

HANSKY ALEKSEY PAVLOVITCH

Lemeshchenko N.D., Shevchyuk T.V.

Astronomical Observatory of Odessa National University

ABSTRACT. An essay devoted to A.P.Hansky, a famous astronomer, a graduate of Novorossiysk (Odessa) University.

On 11th August 2008 was a centenary since the tragic death Aleksey Pavlovitch Hansky. He was an outstanding Pulkov astronomer, one of the founders of the Simeiz department of the above observatory, later on becoming the Crimean Astrophysical Observatory.

A.P.Hansky was born on 20th July (on 8th July old style) (Backlund, 1908) 1870 in the family belonging to the gentlefolk's, in Odessa. After graduating from the physical-mathematical faculty of the Novorossiysk (Odessa) University he stayed there preparing for professorship. At that time Professor A.K.Kononovich, an energetic, progressive scientist and a talented educationalist that was the first in Russia to be engaged in studying astrophysics, headed the Odessa Astronomical Observatory. Under his leadership throughout 1894 – 1896 A.P.Hansky was mainly busy with taking the Sun's photographs for the sake of studying the spots. He could not afford to use the most modern instruments; nevertheless he was able to obtain excellent photos by using modest instrumental mean (a 6.5-inch refractor).

In May 1896 the Odessa Observatory was visited by Academician O.A.Backlund – Director of the Main Astronomical Observatory of Russia, and soon Hansky came to Pulkov for further perfection in astrophotography.

An summer of the very year he was invited to the scientific expedition of the Pulkov Observatory for observing the total solar eclipse on the Novaja Zemlja on the ninth of August. This expedition proved to be a success in all respects, and the best possible observational material was obtained. Furthermore, A.P. collected photographs and sketches of the total solar eclipses obtained in different years by many astronomers. After analyzing all the material collected he came to important conclusions about the dependence of the corona form on the quantity of spots on the Sun. When there is a maximum of the solar spots, the corona forms an entire radiance around the Sun. When there is a minimum, the corona stretches more and more along the solar equator, and its brilliance weakens respectively (Hansky, 1897; Perel, 1958). Thus Hansky discovered

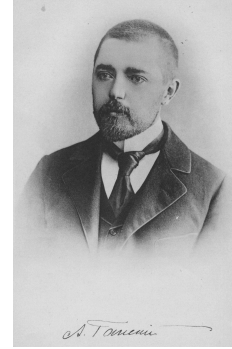


Figure 1: A.P.Hansky

the change of the solar corona form with the phase of the 11-year cycle of the solar activity (Sobolev, 1989). His prediction of the corona form for the total solar eclipse 1900 (Hansky & Kostinsky, 1897) was brilliantly corroborated further on by many astronomers. A.P. was the first to accentuate the universality of the 11-year cycle for active physical phenomena taking place in all the layers of the solar atmosphere.

After finishing the expedition work, at the beginning of 1897 Hansky left for Paris. He became a listener of Sorbonne lectures on mathematics, physics and astronomy, at the same time he was busy with taking photos of the Moon under competent direction of Levi. Later on he began working at the Meudon Observatory which was well-known all over the world with their classic methods of taking the Sun's photos. From 1876 the leader of this Observatory was one of the most outstanding French astronomers – P.J.S.Janssen – a pioneer in using photography and spectroscopy in astronomy, when studying the Sun, in particular.

An order to solve the problems of astrophysics, the physics of the Earth and meteorology, he, with the help of his own allocations built in 1893 an observatory at the Mont Blanc summit, the highest mountain of Europe. The work at this Observatory was very complicated because of very hard ascending the mountain and poor climatic conditions at its summit.

With an exceptional persistence A.P.Hansky overcomes these difficulties. All in all he made 9 ascents to Mont Blanc in different years, and staying there for rather a long time he used to make the most valuable observations (Perel, 1958). According to Janssen's er-

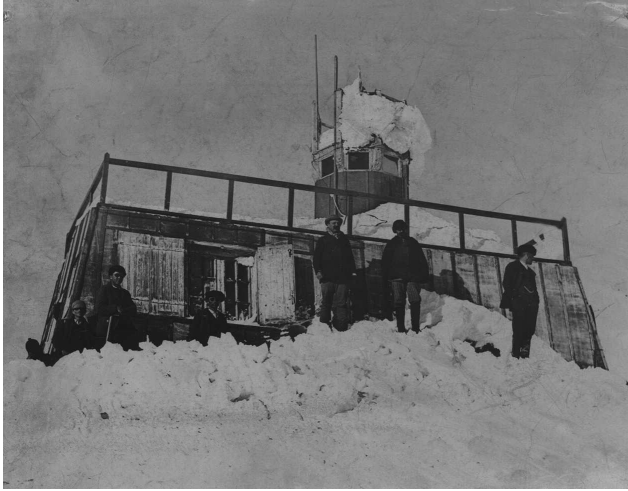


Figure 2: On the Mont Blanc



Figure 3: Russian-Swedish expedition in Spitsbergen

rands he studied the Sun's constant with the help of André Crova actinometer (Hansky, 1900). At was here on the Mont Blanc that Hansky carried out great work on finding the methods of taking photos of the solar corona without eclipses. He observed Venus too, made estimations of its period, made gravimetric measurements which also refer to important results obtained on Mont Blanc.

A.P. succeeded with mountaineering, and this fact was noticed in Odessa where the Crimean-Caucasian Mountaineering club, the first in Russia, had already been functioning for 10 years. Hansky took the most active part in the club's life, one of its tasks being the collection of means for teaching excursions. While this aim in view it was not once that Aleksey Pavlovitch made reports which were of great interest, narrated the history of conquering Mont Blanc, of creating and working at the Alpine observatory, showed photographs and figures, mainly, made by him self. A 1900 he was been accepted a member of this club. In the same year according to the A.P.Hansky's suggestion, Jules Janssen was accepted as an honorary member of the club. The French scientist had already ascended Mont Blanc three times.

While working in Paris A.P.Hansky did not stop writing his friends from his native town and those from the astronomical society. When answering his letters they expressed their "hope for his not forgetting their farther friends henceforth in spite of the friendship with K.Flammarion, Janssen, Nansen and other luminaries of science and civilization (March 1897) (Archiv, N80)".

A summer 1899 and 1901 Aleksey Pavlovith took part in the Russian-Swedish expedition on the degree's measurement in Spitsbergen. Nearly all the trigonometric and astronomical determinations in the Russian part of the arc were carried out by Pulkov astronomers at the head of Observatory Director O.A.Backlund.

Hansky A.P. determined gravities in these expeditions that are he was mainly busy with gravimetry; however he worked as a geodesist, astronomer and photographer too. For his work in the last expedition he was awarded with the Tsar's premium handed on behalf of Russian astronomical society in which he participated from 1896. Further on he will be elected Vice-President of Russian astronomical society.

Here, we see the photo by Hansky in 1899 (Archiv, N59). From the left to the right there stand geodesists judging by his inscription: I.I.Sikora (Derpt Observatory). Then the second – V.V.Akhmatov (AO Petersburg University), the third in the one row stands D.D.Sergieffsky – Expedition Chief, later on Professor, the Academy of General Staff, then Director of Pulkov Observatory O.A.Backlund, Hansky A.P. and A.S.Vasilyev – from Pulkov as will. It is of Novorossiysk University in different years, and in spite of the most modest interest to note that Orbinsky, Hansky and Vasilyev are graduates of the means and resources of the University Observatory Professor A.K.Kononovich and his colleagues – talented lecturers – used to prepare excellent specialists for the astronomical science in the Fatherland.

The end of the XIX-th and the beginning of the XX-th centuries was the period of searching for new ways, methods and technical possibilities in the observational astronomy. French scientists, Janssen and Flammarion, were enthusiasts of astronomical observations from the air balloons, and it happened many times that they themselves flew up in the balloons. Hansky A.P. two times in Paris and one time in Petersburg flew air balls with scientific purposes.

A 1900, all the year round he was in Potsdam working in the astrophysics laboratory belonging to Vogel, one of founders of spectral classification of stars. It was there that he mastered Hartman new method of investigating telescope optics (Hansky, 1904). At the

same time it was at the Potsdam geodesic Institute that Hansky studied the methods which the German scientists used in the gravimetry.

It 1903 A.P.Hansky began to investigate solar granulations, and he continued them throughout his last life years. There were only three astronomers at the beginning of the XXth century, and namely Janssen, Hansky and Chevalier who proved to be unprecedented masters of obtaining the Sun's photographs imprinting the finest details of the solar spots and granulations (Bray & Lowhed, 1966).

The quality of the Sun's photographs and those of formations in it which were taken by Aleksey Pavlovith remained unprecedented till 1959 when the Sun's photo was taken by means of telescopes within the air balls raised up to the stratosphere. Other observers' in ability of repeating such high quality photographs resulted in their doubts about some conclusions drawn by Hansky A.P. from his photographs, for example, on the granules' fragmentation velocity. But life puts everything in its order, and nowadays we can read a note (Kandrashov): "He took the best quality photographs with "a night" instrument – Normal astrograph installed in the Western tower of the Observatory building during the afternoon heat, the photos of such a quality which the Pulkov astronomers failed to obtain even with the specialized solar telescopes equipped with automatics and an electronic analyzer for the image quality sixty years later. Besides Hansky obtained not separate "record" photographs but steady series of photos upon which one could follow the biography of each granule. For the analogous work in the 70-ies of the XX-th century it was necessary to set up The Stratosphere Solar Observatory, with the weight as high as 8 tons, heaved with a helium balloon to the 20.5 km altitude".

An 1905 A.P.Hansky ascertained that the average longevity of separate granules equals to 2 – 5 minutes, thereafter they disintegrate and are substituted by the new ones. These results were published in Pulkov and Paris (Hansky, 1905, 1906 and 1908). Nowadays these data are published in all the text-books an astrophysics, unfortunately, without any reference to his works.

On the 23-rd of September 1904, in Saint Luis (at USA), a constituent Congress of the International Union on the Sun investigation took place under the chairmanship of George E.Hale who became its first President. The striving for cooperation was caused by practical importance of constant and comprehensive research of the Sun. The Director of the Pulkov Observatory O.A.Backlund was a delegate from the Petersburg Academy of Science. And on the third of January 1905 The Russian Department of this union was based and named Commission on the Sun's investigation with A.A.Belopolsky as a head. A.P.Hansky was elected a Secretary (Gnevychev, 1984). On the day of

creating The Russian Department, Aleksey Pavlovitch made a very important report in which he suggested creating Alpine solar observatory (Gnevychev, 1984). Hansky was the first astronomer in Russia to realize the necessity of organizing the Heliophysical Observatory in the south. He himself worked out the project, made up estimates of building the future observatory, and in his articles of that time he noted the possibility of building it in the Crimea, the Caucasus or even in the Pamir (Hansky, 1905).

An 1904 A.P.Hansky was awarded with the medal after P.J.S.Janssen by the Paris Academy of Sciences. The second of the Russian astronomers who was awarded with the very medal in 1907 was A.A.Belopolsky.



Figure 4: The medal after P.J.S.Janssen

On the 8th of April (old style) 1905 he began to work on the staff of the Pulkov Observatory as the adjunct-astronomer. Two expeditions were sent off by Pulkov Observatory to observe the total solar eclipse on the 30th of August in 1905 – one to Spain under the competent direction of Hansky A.P. and another to Egypt under the leadership of Okulich. Hansky's elder brother Peter, a famous painter helped the astronomer to draw this eclipse, by the way Peter painted J.Janssen's portrait for the Pulkov Observatory in 1904. A.P.Hansky arrived at important conclusions from the results of this expedition, and namely, that the forms and directions of the solar corona rays depend upon the forms and directions of protuberances. Thus, once more, the interaction of diverse physical phenomena occurring in the Sun was convincingly grounded (Hansky, 1907).

An May 1906 A.P.Hansky and G.A.Tikhov appealed to the Academy Of Sciences with a proposition of arranging an expedition to the Crimea in order to investigate the zodiacal light and to study the qualities of images. The scientific results from this trip were insignificant (Tikhov, 1959) but it was in Simeis wherein Hansky A.P. came across the N.S.Maltsev's private Observatory, and it might be its best luck. It is a well-known history of this observatory becoming the Simeis department of the Pulkov Observatory.

At the beginning of 1907 Hansky A.P. left for his last expedition for observing the total solar eclipse in Turkestan. The Pulkov astronomers were unlucky be-

cause of the bad weather on the eclipse day, however Hansky A.P. succeeded in observing the zodiacal light.

On the 20th of January (the old style) in 1907 A.P.Hansky and Slovak astronomer Milan Stefanic after returning together from the expedition visited L.N.Tolstoy in Yasnaya Polyana. The great writer after talking with them wrote in his diary: "The astronomers are interesting".

During the last two years A.P.Hansky made a number of observations of the Jupiter's surface. And his talents for drawing did him a good turn in this case. However, the results of these observations are not treated completely.

At the beginning of summer 1908 A.P.Hansky left Odessa for Simeiz for installing telescopes and setting at the Observatory. After a month's active work on setting the Tseiss astrograph and after obtaining the first test photos A.P.Hansky perished tragically.

G.A.Tikhov (Tikhov, 1959) and G.N.Neuimin, two astronomers, have noted the fact of obtaining the first astronomical photos in the Simeiz Observatory by A.P.Hansky. Thus, we are given the right of calling Hansky the first astronomer – observer of the Simeiz, later on, the Crimean Observatory.

The astronomers in commemoration of the outstanding investigator Hansky gave his name to:

The year 1928 – minor planet 1118 (discovered by Belyavsky S.I.)

The year 1970 – crater on the far side of the Moon (selenographics coordinates – + 97°, -10°)

The glacier on the Spitsbergen is called after his name too. Its coordinates are 78°40' of northern latitude and 20°30' of eastern longitude. In Simeiz there is a street of a name A.P.Hansky.

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