

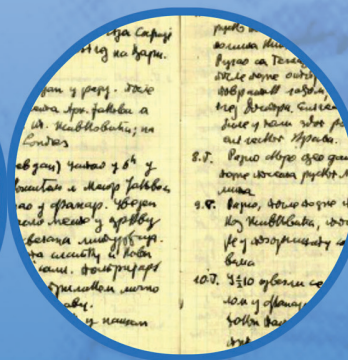


ASSOCIATION
MILUTIN MILANKOVIĆ

INTERNATIONAL CONFERENCE ONE HUNDRED YEARS OF THE NEW JULIAN CALENDAR of MILUTIN MILANKOVIĆ

Belgrade, 14-16.12.2023.

BOOK of ABSTRACTS





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Andrej Nikolaevich Zelinskij,
Memorial Museum of Academician N. D. Zelinskij, Moscow, Russia

LITURGICAL CYCLE AS TIME ICON OF ECUMENICAL ORTHODOXY

Theses

The century having passed since the most accurate calendar in the world, **which is currently used**, was created by Milutin Milanković, distinguished Serbian scientist, instigates us to revisit the *calendar question*. This question had been many times the subject over centuries, from distinct viewpoints, but there had always been two basic ones: **astronomical and religious calendar truths**, mutually incompatible.

The calendar truth from its *religious* aspect, presented here, is related to the tradition, culture and all spiritual and moral bases of our existence. Since Serbia, as also Russia, is organic part of the great Eastern Christian Greek Orthodox Civilisation, the time perception and its conceivment, related to adoption of one or another calendar, *appears as the central question* in the preservation of **national self-consciousness**. On this basis, in our time of apostasy and struggle against God, I have decided to construct a conspicuous form of sacral time which has been, for about two thousand years, paradigmatic base of our common orthodox national self-consciousness. This is, in some way, an attempt of creative reconstruction of the Paschal Cycle (in Russian: Великий Пасхальный Миротворный Круг Святой Руси – Great Paschal Genesis Cycle of Holy Rus') in the form in which it once reached the heathen Rus' from the Byzantine Empire following the blessing of baptism. The Paschal Cycle came in the form of the Julian Calendar with the Alexandrian Paschalia established according to the legacy of Holy Fathers at the Nicaea Council in 325 AD.

A **sacral calendar** is, illustratively said, a “rhythmical memory of humanity”, a recollection which is not time recording only, but also its conceiving and sacralising. The liturgical time sacralising as giving a higher sense to the existence of humanity, reaches the very roots of civilisation. In the culture of Christian Ecumene, time sacralising found its meaning in the liturgical cycle of Christian Orthodox calendar, i. e. of parliamentary creativity of Holy Fathers which dates as early as from the time of the Nicaea Council. That cycle is represented here through a conspicuous calendar-liturgical embodiment as a “Christian Culture Formula” revealed through time. It incorporates the Paschal Cycle of Orthodoxy compared to the false Paschalia of the Roman Catholics and traditional Jewish one, abridged monthly ephemerides and basic calendar and astronomical characteristics of Solar and Lunar motion within the annual Zodiac Belt. This “liturgical culture clock” which reflects the spiritual rhythm of the Christocentric cosmos can be called eternal, not only because its calendar mechanism was foreseen for millennia, but also because it is an essential formula of those eternal spiritual values which lie in the fundament of the world Christian civilisation. The belief in the possibility of time transformation in forelife and final victory over it after death distinguishes the Christian soteriology as doctrine of salvation. The liturgical cycle, as an icon of Christian time, incorporates anti-entropic system of religiously organised parliamentary consciousness in its Orthodox expression, which has firmly acted over historical time as spiritual integrator and keeper of the bearers of Christian Orthodox civilisation.

The Serbian Orthodox Church, together with the Russian, Georgian, Jerusalem and Polish ones and Athos monasteries, in the complicated calendar question holds highly the Orthodox banner, understanding that after violating the calendar-liturgical rhythm of many centuries “time exits from its grooves”, according to a figurative expression of Pavel Florenskij, which is a threat of deleting the fundamentals of the culture itself. So the time criterion becomes indicator of thorough processes manifested in the crystallisation of a given type culture, transforming culture of a regional importance into a global scale civilisation. This really occurred in the formation process of Eastern Christian Orthodox civilisation, when it became the lighthouse for the greater part of the then cultural world.

Radomir V. Popović,
Faculty of Orthodox Theology, Belgrade, Serbia

THE CHURCH AND CALENDAR QUESTION

For the Christian Church the calendar question, i. e. time computing and measuring, is no dogmatic question, but it is very important when the topic concerns date determination for celebrating holidays during a year, especially when Easter is the subject, because on the Easter date depend those of the holidays connected to that greatest holiday. In the Early Church the Holy Fathers, in connection with the calendar and time reckoning, interpreted those places within the Bible where the genesis of the visible world is mentioned. This concerns the basic time notions: daylight, night, evening, morning, year. The church has always as for the calendar and its accuracy accepted all achievements of modern astronomy and mathematical calculations of the motion of celestial bodies which affect the accuracy of a calendar.

Milan S. Dimitrijević,
Astronomical Observatory, Belgrade, Serbia

ON CONDITIONS FOR ACCEPTANCE OR REJECTION OF A CALENDAR REFORM

We will discuss the conditions for acceptance or rejection of a calendar reform. As examples we will consider Julian and Gregorian calendars, Calendar of Mussolini, Soviet calendar, world calendar, propositions of Nicephoros Gregoras, Milan Trpković and Mladen Berić and the New Julian calendar of Mlutin Milanković.

Bora Jovanović,
Astronomical Observatory, Belgrade, Serbia

ASTRONOMICAL BASES OF CHRONOMETRY

Time measuring, defining of time units and foundation of various timescales naturally arose and have been developed in the framework of astronomical science.

In this sense the most important are the effects of Earth rotation and relative motion of the Earth-Moon system around the Sun which have been considered within an extrasolar reference frame (defined by means of stars of our galaxy or, more recently, of distant extragalactic objects).

In the contribution, in addition to a general description of the basic elements and characteristics of continuous time measuring a short review of timescales is also given. This list also contains calendars as a specific timescale kind which has its place and significance.

Slobodan Ninković,
Astronomical Observatory, Belgrade, Serbia

TROPICAL YEAR AS A VERY SUITABLE BASIC PERIOD

It is well known that various periods have served as basic ones for calendars. The circumstances due to the orientation of the Earth's orbit around the Sun followed by the precession phenomenon have contributed the tropical year (365.24220 mean solar days) to become the most suitable one.

Stela Filipi Matutinović, Retired librarian
University Library "Svetozar Marković", Belgrade, Serbia

PRESENCE OF TERM "MILANKOVIĆ'S CALENDAR" IN LITERATURE ABOUT CALENDARS

Calendars are necessary to coordinate periodic astronomical events (years, solstices, phases of the moon, days, etc.) with periodic events in human life, and have a very long history. On the list of 87 historical calendars in Wikipedia, only ten are named by persons, and only three, including Milankovic's calendar, are named by their creators. In the article more data about the existing calendars and their history are given. Special emphasize is on the history and the reception of Milankovic's proposal for the most accurate calendar.

Dragoljub P. Antić, Institute for Nuclear Sciences „Vinča“, Belgrade, Serbia
Petri Primi Academia Scientiarum et Artium (PANI), Saint Petersburg, Russia

OVERVIEW OF CALENDAR CHARACTERISTICS THROUGHOUT HISTORY

Calendars have played an important role during the development of civilization, so every historical period was also marked by this type of human creativity to describe the regularity of annual cycles, based on astronomical and mathematical knowledge. The beginnings of calendar knowledge go back to deep prehistory, and the development of mathematical and astronomical knowledge made it possible to monitor annual cycles and organize lifestyles. A large number of calendars remained recorded in history, and their formation was conditioned by the degree of development of civilizational characteristics and condensed knowledge. Today, there are many different types of calendars in use in the world, based on different cultural traditions and within different religious communities. In addition, calendar reforms have always been an attractive topic, so even today proposals for improving existing calendars are often made. This work gives a condensed presentation of the basic characteristics of different types of calendars, according to origin, organization in relation to the movement of the Sun, Moon and planets, according to religions, proposals for calendar reforms, etc. An overview of the beginnings of counting years (time eras) according to certain types of calendars is given.

Dragan Jacanović
National Museum, Požarevac, Serbia

CALENDAR KNOWLEDGE PRESERVED IN SERBIAN EPIC POETRY

The problem of Serbian calendar knowledge in folk epic poetry occurred as a result of the studying of complex geometric systems on prehistoric bangles of the late Bronze Age (D. Jacanovic, 1989. 33). Striking similarity of these systems with primitive types of Serbian Middle Age calendars led me to the scientific works on the history of Serbian astronomic knowledge of Mr. Nenad Jankovic (N. Jankovic, 1989). A great part of that knowledge, like the well known motifs of the Sun leaving and coming back, could be observed in a series of folk epic poems. The paper was made as a result of multiannual studying of ethnological, archeological, anthropological and astronomic literature as well as the reading of a great number of folk epic poems, analyzing of each verse, name, number or motif and their comparison with calendar data.

Aleksandar Mitić,
“Ognjilo”, Leskovac, Serbia

CALENDAR KNOWLEDGE IN THE SERBIAN FOLK TRADITIONAL CALENDAR

The life of Serbs in ancient times, even in historically recorded times, was largely marked by calendar knowledge, preserved in many forms in the tradition and organization of life. Calendar knowledge was preserved in folk tales and poetry and was transmitted in every environment, so that later it was woven into the calendar of the Serbian Orthodox Church. In addition to the church calendar, the folk calendar has survived to this day in the form of numerous names for days, weeks and characteristic dates. Thanks to Svetosavlje, the harmony of the national calendar and the church calendar was created. Some characteristics of the Serbian calendar have been preserved in the form of folk stories, some through poetry, through folk proverbs, and all this is the basis for numerous organized events and manifestations, which were a form of economic and social communication of the Serbs. Most of those old customs have been preserved to this day, so calendar concepts can be seen in numerous terms, especially in the names for each day and week during the calendar year. Numerous customs at fairs, preliminaries, weddings, etc. contain important information about the very high level of calendar knowledge among Serbs.

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HISTORICAL ROOTS OF CALENDAR KNOWLEDGE IN SERBIAN TRADITION

Research into traces of the lives of ancient people reveals a high level of astronomical knowledge. A large number of cave drawings and unusual engravings in stone or on bone contain information about annual cycles and the movement of the Sun and the Moon. The systematic repetition of similar motifs indicated the possibility that much deeper information is hidden there, and that is how the American scientist Alexander Marshak came to the discovery of the system of lunar calendars shown in such drawings. Such lunar calendars have been found in many caves and archaeological sites in the world and they are over 25,000 years old. The paper points out some of such findings and provides basic data on their calendar content. Complex compositions of cave drawings in caves in the south of the Urals, accompanied by a system of additional signs, according to the Russian scientist Vyacheslav Larichev, contain a complex system of calculating lunar calendars and cycles of movement of celestial bodies, which testifies to the high level of astronomical knowledge of prehistorical people. The calendrical knowledge of prehistorical men was also observed at other sites in Russia, Ukraine, the Carpathians and finally in Serbia, which is the focus of this paper. Although they have not been researched much from this point of view, archaeological finds in the area of Serbia and the Serbian ethnic area indicate a rich calendar knowledge. Calendar knowledge is also woven into many forms of tradition among Serbs, with obviously deep roots. Given that Serbs live in an area with four clearly separated seasons and the early development of agriculture at the time of the beginning of the Neolithic, it is clear that calendar knowledge played a very important role and it is natural that it is woven into the tradition of Serbs in many ways.

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FORMATION AND DEVELOPMENT OF MENOLOGIA AND THEIR LITURGICAL ANALYSIS

Easter makes the basic point of the liturgical year and has a decisive influence on the schedule formation of movable feasts. In addition to the movable feasts the second part of the Menologia consists of unmovable feasts. With an analysis of the number and content of unmovable and movable feasts, we will show the historical development of Menologia within the Constantinopolitan and Jerusalem liturgical traditions. Shifting the dates of Passover can lead to certain liturgical collisions, as evidenced by additional liturgical clarifications written in the Typica known as Mark's Heads. The necessary additional clarifications are the immediate result and consequence of the calculation of the date of the celebration of Passover. In this paper, we will try to answer whether a more precise calculation of time would have any effect on the simpler formation of the liturgical schedule and the rules of Great Lent, and what would be the contribution of such a result.

Petar Kočović, Union University „Nikola Tesla“, Faculty of Information Technologies
and Engineering, Belgrade, Serbia

WHEN CHRISTMAS AND EASTER WILL BE CELEBRATED ON THE SAME DAY

People often get confused and instead of saying “Christ is resurrected” for Easter, they say “Christ is born”. Although the resurrection is a kind of rebirth, it is a minimum of 73 days apart. And a maximum of 133 days. Namely, Easter, which unlike Christmas is a moving holiday, can fall on March 21 at the earliest, May 5 at the latest. Easter ALWAYS falls on a Sunday!

If we consider that 3 days are added to 400 years, then the minimum period that should elapse is 97 cycles of 2000 years, or 9,700 years + 2,000 years which gives 11,700 years AD. Namely, for those 11,700 years, and the next 100 years, Christmas falls on March 20. Between 11,701 and 11,800 on March 21, etc. For final matching, we have to wait another 1,800 years. And for fine-tuning we need 2 more years, to satisfy the condition that Easter must fall on Sunday. As well as Christmas.

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THIRTEEN BAKTUN: A RECALCULATION OF THE CALENDAR END OF THE MAYAN CaALENDAR

In the standard calculation, the duration of the Thirteen Baktun of the Mayan calendar equals 5125 years. This so-called long count, was set up related to the data found on nine stelae on the six Mayan archeological sites. Many inscriptions give the date of the current creation as a large number of 13s preceding 13.0.0.0.0 4 Ahau 8 Kumk'u. For example, a Late Classic monument from Coba, Stela 1. The end of the last so-called 13 Baktun was December 21, 2012.

The general notation of the periods in the Mayan calendar is Kin (day, actual), Winal (20 days, actual), Tun (360 days, 5 days short of the 365 days, revolution), Katun (7,200 days, or 100 days short on 20 years), Baktun (144,000 days, or 2000 days short of 400 years), and so on. The cycle of 13 Baktun is short of 26,000 days (or 71.23 years) of 5,200 years. Azteza adds 5 so-called “Dead Days” in the Tun to satisfy the condition of the revolution of the year. But, remains 0.25 days per year, which is 4 days that we have to add to the 13 Baktun. It seems that the end of the 13 Baktun will be 2087, not in 2012, and that the duration of the Long Cycle is 5197 days. When we compare the four 13 Baktun cycles (20,788 days)

with Milankovic's precision period (around 23,000 years), we can see that this is almost a similar period. The difference is 5.3% of the time. This will be the main topic of this paper.

Keywords: Azteca calendar, Long count, Mayan calendar, Milankovic's precession.

Milan Stevančević, Serbia

SERBIAN CALENDAR

The Serbian calendar is the oldest scientific monument of the Serbian people and as such the calendar belongs to its cultural heritage. The specificity of this calendar is a time concept as a measure of immateriality of nature. The Serbian calendar may have some connections with the Vinča culture. In this calendar there are only two seasons – summer and winter. The beginning of summer is on the Saint George Day (May 6 because the Julian calendar is still used by the Church) and the end on the Saint Dimitri Day (November 8 – same reasons). In this contribution the symbols of the Serbian Calendar are analysed.

Milorad Stojić,

Archaeological Institute, Belgrade, Serbia

THE MEANING OF THE CALENDAR INSCRIPTIONS ON THE NEOLITHIC STATUETTES FROM THE MEDVEDNJAK LOCATION

Hundreds of neolithic sites have been discovered so far on the territory of Serbia and the ethnic area of the Serbs, which show that this is a densely populated area for the past ten millennia. Archaeological finds show the existence of serious knowledge, including calendar knowledge. More than 400 bone objects (tools, weapons, figurines, instruments, jewelry, etc.), among which there is a significant number of those that, most likely, served for astronomical purposes and time measurement, i.e. as lunar and solar calendars. It is these objects, together with a large number of baked clay and stone plastics of original appearance, exceptional quality, incomparable aesthetics and cultic significance, that indicate that the Medvednjak site housed a Neolithic religious center. Included in this contribution are a number of objects with engraved markings that most likely symbolize the lunar process of 28 days and the solar cycle of 12 months, and several objects on which both cycles are represented, a number of objects that could have been used as astronomical instruments and zoomorphic statuettes, possibly symbols of certain periods of the year. There is also a significant number of bone objects from Medvednjak, which also have different numerical markings, but, obviously, of a different character compared to the specimens presented in this paper.

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ASTRONOMY AND CALENDAR OF LEPENSKI VIR

If the man of Lepenski Vir (Lepenac) knew addition, where a given system of numbers was known to him, a very conceived geometry and „mathematics“ of the sanctuary (house) basis speak in favour. One solar year had two semiperiods from one rise of young sun (December 21) to the next one, whereas during that time there were 13 periods of the Moon. The Sun, apparently, from December 21 to June 21, in half the solar year, changes the points of rise on the eastern horizon within an arc range of 60° at the geographic latitude of Lepenski Vir. This is, no doubt, one sixth of a circle, that is the angle of the circle sector for the sanctuary basis (house) of Lepenski Vir.

In this place, with all benchmarks, the full nature is the Lepenac's telescope in which he descended and occupied the right place. Establishing the Treskavac mountain as the benchmark, the shape, position and orientation of which to observer across the river are unique, was decisive. By establishing this benchmark at the centre all celestial bodies with their nature formed a human and cosmic clock with immovable hand, Treskavac mountain, whereas the entire „clock“ orbits it. Treskavac becomes a universal picture, the main axis of the Lepenac's world, world mountain like in the indian vedic cosmos picture, „world's egg“, with a solar river and three jumps of the Sun across the Meru mountain. Therefore, it is not strange that the trapeze-like Treskavac top was the archetype by redrawing transferred into the building fundament. In the cosmogony of Lepenski Vir, in the calendar meaning, two great moments are detected: summer solstice day (today June 21/22), when the power of the Sun is highest and the sunrise occurs from the Treskavac top, and the winter solstice one (December 21/22) when the new young Sun is born. Because of this all sanctuaries were always oriented towards the sunrise. The calendar of the Lepenski Vir people was created in natural cycles – seasons of year – like and in accordance with that, life cycles of animals, before all that of beluga. It is quite clear that representatives of Europe were also 10,000 years ago devoted sky gazers, but they understood astronomy and calendar in a different way. From the modern standpoint one concludes that the era of Lepenski Vir culture was in the zodiac sign of Cancer. However, the zoomorphic deities of Lepenac have the fish shape. The established fish-like personification of deities was also continued through all later civilisation periods as a kind of a primary, therefore invariable, tradition which conserved fish as a zoomorphic form of Absolute.

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LEPENSKI VIR REVISITED – THE OLDEST KNOWN SOLAR ALIGNMENT IN EUROPE

The idea that Lepenski Vir was a sanctuary of the Sun belongs to Dragoslav Srejović. In 1968, he invited a group of French journalists to come to the site on the summer solstice day and watch the sunrise on Treskavac. But they were not lucky - the day was cloudy. Even it had been clear, they would not have been able to see the desired astronomical event on top of Treskavac rock from any position of the settlement: This was possible only at its northern half. Due to the change in the Earth's axial tilt, the summer solstice Sunrise has changed its place by c. 1.2o south in respect to the position 8000 years ago.

From 1968 until today, the means for geospatial positioning has been improved significantly. Today, there are accurate GNSS devices that can provide accurate geographic coordinates of any point of the Earth's surface, with an error of ± 15 cm only. The relocation maps of Lepenski Vir were created by a team of geodesy experts. With a couple of accurately positioned points, a grid of geographic coordinates expressed in meters can be drawn on those maps. Thus, the exact geographical position of each house in the settlement becomes known. Elevation of each house are preserved in the technical documentation of the site.

Accurate geographic coordinates of the houses and astrogeodetic survey of the local horizon enable the application of astronomical formulas, so it can be calculated where the sunrise could be seen from each building 8000 years ago. This is how our first paper, *The Sun of Lepenski Vir*, was created. It was presented at the SEAC conference in 2018. The research, was based on Srejović's book *Lepenski Vir*, as well as on maps of the relocation. It demonstrated that the summer solstice sunrise could be observed on the flattened top of Treskavac from every point in the settlement as well as from every house, whereby about 80% the house facing that very rock.

But, it turned out that during 1968 and 1969, some additional buildings were discovered, and it was too late for these to be included either in the text of Srejović's book or onto the maps of relocation. Those houses move the boundaries of the settlement to the north and west. The complete map, drawn by Ljubinka Babović in 1969, was published for the first time in Dušan Borić's book *Deathways at Lepenski Vir: patterns in mortuary practice* (2016). In 2022, we saw the book for the first time and thought it worthwhile to archaeoastronomically examine the (really) northernmost and the (really) westernmost house.

The test results show that from the (really) northernmost house, the summer solstice sunrise could be observed on the northern part of the flattened top of Treskavac, and from the southernmost house on the southernmost point of the volcanic rock top, 8000 years ago. The settlement was accurately measured according to the observed astronomical event and the inhabitants of Lepenski Vir were able to determine the summer solstice, as the main orientation point in time during the solar year. We cannot claim that they knew the solar calendar in today's sense of the word, but it is certain that they were aware of the annual apparent movement of the sunrise point on the horizon and that summer solstice had a special significance for them.

Radmilo Petrović,
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THE PROCESS OF GEOMETRIC ANTHROPOPHISATION OF ORION'S BELT IN ARCHAEOLOGICAL MATERIALS AND ITS CULT SIGNIFICANCE

The disappearance of the Bronze Age civilization, from the Danube areal, can be rightfully linked to the migration of Doric tribal filiations, via Balkan Peninsula, to Greece, at the turn of I millennium BC. This time was marked calendrically by the sophisticated cultural group "Gava", and final articulation of the solar calendar of the Bronze Age bracelets of "Juhor type in Drmno, near Pozarevac. The implanted constellation of Orion Belt, within sepulchral ritus, can be most closely correlated to the act of cremation of the deceased. Orion, as the Sun's twin, and its hibernal substitution in the area of hibernal sky (almost a third of calendar year) can be closely correlated to winter December solstice and renewal of the Sun's strength and vernal equinox. All calendar events in the Serbian and European prehistories (from III to I millennium BC) happened because of the aspiration to equal the deceased one with the nature of solar brightness as a perfect spherical shape. In the desire to view and explain all unknown to them on the Earth, within its endless depths, the people of the Bronze Age through bronze casting and cremating their dead, reached the very act of apotheosis. Judging by the archeological material, found with the burned deceased (from III to I millennia BC), they understood very well what was in the sky, the Milky Way galaxy, the Orion Belt inside the Orion constellation, as well as winter and summer solstices. This paper attempts to document very acerbically, by means of the most recent archeological and astronomical literatures. This process of familiarizing of prehistorical people with secrets of the sky, offers many new facts and possibilities.

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THE PANAGIA GORGOËPIKOOS (ST. ELEFThERIOS) CHURCH IN ATHENS AND THE ANCIENT ATHENIAN CALENDAR

Abstract: This study explores the unique and well-preserved frieze found in the Panagia Gorgoëpikoos (St. Eleftherios) church in Athens, which provides a plethora of information related with the ancient Athenian calendar and its cultural significance. The frieze, carved from white Pentelic marble, depicts the 12 months of the Athenian calendar along with corresponding zodiacal signs and seasonal activities. Through careful observation and analysis, can be seen the months, seasons, and even hourly divisions represented on the frieze. The details of the depicted figures, their dressing that symbolizes the changing weather, and the incorporation of Christian elements provide valuable insights into the ancient Athenian way of life. This remarkable artwork serves as a rare surviving example of an ancient Greek sculpted illustrated calendar, providing a look into the daily rhythms and traditions of ancient Athenians.

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Milan S. Dimitrijević,
Astronomical Observatory, Belgrade, Serbia

DJORDJE STANOJEVIĆ AND CALENDAR REFORM

Djordje Stanojević was the first Serbian astrophysicist who in XIX century published scientific articles in the journal of French Academy of Science, *Comptes rendus hebdomadaire de l'Academie de la Science*. Also, he was a pioneer of electrification of Serbia, Rector of Belgrade University, a pioneer of photography who made the first color photography, first photographs of the Sun and the first Röntgen photography in Serbia as well as the first radio emission. Additionally, he was the head of the Central Astronomical and Meteorological Observatory in Belgrade.

One of his topics of interest was calendar. At the end of XIX century he proposed the reform of Julian calendar, which was the official proposition of Serbian Orthodox Church sent to Russian synod. Moreover, in 1908, he published in Paris a proposition for calendar reform similar to later proposition for a world calendar. In this contribution we will discuss the two propositions of Djordje Stanojević for calendar reform.

Magdalena D. Christova,
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The Revised Julian Calendar and Bulgarian Orthodox Church

On July 18, 1968, the Synod of the Bulgarian Patriarchate published a "Message to the clergy and all children of the Bulgarian Orthodox Church", in which was announced the upcoming reform of the church calendar and implementation of the Revised Julian Calendar adopted by Panorthodox Congress held in Constantinople in 1923. As the date for the change of calendar, 20th of December 1968 (7th of December according to Julian calendar) has been determined. A part of monks and clergy did not accept the calendar reform, so that Bulgarian Orthodox Oldcalendarian Church (Българска Православна Старостилна Църква) was created. How the Revised Julian Calendar was adopted by Bulgarian Orthodox Church will be considered in this contribution as well as the consequences of its implementation.

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FOLLOWERS OF THE JULIAN CALENDAR BY SOME MINORITIES IN ROMANIA

The Julian calendar is used by the Serbian minority in Romania, which is part of the Serbian Orthodox Diocese in Romania, with its seat in Timișoara. It covers predominantly the regions of Arad, Caraș-Severin, Mehedinți, and Timiș, with a total of 56 Serbian Orthodox parishes. This diocese is part of the Serbian Patriarchate based in Belgrade. The official liturgical languages of the Church are Serbian with Cyrillic spelling and Romanian. The Church follows the Julian calendar, used by approx. 26 thousand believers of Serbian origin. In addition, it is in charge of five Serbian monasteries, with the oldest one, Zlatița, dating from the 13th century, is dedicated to St. Sava.

The Julian calendar is used by the Old Believers, locally referred to as Lippovans, who settled in the Romanian land at the turn of the 17th and 18th centuries. The Old Believers use Church Slavonic as their liturgical language; they also use old liturgical books written in Church Slavonic, typically originating from Ruthenia.

Reference: Analele Bucovinei, XXIX, 1 (58), p. 191–212, Rădăuți – București, 2022

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JEWISH CALENDAR – SERBIAN PROCEDURE

Dejan Maksimović and Željko Filipović have conceived two new ways of date determination for Molad Tishrei and Rosh Hashanah (New Year’s day) in the Jewish calendar. Perhaps the best knower of the Jewish calendar in the world, Canadian mathematician Remy Landau, has examined and established the top accuracy of these procedures. Impressed by a simple and accurate solutions he named these ways „Serbian procedure“.

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Society of Naturalists “GEA” Vršac, Serbia

UROŠ – A PERMANENT CALENDAR SOLUTION

Having rejected the rules of calendar creation which have been imposed for more than 2000 years, but are not in accordance with the state in nature, Željko Filipović an amateur astronomer from Niš created a calendar of the highest accuracy permitted by theory. In this way calendar “Uroš” reminds of the best solutions of Iranian and Arabic calendar creators. In the present paper the characteristics of the Uroš calendar are presented where its accuracy is compared with that of the Julian, Gregorian, Trpković-Milanković, Khayyam and other calendar systems.

Milan Mladenović,
Serbian Spiritual Academy, Serbia

MILANKOVIĆ AND WORLD TIME

This work places us in that part of space-time. Its goal is to demonstrate that in our civilization, up to the present day, following the insights of philosophers like Parmenides, Zeno, and Plato, few individuals have made as significant contributions as Milutin Milanković.

Why mention Parmenides? Why reference Zeno? And why bring up Plato?

The first two philosophers recognized the Eleatic being as a motionless collection of star-like inhabitants within infinite cosmic space. Plato, in his work “Timaeus,” portrayed this eternal arrangement, designating Time as a moving image of Eternity.

This paper will illustrate how Milutin Milanković, often regarded as a “heavenly mechanic,” took on the formidable task of harmonizing the “fixed” sidereal time and the “moving” terrestrial time. His achievement was transforming this reconciliation into a calendar that would not only find a common ground between the Julian and Gregorian calendars but also serve to unite two worlds—in the cosmological sense, bridging the Earthly and the Heavenly, and in the historical sense, bringing together the West and the East. While he was not the first to undertake this endeavor, his success set him apart.

The paper will demonstrate that Milanković’s calculations, despite their foundation in the Chaldean-Egyptian-Roman-Christian astrological heritage (representing just one of numerous civilizations),

tapped into the same collective human consciousness as other civilizations had done. As a result, his work became a universally acceptable basis for subsequent efforts to establish a single human calendar. The planetary celebration of the hundredth anniversary of Milanković's achievements should be dedicated to this high purpose. Just as it facilitated (albeit not yet fully implemented) the joint celebration of the most important Christian holiday from the standpoint of the highest mathematical achievements, it presents an opportunity to take a substantial Milanković-inspired step towards the introduction of a global calendar. This can be achieved through the consent and cooperation of representatives from diverse civilizational heritages, with the aim of creating a unified measurement of space and time in the name of human existence, both on Earth and in its space environment.

Key words: Milutin Milanković, space, time, space/time, eternity, sidereal and terrestrial time, calendar, unique time measurement, reconciliation, Milanković's contribution, global calendar.

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MATERIALIZATION OF THE „SHADING CANON“ IN MEMORY OF MILUTIN MILANKOVIĆ

Gnomonics is indirectly related to the scientific activity of Milutin Milanković in two ways: by analogy with Milanković's "canon of insolation", the gnomon theory represents a "canon of shading", while its main creation, the sundial, also represents a reduced materialized calendar. Accordingly, the project of a memorial sundial with date hyperboles related to Milutin Milanković was realized. It is a horizontal park sundial with a circular base $D = 52$ cm which is placed on a suitable stand in the grounds of the Cultural and Scientific Center "Milutin Milanković" from Dalj during the "One Hundred Years of New Julian Calendar of Milutin Milanković" scientific conference.



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ГРАЂЕВИНСКИ ФАКУЛТЕТ
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АСТРОНОМСКА ОПСЕРВАТОРИЈА
БЕОГРАД



УНИВЕРЗИТЕТ
У БЕОГРАДУ



СРПСКА АКАДЕМИЈА
НАУКА И УМЕТНОСТИ



СРПСКА ПРАВОСЛАВНА
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