astronomy as well.

The efficiency of work done by *Kövesligethy* as a university professor was amazing. He achieved a great success with his lecture dealing with the *"Stability of our Planetary System"*. Formerly it was obligatory for the candidate to submit a separate study when appointed to the chair. He fulfilled this condition in 1887 and submitted his lecture entitled *"The equilibrium of ideal gaseous celestial bodies in space and time"*. This, however, as well as his doctor thesis remained in manuscript.

In 1899 *M. Konkoly Thege* offered his private observatory to the state, and in 1900 *Kövesligethy* was appointed as its deputy director, but after 4 years he resigned. On 15.3. 1904 he became ordinarius professor of the University of Budapest.

At the University he gave 8-12 lectures per week on astronomical geography, geophysics as well as on astronomy and seismology. His working capability was rather amazing and his lectures were elaborated in the most precise manner. He frequently gave lectures on seismology and he has educated outstanding researchers among whom I just want to mention *J. Egerváry*, *L. Jánossy* and *S. Szírtes*. Being an excellent lecturer he was very popular among his students and he could solve even the most intricate problems with perfect ease. He maintained a closer relationship with some students who were absolutely fascinated by his informal manners. He liked his students and lent an understanding ear to everybody who ever turned to him and he tried to be helpful whenever he could. Both his civility and his politeness were almost proverbial.

He had an allround intelligence, music, scuplture, painting, classical literature all of these topics were equally interesting to him. The European art treasures from St. Petersburg up to Madrid and from London up to Constantinaple were all known to him. His broad knowledge of languages made it possible to him to read the monographies in the original languages. Not only did he give a proof of his thorough knowledge in his social connections, but this became also apparent in his popular scripts. It was a perfect pleasure to attend a society when *Kövesligethy* was present, and nobody could put him such a question which he did not answer satisfactorily.

Mathematics and cosmography were the main points of his lectures and he had a considerable number of attendants. In the first years he delivered a great number on astronomy an even did he give popular scientific lectures to those who were interested. At these lectures the auditory was usually crammed, and students of other topics attended it as well. He also lectured on general and descriptive geography; this happened when *L. Lóczy* went on leave and after when Lóczy was appointed Director of the Geological Institute. After *G. Czirbusz* has retired he still delivered these lectures which he held with an exemplary consciousness. Unfortunately, however, only a small number of these lectures were published.

He was first recommended by *M. Konkoly Thege* as a member of the Hungarian Academy in 1894 when he was 32 years old, but was only elected as a corrresponding member in 1895 after a repeated recomendation Beginning from that time onwards till 1919 he was an extremely diligent member of the Academy. Already prior to his election as a member a great number of his works were published in the different editions of the Academy as well as in the Annales of the Konkoly Observatory at Ógyalla.

In 1897 he made his inaugural address and quite surprisingly he did not choose his topic from the scope of astronomical sciences but from that of seismology. This entitled *"New geometrical theory of seismic phenomena"* (in Hungarian) was of particular importance and was published also in German language in the Society of German Seismologists under the title: *"Neue geometrische Theorie seismischer Erscheinungen"*.

At the end of the last century the seismic phenomena of the Earth were a topic on which a number of researchers were active. However, an international organization was lacking to direct studies according to uniform viewpoints, and which could have published the results of the respective researches thus arrived. In order to meet this long-felt gap the first international seismological conference has been convoked in Strasbourg in 1901 and the second one in 1903. *Kövesligethy* attended both conferences and was elected as general secretary. The above two conferences have paved the way for the foundation of the *International Association for Seismology* which held its first meeting in Rome in November 1906.

The world war I. put an end to this perfect collaboration. Kövesligethy travelled to St Petersburg to attend the projected 5th meeting there, but he could return from there with great difficulty and only by the intervention of the excellent Russian seismologist the prince *Galitzin*, a relative of the Tsar. He reached the climax of his literary activity in the years prior to 1919. Besides the already mentioned geometrical theory his most important treatises dealt with the *"Fechnerian psychophysical law in Sesimology"* and after *"Seismic hysteresis"*. In further develpment of this theory he writes already in 1910 in the Italian Seismologic Journal about "The possibility of predicting earthquaques" (*"Sur la possibilité de la prévision des tremblements de terre"*).

He was still interested in this question at the time when he could no longer continue his lectures at the University after the lost war, but when he resumed his lecturing activity the trend of his interest was directed towards the solution of this question until the end of his life.

On 24th April 1922 he submitted in Strasbourg his dramatic report on the 5th conference postponed an account of the world war, as well as about his activity of a general secretary during the war. At the Association he was given great appreciation for his service rendered. On the 8th May 1924, at the third annual meeting of the Hungarian Geographical Society he was unanimously awarded with "Lóczy medal" in acknowledgement of his merits acquired on the field of seismology, and for his works entitled *"Seismology"* and his *"Manual of astronomical and mathematical geography"*.

This was indeed a great satisfaction and recognition because after the year 1919 *Kövesligethy* completely retired although, as already mentioned he was very intensely busy the question of seismic hysteresis because he assumed to reach by this way the solution of the question of predicting great earthquakes.

In the catalogue of his works I found on two places annotation: "Priority rights registered" namely in number 2731 of the "Astronomische Nachrichten" of the year 1886 (327-328) containing his treatise on *"Spectroscopic study of the sun's own movement"*. He was the first to ascertain the velocity of the sun by spectroscopical methods showing that it is progressing towards the Vega. The first method for ascertaining the approximate age of the stars in connected with his name. No doubt he was pioneer, and if he had been faithful to astronomy he would have become one of the greatest theoretical astronomers of his age. However, he also became a pioneering personality on the field of seismic researches. His second priority claim refers to his treatise *"Über die beiden Parametergleichungen der Spektralanalyse"* (Bleiblätter der Annales der Physik und Chemie XXIV, 1910: 1280-1281). In this connection may I quote the words of professor M. *Beke* as follows: "He writes a gigantic work in German on spectroscopy. (1890). In this of his work he establishes a law which from the point of view of physical researches became later on epoch-making. He investigates namely how the spectrum of some material changes if that material is subjected to heat. That is to say he searches the influence of heat on the spectrum. The young scientist (at that time he was 26-27 years old) discovered such a law which was later developed by the German scientist *Wien* 10 years after Kövesligethy."

He wrote a number of treatises bearing on geograpahic sciences as well. At that time, however, he already was an internationally known seismologist. In his university lectures on geography he put a special stress on physical geography.

He was much unsatisfied with the poor mathematical knowledge of the students of geography. Therefore in the years 1911-12 and 1918-1919 he announced lectures for geographers under the title: "Introduction into higher mathematics". In 1919 he made an effort at the philosophical faculty of the university that students going for physics, chemistry, geography, biology, psychology, statistics and natural sciences should attend such mathematical courses yearly with examples taken from respective sciences they were studying. Moreover he asked the faculty to care for lectures to be held regularly on the history of exact sciences.

Here we have to mention Kövesligethy's ability of popularisation. In the series entitled. "Universe" he gave a wonderful piece of work in the hands of people at large in collaboration with Prof. *Cholnoky*.

Our description of Kövesligethy would not be a complete one if we did not mention his sole literary essay on history of astronomy, which remained but in manuscript and which he wrote when he was 40 years old. This essay is entitled "The harmony of the spheres". It covers two parts, the sub-title of the first being: "The legend of verb" and that of the second part "A chapter of cultural history". In this study he gave a brilliant example of popularisation. He starts with ancient astronomy and makes mention of *Pythagoras*,

Ptolemaeos, Galilei, Kepler, Tycho Brahe and *Copernicus*. On basis of the first manuscript of this work he built another variation of same being something like a play.

In 1932 this outstanding scientist retired. Following a long lasting illness he died on 11th October, 1934.

In remembrance of *Radó Kövesligethy* we may readily quote the words of *Horatius*: *"Non omnis moriar."*

ANTAL TASS (1876-1937)

Born at Temesrékás. He finished his university studies at the Péter Pázmány University, in Budapest, and became an appointed mathematics-physics lecturer. Just after finishing his studies, he went to Ógyalla, where he got appointed as assistant of the the Astronomical Institute established by Miklós Konkoly Thege. At first, he was occupied with sunspots and the observation of meteors, and he also had the job of time service. Later, he made observations on variable stars. These observations appeared from time to time in the Astronomische Nachrichten volumes, and later in the second volume of the Ógyalla Publications. He collected and edited the meteor observations of 1899-1905, which appeared in the 8. number of the "Kleinere Veröffentlichungen des Astrophysikalischen Obsevatorium in Ógyalla". Since a lot of Miklós Konkoly Thege's time was taken up by his position as the director of the Institute of Meteorology, Antal Tass was given more and more administrative work. From 1903 he was leading the affairs of the Institute almost alone. In 1904 he became an observator. In 1905 he became engaged in the photometrical observations of the Southern Sky. This great extent of work appeared in the I. Part of the Ógyalla Publications in 1916.

In 1913 he became the vice-director of the Astronomical Institute. After the death of Miklós Konkoly Thege in 1916, he completely took over the running of the affairs of the Institute. When, in 1918, it became clear that Ógyalla was to be invaded, he took the majority of the instruments to Budapest, for safety. In the middle of 1920, he, along with the Ógyalla staff moved to Budapest, where the Insitute found a temporary home. The new Hungarian Astronomical Insitute began its structuring. On the first of March 1921 the authorities decided on the existence of the new Astronomical Insitute. It was thanks to Tass' extraordinary organising skills that he managed to get everyone to help him in the creation of the new Institute. As a result, the Svábhegy Observatory was built. In 1924, together with József Wodetzky, he created the Stella Astronomical Union, which, after half a year, had more than 1000 members. The Stella Almanach was published and soon the Stella journal got started. In the Svábhegy Observatory he did further building and planning. He was occupied by the history of Hungarian astronomy and he wrote shorter articles. As an acknowledgment for his merits, he became honorary doctor at Debrecen University. On July 1934, in respect of his age, he was given retirement, but he ran the affairs of the Insititute for an other year and a half. Not long after, on January 1937, he died. Thus, his workmanship's best results were: the saving of the instruments of Ógyalla and the building of the Svábhegy Observatory. This hard work will always be remembered by Hungarian astronomy.

György Kulin

Csillagászati Lapok, Budapest, Vol. 1. 1938. p. 68.

SMITHSONIAN INSTITUTION

Certificate of Award

This Certificate is granted to

Dr. Karoly Lassovszky

POSTHUMOUSLY

in official recognition and appreciation of

exceptional services rendered in performance of duty

Date January 5 1962

Leonard Carmichael
Secretary

UNITED STATES NATIONAL MUSEUM
BUREAU OF AMERICAN ETHNOLOGY
ASTROPHYSICAL OBSERVATORY
NATIONAL AIR MUSEUM
NATIONAL ZOOLOGICAL PARK

SMITHSONIAN INSTITUTION
Washington 25, D.C.
U.S.A.

NATIONAL GALLERY OF ART
NATIONAL COLLECTION OF FINE ARTS
FREER GALLERY OF ART
INTERNATIONAL EXCHANGE SERVICE
CANAL ZONE BIOLOGICAL AREA

CITATION

In the Autumn of 1958, Dr. Karoly Lassovszky came to the Smithsonian Astrophysical Observatory from Georgetown University, where he had been doing research following his expulsion from Hungary by the Communist government. His appointment was as Astronomer to assist the Computations Division of the Satellite Tracking Program. Shortly thereafter he became chief of the newly formed Photoreduction Division.

In the months that followed, Dr. Lassovszky initiated the program to measure precisely the satellite images on the Baker-Nunn films. The only precedent for this work had been the techniques of classical astronomy used to derive the precise positions of celestial objects. Satellite tracking required many and difficult refinements of those techniques in order to take full advantage of the sophisticated motions of the Baker-Nunn camera. No one had yet attempted such precise positional studies of camera film except for those done with the Super-Schmidt by the Harvard meteor project.

Under his supervision, the Mann two-screw comparator was adapted to the measurement of the satellite images, and later was automated.

At first, the mathematical reductions were done with desk calculators. Dr. Lassovszky and his staff then modified the routine so that it could be handled by a Burroughs semiautomatic digital calculator, thus cutting the time for a single reduction from several hours to about 20 minutes, and significantly increasing the accuracy. They then programmed the routine for the IBM 704 electronic computer, further lowering the time to a matter of seconds. By September of 1959, this greatly improved procedure was routine.

During this same period, Dr. Lassovszky supervised the development of techniques for precise time reduction of the satellite observations. The results of this work increased the accuracy to several orders of magnitude over what had been customary in traditional astronomy. He also directed a project to identify on the BD charts the stars whose precise positions were known.

Early in 1960 Dr. Lassovszky was stricken with a severe illness. By mid-year, he returned to his desk despite almost continuous pain and began refined investigations into the accuracy of the Photoreduced Observations in order to determine their precision and, if possible, to improve them further. He also directed the initiation of a program to monitor quality of the films received from the Baker-Nunn camera stations.

In December of 1960 he became Astronomer-in-Charge of Photometry, devoting himself thereafter to pure research and to the writing of several papers defining and describing the development of photoreduction techniques.

Today the Photoreduction Division of the Observatory is accomplishing work far more complex, more difficult and more extensive than anyone had originally contemplated. In no small measure, its success is a result of Dr. Lassovszky's knowledge, foresight and imagination, and of his ability to direct his staff to achievements representing their fullest abilities. The personnel of the Division admired his courage, his strength, and his tact, and were inspired by his leadership.

LASSOVSZKY MEMORIALS

The Biltmore, Madison Avenue at 42rd Street New York
The Executive Hotel of New York

Jan 25, 1962

My dear Mrs Lassovszky,

Just now I hear of your terrible loss, and please be sure of our deepest sympathy.

Especially am I sad, that this sorrow comes to the children at the most important stage of their lives.

When your future plans are made I hope to hear of them – perhaps by way of Jacque Kloss.

The Shapleys are in the West this winter, but we return to New Hampshire in late April. Meanwhile I lecture tour.

Again pleace know of our sincere sympathy

Yours ever

Harlow Shapley

Károly Lassovszky (1897–1961)

Obituarry

Remembering Károly Lassovszky we cannot but pay tribute to the spiritual power in man. Ever since he was a child he was physically handicapped by the consequences of a frightful disease. This circumstance, however, only strengthened his will to achieve far above average accomplishments.

Following his early interest in astronomy he studied with great devotion at the University Budapest. Soon after finishing his education there, he became a staff member of the Konkoly Observatory, to the development of which he contributed so much. Seeking new possibilities to learn and to build up international cooperation, he visited numerous observatories in Europe and in the United States. The many sided experience acquired during these trips influenced decisively his attitude toward problems of science and of man. In his early forties he became director of the Konkoly Observatory and professor of astronomy in the University of Budapest, where he could exploit not only his scientific background, but his organizational capabilities too. It was my privilege to attend his lectures on various topics in astronomy and participate in the seminars that were for many of his students the first touch of independent research work. In the first postwar years he applied much effort to establishing the American Institute of the University which assisted by the American Embassy, was designed to foster and propagate American culture with special emphasis on scientific and economic conditions in the United States. Two difficult years after the establishment of this Institute, the goverment decided that there was no need for cultural exchange with the outside world. As a consequence of his not signing a petition for the prearranged removal of the Cardinal, he was dismissed from the faculty and became a modest research associate with the Geophysical Institute. In November 1956 he resolved to take his family and flee his country to come to the United States. Following shorter séjours at Swarthmore Observatory and Georgtown University, he joined the staff of the Smithsonian Astrophysical Observatory where, as many of us here know, he was mainly responsible for the organization of the new Photoreduction Division.

He was a man of high ideals in his work, a devoted husband and father to his family. His untimely passing is a loss to all of us.

Imre Izsák

A lecture held at 23 Dec. 1961. Evergreen Cemetery, 2066 Commonwealth Avenue, Brighton, Mass.

Smithsonian Institution
Washington 25. D. C.

Jan 5, 1962

Mrs. Irene Lassovszky
260 Foster Sreet
Brighton, Massachusetts

Dear Mrs. Lassovszky:

We shall deeply miss Dr. Karoly Lassovszky, your late husband, dear friend, and valued member of the Smithsonian Institution. He was admired and respected by his many friends and colleagues at the Smithsonian Astrophysical Observatory in Cambridge. On behalf of myself, Dr. Whipple, and the staff of the Smithsonian Institution, I extend to you and your family our profound and heartfelt sympathy.

Dr. Lassovszky's death on December 20 has deprived us of the opportunity to express to him directly, in some tangible way, our appreciation of his work for the Observatory. In official recognition and appreciation of those exceptional services rendered in the performance of duty as Chief of the Photoreduction Division of the Satellite Tracking Program and later as Astronomer-in-Charge of Photometry, I wish to grant posthumously to Dr Lassovszky the Smithsonian Institution's Sustained Superior Performance Award. The enclosed certificate, citation, and cash grant are evidence of our esteem and gratefulness.

Sincerely yours,

Leonard Carmichael

Secretary

National Radio Astronomy

Post Office Box 2
Green Bank, West Virginia
January 23, 1962

Mrs. Karoly Lassovszky
260 Forster Street
Brighton 35, Massachusetts

Dear Mrs. Lassovszky:

I am deeply sorry to hear about the death of your husband. It is tragic that he did not live long enough to see freedom come to his native country. I remember especially his visit to the United States when he was a young astronomer in Hungary, and we had many interesting discussions about all kinds of scientific ideas.

With kindest regards to you and your children, I am

Very sincerely yours

Otto Struve

LÁSZLÓ DETRE

(Szombathely, 19th Apr. 1906. – Budapest, 15th Oct. 1974)

László Detre finished his schools at Szombathely, then in 1924, by winning the National Science Scholarship, he received a place at Eötvös College in Budapest and became a student of the Péter Pázmány University at the same time. From 1927 he continued his studies in the Friedrich-Wilhelm University in Berlin, where he had professors such as A. Kopff, P. Gutnick and E. Kohlschütter. Detre received his doctor degree in 1929. After this he spent half a year in Kiel, and then another in Vienna Observatory. Finally he worked in Konkoly Observatory, where he was director from 1943, up to his death.

To begin with he was interested in stellar-statistics research – his thesis was also based on this topic. In Budapest however, due to the lack of instruments, he could not continue this work at an international level. He realised that due to the large number of variable stars, with appropiate differentiation of topic and a large amount of work on the field of variable stars, the possible measurement mistakes caused by the instruments can be balanced out. This idea is valid up to this day. László Detre and his later wife, Júlia Balázs started working on variable stars in 1933, with a special interest in the RR Lyrae-type stars. Their research was mainly based on the topic of peridic changes and the search for multiple periods. The goal was to achieve a better understanding of the inner structure of stars, and the development on the pulsation theories. It was soon found however, that the observed longer time variations cannot be understood by the pulsation theory. One of his greatest scientific results was that the secondary light-curve changes of RR Lyrae stars correlate well with the changes of the magnetic field observed by Babcock. By this he meant that the light-curve changes are induced by the changing magnetic field of the star and the obsererved long time variation (in the case of the RR Lyrae, the 4-year cycle found by Detre) could be seen as the alternative of the 11-year cycle of the Sun.

To his recommendation the Piszkéstető Observatory was built. He also took part in the education of astronomical experts: from 1964 to 1968 he was the head of the ELTE (Eötvös University) Astronomy Department.

His scientific results also brought him an international reputation. From 1964 to 1967 he was vice president and then from 1967 to 1970 he was president of the IAU Variable Star Comission. It was he that started the publishing of the Information Bulletin on Variable Stars, which is still edited in the Konkoly Observatory. In this, the latest results on the field of variable star research appear.

His scientific results were also appreciated in Hungary. The Hungarian Academy of Sciences named him a Correspondent Member in 1955, and an Ordinary Member in 1973. For his achievements he received a State Award in 1970.

Patkós László

Magyarok a Természettudomány és Technika Történetében. Főszerk. Nagy Ferenc. Budapest, Országos Műszaki Információs Központ és Könyvtár, 1992. p. 107

CONTRIBUTIONS OF IMRE IZSÁK TO SATELLITE GEODESY

Dr Dezső Nagy
Geodetic Survey of Canada
615 Booth Street Room # 489 B
Ottawa, K12A E09
Canada

During my preparations for a seminar on a short history of geoid determination, I wanted to include some of the pioneering work of Izsak. This lead to a comprehensive literature search and it is believed that the list presented at the end of this note is quite complete. During my visit to Hungary I learned about the preparation of a publication for the 100-th Anniversary of the foundation of the Konkoly Observatory. Discussion with Magda Vargha prompted me to use this occasion – adding a few words of Imre's contribution to the list of his publication.

Imre Gyula Izsák was born in Zalaegerszeg, Hungary, in 1929. At the University of Budapest under Karoly Lassovsky (who later also joined the Smithsonian Astrophysical Observatory) he obtained his degree

in astronomy in 1951. Between 1951 and 1956 he was a Research Fellow at the Konkoly Observatory, Budapest and also a Teaching Fellow at the University Szeged. (1953-54). After the Hungarian revolution in 1956, he stayed as a Research Assistant at the Zurich Observatory, Switzerland. (1958-59), then left for USA (Research Assistant, Cincinatti Observatory, 1958-1959). He joined SAO in 1959 as an Astronomer, where he stayed for the rest of his life.

While gathering material for this note, I contacted Dr William Kaula, Prof. Emeritus at UCLA, (who was there, when I needed him). He wrote a letter to me describing briefly Imre 's contribution. In my view, the best I can do is just reproduce the relevant part of his letter:

...His work can be divided into three phases:

1. Artificial satellite orbit theory.

1960-63 he published several papers on such topics as drag effects, small eccentricities, etc. The most advanced of these was "On critical inclination in satellite theory", which was essentially a complete theory until that by Aksnes (1970 AJ 75:1066).

2. Artificial satellite data analyses to determine variations in the gravity field.

Izsák quickly plunged into this, with emphasis on the tesseral harmonics (e.g.: A determination of the ellipticity of the Earth's equator from motion of two satellites). He produced a series of determinations from tracking by the Baker-Nun telescope of SAO. His final effort, published posthumously – A new determination of non-zonal harmonics by satellites – of a field to the 8th degree, was the best ever done bases solely on camera data (see pp. 15058-15059 of Nerem at al 1995 JGR 100; 15053 for discussion).

3. Computerization of analytic theory of planetary orbits.

In a series of papers 1963-1964, SAO Spec. Reps. 129, 140, 164,. Izsák developed the analytic representation of the disturbing function on the computer, the first effort of this type, with the eventual aim of applying it to integration. Probably the most advanced work of this type has been another emigre from Budapest Ferenc Váradi – 1989: Hamiltonian Perturbation Theory applied to planetary motions. PhD. dissertation UCLA).

I think this quote, together with the bibliography of Imre listed below gives a reasonable picture of his contribution of science.

I conclusion I would like to make another quote from Dr. Kaula's letter, which describes the last hours of Imre.

In 1965, there was a conference on TRAJECTORIES OF ARTIFICIAL CELESTIAL BODIES AS DETERMINED FROM OBSERVATIONS, held at the Faculte de Chimie of the University of Paris, on the left Bank (this was before the building of the complex at Place Jussieu). Imre Izsák attended. We had lunch together mid-week: he ate a filet de sole with a half-bottle of Meursalt. Afterwards we took a stroll, and found the shop of Gauthier-Villars, which had displayed a reproduction of Laplace's Traité mécanique céleste that Izsák considered buying, but postponed the decision. That evening I went to dinner with family friends, but was told next morning by colleagues that Imre had declined an invitation to a dinner because of stomach ache. When he had not appeared at the meeting by about 11 AM, Dirk Brower (of Yale University Observatory) went to inquire at his hotel. Imre Izsák was found to have died of a heart attack during the night.

Acknowledgement.

I want to express my sincere thanks to Jim Cornell, Director for Public Affairs, Center for Astrophysics, Dr. E. M. Gaposchkin, Mathematical Geosciences Inc. Lexington, and Dr. William Kaula, Professor Emeritus, UCLA, for assistance to provide me with information.

Bibliogaphy:

1955: *Zur Regularisierung des Einzentrumproblem.* Mitt. Sternw. Budapest, . No 39, 3-5.

1957: *Untersuchungen uber die Periodenanderungen der Veranderlichen im Kugelsternhaufen M 15.* Mitt. Sternw. Budapest, No 42. 63-79.

1958. *On the first-order secular perturbations of an artificial satellite in the gravitational field of the oblate Earth.* Mitt. Sternwarte Budapest. No. 43. 13 pp.

1958 *Bewegungen in Sonnenprotuberanzen. II. Beschreibung des Protuberanzaufstieges vom 18. Juli 1956.* Z.F Astrophys., vol. 45, 91-97.

1958: *Bewegung in Sonnenprotuberanzen III. Stromungen in der aufsteigenden Protuberanz vom 13. Juli 1950.* A. F Astrophysik vol 46.. 203-216.

1960: *Orbit determinations from simultaneous Doppler-shift measurements.* (SAO) Smithsonian Astrophysical Observatory, Special Report No. 38. 12 pp.

1960: *Periodic drag perturbations of artificial satellites.* Astron. Journal., vol 65, 355-357.

1960: *A theory of satellite motion an oblate planet I. A second order solution of Vinti's dynamical problem.* SAO Spec. Rep. No 52. 54 pp.

1961: *On satellite orbits with very small excentrities.* Astron. Journal., vol. 66, 129-131.

1961: *A determination of the ellipticity of the Earth's equator from the motion of two satellites.* SAO Space Rep. No. 56, 11-24. Also in Àstron. Jopurn.vol. 66 226-229, and Space Research II. 352-359, ed. by H.C. van de Hulst. C. de Jager and A.F. Moore. North-Holland Publ. Co., Amsterdan.

1961: *Equipotential surfaces of the Earth as obtained from satellite motions* (Abstract) with Y. Kozai. J.Geophys. Res. vol. 66 2538-2539.

1962: *On the critical inclination in satellite theory.* SAO Spec. Rep. No 90, 24 pp. Also in The use of artificial satellites for geodesy. ed. by G. Veis. North Holland Publ. Co., 1963. 17-40.

1962: *Geodetic results from precision optical tracking.* (Abstract) in Space Age Astronomy, ed. by A.J. Deutsch and W.B. Kleinperer, Academic Press, 141.

1962: Differential orbit improvement with the use of rotated residuals. In Space Age Astronomy, ed. by A.J. Deutsch and W. B Kleinperer. Aceddemic Press, 151-157. Also in SAO Spec.Rep. No 73, 1-9 1961.

1963:*Tesseral harmonics in the geopotential.* Nature, vol.199, 137-139.

1963: *Laplace coefficients and their Newcomb derivatives.* SAO. Spec. Rep. No. 129, 53 pp.

1963: *Construction of Newcomb operators on a digital computer.* With J. M. Gerard, R. Efimba and M.P. Barnett. SAO Special Report No. 140. 103 pp.

1963: *A note on perturbation theory.* Astron. Journal. vol 68. 559-561.

1963: *The odd harmonic effect in the motion of the satellites* 1960 Beta 2 and 1960 Iota 2. in. The Use of Articifial Satellites for Geodesy. ed by G. Veis. North-Holland Publishing Comp. Amsterdam, 329-331.

1964: *Analytical development of the planetary disturbing functions on a digital computer* with B.Benima and Sara B. Mills. SAO Special Rep. No. 164, 68 pp.

1964: *Tesseral harmonics of the geopotential and corrections to station coordinates.* J. Gephys. Res. 69- 2621-2630.

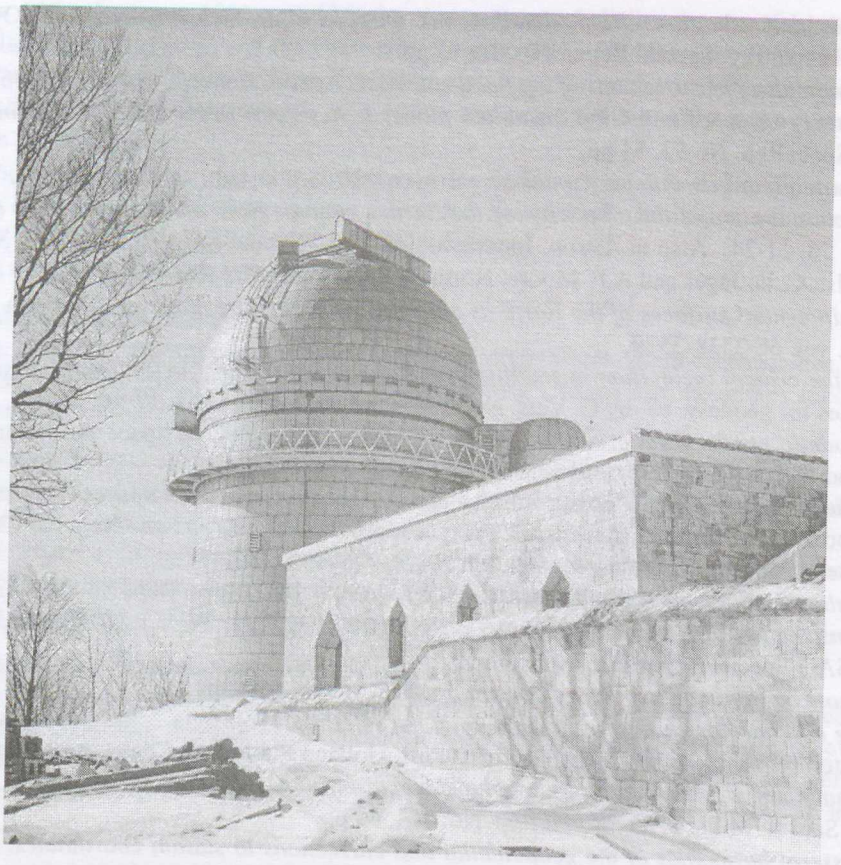
1965: *Mechanization of tedious Algebra,* With J. M. Gerard and M.P.Barnett. Communications of ACM, vol 8. 27-32.

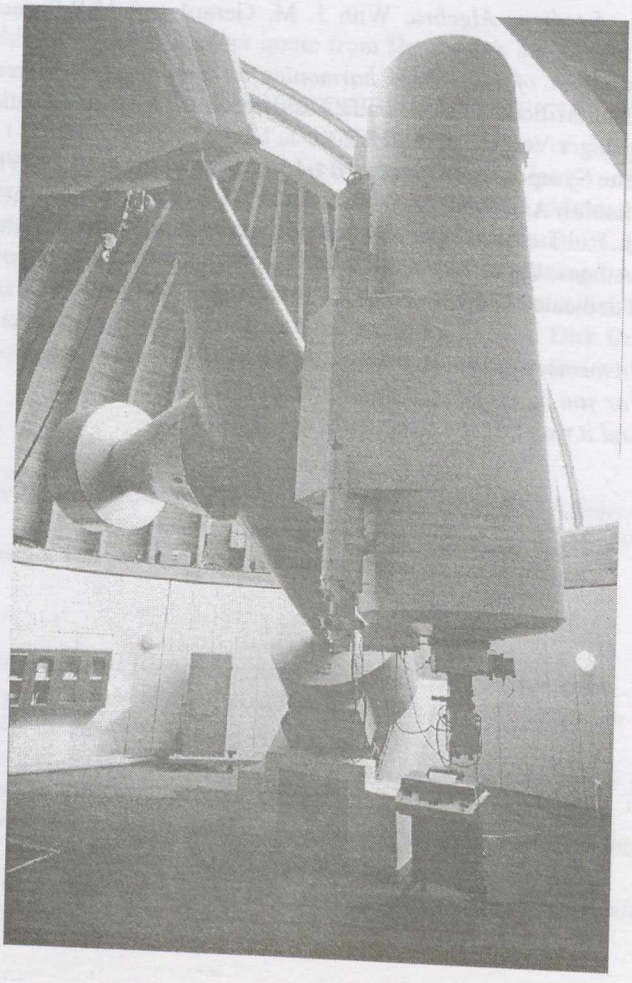
1965: *A new determination of non zonal harmonics by satellites.* Presented by W. Kaula at the Symposium on Trajectories of artificial celestial bodies as determined from observations. Paris, April 20-23. ed. by Jean Kovalevsky, Springer Verlag. 1966 195-200.

The Proceedings of the Symposium is prefaced by In Memoriam by F.L. Whipple,
Director of the Smithsoian Astrophysical Observatory, Cambridge, Massachusets, U.S.A.

Also presented (by J. Rolff of SAO) at the Second International Symposium on Use of Artificial Satellites for Geodesy, in Athens, Grece (April 27- May 1, 1965). The Proceedings, published in 1967, was edited by George Veis and dedicated to Izsak. From the first page:

„ ...In memory of one no longer in orbit
For you have changed the shape of the world
And it won't be the same without you, Imre"





CHAPTER 2
Small Notes on Some Persons' Thoughts

The Zodiacal Light

Some 20 years ago, as a schoolboy, I collected rain-water and searched for metallic micrometeorites in the sediment with a big magnet. Of course I knew that the recovered particles were extraterrestrial in origin, but I realized only later that what I had in hand were extraterrestrial in origin, but I realized only later that what I had in hand were parts of my future scientific subjects, the interplanetary dust cloud.

This lenticular shaped dust cloud occupies the inner solar system, and its millimetre-sized particles orbit around the Sun scattering and absorbing sunlight. The scattered light, called the Zodiacal Light, is also visible with the naked eye on dark nights. As Joshua Childrey described it in 1661: "... in the evening, when the Twillight hath almost deserted the Horizon, you shall see a plainly discernable way of the Twilight striking up towards the Pleiades or Seven Star, and seeming almost to touch them."

The absorbed sunlight is also not lost: the particles re-radiate it at infrared wavelengths, and since the Earth orbits inside the interplanetary dust cloud, this radiation produces a bright "curtain" in front of our infrared eyes, the satellite-based infrared telescopes. Opening this curtain via modelling and removing the Zodiacal Light contribution from any measured brightness value in the first step to exploring the infrared universe.

Although the brightness of the infrared Zodiacal Light shows some large scale variations over sky, its small scale spatial distribution is very smooth. This fact makes the elimination of the Zodiacal emission easier, but this extreme smoothness is very difficult to understand. Interplanetary particles do not live forever, they are burnt by the Sun in a mere 10000 years. Replacement can be expected from disrupted comets and from debris produced by collisions of smaller solar system bodies like asteroids. But how these discrete sources of dust can maintain a perfectly smooth dust distribution over the whole inner solar system, is a question still to be answered.

Dust can be found in the outer solar system forming the Kuiper-Belt, and there is a growing amount of evidence that the surroundings of other main-sequence stars is also not free from dust. Therefore the discovery of extrasolar planets, which orbit within the interplanetary dust cloud of their suns, is not possible without looking through their zodiacal light curtain - - from outside to inside.

There is always a special attraction to working on topics studied centuries ago. The brightness distribution of the optical Zodiacal Light was first measured by Domenico Cassini in 1683. He correctly interpreted the observed phenomena as the signature of circumsolar dust cloud reflecting sunlight increasingly as the line of sight approaches either the Sun or the symmetry plane of the cloud. The total solar eclipse in 1706 led Cassini to regard the solar corona as the innermost part of the Zodiacal Light, and I hope we will be able to repeat his Zodiacal Light observation in August 1999.

Péter Ábrahám

A Difficult Decision

Thirty years ago I had to make a difficult decision connected with my scientific career. In 1954 when I started to work at the Konkoly Observatory, it was almost obligatory to join the team headed by the director, Prof. Detre, and participate in the photometric observations of RR Lyrae variables - a traditional research based on instruments and methods well developed at the observatory. Variable star photoelectric photometry was my main activity in the sixties and I collected a valuable observational material. The problem was, however, that this kind of empirical research was not considered worthy of a Ph.D. degree at that time in Hungary so I had to choose another topic for my dissertation.

In 1958 I have received a grant and the opportunity to work at a larger telescope in Crimea where I was acquainted with the bases of quantitative spectroscopy. My results were accepted as a Ph.D. dissertation. Later in the sixties I could collect some spectra in Asiago (Italy) as well, but in this field I had to work alone, without any tutorial help. In Budapest nobody was really interested in these spectra.

Earlier, already in 1957, I was charged by the director to organize a network of optical tracking stations in Hungary to observe the transits of the new artificial satellites. The organization was carried out successfully, but at the beginning the task was only a kind of service without any scientific value. A few years later, however, a new discipline emerged, namely space research, based partly on satellite observations. The observational technique and the methodology were to be developed from scratch and many young astronomers became interested in this non-traditional, promising discipline even in Hungary.

For me it proved to be difficult to divide my activity in three and I felt the pressure to select either photometry or spectroscopy or space research as my range of action. It was not an easy decision. I regretted to abandon astrophysics which is an important and interesting branch of astronomy, regretted to leave a considerable part of my observational material, collected during 15 years, unpublished etc. Finally in 1968 or 1969 circumstances convinced me that I have to concentrate fully on investigations based on satellite observations: upper atmospheric research and space geodesy. The reason of my decision was that being already the head of a group of young Hungarian astronomers actively involved in the transformation of our satellite tracking into a respected scientific field, I had the moral obligation to join with all my heart the space science community. Consequently I finished my career in astrophysics and shifted into a new, interdisciplinary environment (satellite geodesy for one decade).

I did not forget, however, that my background is clearly in astrophysics. I found it profitable to adopt some of the ideas and procedures used in astrophotometry and astrospectroscopy in the investigation of the density variations of the neutral upper atmosphere. One never knows how earlier experiences can help in the solution of completely different problems of another profession.

Iván Almár

Personal Impressions of a Theoretician in the Konkoly Observatory

When I entered the Observatory in 1967 Professor László Detre was the director. He was an expert not only in variable stars but a qualified theoretician as well; his scope in theoretical knowledge ranged over a wide field from celestial mechanics, quantum mechanics, theory of spectra to general relativity. The Observatory was visited frequently by the cream of the national and international scientific life and I was sometimes witness of lively and very interesting discussions about stellar and galactic evolution, neutron stars, black holes, big bang, singularities, gravity etc. At that time some (really pure scientific) disciplines were forbidden or at least unwanted on ideological ground: e. g. the Kopenhagen interpretation of quantum mechanics because the uncertainty priciple was taken as being in clear contradiction with the Marxist dogma about the unlimited cognizability of the material world, or the big bang because the creation (horribile dictu} even by God) was feared since it contradicted the Marxist dogma on the eternality of the matter. The ideological interdicts were completely disregarded in these discussions and the atmosphere was impressively free. This was attractive for a young assistant as well as the wide scope of themes which were not limited for light curves of variables only.

L. Detre was an expert of variable stars and to the theoreticians of the Observatory he communicated theoretical problems connected with these stars. He exposed the problem, the theoreticians had to be happy for the privilege to have heard an unsolved problem from the first hand e.g. the Blaskho effect of RR Lyrae stars and attempts to explain it by an assumed magnetic cycle of the star or the period changes of RR Lyrae stars and its explanation in terms of stellar evolution, or rather they are caused simply by a random walk? Nevertheless, he was aware how difficult it would be to solve these and a number of similar problems but as he said frequently the theoreticians believed themselves to be so clever, they were so proud that they could differentiate and integrate, therefore, it is their headache how to master the task which came from the magician's shop of a telescope dome. The final result was usually that perhaps a simple theoretical model could be constructed but the necessary computations could not be performed - in the sixties, seventies the computers proliferated in our country just after getting rid of the accusations of the fifties when they were regarded as promoter of the cybernetics, an imperialist and bourgeois discipline. The conclusion of the

conversations was fast always that the theoreticians do not solve the problems exposed by the observers but the problems which they are able to solve. This was an apology, however, we were hearing that we should not be so proud about our knowledge if we can integrate differential equations only which are in the textbooks. But finally the theoreticians enjoyed the full freedom in their choice of theme, sometimes with the jokeful accusation that we capitulate before the serious problems and take up the toy problems.

A contemporary of L. Detre was Imre K. Csada who worked first in pulsation theory and his interest turned later to solar physics, especially to applications of magnetohydrodynamics. In this latter topics his activity was recognized by invitations to JILA (Joint Institute of Laboratory Astrophysics, Colorado, USA) and to Irkutsk where he worked the instute of Professor Severny. For his old age he got acquinted with computers as well and in the magnetohydrodynamic dynamo problem of the Sun he had some recognized results because he transformed the problem to eigenvalue problem which he could solve by expansions in terms of spherical harmonics. He could bring to a marriage the moderate computational facilities in Hungary and the mathematical skill which was (and in our days is) deficient since the general approach is nowadays characterized by a computer hit, the excellent computing facilities robber the joy of an analysis. The analysis is not necessary since it can be compensated by rapid computers and usually it is sacrificed on the altar of tempo. For him the rather mathematical than computational approach resulted in some conclusions concerning the solar activity which were not behind the conclusions in much better equipped institutes. His approach was appreciated by the community working in solar physics.

György Paál begun his astronomical career as observer of RR Lyrae variables. The director of the observatory was very satisfied with his careful observations, and otherwise L. Detre was a master in organizing the observational work so that the work of a whole year of an assistant was just a point in his diagrams, e.g. concerning the period changes which are presumably connected to stellar evolution. After a few years of excellent observations G. Paál turned to his dream, to cosmology. This was a leap into a scientific vacuum: to the cosmology of the sixties, seventies in Hungary the only sources were in the library: e.g. POSS (Palomar Observatory Sky Survey), books, journals, communications from the observatories, but possibility for cooperation and discussion was very sparse, access to observational material from first hand was impossible. He found some empirical relations on galaxy clusters and instead of securing the results he discussed them in an extent which did not find resonance in the community which worked in the field at the main dividing line between the unknown and just discovered facts. He felt himself disappointed and gave up the search for striking new facts in the published observational material and for a number of years he cooperated with physicists and cosmologists. The hypothesis of the multiply interconnected space structure emerged from this cooperation which was found rather an interesting idea only since at present the observations do not support a non-trivial structure of the universe like e.g. a Möbius band or a more complicated structure.

The atmosphere for theoretical work in Hungary and at the Observatory determined the research of the author of this short contribution. Let here stay a mixture of advantages and disadvanteges: self rule in selecting the theme of the research, excellent library of the observatory where the relevant astronomical, astrophysical publications: books, journals, observatory communications, catalogues, some important physical literature were available, but personally fast complete isolation from the rest of the world i.e. very limited possibilities for living scientific contacts from the sixties to the late eighties, 20 years delay in computational facilities. Tenacity, picking up the not just most modern themes from which it is possible to publish a paper by working two, three, or more years, search for mathematical and physical problems which are connected to astrophysics but were neglected by mathematicians and physicists – these give some main lines which could influence the research themes and could serve as compass to a scientific career which was similar to sailing in the wind shadow. My themes, steps were in theoretical problems according to the above criterion: I worked on merging of the Balmer lines in stellar spectra, energy levels in Debye field, the quantum mechanical two centre problem with applications to the restricted quantum mechanical three body problem, the diamagnatic Coulomb problem, calibrating stellar colours to physical quantities like effective temperature, surface gravity.

Finally some theoretical works must be mentioned from our observatory by G. Kovács and Z. Kolláth who built up a cooperation beginning in the eighties with people in Gainesville (Florida) who work on stellar pulsation theory. Compared to the previous works this is a theme of a new style requiring much computations to find pulsational modes, periods of different modes which can be excited simultaneously and evolve on relatively short time scale. This theme is of new style in the respect as well that it fits better to the spirit of modern science industrialization which is now rapidly spreading: enormous body of numerical work characterizes this line which became possible by the explosive developments of the last twenty years in

computational technique. Nowadays problems are tractable by personal computers which twenty years ago could only be investigated by the computing centres of a large university or an academy, perhaps by the biggest computing facility in a country.

The challenge of the big questions is diminishing and the answers for an enormous number of small questions characterizes the modern theoretical astrophysics which is now supported by an efficient background of computing facilities and never before existed observational possibilities, by a worldwide scientific big industry. The spirit became different from that of our professors who had modest observational and computational instruments but were proud about the wide spectrum of their knowledge. The professors of the present time are proud for their detailed knowledge and expertise in very narrow fields and excellent observing instruments. And like thirty years ago in our days the theoreticians solve the problems which they are able to solve, not the problems which come from the explosive developments in the field of the modern observations, cca this was the complain of L. Detre thirty years ago. The scientific big industry of our days in astronomy, astrophysics could not much contribute to dissolve this contradiction and an observer, an astronomer at the telescope knows to much about the world not to belive any grand astrophysical theory – as it said F. Zwicky, one famous friend and college of L. Detre.

Szabolcs Barcza

A Possible Attitude to Astronomy

I decided to be an astronomer because I am interested in the wonders of the Universe. Since I find as a most remarkable fact of the Cosmos the existence (and nature) of order in the Universe and think it deserves further study. I learned in my life that it is not enough to study and cultivate the field of astronomy only by an attitude to "produce something acceptable" by the community of the astronomers. I know that it is interesting and exciting to reveal a new phenomenon or fact in the world of stars. But I am afraid that it could not count in the context that here, in the Earth, all the life could go in the same way as it does. If somebody has a cosmic interest, it may include the Earth as well since the Earth and life belongs to the Cosmos. So I found it important to research the nature of life, which shows a remarkable relation to the process generating the order in the Universe. I think that cosmic order and life are the manifestations of the same universal organising principle of the Cosmos. Moreover, as a third fundamental cosmic pillar (besides cosmic order and life) I consider the phenomenon of consciousness.

I worked out a possible attitude to the astronomy in a way which includes all the methods of the strictly materialistic astronomy but extends the research on a more wide range of relations, attempting to investigate the nature of the Universe and its organisation factors. Namely, I directed my attention to the study of the ultra-resonant processes present in the Sun, in the Solar System, in the Galaxy, between the planets and the Sun, between the stars, between the galaxies, and at the origin of the Universe. These ultra-sensitive process involve an interaction producing an effect on a celestial body, the transfer of the effect from one body to the other and the amplification of the energy of the transferred effect in a rate larger than 10^{10}.

In attempting to find a realistic solar model, I found that the solar activity might offer the key to study the organisation factor present in the Sun. On this basis, I developed a dynamic solar model that is able to interpret the solar neutrino problems as well as some tantalising astrophysical problems related to the solar core. In this model an active agent is necessary to initiate the thermal instability of the solar energy-producing core. This agent may be given by planetary influences, which are actually almost infinitesimal, but still macroscopic sized perturbations. When these perturbations interact with the global magnetic field of the Sun, they may produce (within certain conditions already determined) thermonuclear runaways that can produce hot bubbles rising to the surface to produce solar eruptions. The derived magneto-hydrodynamic model of solar activity predicts the appearances of active longitudes, attributing an important role to the tidal forces in solar (and stellar) activity. If this dynamic solar model will turn to be true in its most important points, then it will involve that the Sun is an open system, being far from thermal equilibrium, which is in an ultra-sensitive state to some outer influences, in dependence on its own inner conditions. This would indicate a yet not revealed similarity of the nature of the Sun with the nature of living beings, opening a new aspect of interest in the study of cosmic phenomena.

Attila Grandpierre

Is it Worth-While to Sprint a Race?

Every young astronomer has a serious dilemma when starting a new research career in a small country, like Hungary. What kind of a topic should be selected? There are always state-of-the-art topics aiming at the most important, or simply at the most "fashionable" problems in astronomy. Anybody seriously involved in such an investigation can probably find partners in other countries as well as some specialized conferences and proceedings to publish his or her results and will certainly receive a great number of citations by colleagues working on the same problem. But there are also serious disadvantages of such a decision: he or she has to sprint in an international race together with competitors working under more fortunate circumstances. Furthermore, the most important and fashionable empirical problems need a highly sophisticated instrumental background, which means, of course, financial background as well. This is not easy – if not impossible – to realize in a small country. In the best case one will be accepted as a partner, who may be invited to work abroad in a foreign team – mostly as a secondary member.

What is the other possible solution of the dilemma? To concentrate on a topic failed to notice by colleagues working in big and rich institutions. The reasons of neglecting some topics may be various. It can be time-consuming, or not spectacular, or simply conflicting with orthodox and accepted theories of the theme. Such topics are plenty and obviously well-suited for a young astronomer in a small country. If he or she is diligent and fortunate then important scientific results could emerge satisfying the peers of international journals as well. Seemingly this strategy is satisfactory, but there is a contradiction: since there are only few institutions and colleagues involved world-wide in the special research topic, the results will be hardly presented at well-attended conferences and - horribile dictu - not cited frequently. It means that although he or she is working successfully in a topic of even high scientific interest, nevertheless will not be able to collect citations in a number required by the present evaluation system.

Having a serious interest in planetology, i.e. in the investigation of those fantastically different planetary bodies discovered by space probes in the last 30-40 years, I was also disturbed by the above dilemma. Since I had no opportunity to join any team constructing and launching planetary missions, thirty years ago I chose the second strategy and tried to find the solution of some problems not covered by the other investigators. I have plenty of experiences that this way is neither easy nor really rewarding – although I believe my research was successful in the original sense of the word. I hope that the after-ages will appreciate it.

Erzsébet Illés

The Songs of Distant Suns

One of the major motivations of scientific research has been the search for order and regularities among seemingly irregular processes and phenomena. A very nice example is how the laws of planetary orbits was found. Kepler even mystified those regularities by creating heavenly musical scores of the planets.

During the last century of astrophysics it was a major challenge was to understand the stellar interiors from the glimmering light of stars. How can one test the inside of a watermelon from the light reflecting from its surface? An estimate can be made, but the result is not guaranteed. However kicking the fruit, and listening the sound reflecting from the interior, can help an experienced observer. Fortunately we do not have to kick the stars, to perform a similar experiment. Lots of the stars have ordered motions in their interior which we can observe as light variations. Those oscillations can be used to construct or test physical models of the stars.

Very recently it was found that even the irregular light-curves of some of the stars have a definite order underlying the erratic variations. A deterministic low-dimensional nonlinear dynamic process produces the chaotic motion inside those stars. Most of the stellar vibrations are simply acoustic waves, therefore the main properties of these oscillations can be understood by simple models from musical acoustics. Similarly one can design a trumpet with the same overtone structure as those of the linear, adiabatic pulsations of a given star. Those trumpets sound differently from the majority of the ordinary musical instruments, because

the overtones are not the harmonics of the base frequency. The chaotic oscillations when transformed to audible frequencies provide an even more interesting 'musical' experiment. Can it be that those are the celestial instruments for Kepler's musical notes?

In the era of light pollution, to millions of people the sight of the starry sky has become unknown. Lots of individuals and organizations have realized that the dark sky is the heritage of all humanity and an unquestionable part of our culture. I hope that our children and the future generations will be able to take delight in the starry sky. Then they won't think about the stars as mere objects of science books, but they will probably even understand even the songs of distant suns.

Zoltán Kolláth

Inheritors of Konkoly in Solar Physics

Konkoly's legacy is enormous for the present Hungarian astronomy, particularly in solar physics. This domain owes not only its institutional existence to Konkoly but also some of its instruments and observational programs.

The solar department of the Konkoly observatory was established in 1947. In 1958 the staff of the department moved to the observatory building of the Kossuth University Debrecen and they have established a new research institute named Heliophysical Observatory of the Hungarian Academy of Sciences. Its director was Lorant Dezso until his retirement in 1980, when the observatory became again the solar department of the Konkoly Observatory.

The main profile of the observatory is gathering, archiving and evaluating full disc, white-light solar observations. The program is conducted on a daily basis. The telescopes of these routine observations were the properties of Konkoly, which implies that these are recently the oldest functioning instruments in the Hungarian science. Two telescopes, with 5" and 10" objective diameters, are used on a common mount in Debrecen and a further telescope (6" objective diameter) is erected at the Gyula Observing Station. Special care is devoted to the maintenance of these instruments which have great importance from both historical and scientific reasons.

Nevertheless, the technical objects mean only one side of Konkoly's heritage, the other side is observational. Konkoly started observing graphically the full solar disc in 1873, this program was also started independetly by Fenyi at Kalocsa in 1880. Their observational material cover almost five decades up to 1920. This earlier graphic material and the later Debrecen photographic observations together cover a total of 89 years up to 1999, which is one of the longest covered periods in the world. On the other hand, this program has also the longest traditions among the Hungarian routine astronomical observations.

It may be surprising that some "old-fashioned" instruments and observational techniques can be interesting in the era of space vehicles. Yes, they are extremely important. Debrecen has a modern coronograph and instruments too, but also the classical, less spectacular observing programs should continuously be kept alive, because any features of the solar activity may exhibit long-term changes and variations, and their study needs long-term homogeneous material and long, continuous monitoring with possibly the same telescopes and strategy.

The importance of the earlier material lies in its historical perspective, whereas the recent photographic material has unique calibrational advantages. Based on Konkoly's instruments the Debrecen/Gyula staff elaborated a high precision procedure for taking into account all possible sources of errors and they have achieved a precision of 0.1 heliographic degrees in the determination of sunspot positions, this value is acknowledged to be the highest standard worldwide.

With the passing of a century Konkoly's observations are being used for scientific studies and his instruments serve an astronomical program of the highest standard as they did one hundred years ago. This may be the most worthy way of taking care of Konkoly's rich heritage.

András Ludmány

Personal Thoughts on Science

I have been working in the Observatory for 25 years. I had to think it over many times, to get energy to continue my work, what is the motivation of human beings for doing science. Definitely not money and high quality living standard. Even not the acknowledgement of the society. Except some intelligent nobles pure science was most of the time ignored by the society and scientists were poor people.

As I now see, there is a special motivation, as for any other creative work, namely the fight against the death.

Science could be symbolized as a large river which runs over centuries and picks the knowledge of each generation up. The generations die but their knowledge remain for ever as a drop in the river. However, not the complete knowledge of a generation stays for ever. Many experiences, observations have been done, many ideas have been checked. These trials serve in the science as stones in the river. The water is cleaner in the river after the stones, the ideas are more definite in the science after trials. Those parts are highly important in the knowledge of a generation that are running over the filter of centuries.

I have always had a deep motivation to add something important to science. In my opinion the highest probability for this in a given generation is at the meeting point of the experimental (observational) and theoretical investigations. At this point the nature is present and highly interact with our present theoretical knowledge.

After many trials in my scientific career I could find the meeting point of observation and theory in my present research field.

Our result with Bela Szeidl on the simultaneous period increasing and decreasing for the two modes of double mode RR Lyrae stars put some question marks to the present application of the evolutionary theory of stars. As a well-known expert of the pulsation theory, Arthur N. Cox wrote: "thanks to you for pointing out a long-standing problem".

My conclusion, based on only photoelectric investigation, for Theta Tucanae that this Delta Scuti star has to be in a binary system, has been confirmed by subsequent spectroscopic investigation. The behaviour of a well-studied Delta Scuti star in a binary system can prove or disprove our present knowledge how the physical processes are going on in stars.

We know that some kind of amplitude limiting or mode selecting mechanism are missing from the theoretical models. My present work on the mode identification of Theta Tucanae definitely gives guidelines to find the physical processes missing from the theoretical models at this moment.

I have the hope to be a tiny part of the large river.

Margit Paparó

Past and Future of the Konkoly Observatory
- Personal Thoughts -

One century in the life of a modern astronomical observatory – it's very long time. The Konkoly Observatory was founded at the dawn of the modern astrophysics, was a witness to the XX. century's greatest scientific achievements (relativity theory, quantum physics, cosmology, nuclear physics) and its history continues through the decade of the revolution of science, society and personal existence induced by information technology. These fundemantal changes were faster and much more striking than anyone had dreamt it before. The development has not slowed down in these days, therefore it's hard to foresee the future of the hungarian astronomy even for ten years in advance.

Some factors anyway ensure the outstanding scientific output of our institute for the next years: our heritage in variable star research, excellent erudition and reputation of the astronomers and of course their enthusiasm and diligence.

I think that joining to the European Community is a great opportunity to make further developments and collaborations, and to come to world-class instruments and projects. In my opinion a major step in the following decade would be forming a collaboration with other countries or observatories in order to maintain a telescope at an observing site offering adequate astro-climate. It could be a telescope equipped with a spectrograph operating in automatic mode or service observing mode via Internet.

Róbert Szabó

My Research Field

My research field is the small bodies of the Solar System: the studies of physical properties of comets and asteroids. The international VEGA program was the first big project in which I participated.

Its scientific goal was the in-situ exploration of the famous Comet Halley (1P/Halley 1986 III) by the VEGA 1 and 2 spaceprobes. I collaborated in the preparation the experiments and ground-based optical calibration with of the on-board television imaging system, as well as in the processing and scientific interpretation received imaging data from 1981 to 1992 permanently.

The cooperation was coordinated by the Research for Particle Nuclear Physics of the Central Research Institute for Physics (RMKI/KFKI) of the Hungarian Academy of Sciences.

The electronics hardware and software of the television camera system of the VEGA 1 and 2 comet-probes were designed and created in Hungary at RMKI/KFKI and at the Technical University in Budapest at set up the claim for the cooperation with the Konkoly Observatory.

The first in-isitu images were made on the nucleus and the near-nucleus region of Comet Halley using this instrument in the history of sciences. The scientific success of the project generated plenty of scientific papers and meetings inculding Nature (London) and various workshops and conferences (Schloss-Ringberg, Heidelberg, Brusselles, Bamberg, Potsdam, Lunar and Planetary Laboratory – University of Arizona, Tucson). Recently I work in the frame of the comet imaging projects of the Hubble Space Telesope using the Planetary Camera and the ISOCAM infrared camera of the ISO (Infrared Space Observatory).

Meanwhile, I make photometric and imaging observations of comets and asteroids with the telescopes of the Konkoly Observatory at Piszkestető. Sometimes I also observed some interesting variable stars (cataclysmic, symbiotic, superflare, supernova stars, for instance).

I helped to the Hungarian Geological Institute in the frame of an international cooperative work on the studies of cosmic spherules (International Geological Correlation Program, IGCP 384) from 1996 to 1998. The excellent library of Konkoly Observatory, the large instruments of the observatory, permanently developing computer system support, as well as formerly the relatively well developed computer system background of the RMKI/KFKI made posibility for a high quality work.

I have experienced that the individual research autonomy could be reallized and the well-founded projects can be carried out in our observatory. I consider an important point the saving of the identity of the Konkoly Observatory of the Hungarian Academy of Sciences in the local country-wide scientific environment, as well as the clear, unambigous, "identionally vagueness" separablity of the individual results and efforts.

I worked and I work.

My results were gained by working.

I have never been before and I am not a member of any political party.

Imre Tóth

Júlia Balázs
(1907-1990)

Csaba Detre

Some of my Memories of my Father László Detre

Every person's life is deeply influenced by the family circumstances of his childhood.

I was born into the picturesque Svábhegy-Forest inside which there was the Observatory. There in the large green park I grew up with my sister and two twin-brothers, where the unexplorable forest provided us with constant misteries, as did our encounters with astronomy.

My father's office was really an extension to our flat. Even my early childhood was spent in the observatory. Not only my parents', but the whole family's life was synonymous with the life of the Observatory, and astronomy itself. Due to this I was kept up-to-date with all new astronomical results. How far was it where the newest supernova, discovered by Miklós Lovas, lit up? Later, with my geological knowledge, I connected this with the events of the Earth's history.

I remember in the early sixties the supernova explosion which was thirty million light years away, which happended when sword-teethed tigers and rabbit-sized horses with five toes lived on Earth.

My father was very happy of my early interest in astronomy. From the age of four I could, without making any mistakes, spot the Arcturus, the Vega, the Capella, etc. He went into a euphoric state when, being nine or ten, I understood the Olbers paradox and the fact that black-holes could exist in the Universe. From then on, he took exceptional care of me, a fact which I often abused. (I was a terribly "bad tempered" child). During my adolescence he was forced to realise that I was not strong in mathematics, whereas my little sister Villő and my twin brothers Szabolcs and Zsolt were. From then on, the topic of my becoming an astronomer had stopped in the family discussions; but my sister and brothers had these ambitions. Neverthless, my interest towards astronomy had not stopped.

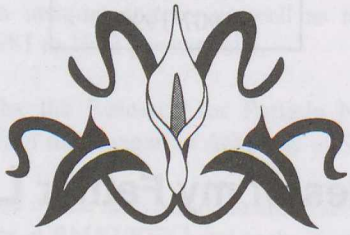
I can confidently say, that my later philosophical ambitions were thanks to my father and perhaps even more so to my mother Júlia Balázs, since on the Svábhegy the everyday cosmological and cosmogonical debates were just one step away from philosophical abstractions.

Unlike my mother, my father always discouraged me from philosophy, because at that time it meant a dead end for a scientific career, since it was not based on any observations. I listened to this fatherly advice, and I never tried to solely pursue a philosophical carreer.

At the same time, my father was very much of a philosopher in an implicit way. Inside the family we often had big arguments with close-colleagues, about the probability and possibility of the existence of extraterrestrial life and society. My father said that if there were an extraterrestrial society, then we would have had to meet them already, or they must be of lower or equal inteligence than us. I found this argument very convincing. Extraterrestrial life and the creation of an extraterrestrial society has to have the same circumstances and the same history of evolution as that of Earth. The probability of such a thing happening is near to none. To this my mother often added: "Of course it is necessary to keep searching, because maybe..."

I also got a huge scientific impulse from my mother who was the co-editor of nearly all of my father's scientific papers. At the same time, she also had to take care of four children, while all night she had to work and the next morning send us to school. This heroic continuous work deteriorated her health. It is sad that during my remembrances there is rarely any word of my mother.

Due to the difficult unification of astronomy and a big family the pessimist gene in my father became dominant, even to his last hours.



ASTROPHYSIKALISCHES OBSERVATORIUM ZU POTSDAM.

18. August 79

Hochverehrter Freund!

Ich gehe gleich nach der Astronomenversammlung fort nach dem Süden, bin also in der 2ten Hälfte des September nicht hier. Ich würde mich sehr freuen Sie zu sehen und dachte Sie würden es so einrichten können, dass Sie auch der Gemeinschaft nach hier besuchen. — Der grosse Refractor Repsold-Schröder steht bereits, es gäbe also etwas Neues zu sehen. Das Observatorium ist nahezu fertig, es wird October wohl ganz fertig werden. Ihre Beobachtungen werde ich mich auf der Astronomen Versammlung genau ansehen, ob ich sie aber selbst vorlege, oder durch einen andern vorlegen lasse, kann ich nicht angeben. Ich bin kein Redner, es würde mir daher schwer fallen selbst etwas Ordentliches über Ihre Beobachtungen zu sagen und ich werde wohl [illegible] Jemand anders damit zu beauftragen.

Mit den besten Grüßen

Ganz der Ihrige

H. Vogel