

Ambartsumian's ideas at a colloquium at the Yerkes Observatory late in 1946.

It was about this time that my own interests began to diverge from astronomy. But I am aware of Ambartsumian's founding of the Byurakan Observatory in Armenia, of the extremely important work that continues to be carried out at the Observatory, including of course Markarian's brilliant work on the discovery and cataloging of galaxies known by his name; and of the discovery and of the prevalence of flare stars.

There can be no more than two or three astronomers in this century who can look back on a life so worthily devoted to the progress of astronomy. It is a privilege to have known him and to wish him the very best on his reaching his eightieth birthday.

## VICTOR AMBARTSUMIAN AND THE IAU

Jean-Claude Pecker

Few astronomers have had such a deep influence as Victor Ambartsumian has had on the life of the international bodies devoted to the promotion and defense of astronomy and science in general. I remember that, years ago someone asked me whether I was spending more time in astrophysical research or in teaching. I told him that the divisions of astronomical activity were not the ones he implied: there is astrometry on one side and astrophysics on the other side, but astropolitics is possibly, for some of us, the most important part of all. Professor Ambartsumian has been exemplary, in the sense that, a very active and productive astrophysicist himself, he entered into astropolitics without doing any harm to his scientific output.

President of the International Astronomical Union from 1961 to 1964, past-president and councilor of the Executive Committee from 1964 to 1967 then he became President-elect of the ICSU, and president of ICSU from 1970 to 1974: a record difficult to achieve and possibly unpaired amongst astronomers!

I had met Professor Ambartsumian much earlier indeed. He was amongst the few Soviet astronomers who visited France immediately after the Second World War and he came to our country on several occasions since. But, of course, the IAU was an ideal place to meet. First it took place in Rome, in 1952, at the General Assembly of the IAU. At that time, I witnessed the brilliant intuitions of Ambartsumian. It was the far-reaching discovery of O and T associations, the recognition of the importance in stellar births of explosive events, the studies of active galaxies... and in a quite different field, the celebrated invariance methods applied to solve difficult transfer problems. And, in 1958, in Moscow, as a guest to the Tenth General Assembly, Professor Ambartsumian expressed his ideas in the most enthusiastic way, as such:

"En faisant la part qui leur est due aux perfectionnements des moyens d'observations, je voudrais toutefois souligner l'importance décisive des recherches théoriques. Pendant les années qui se sont écoulées après l'Assemblée de Dublin, la théorie a compté de grands succès à son actif. Cependant, nous vivons à une époque où l'on peut imposer à la théorie de plus hautes exigences.

Je suis profondément convaincu que nous touchons à une étape du développement de l'astrophysique qui nous ouvre de nouvelles propriétés de la matière, qui ne pouvaient être mises à jour dans les conditions qui existent dans les laboratoires terrestres. En d'autres termes, je voudrais dire que de nombreux phénomènes et lois de la physique stellaire que nous avons établies par voie empirique, à l'aide d'observations astronomiques, ne pourront être expliqués que par suite d'un approfondissement des conceptions de la physique théorique moderne.

Parmi les phénomènes qui exigent des efforts particulièrement grands des théoriciens et qui sont des problèmes de base de l'astronomie moderne, il faut citer, par exemple: 1) Le problème des étoiles non-stables. 2) Le problème des explosions des supernovae. 3) Le problème de l'origine des jeunes groupes stellaires. 4) Le problème de la formation

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des bras spiraux des galaxies. 5) La question de la nature des radiogalaxies. 6) Le phénomène d'éloignement réciproque des galaxies lointaines. 7) La question de la nature de la matière intergalactique. 8) La question de l'origine des rayons cosmiques. 9) Le problème de l'origine des éléments.

Le fait que malgré l'accumulation d'une énorme quantité de données d'observations et l'établissement de toute une série de lois empiriques, qui décrivent ces phénomènes, nous sommes encore très éloignés de leur explication théorique, indique que les théoriciens dans leur travail commun avec les observateurs, doivent multiplier leurs efforts".

When in 1961, we were both elected to the Executive Committee of the IAU, we thus knew each other already quite well. I was Assistant General Secretary, he was President. The General Secretary was Donald H. Sadler, a remarkably efficient man, with a perfect knowledge of the IAU, with a precise and subtle mind, an excellent General Secretary indeed, and an excellent friend. From him, I got clear instructions on what I had to do about the organization of symposiums, and other tasks for...beginners. It was a perfect training for the years which were to come. From Sadler's behavior, Professor Ambartsumian got the feeling that everything was going smoothly in the IAU. Hence he decided not to play an exaggerated role and to leave more or less a free hand to Sadler; and this was indeed quite wise. Only the letters of political importance were sent to him, whenever his advice was really needed he responded with simplicity, kindness, and very much to the point. His comments were invaluable and fortunately rare: which meant that the health of the IAU was very satisfactory.

Occasions occurred when the personal qualities of Professor Ambartsumian could be more readily appreciated. Every year, the Executive Committee met, as it is still the case. In 1962, we were fortunate enough to meet in Yerevan. This was my first trip to Soviet Armenia, and I keep the best memories of it. We had then the opportunity to meet the young Armenian astronomers, a group of first class scientists, gathered around the strong personality of Professor Ambartsumian amongst a set of good instruments, in a beautiful spot of the Armenian hills, in front of the two summits of Ararat, above the valley of the river Kasakh, in Byurakan. I remember meeting then Markarian, Mirzoyan, Khachikian, and many others. But it was also an occasion to renew acquaintance with some of my old friends, Hagihara, Sternberk, Stoy, or Fricke, Goldberg, Haro, Oort, and also Dorothy Bell, then our Miss IAU, and of course Sadler, and Ambartsumian himself. The meetings of the Executive committee, I am not sure whether I remember them in detail. The tandem Sadler-Ambartsumian was, I know, very efficient in expediting the affairs of the Union. So our work was soon finished and we could then visit the country. What a country! Under the very hot sun, we went everywhere... Byurakan of course, telescopes, radiotelescopes, the red stones in the garden's shadows, and the flowers. But also, for example, a memorable trip to the Lake Sevan. We went up there in the morning, with the idea of coming back to Yerevan for lunch, and visiting some exhibit. But the sun was very hot; and the lake, so quiet in its blue shades, and the dry horizons under the blue sky, and the silence, and the peace of a landscape that could well have been just the same many centuries ago... Well, we did not come back. Oort, the first, was daring enough to dive into the lake; soon after him, a theory of dignified astronomers had chosen the freedom of swimming and enjoyed leisurely their sunny day. Ambartsumian was of course worried: what about the schedule? Soon it was obvious that we could not do it. So Ambartsumian, with his realistic mind and his creative imagination, took the initiative. We dried ourselves, and when ready to eat (the bath made us quite hungry!), we found, in a little field above the lake, a basket full of country bread, and another one full of those tasty grapes with small dark grains, and finally, beautiful trout just fished from the lake, these huge salmon trouts, with a dotty skin, and a pink flesh, in the way of being grilled on an improvised wooden fire. Of course, no forks, no knives. But who needed forks and knives, centuries ago, on the shores of Lake Sevan? We managed well... and we came back quite late to Yerevan, much after all exhibits were closed.

The following year, 1963, it was Liège. The strawberries in Pol Swings' garden, and the friends, and the warmth, and the wise decisions of our master tandem. One cannot evoke the days of Executive Committee meeting without a very rare feeling of having been a member of a fine group of distinguished people, but also of having shared the international efforts towards mutual understanding, towards common achievements, towards some of the necessary ingredients of necessary peace. The IAU, in this respect, is exemplary;

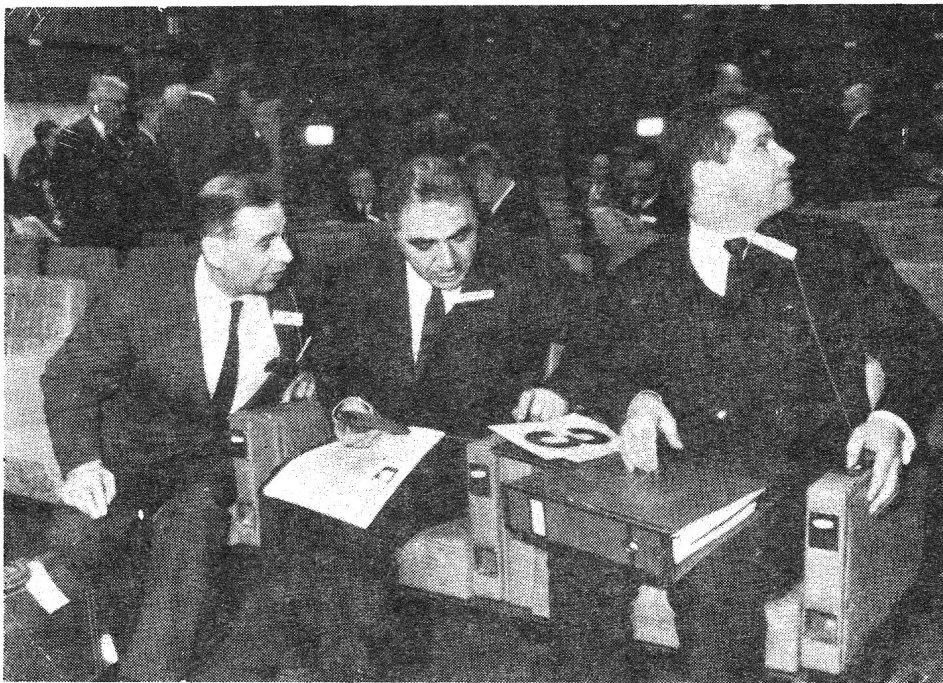


Fig. 1. D. H. Sadler, V. A. Ambartsumian and J.-C. Pecker during the ICSU meeting in Vienna (1963).

one can see in the Executive Committee, and very friendly indeed, scientists from USSR and South Africa, from USA and Australia, from France and Japan... . And they represent a still broader family, as IAU has individual members, in contradistinction to the other scientific Unions. Not only do they meet every third year within a General Assembly, but they do daily work together. More than any other science, astronomy needs coordination, continuity in observing solar phenomena or active stars, completion in surveying, with comparable methods and instruments, the skies from the South and those from the North.

Sadler, Ambartsumian, and myself had then, in addition, a somewhat broader contact with the scientific community, through ICSU. At Vienna, for example, in 1961, where long discussions concerned the adherence of some new Unions, where the problems of free circulation of scientists appeared as an important one, where also many interunion activities were decided. As representative of USSR Ambartsumian had later a renewed contact with ICSU, and became its President; unfortunately I was not then anymore the IAU representative; hence I missed the pleasure of working again with Professor Ambartsumian. But there again, as in the IAU E.C., I know that his firm authority and his sense for the human as well as his humor, did wonders.

Our friendly relations could not of course cease at that point. I was fortunate enough to spend three months in Byurakan, in 1973, and I remember the exciting discussions in front of a blackboard, concerning the basic sequence of classical galaxies to the most extreme quasars, concerning also the more classical problems of the structure of ionized hydrogen and helium circumstellar regions.

I celebrated then my fiftieth birthday, in May 1973, at the Observatory in Byurakan: I was presented with a fine copper image of the lady of Lake Sevan, Achtamar, and it was the usual unforgettable banquet.

Later I met Ambartsumian at several occasions. The last one, a few years ago, left me with a very strange feeling. Professor Ambartsumian was a member of a delegation of seven representatives of the Supreme Soviet. They were visiting France at the invitation of the Foreign Affairs Commission of our National Assembly. Quite naturally, Ambartsumian had asked to be received by some scientists of an equivalent rank. It was difficult indeed, as no one in France is both member of the Academy of Sciences and of the National Assembly. Professor Jean Bernard, one of the most distinguished hematologists in the world, was then President of the National Academy of Sciences, of which Ambartsumian had been elected some years before as a Foreign Member. Jean Bernard, who

happened to have a very heavy schedule, asked me to receive Professor Ambartsumian in the name of the Academy, and gave me clear instructions. As I did not want politics to intervene with my relations with Ambartsumian, I decided that we would first have a nice dinner (fish of course, in memory of Lake Sevan), just between the two of us, and speaking only of astronomy and Armenia. And the day after, we met officially, at the Academy, around a cup of tea (of which I believe he was not more fond of than I was myself), together with interpreters, and officials. Whenever we generally didn't speak English together, Professor Ambartsumian spoke Russian, and I spoke French. In essence, we agreed. He first delivered a message on behalf of the Soviet Academy of Sciences: more cooperation in science between our two countries is needed and wanted. I could not but fully agree with him. Had I not prepared, some years before, the space bilateral agreements, in Moscow? However, I had now to stress the fact that this cooperation was not at present unanimously wanted; and that it could be effective only at the expense of more freedom to the circulation of scientists, between the two countries, in the spirit of ICSU recommendations.

I can only express here the hope that the conditions might soon become such as allowing indeed a better cooperation between the scientists of the two countries, and in particular a cooperation involving our colleagues of the Armenian Soviet Republic.

I have elsewhere ("Problems of Physics and Evolution of the Universe") expressed my admiration for the scientific imagination and rigor of Professor Ambartsumian. Let this paper be witness to the admiration I have for him when dealing with many problems of astropolitics. We are of course not always sharing the same points of view, and I just gave an example of these disagreements. But can we expect from all protagonists in a debate to agree with each other in every respect? It would not be anymore a debate; and it would look very artificial indeed. At least, the debate may soon transform opponents into friends. They do not necessarily agree with each other; but they respect each other.

The old days of our common work within IAU have built up a very solid friendship indeed, and a mutual respect. The wise, quite humorous attitude of Professor Ambartsumian cannot be forgotten; he had a very strong influence on world astropolitics. All the astronomers of my generation remember this period with a sort of nostalgia and also with pleasure — including Lake Sevan. Some of the most happy days of my life as an astronomer are certainly associated with my work under Victor Hamazaspi Ambartsumian as President of the IAU.

#### ENCOUNTERS WITH VICTOR AMBARTSUMIAN ONE AFTERNOON AT THE SAN LAZZARO DEGLI ARMENI ISLAND AT VENICE

Leonida Rosino

I do not recall when I had the occasion to meet Professor Ambartsumian for the first time. His name was already known to me as one of the greatest astrophysicists as early as in 1939 at the beginning of my career as an astronomer. I believe however that I was introduced to Professor Ambartsumian a few years after the end of the war, at one of the General Assemblies of the IAU, either at Zurich in 1948 or at Rome in 1952. Later the occasions for our encounters increased, both in Padua and in Yerevan, Armenia.

I remember in 1966 at a meeting on "Active Galaxies" organized by the Byurakan Observatory, I had the opportunity during an excursion to Lake Sevan to discuss with him our common research programs. I was occupied then with the variable stars of the Orion Nebula and, in particular, the "flare stars" that are found in great numbers there. I was extending the search of such stars to the Pleiades, Hyades, and other open clusters. This work followed the research initiated at Tonantzintla by Guillermo Haro and at Byurakan under the leadership of Professor Ambartsumian. We had the occasion to speak of these enigmatic stars with a view towards future collaboration in this area.

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