

THE ORIGINS OF PTOLEMY'S ASTRONOMICAL PARAMETERS



by
Robert R. Newton



a companion publication to



The Center for Archaeoastronomy, University of Maryland

The Johns Hopkins University, Applied Physics Laboratory

The Origins Of Ptolemys Astronomical Parameters

Ying Liu



The Origins Of Ptolemys Astronomical Parameters:

The Origins of Ptolemy's Astronomical Parameters Robert R. Newton,1982 **The Origins of Ptolemy's Astronomical Tables** Robert R. Newton,1985 **The Mathematics of the Heavens and the Earth** Glen Van Brummelen,2021-08-10 The Mathematics of the Heavens and the Earth is the first major history in English of the origins and early development of trigonometry Glen Van Brummelen identifies the earliest known trigonometric precursors in ancient Egypt Babylon and Greece and he examines the revolutionary discoveries of Hipparchus the Greek astronomer believed to have been the first to make systematic use of trigonometry in the second century BC while studying the motions of the stars The book traces trigonometry s development into a full fledged mathematical discipline in India and Islam explores its applications to such areas as geography and seafaring navigation in the European Middle Ages and Renaissance and shows how trigonometry retained its ancient roots at the same time that it became an important part of the foundation of modern mathematics The Mathematics of the Heavens and the Earth looks at the controversies as well including disputes over whether Hipparchus was indeed the father of trigonometry whether Indian trigonometry is original or derived from the Greeks and the extent to which Western science is indebted to Islamic trigonometry and astronomy The book also features extended excerpts of translations of original texts and detailed yet accessible explanations of the mathematics in them No other book on trigonometry offers the historical breadth analytical depth and coverage of non Western mathematics that readers will find in The Mathematics of the Heavens and the Earth **Islamic Astronomical Tables** Benno van Dalen,2023-05-31 This volume comprises nine articles on Islamic astronomy published since 1989 by Benno van Dalen Van Dalen was the first historian of Islamic astronomy who made full use of the new possibilities of computers in the early 1990s He implemented various statistical and numerical methods that can be used to determine the mathematical properties of medieval astronomical tables and utilized these to obtain entirely new until then unattainable historical results concerning the interdependence of individual tables and hence of entire astronomical works His programmes for analysing tables making sexagesimal calculations and converting calendar dates continue to be widely used The five articles in the first part of this collection explain the principles of a range of statistical methods for determining unknown parameter values underlying astronomical tables and present extensive step by step examples for their use The four articles in the second part provide extensive studies of materials in unpublished primary sources on Islamic astronomy that heavily depend on these methods The volume is completed with a detailed index **Archaeoastronomy** ,1982 **From Eudoxus to Einstein** C. M. Linton,2004-08-12 Since man first looked towards the heavens a great deal of effort has been put into trying to predict and explain the motions of the sun moon and planets Developments in man s understanding have been closely linked to progress in the mathematical sciences Whole new areas of mathematics such as trigonometry were developed to aid astronomical calculations and on numerous occasions throughout history breakthroughs in astronomy have only been possible because of

progress in mathematics This book describes the theories of planetary motion that have been developed through the ages beginning with the homocentric spheres of Eudoxus and ending with Einstein's general theory of relativity It emphasizes the interaction between progress in astronomy and in mathematics showing how the two have been inextricably linked since Babylonian times This valuable text is accessible to a wide audience from amateur astronomers to professional historians of astronomy

Astronomy and Astrophysics Abstracts S. Böhme, W. Fricke, H. Hefele, I. Heinrich, W. Hofmann, D. Krahn, V. R. Matas, L. D. Schmadel, G. Zech, 2013-12-14 Astronomy and Astrophysics Abstracts aims to present a comprehensive documentation of the literature concerning all aspects of astronomy astrophysics and their border fields It is devoted to the recording summarizing and indexing of the relevant publications throughout the world Astronomy and Astrophysics Abstracts is prepared by a special department of the Astronomisches Rechen Institut under the auspices of the International Astronomical Union Volume 34 records literature published in 1983 and received before February 17 1984 Some older documents which we received late and which are not surveyed in earlier volumes are included too We acknowledge with thanks contributions of our colleagues all over the world We also express our gratitude to all organizations observatories and publishers which provide us with complimentary copies of their publications Starting with Volume 33 all the recording correction and data processing work was done by means of computers The recording was done by our technical staff members Ms Helga Ballmann Ms Mona El Choura and Ms Monika Kohl Mr Martin Schlotelburg and Mr Ulrich Oberall supported our task by careful proofreading It is a pleasure to thank them all for their encouragement Heidelberg March 1984 The Editors Contents Introduction Concordance Relation ICSU AB AAA 3 Abbreviations 10 Periodicals Proceedings Books Activities 001 Periodicals 15 002 Bibliographical Publications Documentation Catalogues Atlases 50 003 Books 58 004 History of Astronomy 67 005 Biography 71 006 Personal Notes 73 007 Obituaries

The History of Ptolemy's Star Catalogue Gerd Graßhoff, 2013-03-07 Ptolemy's Almagest shares with Euclid's Elements the glory of being the scientific text longest in use From its conception in the second century up to the late Renaissance this work determined astronomy as a science During this time the Almagest was not only a work on astronomy the subject was defined as what is described in the Almagest The cautious emancipation of the late middle ages and the revolutionary creation of the new science in the 16th century are not conceivable without reference to the Almagest This text lifted European astronomy to the high standard of knowledge on which the new science flourished Before the Ptolemaic models of the orbits of the sun the moon and the planets had been refined by Arabic astronomers They provided the structural elements with which Copernicus and Kepler ushered in the era of modern astronomy The Almagest survived the destruction of its epicyclic representation of the planetary orbits in the conceptual traces left behind in the theories of its successors The clear separation of the sidereal from the tropical year the celestial coordinate systems the concepts of time the forms of the constellations and brightness classifications of celestial objects are among many other things still part of the astronomical canon even today

Journal for the History of Astronomy

,1999 **A History of Ancient Mathematical Astronomy** O. Neugebauer,2012-12-06 From the reviews This monumental work will henceforth be the standard interpretation of ancient mathematical astronomy It is easy to point out its many virtues comprehensiveness and common sense are two of the most important Neugebauer has studied profoundly every relevant text in Akkadian Egyptian Greek and Latin no matter how fragmentary With the combination of mathematical rigor and a sober sense of the true nature of the evidence he has penetrated the astronomical and the historical significance of his material His work has been and will remain the most admired model for those working with mathematical and astronomical texts D Pingree in Bibliotheca Orientalis 1977 a work that is a landmark not only for the history of science but for the history of scholarship HAMA History of Ancient Mathematical Astronomy places the history of ancient Astronomy on a entirely new foundation We shall not soon see its equal N M Swerdlow in Historia Mathematica 1979 The History and Practice of Ancient Astronomy James Evans,1998-10-01 The History and Practice of Ancient Astronomy combines new scholarship with hands on science to bring readers into direct contact with the work of ancient astronomers While tracing ideas from ancient Babylon to sixteenth century Europe the book places its greatest emphasis on the Greek period when astronomers developed the geometric and philosophical ideas that have determined the subsequent character of Western astronomy The author approaches this history through the concrete details of ancient astronomical practice Carefully organized and generously illustrated the book can teach readers how to do real astronomy using the methods of ancient astronomers For example readers will learn to predict the next retrograde motion of Jupiter using either the arithmetical methods of the Babylonians or the geometric methods of Ptolemy They will learn how to use an astrolabe and how to design sundials using Greek and Roman techniques The book also contains supplementary exercises and patterns for making some working astronomical instruments including an astrolabe and an equatorium More than a presentation of astronomical methods the book provides a critical look at the evidence used to reconstruct ancient astronomy It includes extensive excerpts from ancient texts meticulous documentation and lively discussions of the role of astronomy in the various cultures Accessible to a wide audience this book will appeal to anyone interested in how our understanding of our place in the universe has changed and developed from ancient times through the Renaissance **Astronomy and History Selected Essays** O.

Neugebauer,2013-11-11 The collection of papers assembled here on a variety of topics in ancient and medieval astronomy was originally suggested by Noel Swerdlow of the University of Chicago He was also instrumental in making a selection which would in general be on the same level as my book The Exact Sciences in Antiquity It may also provide a general background for my more technical History of Ancient Mathematical Astronomy and for my edition of Astronomical Cuneiform Texts Several of these republished articles were written because I wanted to put to rest well entrenched historical myths which could not withstand close scrutiny of the sources Examples are the supposed astronomical origin of the Egyptian calendar see 9 the discovery of precession by the Babylonians 16 and the simplification of the Ptolemaic system in

Copernicus De Revolutionibus 40 In all of my work I have striven to present as accurately as I could what the original sources reveal which is often very different from the received view Thus in 32 discussion of the technical terminology illuminates the meaning of an ancient passage which has been frequently misused to support modern theories about ancient heliocentrism in 33 an almost isolated instance reveals how Greek world maps really looked and in 43 the Alexandrian Easter computus held in awe by many historians is shown from Ethiopic sources to be based on very simple procedures

A History of Arabic Astronomy George Saliba, 1995-07 A History of Arabic Astronomy is a comprehensive survey of Arabic planetary theories from the eleventh century to the fifteenth century based on recent manuscript discoveries George Saliba argues that the medieval period often called a period of decline in Islamic intellectual history was scientifically speaking a very productive period in which astronomical theories of the highest order were produced Based on the most recent manuscript discoveries this book broadly surveys developments in Arabic planetary theories from the eleventh century to the fifteenth Taken together the primary texts and essays assembled in this book reverse traditional beliefs about the rise and fall of Arabic science demonstrating how the traditional age of decline in Arabic science was indeed a Golden Age as far as astronomy was concerned Some of the techniques and mathematical theorems developed during this period were identical to those which were employed by Copernicus in developing his own non Ptolemaic astronomy Significantly this volume will shed much needed light on the conditions under which such theories were developed in medieval Islam It clearly demonstrates the distinction that was drawn between astronomical activities and astrological ones and reveals contrary to common perceptions about medieval Islam the accommodation that was obviously reached between religion and astronomy and the degree to which astronomical planetary theories were supported and at times even financed by the religious community itself This in stark contrast to the systematic attacks leveled by the same religious community against astrology To students of European intellectual history the book reveals the technical relationship between the astronomy of the Arabs and that of Copernicus Saliba's definitive work will be of particular interest to historians of Arabic science as well as to historians of medieval and Renaissance European science

Reflections on Observational Astronomy in the Medieval Islamic Period S. Mohammad Mozaffari, 2024-12-13 This volume presents comprehensive investigations into various facets of observational astronomy during the medieval Islamic period spanning from the ninth to the seventeenth centuries The chapters compiled here originally published between 2012 and 2018 have undergone significant revisions to enhance their accuracy and explore a broad spectrum of topics organized into five main sections Reflections on Observational Astronomy in the Medieval Islamic Period begins with solar astronomy providing a detailed evaluation of Islamic astronomers' determinations of fundamental solar parameters In the realm of lunar astronomy it examines the gradual endorsement and rationalization of annular solar eclipses along with an exclusive historical account of predicting and observing such an event in 1283 CE The section on planetary astronomy scrutinizes empirical discoveries that distinguish between the precession of equinoxes and the motion of

apogees as well as significant enhancements to Ptolemy's parameters for planetary latitudes. Stellar astronomy is explored through a non-Ptolemaic star table that encompasses observations from ninth century Baghdad to thirteenth century Mar gha. The final section examines observational instruments focusing on those constructed during the second period of activities at the Mar gha observatory. A critical analysis of astronomical observations conducted at the Mar gha and Istanbul observatories is a key focus of this work. This book will be invaluable to those interested in the historical progression of exact sciences, the scope, distinctive aspects, and caliber of experimental activities in medieval times, and the interplay between theory and observation throughout history. It is intended for historians, scientists including astronomers and physicists, and particularly historians of astronomy.

The History of Physics J. L. Heilbron, 2018. How does the physics we know today, a highly professionalised enterprise inextricably linked to government and industry, link back to its origins as a liberal art in ancient Greece? John Heilbron's crisp and witty book tells the 2500 year story and highlights the implications for humankind's self understanding.

Encyclopedia of the History of Arabic Science Roshdi Rashed, 2019-08-08. The Arabic contribution is fundamental to the history of science, mathematics, and technology, but until now no single publication has offered an up-to-date synthesis of knowledge in this area. In three fully illustrated volumes, the *Encyclopedia of the History of Arabic Science* documents the history and philosophy of Arabic science from the earliest times to the present day. The set as a whole covers seven centuries. Thirty chapters written by an international team of specialists from Europe, America, the Middle East, and Russia cover such areas as astronomy, mathematics, music, engineering, nautical science, and scientific institutions.

The Oxford History of Islam John L. Esposito, 2000-04-06. Lavishly illustrated with over 300 pictures, including more than 200 in full color, *The Oxford History of Islam* offers the most wide-ranging and authoritative account available of the second largest and fastest growing religion in the world. John L. Esposito, Editor in Chief of the four-volume *Oxford Encyclopedia of the Modern Islamic World*, has gathered together sixteen leading scholars, both Muslim and non-Muslim, to examine the origins and historical development of Islam, its faith, community, institutions, sciences, and arts. Beginning in the pre-Islamic Arab world, the chapters range from the story of Muhammad and his Companions to the development of Islamic religion and culture, and the empires that grew from it, to the influence that Islam has on today's world. The book covers a wide array of subjects, casting light on topics such as the historical encounter of Islam and Christianity, the role of Islam in the Mughal and Ottoman empires, the growth of Islam in Southeast Asia, China, and Africa, the political, economic, and religious challenges of European imperialism in the nineteenth and twentieth centuries, and Islamic communities in the modern Western world. In addition, the book offers excellent articles on Islamic religion, art, and architecture, and sciences, as well as bibliographies. Events in the contemporary world have led to an explosion of interest and scholarly work on Islam. Written for the general reader but also appealing to specialists, *The Oxford History of Islam* offers the best of that recent scholarship presented in a readable style and complemented by a rich variety of illustrations.

Signs in the Heavens Imad-ad-Dean Ahmad, 1992.

Many scientists have come to realize that science and religion can nurture each other. One example was the flowering of science in the first centuries of Islam. For Dr Imad ad Dean Ahmad, a Muslim and an astronomer studying the universe, is an expression of faith. Scientists and non-scientists should appreciate the insights in this passionate and lucid book. Dr Ahmad's book has been widely acclaimed for its insights into the Islamic approach to science and the spiritual foundations of Western scientists such as Galileo, Newton, and Einstein. A Palestinian trained at Harvard, he offers a unique perspective of the role of religion in science.

Marriage and Divorce of Astronomy and Astrology: A History of Astral Prediction from Antiquity to Newton Gordon Fisher, 2006-08-01. This is a study of the union of astronomy and astrology and relations to astral worship from early Babylonian times through medieval European times up to and including the time of Isaac Newton, especially in relation to prediction and with extensions into more recent times. There is also discussion of related matters in other cultures such as Chinese, Indian, Native American, and African.

A Short History of Astronomy Arthur Berry, 2019-11-27. In *A Short History of Astronomy*, Arthur Berry eloquently weaves a narrative that traces the development of astronomical thought from ancient civilizations to the contemporary era. Berry employs a clear and accessible literary style, making complex theories and historical advancements comprehensible to a broad audience. The book meticulously examines key figures such as Ptolemy and Copernicus and pivotal moments like the advent of the telescope, placing them within their sociocultural contexts. This scholarly yet approachable text reflects both the author's deep reverence for the subject and a keen understanding of its evolution over millennia. Arthur Berry, a distinguished historian of science, draws upon his extensive knowledge of scientific paradigms and archaic beliefs that shaped humanity's understanding of the cosmos. With a background in philosophy and science, Berry's unique perspective allows him to navigate the intersections of astronomy with mythology, theology, and emerging scientific inquiry. His passion for the field is evident as he elucidates how the progress in astronomy reflects broader changes in human thought and societal values. Readers seeking to grasp the intricacies of humanity's relationship with the cosmos will find Berry's work indispensable. Whether an enthusiast of science or a novice in astronomy, this book serves as a compelling introduction to the historical milestones that have defined our quest to understand the universe. Berry's insightful analysis invites readers to reflect on how these astronomical advancements continue to influence contemporary scientific discourse. In this enriched edition, we have carefully created added value for your reading experience. Hand-picked Memorable Quotes shine a spotlight on moments of literary brilliance. Interactive footnotes clarify unusual references, historical allusions, and archaic phrases for an effortless, more informed read.

The Top Books of the Year The Origins Of Ptolemys Astronomical Parameters The year 2023 has witnessed a remarkable surge in literary brilliance, with numerous captivating novels captivating the hearts of readers worldwide. Lets delve into the realm of top-selling books, exploring the fascinating narratives that have charmed audiences this year. The Origins Of Ptolemys Astronomical Parameters : Colleen Hoover "It Ends with Us" This touching tale of love, loss, and resilience has captivated readers with its raw and emotional exploration of domestic abuse. Hoover skillfully weaves a story of hope and healing, reminding us that even in the darkest of times, the human spirit can succeed. The Origins Of Ptolemys Astronomical Parameters : Taylor Jenkins Reids "The Seven Husbands of Evelyn Hugo" This intriguing historical fiction novel unravels the life of Evelyn Hugo, a Hollywood icon who defies expectations and societal norms to pursue her dreams. Reids compelling storytelling and compelling characters transport readers to a bygone era, immersing them in a world of glamour, ambition, and self-discovery. The Origins Of Ptolemys Astronomical Parameters : Delia Owens "Where the Crawdads Sing" This captivating coming-of-age story follows Kya Clark, a young woman who grows up alone in the marshes of North Carolina. Owens weaves a tale of resilience, survival, and the transformative power of nature, captivating readers with its evocative prose and mesmerizing setting. These top-selling novels represent just a fraction of the literary treasures that have emerged in 2023. Whether you seek tales of romance, adventure, or personal growth, the world of literature offers an abundance of compelling stories waiting to be discovered. The novel begins with Richard Papen, a bright but troubled young man, arriving at Hampden College. Richard is immediately drawn to the group of students who call themselves the Classics Club. The club is led by Henry Winter, a brilliant and charismatic young man. Henry is obsessed with Greek mythology and philosophy, and he quickly draws Richard into his world. The other members of the Classics Club are equally as fascinating. Bunny Corcoran is a wealthy and spoiled young man who is always looking for a good time. Charles Tavis is a quiet and reserved young man who is deeply in love with Henry. Camilla Macaulay is a beautiful and intelligent young woman who is drawn to the power and danger of the Classics Club. The students are all deeply in love with Morrow, and they are willing to do anything to please him. Morrow is a complex and mysterious figure, and he seems to be manipulating the students for his own purposes. As the students become more involved with Morrow, they begin to commit increasingly dangerous acts. The Secret History is a brilliant and suspenseful novel that will keep you wondering until the very end. The novel is a warning tale about the dangers of obsession and the power of evil.

<https://archive.kdd.org/public/browse/Documents/The%20Holy%20Family.pdf>

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