Publ. Astron. Obs. Belgrade No. 100 (2021), 185 - 191 *Progress Report*

THE FIRST YUGOSLAV NATIONAL COMMITTEE FOR ASTRONOMY

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Abstract. Although Serbia, as a member of the Allied Powers and a World War I winner, was one of the founding members of the International Research Council in the context of which the International Astronomical Union (IAU) was established in Brussels in the summer of 1919, it joined IAU, within the Kingdom of Yugoslavia, only in 1935. The formal representative of Yugoslavia at this assembly was Prof. Vojislav Mišković, a member of the Serbian Royal Academy and Director of the Astronomical Observatory of Belgrade. Shortly after the assembly, the first Yugoslav National Committee for Astronomy was established. Its president was Prof. Milutin Milanković, a member of the Serbian Royal Academy and one of the greatest Serbian scientists.

1. INTRODUCTION

The story begins by the end of World War I (WWI), when the Allied Powers decided to abandon existing international scientific organizations and form new ones, with the Central Powers banned from joining and neutral countries being accepted only later. In the period of roughly one year, three so-called inter-allied conferences were organized: 1st Inter-allied Conference on International Scientific Organizations, London, 9–11 October 1918; 2nd Inter-allied Conference, Paris, 26 November – 1 December 1918; 3rd Inter-allied Conference, Brussels, 18–28 August 1919. Serbian representatives at the first Conference were Bogdan Popović, Professor of Literature and Rhetoric at the University of Belgrade, and Jovan Žujović, president of the Serbian Royal Academy (SRA) (N/A 1918). At the second Conference Serbia was represented by Mihailo Petrović, Professor of Mathematics at the University of Belgrade and a member of the SRA, and Jovan Žujović, while at the third Conference the delegates were Mihailo Petrović and Jovan Cvijić, the renowned Serbian geographer, Rector of the University of Belgrade, a member and later the President of the SRA (Petrović 1920, Trifunović 1967). The 3rd Inter-allied Conference was also the founding assembly of the International Research Council (IRC) in the context of which numerous scientific unions were established. According to Campbell (1919), the countries and delegates represented at the Conference in Brussels in the summer of 1919 were: Belgium 101, Canada 2, USA 27, France 45, United Kingdom 18, Italy 15, New Zealand 1, Poland 1, Romania 2, Serbia 2. Beside the countries listed, among the founding

members of IRC were also: Brazil, Greece, Japan, Portugal, Australia and South Africa (N/A 1919, Trimble 1997).

The prevailing mood that existed among scientists from the Allied Powers at the time is nicely depicted in a quote by the Serbian-American physicist and professor at Columbia University Mihajlo Pupin, given in Blaauw (1994):

I heartily endorse the sentiments expressed by Monsieur Picard and by Mr. W. W. Campbell in the highest expression of a civilization. Allied Science is, therefore, radically different from Teutonic Science. It is true that the highest aim in Science is to disassociate itself from all its anthropomorphic elements, but we are still very far that ideal goal. ...

In such an atmosphere, still largely influenced by the atrocities of WWI, during the 3rd Inter-alied Conference, on 28 August 1919 in Brussels the International Astronomical Union (IAU) was formed (Blaauw 1994, Andersen et al. 2019). Founding members of the IAU were: Belgium, France, Japan, Canada, Greece, Mexico, Great Britain, Italy and United States (Trimble 1997).

2. YUGOSLAV NCA AND ITS FIRST MEMBERS

Although Serbia, that is the newly-formed Kingdom of Serbs, Croats and Slovenes, as a member of the Allied Powers and a WWI winner was one of the founding members of the IRC, unfortunately it did not participate in the founding of the IAU and it joined this organization only in 1935 (Arbutina and Atanacković 2019). The reason for this probably lies in the fact that there was no Serbian astronomer present in Brussels in 1919. As we have seen, Serbia was represented at the 3rd Inter-allied Conference by a mathematician and a geographer. The formal representative of the Kingdom of Yugoslavia at the 5th General Assembly in Paris, July 9-17, 1935, when it was formally admitted to the IAU, together with China and USSR, was Vojislav Mišković, Professor at the University of Belgrade, a member of the SRA and the Director of the Astronomical Observatory of Belgrade (AOB) (Mišković 1935, Stratton 1936). According to available data, Vojislav Mišković is the first Serbian/Yugoslav member of the IAU. Before Yugoslavia was addmited, the IAU Secretary General F.J.M. Stratton informed the University of Belgrade Rector's Office by a letter dated March 31, 1933 that the Executive Committee had elected V. Mišković as a member of the Commission 20 for Minor Planets (Mišković 1933). Cased on the *IAU Transactions B* from the 1935 General Assembly in Paris (Stratton 1936), the only Yugoslav member was V. Mišković (p. 423) and there is no mention of the Yugoslav National Committee for Astronomy (NCA) (p. 412-414).

After Mišković's return from Paris, activities started to form the NCA. In the period December 17-22, 1935, three meetings were held at which the statute of the NCA was written and submitted to the academies (SRA and Yugoslav Academy of Sciences and Arts (YASA) in Zagreb) for formal consideration and adoption. President, vice-president and secretary of the NCA were elected. This established the Yugoslav NCA, with a 4-year term for the period 1936-1939 (Mišković 1938). Its members were:

1) Milutin Milanković, SRA member, Prof. at Univ. of Belgrade, NCA president (representing the SRA)

2) Vojislav Mišković, correspond. member of the SRA, Prof. at the Univ. of Belgrade, Director of AOB, NCA secretary (representing the the SRA)

3) Stjepan Škreb, Prof. at the Univ. of Zagreb, Director of the Geophysical Institute, NCA vice-president (representing the YASA)
4) Željko Marković, Prof. at the Univ. of Zagreb (representing the YASA)
5) Vjačeslav Žardecki, Associate Prof. at the Univ. of Belgrade (representing his university)
6) Vladimir Vrkljan, Associate Prof. at the Univ. of Zagreb (representing his university)
7) Josip Plemelj, Prof. at the Univ. of Ljubljana (representing his university)

We will include in this contributed paper only a few words about each member.

Milutin Milanković (1879–1958)

Milutin Milanković was born in Dalj, present-day Croatia on May 28, 1879. He enrolled in a grammar school in Osijek in 1889. In 1896, Milanković began studying engineering at the Technical School in Vienna, where in 6 years he obtained the title of a graduate engineer. He defended his doctoral thesis (*Theorie der Druckkurven*) in Vienna in 1924. From 1905 to 1909 he worked as a civil engineer in several Viennese companies, and gained affirmation as a designer of reinforced concrete buildings. Upon the invitation of Jovan Cvijić, Mihailo Petrović and Bogdan Gavrilović, Milanković left his lucrative job in 1907 and accepted the position of associate professor of applied mathematics at the University of Belgrade. He remained at this position until his retirement in 1955. Milanković spent WWI in internment in Budapest. After the war, he returned to Belgrade and continued his university career (becoming full professor in 1919). He was elected corresponding member of the SRA and YASA in 1920, and full member of the SRA in 1924. He published a number of scientific papers, several university textbooks and monographs. He is most famous for his astronomical theory of climate and explanation of ice ages. His capital work *Kanon der Erdbestrahlung und seine Anwendung auf das Eiszeitenproblem* (Canon of Insolation and the Ice-age problem) was published by the SRA in 1941, but the majority of copies were destroyed in fire during the bombing of Belgrade. Nevertheless, the Canon (including its later editions) remains one of the most highly cited works of any Serbian scientist (Dimitrijević 2000). Milutin Milanković died in Belgrade on December 12, 1958. His remains were reburied in the family tomb in Dalj, according to his wish, in 1966 (see Andjelić 1979 for more details).

Vojislav Mišković (1892–1976)

Vojislav Mišković was born in Fužine, Gorski Kotar, present-day Croatia on January 18, 1892. The education of V. Mišković took place in various cities: Belgrade, Čačak, Priboj, Sukovo (near Pirot). Mišković attended high school in Novi Sad (Serbian Gymnasium) and graduated in 1910. He started university studies in Budapest, Göttingen and Vienna. After the outbreak of WWI, he joined the Serbian army, to be released of military duties in Thessaloniki in 1918 and sent to France to complete his studies. He graduated in astronomy at the University of Marseille in 1919 and immediately became an assistant at the local Astronomical Observatory. In 1922 he moved to the Astronomical Observatory in Nice, where he stayed until 1925. In the meantime, in 1924 he obtained the state doctorate at the University of Montpellier (with the thesis *Etudes de statistique stellaire*). At the suggestion of professors Mihailo Petrović, Bogdan Gavrilović and Milutin Milanković, he was invited in 1925 to become an associate professor of theoretical and practical astronomy at the University

of Belgrade. A year later he was entrusted with the duty of the director of AOB. He was elected a corresponding member of the SRA in 1929, and a full member in 1940. During World War II (WWII), he was removed from the University, even detained for a while, remaining however the "acting director" of the AOB. After the war, Mišković continued his fruitful work, staying at helm of the Observatory until 1953 and retiring from the University in 1962. Vojislav V. Mišković died in Belgrade on November 25, 1976. (see Mužijević 1982 for more details).

Stjepan Škreb (1879–1952)

Stjepan Škreb was born on July 13, 1879 in Zagreb. He began his studies in chemistry, mathematics and physics at the University of Zagreb in 1897 and finished them in 1901. He received his doctorate in 1910 with the dissertation "Influence of Earth's Rotation on Atmospheric Movements". He was a director of the Geophysical Institute, a member of the YASA, and a professor of Geophysics at University of Zagreb. He also gave lectures in other subjects (Cosmic Physics, Solar Physics, Spherical Astronomy, Celestial Mechanics, Earth's Atmosphere, etc). In his scientific research, S. Škreb worked in the fields of meteorology, climatology and geophysics in general (Lisac 2000). In astronomy he did some work on earthshine on the Moon, i.e. Earth's albedo (see e.g. Škreb 1935). He died on August 14, 1952 in Zagreb. (see Meštrov 2000 for more details).

Željko Marković (1889–1974)

Željko Marković was born on February 20, 1889 in Slavonska Požega, Croatia. He studied mathematics and astronomy at the Universities of Zagreb, Prague and Göttingen. He received his doctorate in 1915 from the Faculty of Philosophy in Zagreb with the dissertation "Application of Linear Integral Equations for the Solution of Differential Equations". He was professor at University of Zagreb and a member of the YASA. The scientific work of Ž. Marković is dedicated to the theory of differential and integral equations and the history of mathematics (especially the works of Rudjer Bošković; Janković 1975), and he also dealt to some extent with the three-body problem. He died on August 23, 1974 in Opatija. (see Niče 1980 for more details).

Vjačeslav Žardecki (1896–1962)

Vjačeslav Žardecki (Wenceslas Jardetzky) was born on April 16, 1896 in Odessa, present-day Ukraine, in a family of Polish origin. He finished primary and secondary school and the Faculty of Natural Sciences and Mathematics in his hometown. After graduating in 1917, he worked for a short time at the Observatory of Odessa and Pulkovo Observatory in St. Petersburg. In 1920 he left Russia, moved to Serbia and got a job at the AOB. In 1923 he defended his doctoral dissertation "On the Motion of a Solid Body on a Curved Line". In 1925 he became an assistant professor and in 1939 a full professor at the University of Belgrade. He left Belgrade University during WWII. In the post-war period, he resided in Austria, where he taught at the University of Graz. In 1949 he emigrated to the United States and worked as a researcher at the Lamont Geological Observatory at Columbia University in New York. In his scientific research he worked on hydrodynamics, rational mechanics, astronomy and geophysics. He wrote 2 university textbooks and 3 monographs. V. Žardecki died in New York on October 23, 1962. In 1992 his son Oleg established at the Lamont-Doherty Earth Observatory a lectureship that bears his father's name. (see Mušicki 2007, Bloh and Rihun 2015).

Vladimir Vrkljan (1894–1974)

Vladimir Srećko Vrkljan was born on August 26, 1894 in Sv. Petar-Orehovac near Križevci, Croatia. He completed his studies in mathematics and physics in 1917 at the Faculty of Philosophy, University of Zagreb, where in 1924 he received his doctorate with the dissertation "Development of the Quantum Theory of Line Optical Spectra". He was a professor at the University of Zagreb and a corresponding member of the YASA. In his scientific research, he worked on theoretical physics, especially on quantum theory and the theory of relativity. He is considered to be the first Croatian physicist who intensively dealt with quantum mechanics. He died on March 1, 1974 in Zagreb. (see N/A 1952, Janković 1978, Hanžek 2012).

Josip Plemelj (1873–1967)

Josip Plemelj was born on December 11, 1873 in Bled, Slovenia. He finished school in Ljubljana, and then in 1894 enrolled at the University of Vienna, where he studied mathematics, physics and astronomy. In his scientific work, he dealt with differential equations (the field in which he received his PhD). He was a professor at the University of Chernivtsi, Ukraine, a professor and the first rector of the University of Ljubljana in 1919, a corresponding member of the YASA since 1923, the SRA since 1930 and a member of the Slovenian Academy of Sciences and Arts since its establishment in 1938. He died on May 22, 1967 in Ljubljana. (O'Connor and Robertson 2003).

Although 7 members of the NCA have been elected for the period 1936-1939, according to the *IAU Transactions B* from the 1938 General Assembly in Stockholm (Oort 1939, p. 501), the Yugoslav NCA had 6 members:

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Président: M. Milankovitch.
Vice-Président: M. Škreb.
Secrétaire: M. Michkovitch.
Membres: MM. Jardecky, Terzić, Vrkljan.

The two members from the original NCA were missing and one new was included.

Milorad Terzić (1879–1939)

Milorad Terzić was born on April 6, 1880 in Kragujevac, Serbia. He finished high school in Kragujevac, after which he enrolled in the Lower School of the Military Academy. He completed the geodetic course in Nikolajevska Eng. Academy in St. Petersburg. In the Balkan Wars (1912-1913) and in WWI (1914-1918) he was a topographer in the 2nd Army and in the Topographic Department of the Supreme Command. After the war, he became the head of the Astronomical and Geodetic Department of the Traffic Section of Army Headquarters (1920-1928) and a lecturer at the Lower School of the Military Academy (1920-1921). In the period 1937-1939, as a geodetic general, he was the head of the Military Geographical Institute. He died in Belgrade on May 28, 1939 (see Radojčić 2001, Bjelajac 2004).

3. INSTEAD OF CONCLUSIONS

The work of the Yugoslav NCA, as well as the activities of the IAU, were soon halted by the outbreak of WWII. Although, all the members, excluding M. Terzić who died in 1939, survived WWII, in the *IAU Transactions B* from the 1948 General Assembly held in Zurich (Oort 1950), only two Yugoslav members are listed: M. Milanković (member of Commission 7 for Celestial Mechanics) and V. Mišković (member of Commission 19 for Latitude Variation and Commission 20 for Minor Planets). They were indeed the only members of the NCA that can be regarded as professional astronomers. Closest to this field was V. Žardecki, who emigrated to the US, all the others were primarily mathematicians or (geo)physicists. However, it remains unclear to the author what were the exact reasons for the personnel changes in the NCA during the 1936-1939 period, what the composition of the NCA was like afterwards and especially what happened with it immediately after WWII (its breakup in a divided country during the war was inevitable). Nevertheless, this was the period when the AOB started training its own observers and the University of Belgrade started educating professional astronomers: the first student graduating in Astronomy was Slobodanka Dimitrijević in 1936, and the first PhD in Astronomy was awarded to Zaharije Brkić in 1958 (Arbutina et al. 2020). Thus, in addition to Mišković and Milanković, *IAU Transactions B* from the 1952 General Assembly held in Rome (Oosterhoff 1954), lists as members from Yugoslavia: Pero Djurković (AOB), Milorad Protić (AOB) and Leo Randić (University of Zagreb).

References

Arbutina, B., Atanacković, O.: 2019, *Proceedings of the IAU*, **349**, 248.
Arbutina, B., Atanacković, O., Kovačević, A.: 2020, *Publ. Astron. Obs. Belgrade*, **100**, this Proceedings.
Andersen, J., Baneke, D., Madsen, C.: 2019, *The International Astronomical Union - Uniting the Community for 100 Years*, Springer.
Andjelić, T.: 1979, *Galerija SANU*, **36**, 7
Bjelajac, M.: 2004, *Generali i admirali Kraljevine Jugoslavije 1918-1941*, Institut za noviju istoriju Srbije, Beograd.
Blaauw, A.: 1994, *History of the IAU - The Birth and First Half-Century of the International Astronomical Union*, Springer Science + Business Media, B.V.
Bloh, Yu. I., Rikun, E. Yu.: 2015, *Geofiziki rossiyskogo zarubezh'ya, http://www.russiangrave.ru/assets/files/geofiziki-rossijskogo-zarubezhya-1.2-1.pdf*
Campbell, W. W.: 1919, *Publ. Astron. Soc. Pac.*, **31**, 249.
Dimitrijević, M. M.: 2000, *Publ. Astron. Obs. Belgrade*, **67**, 39.
Hanžek, B.: 2012, *KAJ*, **XLV**, 75.
Janković, Z.: 1975, *Glasnik matematički*, **10**(30), 169.
Janković, Z.: 1978, *Ljetopis JAZU za 1973/74*, **78**, 555.
Lisac, I.: 2000, *Spomenica preminulim akademicima*, **90**, 12.
Meštrov, M. (ed.): 2000, *Spomenica preminulim akademicima*, **90**, HAZU, Zagreb.
Mišković, V. (ed.): 1933, *Godišnjak našeg neba za god. 1934*, **V**, 153.
Mišković, V. (ed.): 1935, *Godišnjak našeg neba za god. 1936*, **VII**, 244.
Mišković, V. (ed.): 1938, *Godišnjak našeg neba za god. 1938*, **IX**, 247.
Mušicki, Dj.: 2007, *http://www.mi.sanu.ac.rs/History/zardecki.htm*
Mužijević, M.: 1982, *Vasiona*, **XXX**(4), 79.
Niče, V. (ed.): 1980, *Spomenica preminulim akademicima*, **7**, JAZU, Zagreb.
N/A: 1918, *The Observatory*, **41**, 414.
N/A: 1919, *The Observatory*, **42**, 94.

N/A: 1952, *Ljetopis JAZU za 1949/50.*, 56, 305.
Oort, J. H. (ed.): 1939, *Transactions of the IAU B*, **VI**, 502.
Oort, J. H. (ed.): 1950, *Transactions of the IAU B*, **VII**, 528.
Oosterhoff, P. Th.: 1956, *Transactions of the IAU B*, **VIII**, 866.
O'Connor, J. J., Robertson, E. F.: 2003, *http://www-history.mcs.st-andrews.ac.uk/Biographies/Plemelj.html*
Petrović, M.: 1920, *Srpski književni glasnik*, **I**(1), 130.
Radojčić, S.: 2001, *Načelnici Vojnogeografskog instituta 1876-2001*, VGI, Beograd.
Trifunović, D.: 1967, *Matematički vesnik*, **4**(19), 94.
Trimble, V.: 1997, *Beam Line*, **27**(4), 43.
Stratton, F. J. M. (ed.): 1936, *Transactions of the IAU B*, **V**, 414.
Škreb, S.: 1935, *Godišnjak našeg neba za god. 1936*, **VII**, 254.