Преглед НЦД 15 (2009), 8–18

Nadežda Pejović, Žarko Mijajlović
Faculty of Mathematics
University of Belgrade,

DIGITIZED WORKS OF ACADEMICIAN VOJISLAV MIŠKOVIĆ

Abstract Professor Vojislav Mišković (1892–1976) was the leading Serbian astronomer in the twentieth Century. He wrote a large number of books and textbooks on astronomy. Eleven of these books, one chart and one scientific work are digitized and they are included into the Virtual Library of the Faculty of mathematics of the University of Belgrade, http://elib.matf.bg.ac.yu:8080/virlib/. In this article we give short reviews of these works and his biography as well.

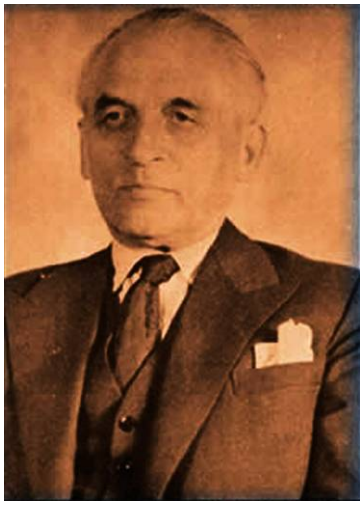
Key words: digitized books, Vojislav Mišković, astronomy

Introduction

In this paper we present eleven books and two more works of Professor Vojislav Mišković (1892–1976), a prominent Serbian astronomer. All these books and works have been digitized and are included in the Virtual Library of the Faculty of mathematics of the University of Belgrade at the Internet address http://elib.matf.bg.ac.yu:8080/virlib/. We would like to mention particularly his book *A Collection of Solved Problems of General Astronomy*, one of the first university collections concerning astronomy written in Serbian. The second part of this collection exists in a hand-written form only and has been never published. The digitized form of this book is the first appearance and presentation of this book (in any form) to the general audience.

Biography of Vojislav Mišković

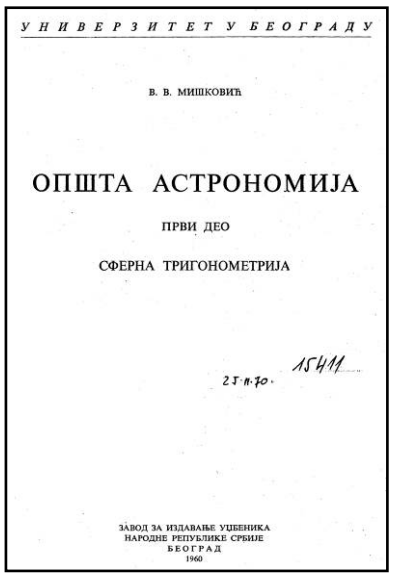
Vojislav Mišković (1892–1976) was born at Fužine in Croatia. He started to study astronomy at the Universities of Budapest and Goettingen shortly before the First World War. When the war began, he came illegally to Serbia, became a member of the volunteer platoon and took an active part in the war till the defeat of the Serbian Army. After the demobilization he went to France to finish his studies. He took degree in 1919 and became assistant at the Astronomical Observatory in Marseille. From 1922 he was engaged as an astronomer at the Observatory of Nice. He got his PhD degree in 1924 at the University of Montpellier. In France he was very active as an astronomer. He organized new services at observatories, was editor of a journal in astronomy, organized and performed the astronomical measurement for of triangulation connecting Corse with the French Eastern Alps, presented the first variant of his original astronomical instrument. For his contributions he was awarded by the French Academy of Sciences. He came to Belgrade in 1926, following an invitation, as an already affirmed as-



tronomer. In the same year he was appointed a Reader (Associate Professor) at the Faculty of Philosophy in Belgrade in the framework of the just founded Chair of Theoretical and Practical Astronomy. At that time he became Director of the newly founded Astronomical Observatory in Belgrade. It may be said that with Mišković's arrival from France to Belgrade an intensive development of astronomy began. In 1929 Mišković was elected a corresponding member of the Serbian Royal Academy and in 1939 a full member. In his honor a minor planet was named Mišković.

◄ Vojislav Mišković

1. General Astronomy



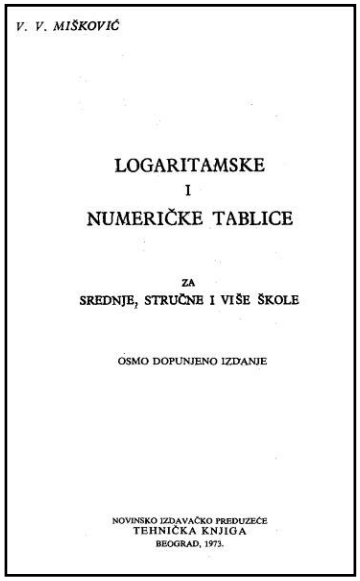
This book, as a non-temporary university textbook, was approved of using by the Commission for textbooks of the Belgrade University in its decision No 1500/2 of June 9, 1960. The introductory part of the textbook on *General Astronomy* became a separate book, entitled *Spherical Trigonometry,* was printed by Beogradski grafički zavod and published by Zavod za izdavanje udžbenika Narodne republike Srbije in Belgrade in 1960. The book contains 95 pages and is composed of *Introduction*, three chapters, *Appendix, List of Formulae and Tables.* In the first chapter *Geometry of a Sphere* the basic notions and definitions are introduced: sphere, great and small circles, poles, spherical distance, crescent, spherical triangle, spherical excess, polar spherical triangle, quadrant spherical triangle, measures for angles. The second chapter *Spherical Trigonometry* presents the basic formulae of spherical trigonometry, five-element formulae, as well as special formulae, then the areas of crescent and spherical triangle, square degree and also the transition from the spherical to the plane trigonometry, calculation of the values for trigonometric functions, geodetic triangle and Legendre's theorem. The third chapter *Applications* contains solved numerical examples concerning spherical triangles, as well as examples of using the differential formulae of spherical trigonometry. In *Appendix* some paragraphs are completed and explained in more details. *List of Formulae* is a small mathematical handbook containing various numerical values and special trigonometric formulae.

The textbook *General Astronomy,* the first part *Spherical Trigonometry* appears as a separate unit because it contains, as written in the preface, more mathematics than a student attending the subject of General Astronomy needs. In it a special attention is paid to numerical applications. Mišković explains that numerical applications in an astronomer's work are very important, but there are not many sources where a reader can find and learn them. The same numerical examples are often solved in several different ways in order to indicate the

dependence of the result quality on the method which is applied. In the numerical examples the last digit is not rounded, instead the result is written with one more digit which is given by using smaller characters. In order to save the space the usual designation $\log(x)$ is replaced by $[x]$.

The first part of *General Astronomy,* entitled *Spherical Trigonometry,* is written very nicely and illustratively. It contains many plots, drawings and solved examples so a collection of problems is not necessary. Here one finds some terms already forgotten in the Serbian of now-a-days, such as *goniometric functions* (trigonometric functions), *grad* (1/400 of a full circle), *centesimal minute* (1/100 of a grad, denoted with the sign for sexagesimal minute directed from the left to the right), *centesimal second* (1/100 of centesimal minute, denoted with the sign for sexagesimal second directed from the left to the right, p. 17). On page 88 a list of foreign textbooks on general astronomy is given. Unfortunately, except the first one, the other parts of the university textbook *General Astronomy* by Vojislav Mišković have been never published. Nevertheless, we recommend to our students even today the first part, which has been published, and from which they can learn spherical trigonometry very easily.

2. Logarithmic and Numerical Tables


V. V. MIŠKOVIĆ

LOGARITAMSKE
I
NUMERIČKE TABLICE

ZA
SREDNJE, STRUČNE I VIŠE ŠKOLE

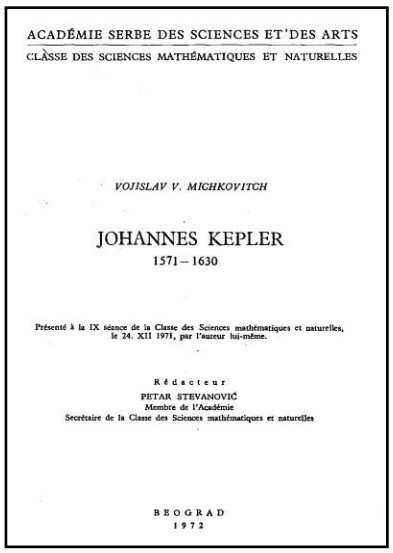
OSMO DOPUNJENO IZDANJE

NOVINSKO IZDAVAČKO PREDUZEĆE
TEHNIČKA KNJIGA
BEOGRAD, 1973.

The logarithmic and numerical tables have been a valuable handbook for complicated and large trigonometric calculations at the time when no calculators and computers existed. The tables have been used not only by professional astronomers, but also by students. The first edition of Mišković's *Logarithmic and Numerical Tables* for secondary and advanced schools was published in 1952. We have digitized the second edition printed by *Tehnička knjiga* in Belgrade in 1973. The book contains 265 pages and the tables in it are given separately and in different colors depending on the type: Briggs logarithms, values and logarithms of trigonometric functions, then the same for the hyperbolic trigonometric functions. All of this is followed by special numerical tables: for conversion of the Napierian into Briggsian logarithms, conversion of radians into degrees, minutes and seconds of arc and vice versa, then tables containing the values of the function of observational errors, values of factors for determining observational errors, list of Pythagorean numbers, factorial values for natural numbers between 1–20, as well as the values of binomial-coefficient degrees between 0–20. Each table is preceded by a plot of the functions presented in it and followed by a detailed instruction for use with a few examples.

3. Johannes Kepler

The book *Johannes Kepler 1571–1630* written by Mišković in 1971 is a Memory dedicated to the 400-anniversary from the birth of renowned astronomer Johannes Kepler. It is interesting that we digitized this book in 2009, just at the 400-anniversary of the publication of Kepler's first two laws in 1609. The book contains 48 pages and is composed of two parts. In the first part one finds the biographies of the first four founders of new astronomy as Mišković calls them in the preface: Nicolaus Copernicus, Tycho Brahe, Galileo Galilei and Sir Isaac Newton. The second part is devoted to the fifth, most meritorious, founder of new astronomy, Johannes Kepler. In this part one describes Kepler's difficult life and his brilliant contributions to the


ACADÉMIE SERBE DES SCIENCES ET DES ARTS
CLASSE DES SCIENCES MATHÉMATIQUES ET NATURELLES

VOJISLAV V. MICHKOVITCH

JOHANNES KEPLER
1571 – 1630

Présenté à la IX séance de la Classe des Sciences mathématiques et naturelles, le 24. XII 1971, par l'auteur lui-même.

Rédacteur
PETAR STEVANOVIĆ
Membre de l'Académie
Secrétaire de la Classe des Sciences mathématiques et naturelles

BEOGRAD
1972

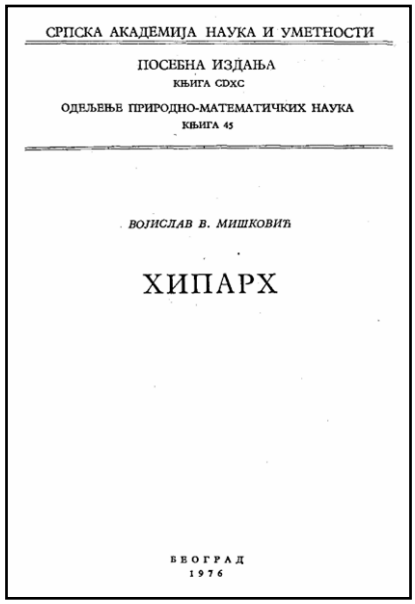
astronomical science. At the end of the book there are important dates from Kepler's life. The book was published by the Serbian Academy of Sciences and Arts and printed by "Naučno delo" in 1972.

At the very beginning of the book there is a quotation of Delambre: *Let glorious be the astronomer who was tenacious enough and had acuteness to, by calculating only, discover the laws of celestial motion at the time when any other way could not lead to them.*

The book *Johannes Kepler 1571–1630* is very interesting, historically valuable and is to be recommended for reading to anyone. From the book one can learn many details from the life and activity of this great man. For instance, Mišković writes about Kepler's "lodestar", more precisely about "harmony of the worlds" searched for by Kepler and found in the discovery of his third law. The book, certainly, deserves to be read by as many people as possible.

4. Hipparchus (190 ? – 125 ? BC)

The book *Hipparchus* Mišković devoted to the life and activity of the greatest astronomer of Classical Antiquity, the first observer and, it might be said, the first founder of space science. It contains IX+59 pages. It was published by the Serbian Academy of Sciences and Arts and printed by "Naučno delo" in Belgrade in 1976. The book is composed of seven chapters: *Preface, Hipparchus-Introductory Word, Pre-Hipparchus Period, Life and Activity of Hipparchus, Instruments from the times before Hipparchus and during its Activity, Post-Hipparchus Period and Summary* (in French). About Hipparchus Mišković writes: *What he did for astronomy of his times is so enormous that it is even hard to believe that a single man could do so much.*


СРПСКА АКАДЕМИЈА НАУКА И УМЕТНОСТИ

ПОСЕБНА ИЗДАЊА
КЊИГА CDXC

ОДЕЉЕЊЕ ПРИРОДНО-МАТЕМАТИЧКИХ НАУКА
КЊИГА 45

ВОЈИСЛАВ В. МИШКОВИЋ

ХИПАРХ

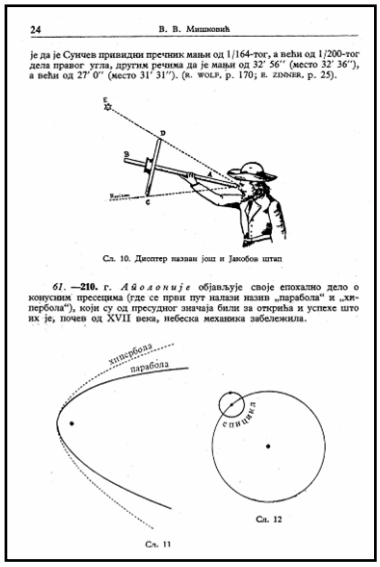
БЕОГРАД
1976

This book can be recommended to a wide circle of readers. In it one finds that Hipparchus determined the lengths of the tropical year and sidereal years, discovered the precession phenomenon, determined the inclination of the ecliptic to the equator, formed the first star catalogue, was the first to distribute stars in six groups according their apparent magnitudes, introduced the notions of geographic latitude (called *climate* by himself) and geographic longitude, determined the prime meridian which passed through his observatory on the island of Rhodes and all of this using a very primitive equipment. He also wrote twelve books about the chords and the corresponding central angles of circles which are predecessors of the trigonometry tables. For this reason geographers began to call Hipparchus "father of geography", whereas to astronomers he has been "founder of mathematical astronomy".

The book *Hipparchus* appears as an important contribution to the literature on history of astronomy written in Serbian, but also to philosophy and general history. This is the first book written in Serbian about this great man of Classical An-

tiquity. In it Mišković, *as the first in the world*, presented the bibliography of many books and works written by Hipparchus. The scripts of Hipparchus have largely not reached our era and about them, as well as about his life and activity, one obtains indirect information, from the records of his contemporaries and also from works of philosophers, historians and astronomers who have written about this topic. Some dates, events, even the origin of the results are, nevertheless, unreliable.

5. Chronology of Astronomical Achievements


24 В. В. Мишковић

је да је Сунчев привидни пречник мањи од 1/164-тог, а већи од 1/200-тог дела правог угла, другим речима да је мањи од 32′ 56″ (место 32′ 36″), а већи од 27′ 0″ (место 31′ 31″). (R. WOLF, p. 170; E. ZINNER, p. 25).

Сл. 10. Диоптер назван још и Јаковов штап

61. —210. г. *Аполоније* објављује своје епохално дело о конусним пресецима (где се први пут налази назив „парабола" и „хипербола"), које су од пресудног значаја биле за откриће и успехе што их је, почев од XVII века, небеска механика забележила.

хипербола
парабола
елипса

Сл. 11 Сл. 12

◄ **Page 24 from Chronology**

Books *The Chronology of Astronomical Achievements I* and *II* are in fact a chronological encyclopedia of astronomical achievements realized by the end of the XIX century. The events and innovations are presented as entries and their total number is about 2000. In the first book Mišković included astronomical achievements from prehistory till 1700, whereas the second book comprises the period between 1700 and 1900. Both volumes were published by the Serbian Academy of Sciences and Arts in 1975 and 1976, respectively. They were printed by printing house *Naučno delo* from Belgrade. The first volume has 133 pages, the second one 148.

Chronology lists achievements ordered chronologically and in it all events, discoveries and innovations of importance in astronomy are described, i. e. all important astronomical achievements are included. That this is an encyclopedia can be seen in the fact that not only all data desired can be found easily and quickly, but also that the data are correct. Namely, at one place (volume II, p. 2) Mišković writes: *All data which should have been included in "Chronology" were searched for specially, regularly, in one of the known histories of astronomy; if necessary in a major textbook, or in an astronomical journal, or in the article where the given phenomenon or subject was the topic. If the search was successful, which was the most frequent case, at the end of the entry the complete reference was given.*

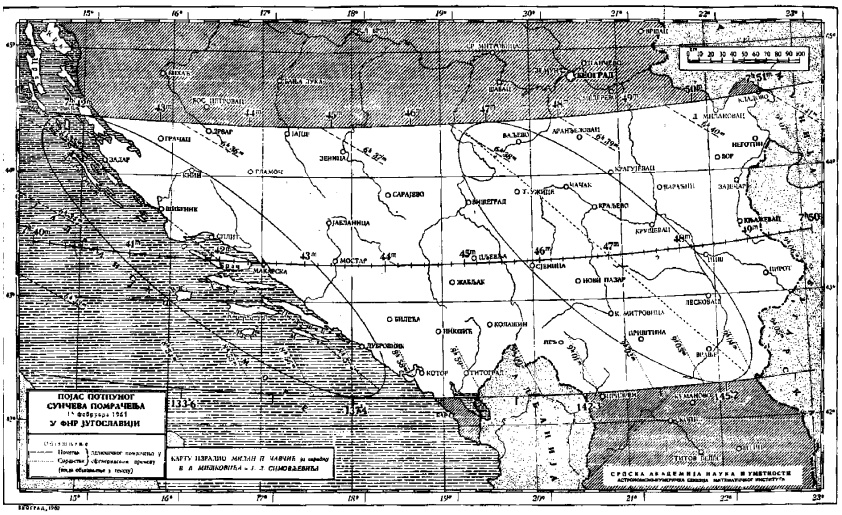
The value of these books can be seen from the following fact. In each entry one finds the name of at least one scientist, usually astronomer, or the name of her/his work. The foreign names are adapted to the Serbian language and written in Cyrillic, whereas the original is given within the parentheses in Latin characters. Some entries contain figures and schemes. At the end of each volume there is an index with the names of the scientists resulting in a more rapid and easy search.

We may say that *Chronology* appears as an important work from the history of astronomical science, not only because it is the first book of this kind in our midst, but also because it is comprehensive and substantially complete. Any reader will be surprised by the number and type of the discoveries invented, noticed and anticipated by ancient thinkers.

6. Solar Eclipse of February 15, 1961

The book *Solar Eclipse of February 15, 1961* was published by the Serbian Academy of Sciences and Arts within the series *Special Editions* in 1960. Mišković wrote this book on the occasion of the total solar eclipse seen from our territory on February 15, 1961. It con-

tains 5+75 pages and consists of *Preface,* four chapters and *Overview.* In the first chapter *Appearance and Composition of the Sun* one describes in details the solar photosphere, sunspots, flares, chromosphere, spectrum, prominences and the corona. The second chapter *Solar eclipses* deals with the eclipse types, cone size for the lunar shadow, eclipse duration, phases of a partial and those of a total eclipse, as well as the moments of the beginning and end of a total eclipse. In the third chapter *Organizing Programme of Eclipse Observation* Mišković describes the instruments and equipment for astronomical observations, instruments for photographing the corona, the first contact – beginning of the partial eclipse, the observation of arriving of the lunar shadow, the second contact – the beginning of the total eclipse, spectrum taking, taking of the corona spectrum, measuring of corona polarization, measuring of Einstein's effect, the appearance of the sky during the eclipse, the third contact – the end of the total eclipse, the fourth contact – the end of the partial-eclipse phase, then radio observations and observations in the conditions of a cloudy sky (on board of a balloon or airplane). In the fourth chapter *Course of the Eclipse as observed from Yugoslavia* Mišković presents a description of the general course of the approaching eclipse, then that of the course for the observations from Yugoslavia and finally the approximate determination of the moments of the phases for a given place in Yugoslavia. In *Overview* one finds the data about the main phases of the February eclipse in 1961 given for 29 Yugoslav biggest cities (towns), in particular, in addition to the latitude, longitude and altitude above the sea level also the moments of the beginning and end of both totality and partial eclipse at the given place (if inside the totality band), i. e. the moments of the beginning and end of the partial eclipse if the place is outside the totality band. These data were calculated by Jovan Simovljević by using a hand calculator who was then assistant at the Faculty of Sciences (University of Belgrade).



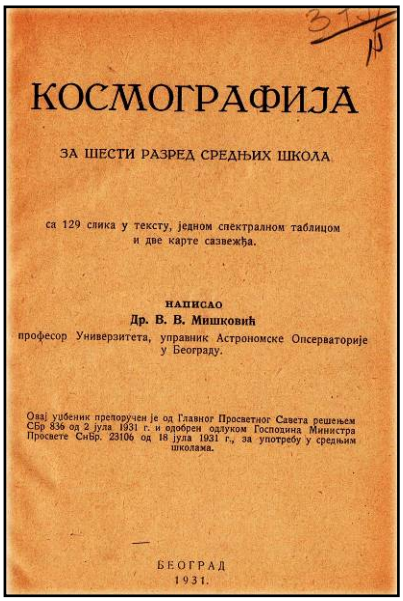
The totality band of the Solar eclipse 1961 represented on the map of Yugoslavia. which is enclosed at the end of the book (made by M. Čavčić)

This book was a valuable reading to all expeditions which observed the total solar eclipse on February 15, 1961. Since the solar eclipses for the same place are rare (once in three centuries), this is more in favour of the importance of the book. This short monograph is important because it was written and printed at the right moment, immediately before the most spectacular phenomenon which can be seen in the sky. The previous total solar eclipse for our territory took place in 1666, and the next, as written by Mišković, was expected on October 7, 2135. However, Mišković in this book mentions that the solar eclipse of August 11,

1999 will be partial as it largely was for our country. But, a little bit later on J. Simovljević performed precise calculations and found that for a small part of our country, northeastern Vojvodina, this eclipse would be total. Simovljević's results were correct. In one of the expeditions one of us (N. Pejović) took part and observed on August 11, 1999 this magnificent phenomenon from Đala, at the extreme north of our country. Note that this spectacular phenomenon took place in the sky only two months after the end of the heavy bombardment of our country by the NATO forces.

7. Cosmography

Mišković's *Cosmography* is an astronomy textbook for the pupils of the sixth form of secondary school at the time of its publication (today second form of secondary school). The textbook was recommended by Main Education Council (Decision No Sbr 836) on July 2, 1931 and was approved of using in secondary schools by the Education Minister (SnBr 23106, July 18, 1931). This is the first official astronomy textbook for secondary schools written in our country. It contains 186 pages with 129 figures in the text. In Appendix it contains two maps of the sky and one table with spectral lines. The book is informative and clearly written with many schemes and drawings giving nice illustrations of the phenomena and notions described in it. The apparent and true motions of the Sun, Moon, planets, comets and stars are explained. Time systems, the sidereal time and the solar (apparent, mean and universal) ones are defined. Celestial bodies, stars, planets, planet satellites, minor planets, comets and meteors, as well as celestial systems, double, triple, multiple stars, star clusters, nebulae and galaxies, are described.


КОСМОГРАФИЈА

ЗА ШЕСТИ РАЗРЕД СРЕДЊИХ ШКОЛА

са 129 слика у тексту, једном спектралном таблицом и две карте сазвежђа.

НАПИСАО
Др. В. В. Мишковић
професор Универзитета, управник Астрономске Опсерваторије у Београду.

Овај уџбеник препоручен је од Главног Просветног Савета решењем СБр 836 од 2 јула 1931 г. и одобрен одлуком Господина Министра Просвете СнБр. 23106 од 18 јула 1931 г., за употребу у средњим школама.

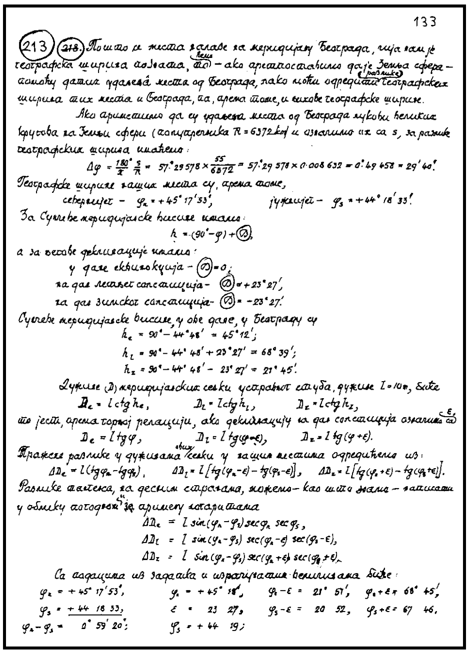
БЕОГРАД
1931.

Thanks to both the contents and the clarity of style we are glad to recommend this book also to the pupils of secondary schools of our epoch.

8. Collection of Solved Problems of General Astronomy

The first part of *Zbirka rešenih zadataka iz opšte astronomije* (A Collection of Solved Problems of General Astronomy) by Prof. Vojislav Mišković (hereafter referred to as the Collection) is the first university collection of astronomical problems printed in Serbian. It appeared in the middle of the last century. The need to publish this book arose, as written in the Preface by Mišković, on one hand due to an increase in the number of students who studied astronomy, and, on the other hand, due to the insufficient number of solved problems, not only in the Serbian literature, but also abroad. Whereas the number of astronomical textbooks was sufficient in all European languages, the lack of collections containing solved problems was evident. The Collection was approved of printing through an act of the Textbook Commission of Belgrade University No 896 of August 10, 1956 as a textbook for students of the Faculty of Sciences. Though the approval concerned the Collection as a whole, for technical reasons, as written by Mišković, it had to be divided into two parts. The first one was published by *Naučna knjiga* in Belgrade in the year of approval with a circulation of 2000 copies, whereas the second part should have been published in the following year. Unfortunately, the second part of the Collection is still in the manuscript form. The manuscript was given to the first co-

author of this article in 1995 by Professor of Astronomy Jovan Simovljević (1929–2007) when he got retired. From that year many problems contained in the manuscript have been solved by the students as exercises and during exams concerning the teaching subject of General Astronomy at the Astronomy Department of the Faculty of Mathematics in Belgrade. Since Mišković was a European scholar and knew foreign languages very well, he wrote the Collection using the most contemporaneous textbook and scientific literature of that time. In its *Introduction* one finds about ten references - foreign textbooks, mostly French, English and German. The problems taken from other authors have a designation which indicates their origin. The digitization comprising the whole Collection has been just finished and in this way Mišković's original manuscript became available to the public, after half a century.



Mišković'ć handwritings (Collection, page 133)

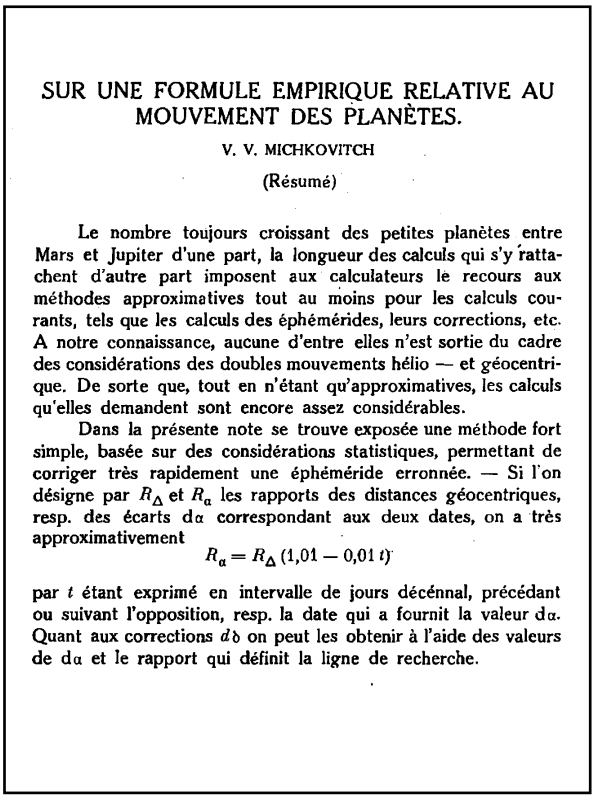
The book printed is the first part of the Collection. It has 150 pages and consists of *Preface, Introduction* and two chapters. *Introduction* consists of three parts: *Review of Formulae of Spherical Trigonometry, Series* and *Review of Formulae for Transforming Astronomical Coordinate Systems*. The first chapter *Problems* concerns three fields: *Spherical Trigonometry, Earth as a Celestial Body* and *Apparent Diurnal Motion of Celestial Sphere*. The second, much larger, chapter *Solutions* contains the instructions and solutions for 126 problems of the Collection.

The manuscript, the second part of the Collection, consists of *Introduction* and two chapters. The introduction to this part concerns three fields: *Astronomical Refraction*, *Elements of Theory of Motion for Planets and Comets* and *Apparent Annual Motion of the Sun*. The first chapter *Problems* contains problems, whereas the second *Solutions*, much larger, contain methods, explanations and solutions concerning 136 problems of the manuscript. The *Manuscript* also contains an instruction how to form a single volume of the first part (already printed) and second one (manuscript). According to the enclosed plan, Mišković planned a different arrangement of the whole collection.

Based on the contents presented above it is seen that the whole Collection should have covered six fields: spherical trigonometry, Earth as a celestial body, apparent diurnal motion of celestial sphere, astronomical refraction, elements of theory of motion for planets and com-

ets and apparent annual motion of the Sun. The importance of 262 problems explained and completely solved from these fields is very great even today because there are no other collections containing solved astronomical problems written in Serbian. There are textbooks, both for secondary schools and universities, but often without any solved problem or example. For this reason the Collection appears as a real jewel in the Serbian astronomical literature.

9. On an Empirical Formula in the Determination of the Planetary Motion



SUR UNE FORMULE EMPIRIQUE RELATIVE AU MOUVEMENT DES PLANÈTES.

V. V. MICHKOVITCH

(Résumé)

Le nombre toujours croissant des petites planètes entre Mars et Jupiter d'une part, la longueur des calculs qui s'y rattachent d'autre part imposent aux calculateurs le recours aux méthodes approximatives tout au moins pour les calculs courants, tels que les calculs des éphémérides, leurs corrections, etc. A notre connaissance, aucune d'entre elles n'est sortie du cadre des considérations des doubles mouvements hélio — et géocentrique. De sorte que, tout en n'étant qu'approximatives, les calculs qu'elles demandent sont encore assez considérables.

Dans la présente note se trouve exposée une méthode fort simple, basée sur des considérations statistiques, permettant de corriger très rapidement une éphéméride erronnée. — Si l'on désigne par R_Δ et R_α les rapports des distances géocentriques, resp. des écarts $d\alpha$ correspondant aux deux dates, on a très approximativement

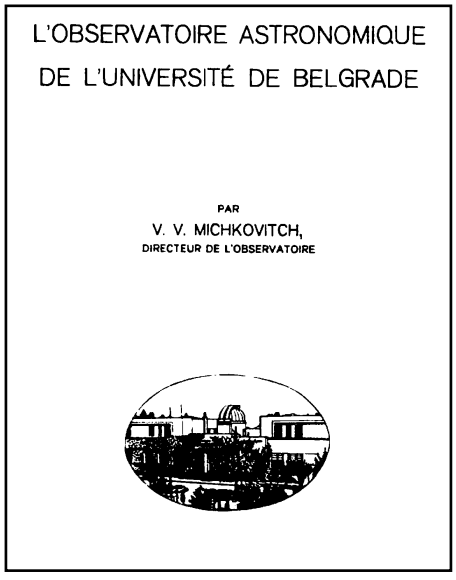
$$R_\alpha = R_\Delta (1{,}01 - 0{,}01\, t)$$

par t étant exprimé en intervalle de jours décénnal, précédant ou suivant l'opposition, resp. la date qui a fournit la valeur $d\alpha$. Quant aux corrections $d\delta$ on peut les obtenir à l'aide des valeurs de $d\alpha$ et le rapport qui définit la ligne de recherche.

Abstract in French of the paper *Empirical formula*

This work comprising about ten pages is in fact a covered reprint of a scientific paper published in "Glas CXXX SKA" (Serbian Royal Academy) printed by company "Makarije" in Belgrade in 1928. With regard that this paper is available in the Library of the Serbian Academy of Sciences and Arts as a special bibliographical unit, it is justified to suppose that that was Mišković's personal choice. For this reason we have, nevertheless, selected this manuscript to be digitized and included in the Virtual Library. Mišković's contribution in this paper is an empirical formula for correcting the ephemeris of a minor planet on the basis of an observation which showed that the planet was not at the place obtained in the calculation.

10. L'Observatoire Astronomique de L'Université de Belgrade



L'OBSERVATOIRE ASTRONOMIQUE

DE L'UNIVERSITÉ DE BELGRADE

PAR

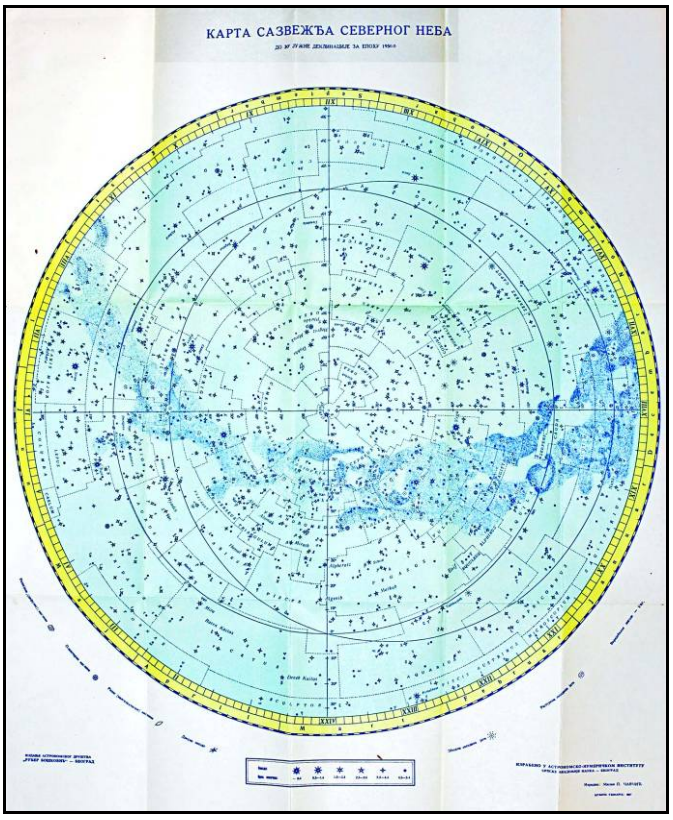
V. V. MICHKOVITCH,

DIRECTEUR DE L'OBSERVATOIRE

This small booklet (contains only 19 pages) Mišković published anent the Balkan Congress of mathematicians which was held in Belgrade in September 1939. The booklet described the history of foundation and work of the newly founded Astronomical Observatory in Belgrade (in 1924). We remind that Mišković was appointed the Director of the Observatory almost immediately after its foundation, in 1926. Before him the director was Milan Nedeljković. The booklet also describes the local geographic position, activities of the Observatory, publications and instruments. Probably the greatest value of the booklet is the relatively large number (15) of photos for such a small edition. Besides the pictures of Observa-

tory there are photos of its instruments as well. The reader can see that at that time the Observatory was relatively well equipped and very active. As seen from Mišković's biography, this is mainly due to his efforts and engagement.

11. Map of the constellations of the Northern hemisphere



Mišković made this chart in collaboration with Milan Čavčić, the member of the technical staff of the Mathematical Institute of the Serbian Academy of Science and Arts. The map is published by the Astronomical Society *Rudjer Bošković* in 1957 and covers all constellations up to 30^0 of the South declination for the epoch 1950.0. The chart is suplemented with the small manual (six pages) for using the map, which also explains the basic astronomical notions. The supplement was written by P. Djurković, the astronomer from the Observatory in Belgrade. In addition, the map is supplemented with the transparent sheet of paper with charted grid for reading positions of the celestial bodies on the map.

Acknowledgement

We are grateful to the Ministry of Science of the Republic of Serbia which finances the Project *Application of Information Technologies in Digitization of the Scientific and Cultural Heritage, RP 13017,* as well as to the Library of the Serbian Academy of Sciences and Arts for lending us all these books for the digitization, except two of them *Cosmography and L'Observatoire Astronomique de L'Université de Belgrade* borrowed from the private library of Prof. Dr Jelena Milogradov-Turin.

References

1. Мишковић В.В.: *Збирка решених задатака из Опште астрономије-Први део*, Научна књига, Београд, 1956.
2. Мишковић В.В.: *Збирка решених задатака из Опште астрономије-Други део*, рукопис припремљен за штампу, добијен од проф. Јована Симовљевића
3. Мишковић В.В.: *Сунчево помрачење*, Посебна издаља САНУ, књига CCCXLIII, Прир-мат. књ. 27, Београд, 1960.
4. Мишковић В.В.: *Јоханес Кеплер 1571-1630*, САНУ, Прир-мат. Београд, 1972.
5. Мишковић В.В.: *Хипарх*, Посебна издања САНУ, књига CDCX, Прир-мат. књ. 45, београд, 1976.
6. Мишковић В.В.: *О једном емпиријском обрасцу при одређивању планетског кретања*, Из CXXX књиге Гласа Српске Краљевске Академије, Графички завод "Макарије", Београд, 1928, 73-82.
7. Мишковић В.В.: *Логаритамске и нумеричке таблице*, Прво издање, Београд, 1952.
8. Мишковић В.В.: *Космографија*, ...,Београд, ...
9. Мишковић В.В.: *Хронологија астрономских тековина I*, САНУ, Прир-мат. Београд, 1975.
10. Мишковић В.В.: *Хронологија астрономских тековина II* , САНУ, Прир-мат. Београд, 1976.
11. Мишковић В.В.: *Општа астрономија, Први део, Сферна тригонометрија*, Завод за издавање уџбеника Народне Републике Србије, Београд, 1960.
12. Симовљевић Ј.: *Астрономија*, Тридесет година природно-математичког факултета Универзитета у Београду, ПМФ, Београд, 1980.
13. Пејовић Н.: *Manuscript „Collection of solved problems of General astronomy“ by Vojislav Mišković*, Publ. Astron. Obs. Belgrade, No 86, 2009.
14. Милорадов-Турин Ј.: *Војислав В. Мишковић*, Биографски лексикон *Срби који су обележили XX век,* Београд*,* 2006, стр.333.

Надежда Пејовић,
Жарко Мијајловић
Математички факултет,
Универзитет у Београду,

ДИГИТАЛИЗОВАНА ДЕЛА АКАДЕМИКА ВОЈИСЛАВА МИШКОВИЋА

Сажетак. Представљамо прве универзитетске уџбенике из астрономије писане на српском језику. Наиме, реч је о уџбеницима, збиркама и књигама професора Војислава Мишковића писаних средином XX века: *Општа астрономија*, *Хронологија астрономских тековина I* и *II*, *Хипарх*, *Јоханес Кеплер, Космографија, Сунчево помрачење од 15 фебруара 1961,* и *Логаритамске и нумеричке таблице*. У ову дигиталну колекцију такође су укључени први део збирке који је објављен 1956. под називом *Збирка решених задатака из Опште астрономије - Први део,* затим рукопис другог дела *Збирка решених задатака из Опште астрономије - Други део* који потпуно припремљен али никад није штампан. Ова књига је не само прва збирка задатака из астрономије на српском језику, већ и једина збирка ове врсте до сада написана. Стога је дигитализација, посебно њеног другог дела, од великог значаја за студије астрономије, јер је овим електронска копија рукописа постала доступна студентима. *Збирка* је методички занимљиво и лепо писана. Сви поменути астрономски појмови и наведени обрасци су детаљно и јасно представљени. Нарочита пажња је посвећена нумеричком решавању задатака, што се данас прилично занемарује. Свих дванаест наведених књига је дигитализовано и оне се налазе у Виртуелној библиотеци Националног центра за дигитализацију (Virtual library, http://elib.matf.bg.ac.yu;8080/virlib/). Дигитализација ових књига део је пројекта електронског архивирања српских књига из математичких наука штампаних у прошлости. Укратко представљамо садржаје ових књига као и њихове занимљивости.

Кључне речи: Дигитализоване књиге**,** Војислав Мишковић, астрономија

nada@matf.bg.ac.rs
zarkom@matf.bg.ac.rs