

ON THE 90TH BIRTHDAY OF ACADEMICIAN V. A. AMBARTSUMIAN, FOUNDER OF THE JOURNAL ASTROPHYSICS, AT SYMPOSIUM No. 194 OF THE INTERNATIONAL ASTRONOMICAL UNION

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The International Astronomical Union Symposium No. 194, Activity of Galaxies and Related Phenomena, met from 17 to 21 August 1998 at the Byurakan Astrophysical Observatory, National Academy of Sciences (NAS) of the Republic of Armenia. The Symposium was devoted to scientific problems directly associated with the name of Viktor Amazaspovich Ambartsumian, an outstanding scientist of the 20th century, founder of the Byurakan Observatory, and a great citizen and patriot of his country. The Symposium was timed to Ambartsumian's 90th birthday.

One hundred astronomers from 22 countries around the world took part in the Symposium, and about 60 papers and over 50 poster papers were given.

The Symposium was opened in the meeting hall of the Presidium of the Armenian NAS. Academician F. T. Sarkisian, President of the Armenian NAS, gave the opening address on Ambartsumian's role in the development of astronomy and the development of science in Armenia. He particularly stressed Ambartsumian's role in enhancing the prestige of the Armenian Academy of Sciences.

"Academician V. A. Ambartsumian," said the President, "is one of those scientists who, in his merits and reputation, goes beyond the limits of his scientific fields and in his own lifetime becomes a great national figure. He can truly be called a great Armenian.

"The IAU Symposium that was organized, devoted to active galaxies, is an expression of the sincere regard of the international scientific community toward a great person. Permit me to welcome the participants in the Symposium and to wish that this representative scientific forum will blaze an important scientific trail in astronomy."

The orator then dwelt on some stages in the biography and scientific activities of the celebrant. He especially noted his fruitful work - both scientific and organizational - at Leningrad University. After moving to Armenia, Ambartsumian headed the Academy of Sciences and founded the Byurakan Observatory.

"It was necessary," the President continued, "to carry out scientific research in the newest scientific fields and to ensure a modern, high level of their development. Ambartsumian was responsible for the development of fundamental sciences, but simultaneously he did everything to see that scientific development was directed toward the solution of the country's social, economic, and cultural problems.

"Thanks to Academician Ambartsumian, the Armenian Academy of Sciences has made a considerable contribution to the development of world science. His organizational talent enabled the Armenian Academy of Sciences to become a center of scientific thought of world importance."

Aleksandr Alekseevich Boyarchuk, Academician of the Russian Academy of Sciences, gave a detailed speech on Academician Ambartsumian's contribution both to astronomical science and to related sciences. We briefly give the main points of this address, imbued with deep respect for an outstanding scientist.

"Viktor Amazaspovich lived a long, fruitful life and left an enormous scientific legacy in the form of the results that he obtained, the ideas that he advanced and developed, the observatory and journals that he created, etc. It is impossible to present all this in a half-hour address, and I have chosen only certain aspects. This is a subjective choice, of course. It must be remembered that Ambartsumian's main work was done 50-60 years ago, when astrophysics was only beginning to develop. There were no radio astronomy or high-energy astronomy, and we did not know the source of stellar energy or

the chemical composition of any star.

“It therefore elicits respect and amazement that many results obtained by Viktor Amazaspovich from simple dynamical considerations have subsequently been fully confirmed by more comprehensive analysis.

“1. The method of determining the temperatures of the central stars of planetary nebulae proposed by Viktor Amazaspovich has long been one of the basic methods.

“2. The method that he proposed for solving problems of light scattering in a turbid medium, the so-called invariance method, has found very wide application not only in astronomy but also in many other scientific fields.

“3. An analysis of binary stars enabled Viktor Amazaspovich to determine the age of the universe to be $\sim 10^{10}$ years, in contrast to the previous estimate of $\sim 10^{13}$ years. Modern data yield $(1.5-1.8) \cdot 10^{10}$ years.

“4. The discovery and investigation of stellar associations and clusters of the Trapezium type enabled Viktor Amazaspovich to conclude that stars continue to be born now, and are born in groups. This gave rise to a new field - the science of star formation.

“5. Viktor Amazaspovich first pointed out the existence of a correlation between the properties of a galactic nucleus and the properties of the galaxy itself. He concluded that the nucleus determines the life of the galaxy, to a considerable extent. In this he originated a very vigorously developing branch of extragalactic astronomy - the activity of galactic nuclei. The present Symposium is devoted to problems in this field.

“Viktor Amazaspovich occupied many responsible positions both in international organizations and in the USSR and Armenia, and he did everything for the development of astronomy.”

Yervant Terzian, a foreign member of the Armenian NAS, discussed his encounters with Viktor Amazaspovich. “This meeting,” he said, “coincides with the 90th birthday of the great astrophysicist, the late Viktor A. Ambartsumian, who for most of this century was the scientific leader of this ancient country - the country of my fathers. Ambartsumian was the President of the Armenian Academy of Sciences, the Director of the Byurakan Astrophysical Observatory, and at one time President of the International Astronomical Union. He was a wonderful man and a great scientist. In 1974 he wrote in the IAU Highlights of Astronomy, edited by George Contopoulos (*Galaxies and Their Nuclei*, pp. 51-56), as follows:

“The astronomers of 2473, celebrating the thousandth anniversary of Copernicus, will admit that the generation which lived halfway was not always sitting idle, but was sometimes unrestrained and fearless in the search for the unknown properties of the Universe.”

Professor H. Arp (European Southern Observatory, Germany) noted Viktor Amazaspovich's concepts in cosmology. In particular, he said:

“This Symposium is dedicated to the scientific achievements of V. A. Ambartsumian. I would like to point out that his most important discovery has received little consideration and almost no acceptance by astronomers today. Ambartsumian looked at photographs of galaxies on the sky and concluded that new galaxies were ejected from older, larger galaxies (Solvay Conference 1957 and elsewhere). This meant that the conventional picture of the universe was incorrect because that Big Bang model created all galaxies instantaneously out of nothing about 15 billion years ago.

“In the last 30+ years the observational evidence has piled up on the side which requires new galaxies and protogalaxies to be created continuously through to the present time. It is now possible to show a completely empirical evolutionary sequence proceeding from high-redshift quasars through active, compact galaxies to only slightly younger, nearly normal companion galaxies. Quasars in the role of protogalaxies can now be shown to be ejected along the minor axes of active galaxies. Within this same narrow volume of space it has been long known that normal companion galaxies are found and the evolution of the quasars into normal companions is strongly supported.

“Ambartsumian's concept of superdense matter can now explain these observations if it represents newly created matter of near-zero particle mass. In this case the particle masses grow with time, the redshift decreases, and the new matter ages into normal galaxies. Thus the present concept of an expanding universe created in a Big Bang is no longer valid. It would be replaced by an indefinitely large universe of unlimited age in which galaxies are continuously created.”

Academician G. A. Brutian, Vice President of the Armenian NAS, dwelt on Academician Ambartsumian's philosophical work, stressing his inestimable role in creating the philosophical school in Armenia.

“It is quite appropriate,” said the Vice President, “that when the Philosophical Society of the Soviet Union was organized in 1971, Academician Ambartsumian became a member of the administration of this Society, and in 1990 he

became the Honorary President of the newly created Philosophical Society of Armenia. The Philosophical Academy of Armenia, in which he was an honorary councilor, was created thanks to his efforts. Academician Ambartsumian was often invited to all-world conferences on philosophy. He was the author of a book titled *Philosophical Questions About the Science of the Universe*. Ambartsumian was thus not only a great astrophysicist and mathematician, but also a great philosopher. He was a person of cosmic interests and should be evaluated by cosmic standards.”

Ambartsumian’s son, Academician R. V. Ambartsumian, presented the book *A Life in Astrophysics*, the selected works of Viktor Amazaspovich. See the next article on this presentation.

Following the official part of the Symposium, the participants went to the Byurakan Astrophysical Observatory, where scientific papers on galactic activity were given and discussed.

On the first day, after the sessions, the opening ceremony for Academician Ambartsumian’s museum-house in Byurakan was held. V. A. Ambartsumian lived in this house and in it he died on 12 August 1996.

Unique manuscripts, documents, and photographs associated with Ambartsumian’s life and scientific activity are exhibited in the museum-house and diplomas, orders, and honorary medals from governments, academies, and universities of many countries are displayed.

The IAU Symposium organized at Byurakan was a tribute of esteem to the memory of an outstanding scientist, brought about in this secluded corner of Armenia devoted to him, which today carries his name: the V. A. Ambartsumian Byurakan Astrophysical Observatory.