OBITUARY

A. B. SEVERNY

(1913–1987)

Soviet science has suffered a grave and unrecoverable loss. On April 4, 1987 died the outstanding scientist, astrophysicist, Director of the Crimean Astrophysical Observatory of the U.S.S.R. Academy of Sciences, Hero of Socialist Labour, and laureate of State Prizes, Academician Andrei Borisovich SEVERNY.

A. B. Severny was born on May 11, 1913 in Tula. When at school, he was interested in astronomy. He joined the Moscow Amateur Astronomy Society as an active observer.

In 1931 Severny entered the Moscow State University from which he graduated in 1935 with an excellent diploma. He was admitted to the post-graduate and later to the post-doctoral course of the U.S.S.R. Academy of Sciences. During his studies at the University, Severny started his scientific activities in the field of theoretical astrophysics: he investigated the internal structure of stars.

In autumn 1944, a group of Soviet scientists started the search for a site with a good astroclimate to set up a new observatory in the Crimea. Dr Severny participated in two site search expeditions.

Being appointed to the staff of the Crimean Astrophysical Observatory in 1946, Dr Severny took an active part in the reconstruction of the Simeiz Observatory and later in the foundation of the Nauchny settlement near Bakhchisarai, well-known to many astronomers in the world as the Crimean Observatory.

In 1949, Dr Severny was appointed an Assistant Director and from 1952 until the day he died, he was the Director of the Crimean Astrophysical Observatory.

Dr Severny started investigations of the Sun in Simeiz and continued them at the new Observatory by using powerful specially designed instruments. The narrow-band interference-polarization filter, the first in the U.S.S.R., was constructed by Dr Severny in collaboration with Dr A. B. Gilvarg. The filter was installed on the coronagraph. Dr Severny was the first to carry out quantitative spectral investigations of solar flares and other non-stationary processes on the Sun. Spectral investigations were completed by cinematographic study of solar plasma motions in the Hα line. As a result, rapid motions in solar flares were registered that had been considered earlier as a stationary pattern. Systematic measurements of the magnetic fields on the Sun permitted Dr Severny to discover a close connection of flare appearance with the specific peculiarities of magnetic fields, which was adopted as a basis for flare forecast method.

This discovery was of special importance for the security of Soviet cosmonauts during space flights.

The work of Dr Severny on solar physics was highly regarded by the scientific community and by the government of the U.S.S.R. In 1958, Dr Severny was elected a corresponding member of the U.S.S.R. Academy of Sciences and in 1968, an Academician of the U.S.S.R. Academy.

In 1954 under the direction of Dr Severny the first Solar Tower telescope in the

U.S.S.R. was constructed in Nauchny. After reconstruction in 1973, this telescope became one of the biggest in the world. The plane coelostat mirrors are 120 and 110 cm in diameter, while the primary parabolic mirror has a diameter of 90 cm. Basing on the method of Babcock, Dr Severny together with his collaborators designed a new highly sensitive solar magnetograph, which was later converted into a magnetograph of the total magnetic vector. This instrument permitted Severny to obtain new impressive results in the investigation of the fine structure of the magnetic field of the Sun and the total vector of the magnetic field in the spots and in active regions. A great contribution into the physics of the Sun was made by regular registrations of the magnetic field of the Sun as a star, which were initiated by Severny in 1968. Such observations, currently proceeding at several observatories in the world, provide astrophysicists with valuable material about the variability of solar magnetism, having sharply expressed sectoral structure. The study of sectoral structure, closely connected with the variations of the interplanetary magnetic field, turned out to be one of the most interesting and important directions in the solar-terrestrial physics. In particular, it has been confirmed by detailed investigations carried out in the seventies by A. B. Severny together with J. Wilcox and other colleagues. Later, the magnetograph method was successfully applied to the study of the magnetic fields of stars and light polarization of a number of peculiar objects.

Dr Severny spent hundreds of observing hours at his telescope. One of the main results obtained recently was the discovery of global solar oscillations with the period of 160 min and amplitude of about 5 km, made by Severny in collaboration with his colleagues. This result is registered as a discovery by the U.S.S.R. State Committee on the Investigations and Discoveries.

After the launch of the first satellite, the Observatory was engaged in a new program of tracking satellites. Later by the initiative of Dr Severny, the tracking of distant artificial objects – lunar and interplanetary spacecrafts – became a part of the scientific activities of the Observatory. The method of prompt determination of celestial coordinates of such objects was developed at the Observatory, permitting the construction of a network of tracking stations.

Since 1960, the Observatory has actively participated in extra-atmospheric projects. Developed under Dr Severny, several devices have been successfully used on board artificial satellites of the 'Cosmos' type, 'Lunachod-2', 'Salute-4' and on the high-apogee satellites 'Prognoz-6' and 'Prognoz-7'. These devices were used for photometric and spectral observations of various objects and background fields in the UV spectral regions.

In March 1983, astrophysical station 'Astron', equipped with the UV telescope with a primary mirror of diameter 80 cm, the biggest among existing space stations, was launched into a highly elongated orbit (200 000 km in apogee). The telescope was constructed in the Crimean Observatory in collaboration with the Burakan Observatory and a number of industrial enterprises. The spectrometer was made at the Marseille Laboratory for Space Research (France). Over 4 years, a large amount of unique information has been obtained on the ultraviolet spectra of various kinds of stars, galaxies, quasars, nebulae, background fields of the Milky Way, and several comets, including 200 spectra of Comet Halley.

The supernova which bursted out in the Large Magellanic Cloud at the end of February 1987 was observed by 'Astron'. Several UV spectra have been obtained.

Dr Severny was famous all over the world for his scientific investigations. He was full member of the International Academy of Astronautics, a Doctor of Science of the University of Newcastle upon Tyne, one of the Associates of the Royal Astronomical Society (England) and was Vice-President of the International Astronomical Union for six years.

Dr Severny published about 270 scientific papers. For 35 years he was the chief editor of *Izvestia Krymskoy Astrofizicheskoy Observatorii* and was one of the editors of the U.S.S.R. monthly bulletin *Solnechnye Dannye*. He also was member of Editorial Boards of other publications, including *Solar Physics*.

A. B. Severny will remain alive in the memory of those who knew him and worked with him.

His death, on April 4, 1987, is a severe loss to the solar and astrophysical community, and to his friends and associates.

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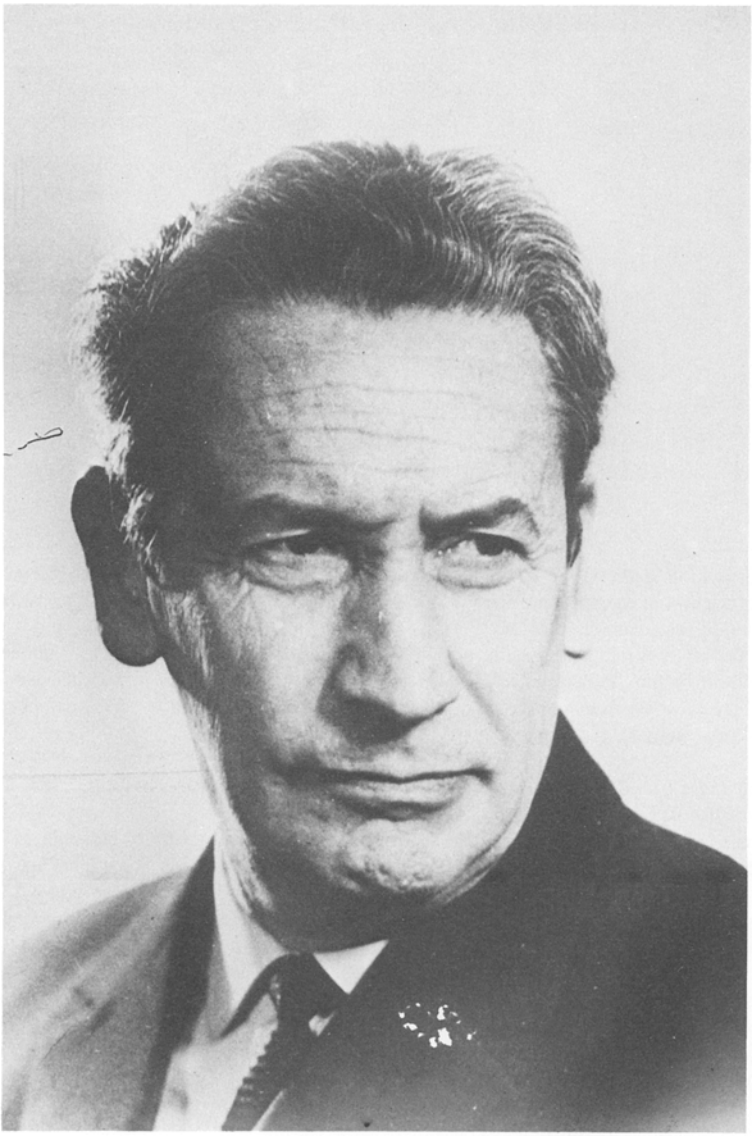

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