

SATURN - A SERBIAN JOURNAL ON ASTRONOMY FROM THE PAST

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Abstract. We present astronomical journal *Saturn* which was published in Belgrade in the period 1935 – 1940. The journal was started as a monthly publication of the newly founded Yugoslav astronomical association "Astronomical Society". All 72 volumes of the journal are digitized and deposited in the Virtual library of the Faculty of Mathematics in Belgrade, <http://elibrary.matf.bg.ac.rs>.

1. INTRODUCTION

There were not so many astronomical publications in Serbia before WWII, in particular periodicals. Overviews on early astronomical books printed in Serbia, or written by scientists of the Serbian origin, one can find in Pejović and Mijajlović (2011), Martocchia and Marchionni (2013) and Milisavljević et al (2011). Also, a lot of valuable historical information are published in proceedings of biannual conferences *Razvoj astronomije kod Srba* (Development of astronomy among Serbs), organized by professor Milan Dimitrijević. The first Serbian astronomical periodicals appeared in the third decade of the XX century. Belgrade observatory started to publish in that time almost in parallel three periodicals in astronomy: *Annuaire de l'Obs. Astr. Belgrade*, *Mémoires de l'Obs. Astr. Belgrade* and *Godišnjak našeg neba* (Almanac). Each of the first two publications was printed for six years, while the last volume of *Godišnjak* (for 1962) was printed in 1961. However, *Nautički Godišnjak* (Nautical Almanac, published by S. Šegan) may be considered as a successor of *Godišnjak našeg neba*. The publication *Saturn* was the first Serbian astronomical periodical oriented to the general public interested in astronomy, geodesy and meteorology and other related sciences. The main purpose of this article is to announce that this journal is completely digitized and made available, as an open access publication, to the general public. Digital copies of the journal are deposited in the Virtual Library of the Faculty of Mathematics in Belgrade.

2. FOUNDATION

The publication of *Saturn* started in 1935 as a messenger of the Yugoslav *Astronomical Society*, founded in Belgrade a year before. The original title of the Society was *Academic astronomical Society of the Belgrade University*. It changed once more its name in 1939 to *Yugoslav Astronomical Society*. The intention was to stress the Yugoslav nature of the society. The founder of the journal and the society as well was Djordje M. Nikolić (1908-1971), pro-Yugoslav Serbian science historian. Nikolić got Degree and PhD in Astronomy in France, where he acted as a member of the Resistance during WWII. He wrote rather recognized papers on Rudjer Bošković and south-Slav astronomy, as noted by A. Martocchia and S. Marchionni in their paper "Djordje Nikolić' *Yugoslavs in Astronomy*" (2013). The journal was supported by Hypothecary Bank in Belgrade.

This monthly periodical was conceived as a semiprofessional journal with many popular articles intended to astronomy lovers. At the same time the journal was planned to be useful to professional astronomers, surveyors, meteorologists and seismologists, because there were published also scientific articles in these areas. Popular and professional articles were separated into different sections, and there also was a section with short notes and news for people interested in astronomy.

Articles were published in Cyrillic and Latin, reflecting in this way both variants of Serbo-Croatian, following pro-Yugoslav attitude of the founder of the journal, Djordje Nikolić. Slovenian authors published in Slovenian. Some of the leading Yugoslav astronomers and physicists published there, e.g. Serb Milutin Milanković, Croat Stjepan Mohorovičić and Slovenian Lavo Čermelj.

3. EDITORIAL BOARD

The members of the Editorial board were prominent Yugoslav scientists and professionals in astronomy and related sciences. Most of them were from Belgrade, but there were members from Croatia and Slovenia as well. Some of them had very interesting biographies, while the most of them were holding PhD degree in astronomy obtained in then the leading scientific centers in Europe. Djordje Nikolić was the main editor, while the other members were:

General and academician Stevan Bošković (1869-1957), geodesists and professor at Military Academy in Belgrade. He is known for his very extensive geodetic measurements in Serbia in the first decade of XX century and his translation of the famous Tsinger's three volume book on astronomy. Bošković translated these books not by chance. He used Tsinger's method for the purpose of exact time determination needed for measurements the points of all geographic latitudes in Serbia during his very extensive geodetic measurements. Tsinger's book without doubt was his valuable companion during this exploration. He spent some time in the late XIX century studying astronomy and geodesy at the Pulkovo Observatory. Bošković certainly met Tsinger there who was then the leading Russian geodesists and professor in St. Petersburg, see Pejović and Mijajlović (2011).

Vojislav Grujić (1904-1944) who was holding two doctoral dissertations in mathematics related to astronomy, obtained at Strasbourg University in 1933. Before he went to Strasbourg he worked as an associate at the Astronomical observatory in Belgrade. However, due to some social circumstances he was not admitted to the

Observatory upon his return from Strasbourg. Hence, in spite of his very high education and background in astronomy he had no proper chance to work in astronomy professionally. He tragically lost his life in the eve of the very end of WWII.

Fran Dominko (1903-1987), Slovenian physicist and astronomer, got his Degree and PhD in Bologna, Italy. Worked in Belgrade since 1932, first as an astronomer and later as a gymnasium teacher until WWII. He moved to Ljubljana in 1948 for the university professor of astronomy. More details about him one can find for example in Wikipedia, Slovenian edition.

Ladislav S. Mužinić was the member of the first editorial board. We do not know much about him except that he lived in Zagreb before WWII. He published a short note *Breitenbestimmungsversuch von Zagreb* (Attempt to determine the latitude of Zagreb, 1936) in *Astronomical notes*, the predecessor of *Astronomische Nachrichten*. He also wrote articles for "Saturn" on astronomy and geodesy.

Nenad Janković (1911-1997) was jurist, but as professor Milan Dimitrijević described him, "his love and passion and his life's commitment was astronomy". He was the great popularizer of astronomy. For more details see Dimitrijević (1998). On the cover page of the first volume of "Saturn" it is written that Janković is the owner of the journal.

4. BROWSING THE JOURNAL

Many interesting, actual and informative articles were published in *Saturn*. They were in agreement with the current knowledge in astronomy and related sciences and obeyed surprisingly high scientific standards. All contributions, including short notes and reviews are meticulously divided into the "Popular part", "Professional part" and "News and notices". On the other side articles are accordingly classified into subjects: astronomy, meteorology, seismology, geodesy, personal news etc. It was not given priority to any particular discipline. For example, in astronomy articles cover many topics, from comets to time measurement and from supernova to cosmology. The used mathematical apparatus was correct and nontrivial. We can freely say that *Saturn* in many senses could compete with other astronomical journals published in that time in Belgrade. Obviously, editors put a lot of effort in preparing each volume of the journal.

As an illustration we give two examples, short notices printed in the journal. The first one is the obituary of Willem de Sitter (1872 - 1934), a prominent Dutch mathematician, physicist, and astronomer. A short biography and his main contribution to science are presented. Djordje Nikolić published in the same volume the article *Da li se vasiona proširuje* (Does the universe expand) where de Sitter views in cosmology are presented.

The second one is the notice on Hans Ertel's formula $gm^2 + mc = \pi h e^2 \Lambda$ (*Saturn*, year 1935, vol. 3, page 91) which connects fundamental physical constants: the Newton gravitational constant g , electron mass m , the Planck constant h , the electron charge e , speed of light c and the Einstein cosmological constant Λ . Hans Ertel (1904 - 1971) was a German natural scientist and a pioneer in geophysics, meteorology and hydrodynamics. More information on his biography and contribution to cosmology can be found at *Working group history of geophysics and cosmic physics*.

Here is the translation of the content (main articles) of the first volume of the journal. *Introductory part*: Introductory word, Position of astronomy in Yugoslavia

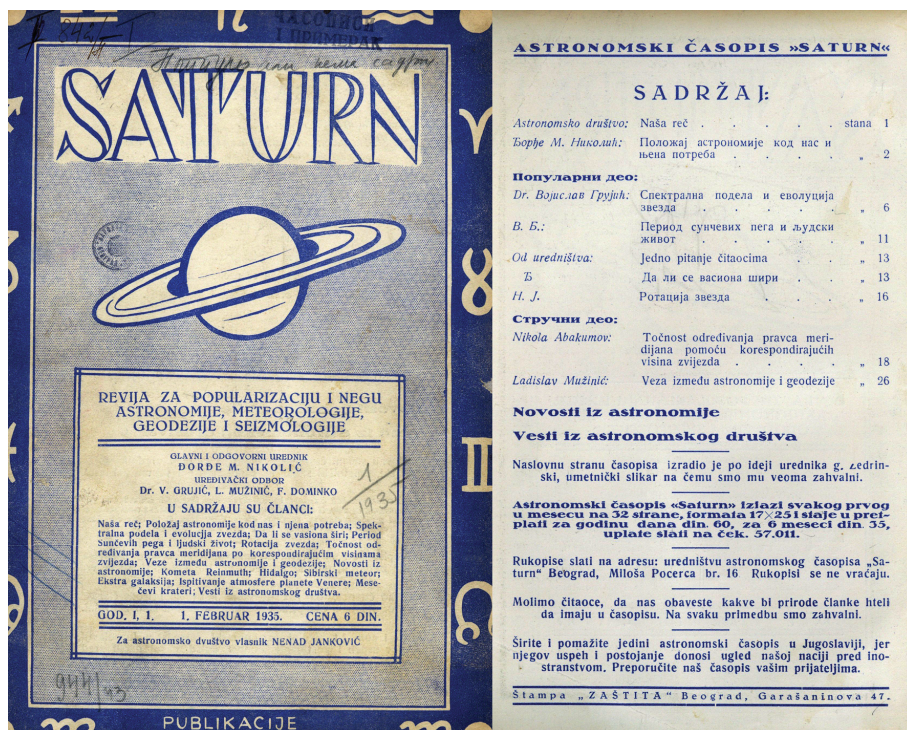


Figure 1: Cover page of the first volume of *Saturn*.

and do we need it. *Popular part*: Spectral division and evolution of stars, Sunspots periods and human life, One question to the readers, Does the Universe expand, Star rotation, *Professional part*: The accuracy in determining the direction of the meridians using the corresponding height of the stars, Connection between astronomy and geodesy.

5. DIGITIZATION

All 72 volumes, about 2100 pages, were digitized during the spring and summer of 2020, and deposited in the Virtual Library of the Faculty of Mathematics in Belgrade. Professor Nadežda Pejović actually initiated this project and organized most of the jobs related to the project. Volumes printed in the period 1935-1937 were digitized by Žarko Mijajlović and in the years 1938 and 1940 by Aleksandar Jovanović, an administrator of the Faculty of Mathematics. Digitization of this periodical for the year 1939 is done by the National Library of Serbia. Mrs Tamara Butigan and Mrs Jasna Majerle from the National Library helped during the realization of this small project and gave us the digital copy of 12 volumes printed in 1939. Milan Jeličić from the *Astronomical Society "Rudjer Bošković"* lent us all hard copies of *Saturn* in possetion of the Society to digitize them and gave us a lot of help and valuable information about this journal. The OCR procedure is utilized on digital copies, so it is easy to search for terms and specific words through all the volumes.

Digital collection of the journal belongs to the division *Periodicals* of the Virtual Library. There are also digital collection of the journal *Godišnjak našeg neba*, see Šegan et al (2009), and digital copies of the significant part of edition of *Vasiona*, the contemporary Serbian popularization astronomical journal.

The National library has all 72 volumes of the journal in the printed form. The *Astronomical Society "Rudjer Bošković"* has all volumes except those printed in 1939.

6. CONCLUSION

The first Serbian and Yugoslav journal *Saturn* on popularization of astronomy and related sciences is presented. We also announced the digital collection of all issues of the journal which are deposited in the Virtual library of the Faculty of mathematics, University of Belgrade. This open access digital collection could be a valuable source for the history of astronomy in Yugoslavia before WWII.

References

- Dimitrijević, M. S.: 1998, *Serb. Astron. J.*, **158**, 131-145.
Martocchia, A., Marchionni, S.: 2013, *Semantic scholar*, Corpus ID: 219332281.
Milisavljević, S., Samardžija, B., Marčeta, D., Šegan, S.: 2011, *NCD Review*, **18**, 75-82.
Pejović, N., Mijajlović, Ž.: 2011, *NCD Review*, **19**, 11-25.
Protić Benišek, V., Dimitrijević, M.: 2014, *Publ. Astr. Soc "Rudjer Bošković"*, **13**, 625-630.
Šegan, S., Vidojević, S., Racković, K.: 2009, *NCD Review*, **14**, 9-12.
Simovljević, J. L.: 1980, *Trideset godina Prirodno-matematičkog fakulteta Univerziteta u Beogradu, 1947-1977*, PMF, Beograd.
Virtual Library, <http://elibrary.matf.bg.ac.rs>, Faculty of Mathematics in Belgrade.
Working group history of geophysics and cosmic physics,
<http://verplant.org/history-geophysics/wdschroeder.htm>.