

**ON THE FUNDAMENTAL CONTRIBUTION OF MAKSIM
TRPKOVIC'S PROJECT TO THE PAN-ORTHODOX SOLUTION OF
THE CALENDAR REFORM IN CONSTANTINOPLE IN 1923**

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Abstract.

In this paper Maksim Trpkovic's contribution to the calendar reform from the late XIX century and the first decades of the XX one is discussed. The importance and the contribution of his project in the solving of the calendar reform at the Pan-Orthodox Congress in Constantinople in 1923 is specially presented. In this context one also considers the controverse question whether the modification of Trpkovic's project done at the Congress by Milutin Milankovic is Trpkovic-Milankovic's calendar or Milankovic's calendar.

Because of some drawbacks of civil calendars used in the past, which is due to the difficulties of fitting them to the natural periodical phenomena, the question of calendar reform has been initiated from time to time during the history of human civilisation. In late 19th century, was actualised the question of the Reform of the Julian Calendar used in the Eastern Orthodox Church countries, not only because of inaccuracy with respect to the tropical year but also because of the difference with respect to the Gregorian Calendar used in a larger part of the world, which is also, but less, inaccurate. The difference between the two calendars produced difficulties in mutual communications in all spheres of public life. In the Kingdom of Serbia the question of calendar reform was also initiated. As a result of the work of some scientists and professors (Lj. Uzun-Mirkovic, M. Nedeljkovic, M. Trpkovic, Dj. Stanojevic, Petar A. Tipa) several projects of calendar reform were published. The proposal of professor Maksim Trpkovic (1864 - 1924), published in 1900 met a strong echo in the scientific community.

Maksim Trpkovic originates from Orlanci (village in the surroundings of Kicevo), then within the Ottoman Empire (now Republic of Macedonia). Already as a grown-up boy, he was brought (with his father) to the only

liberated Belgrade after the Serbo-Turkish wars 1876-1878 where he graduated at the Belgrade "Realka" (special gymnasium) and the Faculty of Philosophy (Division of Natural Sciences and Mathematics). He was especially interested in astronomy. He taught mathematics, physics, cosmography and mineralogy at the Belgrade "Realka" and afterwards at the I, II and IV Belgrade Gymnasiums and for a short time also at the gymnasiums in Pirot and Skopje. Maksim Trpkovic worked conscientiously on the question of calendar reform. His project of calendar reform was published in Belgrade in 1900 entitled "Reforma kalendara" ("Calendar Reform"). The new intercalation rule introduced by M. Trpkovic is: the secular years will be leap years if divided by 9 yield a rest of 0 or 4, otherwise a secular year is a simple one. Also he included in his project the exact calculation for the 20th century and new paschal limits. Trpkovic (1900, 1901, 1909, 1910, 1919-1921) extended his own ideas about calendar reform and presented them in the papers published in church-social journals and the journal of Professor Society, out of which three were printed as special editions. His book "Pravoslavna pashalija i proveravanje datuma" ("The Orthodox Paschalia and the Date Verification") according to a decision of the Presidency of the Academy of Social Sciences (II meeting on June 5, 1913; XI meeting on October 16, 1913) should have been printed as an Academy publication i. e. "awarded from the fund of Dr Ljubomir Radivojevic", however, during the First World War this manuscript, together with the printed material had perished. Only one copy containing printed the first eight sheets of this work was found in the Academy of Sciences [1]. In 1936. in this Academy an edition from Radivojevic's fund was prenumerated in an unusual way by omitting Book 14 in which Trpkovic's work should have been printed, but to arrange the issue number to correspond to the next editions from this fund an issue not belonging to Radivojevic's fund was inserted as Book 1. Later on, in 1986, the original numeration of editions of this fund was specified again.

The Serbian Church in 1903 adopted Trpkovic's proposal for the calendar reform as the most reasonable "both from the point of view of time reckoning and from the religious standpoint concerning the christian calendar". At the Pan-Orthodox Congress in Constantinople, in May 1923, at which the question of calendar reform was solved, the official proposal of the Serbian Orthodox Church was Maksim Trpkovic's project. One of the delegates Milutin Milankovic (1879-1958), as the only scientist present at the Congress, modified

Trpkovic's project and proposed this variant to the Congress which was finally adopted by the Congress after a long debate, due to Milankovic's authority. Milankovic adopts the basic idea of Trpkovic's project but changes the intercalation rule only to read: secular years will be leap years only if the number of their centuries divided by 9 yields the rest 2 or 6. Depending on the assumed intercalation one can come closer or farther to some of the assumed criteria: Trpkovic wanted with his intercalation to put the vernal-equinox date on March 21 (in accordance with the natural equinox and also following one of the principal requirements of the Church), whereas Milankovic achieved an accordance with the Gregorian Calendar over a longer period (at the cost of allowing the vernal equinox to occur on March 20). As written by various authors (Zivkovic (1923, 1927, 1929), Vukicevic (1932), Miskovic (1966), Jankovic (1985), Keckic (2001)) Trpkovic's solution was better than Milankovic's [1 and references therein]. As a disadvantage of Milankovic's solution many of them mention Milankovic's effort to be in accordance with the Gregorian calendar as much as possible because this calendar is also incorrect and, consequently, in both calendars the vernal equinox occurs more frequently on March 20 thus being discordant with natural equinox and the Church requirements concerning the date for Easter. Keckic thinks that Milankovic's attitude towards Trpkovic was not correct. V. V. Miskovic (1892-1976), Director of the Astronomical Observatory in Belgrade, reproaches to Milankovic for introducing an intercalation rule aimed at approaching the Gregorian Calendar, which is also not quite correct and, consequently, its errors interfere also in Milankovic's calendar. He also reproaches due to the fact that this property is even emphasized by Milankovic. Jovan Zivkovic (1859-1929), Professor at the theological school in Sremski Karlovci, who was appointed by the Serbian Orthodox Church for the question of calendar reform, has also a critical view towards the changes introduced by Milankovic and adopted by the Congress taking into account the coincidence of dates with the Gregorian Calendar over a long period, but not an essential improvement of the Julian Calendar. He in a few his articles and addressing to the highest Church authorities justifies with arguments advantages of Trpkovic's solution over the modified variant adopted at the Pan-Orthodox Congress and requires the calendar to be reformed according to the project of Maksim Trpkovic [1][2]. Zivkovic's greatest objections to the modified variant concern the fact that for

such a way of reckoning the vernal equinox occurs on March 20. He also, considers that the determination of the paschal full moon on the basis of astronomical calculations of several observatories is a superfluous and improper novelty adopted by the Congress because in his opinion the new Paschalia (Epacta) formed by Trpkovic by using existing astronomical tables is more appropriate [3]. The Commission at the mentioned Congress adopted Trpkovic's Paschalia, but later following Milankovic's proposal it was accepted to use calculations which would have been performed at several observatories [4]. Such an alternative of paschal tables including time according to the Jerusalem Meridian was also proposed by Maksim Trpkovic in 1900 in his project. In Zivkovic's opinion, Trpkovic's Paschalia was not taken into account on occasion of the formation of the proposal of the Julian-Calendar reform at the Congress to avoid Trpkovic's mentioning. Vukicevic (1932) publishes a study concerning the calendar question. In a tabular form he presents the difference of the calendar dates of several calendars covering a given period compared to the natural dates where it is possible to see that Trpkovic's solution is the closest to the natural sequence.

In the formation of his calendar-reform project Trpkovic tried to include astronomical achievements, as well as the rules according to which Christian holidays are determined, and because of that his project is acceptable both from the scientific aspect and from that of the canonic rules and it was ready for practical use. It also possesses for the Church necessities completely correct Paschalia. There are interpretations of several authors according to which Trpkovic's project satisfied the calendar-reform requirements, both from the accuracy aspect and that of simplicity in the practical use, a very important property of any calendar. In the case of Milankovic's solution there is the problem of vernal equinox which occurs on March 20 disagreeing with the initial reform requirements.

The fundamental characteristics of Trpkovic's and Milankovic's proposals are similar (for instance, year duration) simply because Milankovic preserved the base of Trpkovic's project and changed the intercalation rule only. Due to this fact, as well as that the official proposal of the Serbian Orthodox Church at the Pan-Orthodox Congress in Constantinople in 1923 had been Trpkovic's project, the modification of this project done then by Milankovic and accepted at this Congress has been referred to by some authors

as Trpkovic-Milankovic's calendar, i. e. as Milankovic's calendar by other ones. In the literature this modification (calendar) has been also referred to as: Pan-Orthodox modification (calendar), Reformed Julian Calendar. Both Trpkovic's proposal and its modification by Milankovic had advantages with respect to both Julian and Gregorian Calendars. In 1923, the Holy Archiereus Council of the Serbian Church adopted in principle the proposal of the Pan-Orthodox Congress, but the reform has never taken effect for reasons having essentially no scientific character.

Although the question of calendar reform, as a delicate one, requires a solution to the benefit of both church and public life, the way of its solving and putting into effect has encountered difficulties. In spite of an intensive campaign and interest expressed in the reform by both specialists and publicity initiated in the second half of the XIX century, which also extended into the first decades of the XX century, it has not been brought to a close yet. In this action Maksim Trpkovic's proposal, certainly, occupied an important place. Milankovic joined the calendar-reform activity at one month date before the Pan-Orthodox Congress (April 1923) and he published a few papers dealing with the calendar question. Some authors seized by the "cult of a great scientist" with regard to Milutin Milankovic's person glorify his work also in the calendar reform omitting or erroneously interpreting Maksim Trpkovic's fundamental contribution [1]. In a talk by M.S. Dimitrijevic at the Meeting on History of Astronomy held in Belgrade between April 25 and 28, 2004 there was an attempt to diminish the contribution of Maksim Trpkovic by mentioning that also Oriani Barnaba in 1785 had formulated the basic idea of Trpkovic's calendar-reform project, namely that over nine centuries the difference between the tropic and julian years is exactly seven days and that these secular years should be made common. However, in his project "Reforma kalendara" from 1900 Trpkovic communicates how he reached his idea and this is his own reasoning. After all, history of science knows many cases when two or more authors discovered the same thing quite independently of each other. In the textbook of astronomy for IV form of gymnasium written by M. S. Dimitrijevic and A. Tomic (1995), in the part concerning the calendar, Milankovic is the only person to be mentioned, whereas Trpkovic's fundamental contribution to the calendar reform in Serbia is not mentioned at all, but following the insisting of Dr Mijat Mijatovic (1950-2000), Professor at the Faculty of Natural and

Mathematical Sciences in Skopje, in the Macedonian translation, about the contribution of Maksim Trpkovic to the calendar reform is inserted. Furthermore, in the media Dimitrijevic and the group following him, with respect to the calendar only Milankovic mentioned and repeat constantly that the most exact calendar in the world has been given by Milankovic which, in fact, is not true with regard that Trpkovic's solution, as emphasized by many authors, is better. Those authors who have omitted or tried to diminish the basic Trpkovic's contribution to the calendar have been unjust towards his work and, at the same time, attributing these merits to Milankovic they have violated Milankovic's reputation acquired by him through a work on the theory of the Earth's insolation, climate variations and on the one of ice periods.

In the science every contribution should be evaluated and in this way appreciated, but not to diminish its importance without arguments. Sometimes in history of science (also in general history) attempts of some political and cultural groups aimed at influencing the objectivity of events have appeared, something which could change the real picture in the final outcome. Science should not be a contest, but a field in which a research is to be done aimed at a better approaching the truth where every contribution will be evaluated in a proper way. Finally, Milankovic's merits in his theory of Earth insolation and ice periods are, certainly, important, and also, Trpkovic's fundamental contribution to the calendar reform should be duly appreciated.

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