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# AWARD OF THE BRUCE GOLD MEDAL TO PROF. V. A. AMBARTSUMIAN

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On November 13 of last year our Society's Board of Directors voted unanimously to award the Bruce Gold Medal for 1960 to Prof. Viktor A. Ambartsumian, who is one of Russia's foremost astrophysicists. He is a scientist of high international reputation who has had a leading part in the development of Russian astronomy during the past 25 years. On this occasion it is possible to give only the briefest account of his very active scientific life and outstanding research achievements.

Dr. Ambartsumian was born on September 18, 1908, in what is now the capital of the Georgian Autonomous Soviet Socialist Republic, Tiflis, which means "Warm Springs." This large city, on the banks of the Kura River, is better known as one of the great crossroads of trade between Europe and Asia than as a center of learning. However, Ambartsumian's father was a writer who contributed much to his son's intellectual development in their native Georgia. Even in high school the son's interest in higher mathematics and theoretical physics became evident, for he studied the theory of relativity as a teen-ager. He began his university studies in Leningrad in 1924, first at the Pedagogical Institute, and a year later at the University. While there as an undergraduate student he published about 10 papers, and had as a teacher another famous Russian astronomer, Tikhov. Ambartsumian graduated from Leningrad University in 1928, when he was scarcely 20 years old, and then immediately undertook postgraduate work at the Pulkovo Observatory. During two years' work there, he wrote a series of papers on theoretical physics (with Ivanenko), among

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them one concluding that the atomic nucleus is composed mainly of heavy particles, a result that foreshadowed the discovery of the neutron.

In 1931 Ambartsumian was appointed Scientific Secretary of Pulkovo Observatory, and soon thereafter resumed his association with Leningrad University. He thereby began a remarkably fruitful career as teacher, scholar, and administrator, in successive appointments as Professor of Theoretical Astrophysics, Director of the University Observatory, and Pro-Rector of Sciences of the University. For his first students he wrote the first Russian textbook on theoretical astrophysics, which after 20 years is still most useful to students and specialists because it contains such a wealth of new ideas and results from original investigations. Among these may be mentioned his theory of gaseous nebulae, with its application to the estimation of the masses of envelopes ejected by novae and other non-stable stars. His development of a special physical statistics for stellar systems, in which account was taken of Newtonian attraction in the absence of statistical equilibrium, led to new methods for studying the evolution of double stars, star clusters, and stellar systems of greater complexity. It was natural for these researches to lead Ambartsumian to study the structure and properties of interstellar matter, and for this purpose he originated a refined theory of light scattering. This theory was based on such broad principles, in fact, that it subsequently found important applications to problems of planetary and stellar atmospheres, solar physics, and geophysics.

Toward the end of 1943, Ambartsumian went to work in Erevan, the capital of the Armenian SSR. There he had a position in the Armenian Academy of Sciences, taught at Erevan University, and up to 1946 directed the work of the Erevan Observatory. In 1946, largely due to his initiative, construction was started on a new observatory at nearby Biurakan, with Ambartsumian as its director. The establishment of this new observatory occurred at about the same time as a fundamental investigation by him. This was the recognition, in our own and other galaxies, of a new type of stellar group that he called a "stellar association." This concept, which involves the interrelationships between great complexes of gas, dust, and stars, like the region of the Orion Nebula, has proven invaluable in our efforts to understand the

processes of star creation and development. Ambartsumian's work in this fascinating field has undoubtedly been one of the most powerful influences in stimulating modern research on stellar evolution and galactic structure.

In recent years, Ambartsumian has extended his work to include the extragalactic domain, again with notable results. He was one of the first to raise doubts about interpreting the great number of faint radio sources as colliding systems. Probability calculations convinced him that fission, rather than fusion, among galaxies was much more the rule. He concluded that, since there apparently exist expanding groups and clusters of galaxies, the so-called "radio galaxies" may represent superclose, interacting systems created earlier by the fission of superdense formations of unknown properties. As observations to support this conclusion, he has cited the presence in and around certain galaxies of jets, connecting streamers, and condensations extremely blue in color, which on his theory are indicators of youth. These ideas are novel and provocative, and it will be important to learn whether, as in the case of stellar associations, future optical and radio observations will strongly support them.

Dr. Ambartsumian has served his country in many ways in addition to his work in astronomy. In 1947 he was elected President of the Armenian Academy of Sciences and a member of the Supreme Soviet of the Armenian SSR. Since 1950 he has been a member of the Supreme Soviet of the USSR, and since 1953 has taken an active role as a full member of the USSR Academy of Sciences. His country, in appreciation for his many achievements in science and for services to local, state, and national organizations, has decorated him with USSR orders thirty times, and has awarded him two Stalin prizes.

Ambartsumian's work has also been widely recognized abroad, with election as a foreign associate of numerous academies and societies, among them those in Vienna, Berlin, Liège, London, Boston, and Washington. From 1948 to 1955 he was a vice-president of the International Astronomical Union, and in 1956 he was awarded the Janssen Medal of the French Astronomical Society. Thus our own Society joins a long list of distinguished scientific organizations in making this 1960 Bruce Medal award to Prof. V. A. Ambartsumian.