ცხრილში I მოყვანილია კომეტის ფოტოგრაფიული სიდიდეები.

ცხრილი II შეიცავს კომეტის მდებარეობათა ზუსტ და მიახლოებით კოორდინატებს.

პრიზმატული კამერის საშუალებით მიღებული 4 სპექტროგრამის გამოკვლევას მივყავართ იმ დასკვნაზე, რომ კომეტის თავი შეიცავს ციანისა და ნახშირბადის გაზის საკმაოდ დიდ რაოდენობას. სპექტრში მოსჩანს უცნობი ხაზებიც, რომელთა წარმოშობა ჯერ კიდევ გაურკვეველია.

2. 1942 წელს, დეკემბრის 26-ს კუროს—თანავარსკვლავედში აღმოჩენილი იყო მეორე ახალი კომეტა 10,8 ვარსკვლავიერი სიდიდისა.

როგორც გამოირკვა, ეს კომეტა ყოფილა 1867 წელს Stephan-ის მიერ აღმოჩენილი კომეტა, რომელიც მეორედ მობრუნების დროს (ეს მობრუნება უნდა ყოფილიყო დაახლოებით 1905 წელს) არ იყო ნაპოვნი. უკანასკნელი გარემოება კიდევ უფრო მეტად საინტერესოს ხდის ამ კომეტას.

ცხრილში III მოყვანილია კომეტის მიახლოებითი კოორდინატები და ფოტოგრაფიული სიდიდეების მნიშვნელობანი.

საინტერესოა ის, რომ პერიჰელიუმზე გავლის შემდეგ კომეტა რამოდენიმე ხნით სიკაშკაშის ზრდას განიცდიდა. ჩვენს ცაზე მისი ხილვადობის ხანგრძლივობა 95 დღეღამეს აღემატა *.

ივლისი, 1943.

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* „ასტრონომიულ ცირკულარში", რომელსაც სსრკ მეცნიერებათა აკადემიასთან არსებული ასტრონომიული ინფორმაციის ბიურო აქვეყნებს, აქ აღწერილი კომეტა მოხსენებულია როგორც 1942 წლის თევზაძის II კომეტა.

ასტრონომიულ ცირკულარში აქ აღწერილი მეორე კომეტა მოხსენებულია როგორც 1942 წლის თევზაძის I კომეტა.

როგორც ახლა არის ცნობილი, Oterma-ს მიერ ნოემბერში აღმოჩენილი კომეტა (1942 e) იგივეა, რაც თევზაძის I კომეტა (P. A. LI, Jan.—1943). გარდა ამისა, Whipple-მა დამოუკიდებლად იპოვა თევზაძის II კომეტა 11 და 20 დეკემბერს შუა, მაგრამ, შესაძლოა თევზაძეზე უფრო გვიან (Astr. News. Lett. No. 8).

რედაქტორი

აბასთუმნის ასტროფიზიკური ობსერვატორიის ბიულეტენი № 7. 1943
БЮЛЛЕТЕНЬ АБАСТУМАНСКОЙ АСТРОФИЗИЧЕСКОЙ ОБСЕРВАТОРИИ № 7. 1943
BULLETIN OF THE ABASTUMANI ASTROPHYSICAL OBSERVATORY No. 7. 1943

A BRIEF REPORT ON THE ACTIVITY OF THE ABASTUMANI ASTROPHYSICAL OBSERVATORY ON MOUNT KANOBILI IN THE YEARS 1940—1942 *

The scientific research work of the Abastumani Observatory in the years 1940—1942 was carried on mainly in the following directions:

a) Stellar Astronomy and Astrophysics;
b) Solar work;
c) Planetary Astronomy;
d) Geophysics (Earth's atmosphere);
e) Experimental work.

Scientific Research Work

a) Stellar Astronomy and Astrophysics. Three fundamental themes in this field were: 1) Color-indices of stars of $11^m.0$—$13^m.5$ in the Kapteyn Areas, 2) Photoelectric color-equivalents of B_8—B_9 stars and 3) Color-indices of extragalactic nebulae. These themes are devoted to the study of absorption in the Galaxy.

E. K. Kharadse secured about 125 pair of plates of 35 Kapteyn Areas taken in photographic and visual rays (with 8-inch parallel cameras) and he finished the determination of color-indices of 6293 stars of $11^m.0$—$13^m.5$ in 16 Areas [1].

V. B. Nikonov with his assistants made about 2600 photoelectric observations and determined color-equivalents of 636 B_8—B_9 stars. Observations were carried on by means of stellar photoelectric photometer with thermionic amplifier mounted on a 13-inch reflector **. The author used a gasfilled antimonium-caesium photoelectric cell in combination with light-filters. This gives a colorimetric system which somewhat surpasses the amplitude of the

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* Brief reports on the activity of the Observatory in the years 1932—1937 and 1938—1939 were published in Bull. Abast. Obs. 2, p. 151, 1938 and Bull. Abast. Obs. 5, p. 131, 1940. The annual reports were published regularly in Astr. Journ. of USSR (Moscou).

** In 1931 the mirrors of 13″ reflector were coated with alluminium.

international system of color-indices. Provided careful account of the atmospheric extinction, this colorimetric system gives a rather high accuracy[2].

M. A. Vashakidse determined color-indices of about 400 extragalactic nebulae[3] (the Schmidt coma-free camera).

Three above mentioned investigations make only a part of the planned work containing the preparation of three catalogues: of 1) color-indices of $11^m.0-13^m.5$ stars in Kapteyn Areas, 2) color-equivalents of B_8-B_9 stars and 3) color-indices of extragalactic nebulae.

M. A. Vashakidse carried on counts of stars of earlier spectral classes both in a dark and a bright regions of the Milky Way and showed that in bright regions the stars of earlier types are more numerous than in the dark regions. He interpreted this phenomenon by the presence of a dark cloud or, in case of its absence, by the spiral form of the Milky Way[4].

V. B. Nikonov in collaboration with E. S. Brodskaja studied the colour variation of α^2 Canum Venaticorum. They detected the variation of colour, the character of which is in fair harmony with the results of Tai (M.N. 100, No. 2). The variations of colour temperature are in good agreement with the known spectroscopic data. The authors collected on the whole about 120 observations of the variable[5].

O. A. Melnikov (Poulkovo Observatory) during his stay at Abastumani (autumn of 1940) carried on an investigation on the phases of variation of radii of the chromosphere and photosphere of Cepheids. He showed that in the atmosphere of Cepheids a thermodinamic equilibrium takes place to some approximation. The radii of the photosphere are late in comparison with the radii of the chromosphere. This is caused by the peculiar behaviour of the chromosphere in the variable field of radiation[6].

b) Solar works. At the total solar eclipse of September 21, 1941* M. A. Vashakidse investigated the degree of the polarization and the direction of its plane in the solar Corona. He found that the polarization is not dependent on the wave-length; the maximum degree of polarization is at the distance from 4′ to 12′ from the Sun's limb; the value of the degree of polarization is changed both according to the position angle and along the radius itself; the plane of polarization is directed radially[7].

V. B. Nikonov determined the total coronal radiation by means of a specially constructed radiometer. Having determined heat-equivalents of the Sun and the Corona by the use of the radiometer with a water cell, he compared the integral light of the Corona with that of the Sun. He found that there exists a certain infra-red excess in the Corona, which is in favour of the supposition of the presence of thermal radiation in the solar Corona[8].

*) The expedition of the Abastumani Observatory was sent to the village Djalanash near Alma-Ata (Kazakh SSR).

Systematic observations of the solar surface in Hα-light were made with the spectrohelioscope (541 days of observations, 680 observations made, more than 7000 details registered). The material was partly published[9]. At the beginning of the war additional spectrohelioscopic observations and registrations of Sun-spots (observing the Sun's image on the screen) were introduced partly to compensate the lack in regular solar service, inevitable in war time.

c) Planetary Astronomy. Observations of minor planets were being made by E. K. Kharadse and N. B. Demidov in 1940—1941 and by G. A. Tevsadse in 1942. About 120 pair of plates were obtained (8-inch parallel cameras) with about 280 hours of exposition. 700 approximate positions were determined and 540 of them were published[10].

Observations of some new comets were made and about 40 approximate positions of Cunningham's, Friend's, Paraskevopoulos' and Van Gent's comets were determined[11].

In December, 1942 G. A. Tevsadse discovered two new comets of 7^m (14.XII) and 10^m (26.XII)[12].

Occultations by the Moon of about 50 stars were observed.

G. A. Tevsadse examined the irregularities of the pivots of the Bamberg Transit Instrument[13] in connection with the using of it for the determination of the difference of longitudes Poulkovo-Abastumani and determined the latitude and longitude of Abastumani Observatory on Mt Kanobili[14] using the observations made in 1939.

I. P. Tarasashvili studied the motion of Pluto subjected to the attractive action of the Sun and seven complanate circles having their centres in the Sun's centre and possessing masses equal to those of 7 planets and he determined the areas of a possible motion of Pluto[15]. Besides, I. P. Tarasashvili studied the general theory of a small body in the external area o the solar system (the theory of motion in the limited problem of Fatou in the plane) and considered the qualitative theory of motion, investigating in detail the curves of zero-velocity[16].

d) Geophysical observations and experimental work. Actinometric and meteorologic observations serving for reduction purposes as well as for the study of atmosphere conditions of the Abastumani region were conducted systematically (by Sh. M. Chkhaidse and N. I. Georgobiani). The data of actinometric observations for the year 1940 were published[17].

Sh. M. Chkhaidse carried on a discussion of the data of actinometric observations made with a light-filter[18].

In 1941 the photometry of twilight sky (13-inch reflector and the stellar electrophotometer) and the study of day and night transparency of the atmosphere (with a coronal electrophotometer) were commenced. For this time being this work is limited by accumulation of observational data.

At the end of 1940 a regional seismic station at the Observatory began its work.

The staff

By the end of 1942 the staff of the Observatory consisted of: E. K. Kharadse, V. B. Nikonov, M. A. Vashakidse, G. A. Tevsadse (scientific collaborators), E. S. Brodskaja, T. G. Megrelishvili, E. K. Nikonova, T. A. Kotchlashvili, N. B. Kalandadse (assistants), E. E. Dolidse (laboratorian), N. I. Georgobiani (the chief of the meteorological station), V. V. Vikhrov (mechanician) and others.

In 1941 one of the collaborators of the Observatory defended his thesis for the scientific degree.

Library

By the end of 1942 the library contained about 6200 books. Over 400 periodicals had been received in 1940 and 1941 by the time when the war began.

Publications

During the period of 1940—1942 were issued:

1) Bulletin No. 4 (1940),

2) Bulletin No. 5 (1940),

3) Bulletin No. 6 (1942);

4) «The Sun»—popular monography in Georgian, 184 pp, 1940, by E. K. Kharadse,

5) «The Eclipse of the Sun on September 21, 1941»—popular edition, 28 pp, 1941, by E. K. Kharadse,

6) «Astronomy and military questions»—popular edition, 58 pp, 1942, by E. K. Kharadse.

Bulletin No. 7 was prepared for print.

Educational work among masses

The educational work among masses was being carried on through popular lectures on the astronomical subjects, organized at schools and in collective farms of the Abastumanji district.

About 15 lectures and colloqiums were delivered yearly.

Collaboration with other scientific institutions

O. A. Melnikov from Poulkovo Observatory secured photographic material appointed for an investigation of variations in the telluric bands of the infra-red region of the spectrum (1940).

Scientific collaborators of the State Astronomical Institute of the Academy of Sciences of USSR M. P. Pomerantzev and E. K. Nikonova carried on some experimental work. The latter secured electrocolorimetric material regarding the transparency of the Earth's atmosphere.

During the years 1940—1942 five of scientific collaborators or assistants were sent on scientific missions.

The Observatory participated in different astronomical conferences: Astronomical session at Poulkovo in 1940, the Conference on the problems of Celestial Mechanics in Leningrad in 1940, Conference on the problems of structural Astronomy at Poulkovo in 1941, the Conferences of the Solar Commission in Moscow (1941) and in Alma-Ata (1941), the Scientific Sessions of the Academy of Sciences of Georgian SSR in Tbilisi (February 1941, October 1942).

During the years 1940—1942 32 students, a post graduate student and a scientific collaborator of the Tbilisi State University and the Kiev State University carried on practical studies.

At the end of 1941 a group of astronomers of Simeis Observatory headed by G. A. Shajn arrived and stayed at Abastumani where they continued their scientific-research work; some of their investigations are published in our Bulletins [18].

The building-construction for the Observatory

In the years 1940—1941 a structure for a laboratory was added to the main building and in 1941 a water-supply was built on Mount Kanobili.

E. K. Kharadse

Director of the Abastumani Astrophysical Observatory of the Academy of Sciences of Georgian SSR, Mt Kanobili.

February, 1943.