REVIEWS SYMPOSIUM

THE STAR OF BETHLEHEM

In 1979 Ruth Freitag of the Library of Congress published an annotated bibliography of 240 books or articles devoted to the Star of Bethlehem, and the stream has continued unabated ever since. However, one recent work commands particular attention from historians of astronomy because of its attempt, in part using actual numismatic artifacts from the period, to look at the New Testament account not with the eyes of a modern astronomer, but in the intellectual context of the period two millennia ago. Michael Molnar’s *The Star of Bethlehem* is not beyond criticism, as our Review Symposium shows, but it represents a significant new approach of potentially great interest to readers of our journal. For this reason we present appraisals by an historian, an astronomer, and a Biblical scholar.

Owen Gingerich


“Obviously the evangelist is thinking of a miraculous star; it is futile to look for a natural explanation.” The author of this footnote in the Jerusalem Bible has no patience with attempts to use astronomy to understand how the Star of Bethlehem could have led the wise men to the manger. After all, if a star appeared in the east, why would the Magi promptly head west to Judaea? And why was the Star visible to them but not to Herod and his court? However, the research reported in Molnar’s *The Star of Bethlehem* suggests that we should not be so quick to dismiss the Star as miraculous.

We know nothing of the actual day of Christ’s birth, and so Christians eventually adopted the Roman winter solstice festival of the Unconquered Sun. On the year of his birth we are better informed. We owe our Christian calendar to Dionysius Exiguus, a sixth-century monk. But he miscalculated the reign of the emperor Augustus, and Christ was in fact born a few years earlier than our calendar suggests: Herod probably died in 4 B.C., and Christ would have been born perhaps a couple of years before.

An explanation of the Star as other than pure miracle must therefore focus on celestial events around the middle of the last decade B.C., and astronomers have suggested a wide range of spectacular phenomena. Candidates are of two kinds. Some are routine events that took on an unusual configuration during the years in question, while others are transient and occurred (or may have occurred) only around that time. The routine events present little problem. We are able to track the movements of the Sun, Moon and planets in the final decade B.C., and we can look out for any striking configurations that occurred. We can even reproduce them in a planetarium.
Transient events leave more scope to the imagination. Striking meteor appearances have recently been proposed, but this is pure speculation. A supernova is an attractive possibility, but we might expect to find such a star in Chinese records of the time and they are silent. Comets have always been seen as ominous. A hui-hsing or broom star is listed in Chinese records for March/April of 5 B.C. and was visible in the morning sky for several weeks, but such comets occur more than once in a typical lifetime, and could hardly justify the Magi’s journey.

Many such explanations have been advanced, by writers from Kepler in the seventeenth century onward, but none has carried conviction. Not only that, the entire programme is defective: such proposals come from modern astronomers identifying celestial events that occurred around the birth of Christ and which their scientific colleagues might have found impressive, had they been living then while nevertheless equipped with modern knowledge and mind-set. Instead, like all good historians, we must try to see the world through the eyes of the people living at the time; but many historians of astronomy shrink from doing this if it involves taking astrology seriously, fearing that by exploring the role of astrology in the past, they may encourage astrology in the present. This, however, is a risk we have to take. Instead of looking for a celestial event around 6 B.C. that would have been of interest to us, we must focus instead on what would have been seen as a dramatic portent by a Middle Eastern astronomer/astrologer of the time.

When Christ was born, the work of Ptolemy, who was both a great astronomer and a leading astrologer, still lay in the future. But already the Babylonians were the possessors of astronomical records going back many centuries. In order to learn from experience they kept careful records: this particular omen had been followed by this particular misfortune, and so a similar omen in the future would be warning of a similar misfortune, one that might however be averted by a suitable ritual. Out of this custom developed the recording of astronomical events. By the time of Christ, Greek astronomy had come into contact with the arithmetical, observation-based astronomy of the Babylonians, and astronomers were well able to track the planets, whether they were currently visible in the sky or were lost in the glare of the Sun.

Already this suggests a possible answer to one of the puzzles of the Magi story. The Magi may have ‘seen’ the Star by tracking it mathematically, whereas in Jerusalem, where astrology was in low esteem, no one had seen it simply because it was physically invisible. Alternatively, if the Star had in fact been visible, no one in Jerusalem had had reason to give it attention.

Evidently, to explicate the story of the Star calls for — among much else — a competence in astronomy, and a command of the labyrinths of ancient astrology. A new chapter in modern efforts to understand Matthew has opened with the publication of Molnar’s book. The author’s hobby is the collection of coins with astronomical motifs, many of which display astrological symbolism associated with Roman rulers, and in his efforts to understand these coins Molnar was led to the problem of the Star. Crucially, he focuses, not on what interests a modern astronomer, but on what would have interested astrologers of the time of Christ. So obvious is this approach
in hindsight that historians of astronomy worldwide should be kicking themselves for not having thought of it first.

Matthew tells us that the Magi saw the star “in the east”, and the Greek phrase he uses is the language employed by astronomers for an ‘heliacal rising’. In Malta there is a temple built around 3000 B.C. with tallies that are probably intervals between significant heliacal risings; in Egypt the heliacal rising of Sirius was used to control the annual calendar; and the Greek poet Hesiod tells us of how farmers were using heliacal risings to decide when to sow and when to harvest, a practice that continues in places to this day. I personally have no doubt that Matthew is speaking of an heliacal rising.

Ancient astrology is not for the faint-hearted, and Molnar’s discussion is extremely complicated. Astrologically the heliacal rising of any planet was of great significance. So too was any time when the planet was retrograde. The language that Greek astronomers employed to describe this manoeuvre pictured it the opposite way round, using instead terms allied to the “it went forward and halted” of Matthew. Molnar is able to offer a simple paraphrase of Matthew: “And behold the planet which they had seen at its heliacal rising went retrograde and became stationary above in the sky (which showed) where the child was.”

If he is right (and I think he is), then everything Matthew says about the Star — or rather, planet — refers to its regular and predictable movement in the sky, movement that an astrologer could monitor from his desk. However, this particular heliacal rising must have been in an astrological context so portentous as to imply nothing less than the birth of a king; and it must have taken place in the constellation associated with Judaea, to explain why it was to the capital city of Judaea that the Magi headed in their search for the king. There they were advised that Bethlehem was where they might find him.

Molnar identifies an event that he claims fits the bill: the heliacal rising of Jupiter and — assuming astronomers have done their sums correctly — its near approach to the Moon on 17 April 6 B.C. Why this event was astrologically of such extraordinary significance requires him to explore a whole range of evidence, whose complexity seems all the greater to modern eyes because astrological thought patterns are so alien to our way of thinking. As we have seen, the conjunction of Jupiter and the Moon was in fact invisible on Earth because the Sun would have been too bright, and in Jerusalem it is unlikely that anyone would have known that this had taken place; but Herod had a Greek background, and would have recognized its astrological significance once it was explained to him by the Magi.

Molnar may or may not be correct in his identification of the astrological event; he is certainly correct to approach the problem through the eyes of Magi rather than those of a modern astronomer. The story is perhaps no more than a retrospective validation of the Messianic birth, supplied to Matthew when he was writing his Gospel. But at last the story is beginning to make sense.

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MICHAEL HOSKIN
One of the great joys of writing about the Star of Bethlehem is that there are very few facts to cramp one’s style. I should know. I managed to get about 80,000 words out of it in 1979 (see The Star of Bethlehem mystery (Dent, London)). The task requires a delicate balancing of New Testament Biblical exegesis, historical astronomy and Babylonian/Judaic astrology.

In the Bible, the Jesus nativity story was added, somewhat as a belated prelude, to only two of the gospels. St Luke has shepherds on the nativity night, an overbooked inn, a journey from Nazareth and purification. St Matthew has a star, Magi, three gifts, a house in Bethlehem and a family subsequently in flight to Egypt. In Matthew’s gospel, chap. 2, the word ‘star’ is used only four times. There is no star in Luke. The stellar facts are as follows. (i) It occurred in the last four or so years of the reign of Herod the Great. Many think Herod died around Easter 4 B.C., but a few put his death as late as January 1 B.C. (ii) The star was first seen at its heliacal rising. (iii) The Magi associated the star astrologically with a new “King of the Jews” (a successor to Herod, not the expected Messiah). The object or objects that were rising heliacally, and the constellation they were in, were associated astrologically with both ‘new king’ and ‘Israel’. (iv) The star was seen twice: once when the Magi were in their own country; and secondly, after they had met Herod in Jerusalem, and were on the short southward journey to Bethlehem. The second sighting of the star made the Magi exceedingly happy. (v) On their way to Bethlehem the star “went before them until it came and stood over where the young child was”. This is something of an astronomical stumbling block. Stars and planets do not “stand over” individual houses/stables/caves, although some contemporary accounts apply this term to comets. Astronomical objects do not “go before”. (vi) No adjective was applied to the word ‘star’. So it could be a fixed star in a normal constellation, a wandering star (i.e. a planet), a hairy star (i.e. a comet), a new star (a nova), a shooting star (a meteor), a miraculous star, or a fictitious literary device embellishing the birth of Jesus and emphasising his messianic nature; we are not told. Also, Matthew makes no mention of brightness. His was an adjectivally unadorned star. Herod was “troubled” (Matt. 2:3) when told of the new king. This is often taken to indicate that the star was so unimpressive that Herod had no idea when it had appeared, or until told, that it existed. Terms like “indescribably great”, “its light was unspeakable” and “new” had to wait for the exaggeration of later propagandists like St James, Ignatius and Origen. (vii) The star is expected to be uncommon. Regular astronomical events such as the stunning evening and morning appearances of Venus, annual meteor showers, occasional fireballs, lunar occultations of Jupiter, and so on, are thought to be so unremarkable that they would not encourage Magi to rush around buying presents, and then travelling long distances, on a regular basis.

Astronomically, three events have usually been put forward as candidates. The triple conjunction of Jupiter and Saturn in Pisces occurred in May and autumn 7 B.C. Then there was the appearance of a comet in Capricorn, seen during March and April of 5 B.C., and of a tail-less comet, which might have been a nova, seen in Aquila in April.
4 B.C. Jupiter and Saturn have the advantage of being assiduously observed objects in the night sky, and well-known players in astrological forecasting, especially in the context of ruling and exchanging power (i.e., Jupiter, Marduk = supreme god; Saturn, Kaiwanu = star of the king, and the earthly representative of the supreme god). Piscean triple conjunctions are rare, the 7 B.C. one being followed by examples in A.D. 786 and 1583. Comets (which in those times were regarded as meteorological phenomena) are astrologically rather broad-brush indicators of doom, diseases, disaster and the death of kings. Comets and novae are also completely unexpected. The “exceedingly great joy” of the Magi (Matt. 2:10) is often taken to indicate that one of their celestial predictions had come true, and the object that they had seen previously, in their own country, was seen again, as predicted.

The fact that the Magi were astrologers is of vital importance, and this is where Molnar makes a special, and refreshingly new, contribution to the subject. Molnar concentrates on fact (iii) mentioned above. He is convinced that the near-contemporary coinage of Syria (the country adjacent to Israel) indicates the astrological predilections of the Babylonian Magi. First-century A.D. coins minted in Antioch show a leaping ram peering over its shoulders at a star. Molnar tries to convince his readers that the relevant constellation “of the Jews” (Matt. 2:2) was Aries. His hypothesis is supported by the fact that the Egyptian/Greek astronomer/astrologer Ptolemy, in his Tetrabiblos (written about A.D. 150) has Aries, the ram, as the constellation associated with Judaea. Masha’allah, however, in his eighth-century astrological world history On conjunctions, religions and peoples, stressed the relationship between Israel and Pisces in Babylonian astrology. In 1497 Don Isaac Abrabanel discussed the significance attributed by the Jews to the periodic conjunctions of Jupiter and Saturn. He also went to great lengths to explain why Pisces was associated with Israel. [Needless to say, Israel is adjacent to Syria and Pisces is adjacent to Aries.] The astrological interpretations of the positions of the Sun, Moon and planets against the ecliptic background differ with time and place, making the whole subject of astrology a quagmire of subjective, unscientific partiality. Greek astrology quite possibly differed from the earlier Babylonian/Judaic astrology, and we are just not sure which version the Magi were following. Even though the Magi were “wise men from the east” (Matt. 2:1) and not Greeks or Egyptians, Molnar suggests that after 323 B.C., under the Seleucids, Babylonian astrology had been surpassed by the Greek version.

Molnar ventures even further down the Greek astrological path. The reverse of his Antioch coin shows a bust of Zeus, i.e. Jupiter. In Greek astrology, lunar occultations of Jupiter are regal portents. To Molnar the Moon moving in front of Jupiter, while the latter is in Aries, is thus an indicator of a “new king of the Jews”. Hermann Hunger and Simo Parpola (Archiv für Orientforschung, xxix/xxx (1983/84), 46–49), however, stress that these occultations indicate the death of a great king, exactly the opposite.

Two astronomical points are worth making. Jupiter is in Aries for about a year in every twelve, and the Moon in that specific year moves through Aries twelve times. Lunar occultations of Jupiter in Aries are thus commonplace; some might say, far too
commonplace. Two such Moon/Jupiter transits occurred in 6 B.C., one on 29 March
and another one month later, on 17 April (both Julian calendar). Molnar points to the
latter as his candidate for the star of Bethlehem (and the birth-date of Christ) even
thought he admits that simple computer calculations indicate that neither of these
transits was visible from the Middle East. Clearly a totally literal interpretation of the
Bible is inappropriate outside fundamentalist circles, but it is worth pointing out that
Matthew mentioned three times that the star was actually “seen”. Having an invis-
ible “star” is ground-breaking. Molnar surmises that the astrologers needed only to
calculate that something happened for it to be significant; he regards observational
verification as secondary, for a paper astrological calculation would do. An advantage
of this interpretation is that the problem, of explaining why Herod had apparently not
noticed a tangible star, disappears. No one had! There is, however, a second snag.
Our knowledge of Babylonian astronomy indicates that Magi could easily predict
planetary conjunctions and massings. Predicting when these rather loose groupings
would occur in the near future was straightforward. But the Moon is small, only half
a degree across, and lunar theory is extremely complicated. We have to wait for the
seventeenth century and a genius like Edmund Halley before lunar occultations could
be predicted with any accuracy. 2000 years ago it was impossible.

In summary, Molnar is to be congratulated on his thorough historical approach
to the numismatic significance of certain aspects of Middle Eastern coinage and his
detailed investigation of the influence of Hellenic horoscopic astrology throughout
the first three centuries of the Christian era. His book is also extremely enjoyable and
his hypothesis ingenious. But it is not the last word. Refreshing though it is to have a
completely new candidate proposed as the star, the fact that Molnar’s star was both
invisible and unpredictable will be viewed by many as a distinct disadvantage and
by some as a complete show-stopper. Also, Molnar’s insistence on Aries as being
the only appropriate constellation in the Star of Bethlehem story will be thought by
many to be over-restrictive.

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David W. Hughes

As a Biblical scholar I welcome Dr Molnar’s book. I am innocent of the astronomy
and astrology discussed by him, but I am sure that his identification of ἐν τῇ ἁναστολῇ
in Matt. ch. 2, verses 2 and 9 as a terminus technicus of astrology is correct. Indeed
it has been suggested before, for example in 1915 by A. H. McNeile in his comments-
ary on the gospel of Matthew, but no one from the side of Biblical studies seems
to have pursued the matter. It is, I think, the merit of Molnar that, coming from the
astronomical side, he has done just that, and has given us a rich selection of data
and an hypothesis to test.

On the other hand, I have to say that it was ill-advised for Molnar to seek to
establish his argument more firmly by calling for support in Biblical exegesis, for it
quickly becomes evident that the author’s Greek is very insecure. He uses a diglot
for reading verse 9 (and allows a misprint to appear in it!). The uncertainty which this illustrates becomes more apparent when he begins to expound the Greek. Most of the examples of this come from the vocabulary of this one verse. The star “precedes” or “leads” the Magi, the Greek verb in the transmitted text being προῆγεν. This is the third person singular imperfect of προάγα. Molnar (p. 90) declares this to be “related” to the nominative plural noun προήγησας, a technical term describing the apparent advancing motion of a star (e.g., Almagest 3.13). This is not so. This noun is “related” to a verb προήγομαι. The two verbs have the preposition προ in common, but when this is removed the simple ἔγομαι has its first syllable aspirated which shows an original form with initial sibilant /s/, built on a distinct root. The long eta of ἔγομαι is part of the root. The same vowel in προῆγεν is due to the inflection of the tense of the verb ἔγρα. They are not derived from the same verb, their similarity being only apparent. They cannot be used to link this item of Mattaean vocabulary with astrology.

Following on from this, Molnar paraphrases verse 9 of the Mattaean chapter in an English version (p. 96). It runs: “and behold the planet which they had seen at its heliacal rising went retrograde and became stationary above in the sky (which showed) where the child was.” His justification is found on pp. 90f. His lack of terminology reveals the absence of philological formation. Using the English of the New Greek-English Interlinear New Testament, he says that “in the east”, “went before” and “stood above” are “translations” of astrological terms; “adaptations” or “paraphrases” are the appropriate descriptions for his understanding. Later he says that these three phrases are “simplified literal descriptions” of “strong astronomical meanings”. To call the rendering of ἐν τῇ ἀνατολῇ by “in the east” “literal” is contrary to the fact. ἀνατολή is a noun cognate with ἀνατάλλω, “to rise”, and conveys first the notion of rising, and thence by metonymy, the place where rising (viz of the Sun) occurs, the “East”. Semantic spread in the use of a root is a notion which Molnar seems to lack. This is also shown in the third instance given by him, namely the English equivalent of ἐστάνα. His treatment claims that this word is used by Ptolemy always adverbially and accordingly declares that “in the sky” is its significance. The Loeb edition of the Almagest does not give an index verborum or concordance and accordingly I cannot check these data nor the implied statistics. But in the transmitted text of Matthew it is used prepositionally followed by a relative clause with genitive relative pronoun, giving with the translators, “above < > where the child was”, generally [but perhaps unnecessarily] with <the place> provided. This is as consistent with Greek usage as the adverbial, not a clumsiness of the evangelist nor a béitesse of the translators, as Molnar seems to imply.

In the original, the phrase Englished “it stood” is expressed by ἔστη (ἔστη in some manuscripts). These are aorist tenses of ἔστημι (“to stand” or “to place”). In the paraphrase Molnar renders it “became stationary” with the implication that this phrase in found in astrological works for the apparently stationary moment of a star. But in the passages quoted by Molnar on preceding pages, that is always expressed in Ptolemy by a word στηριγμός (“stationary state”) derived from the quite distinct
verb στηρίζω ("to fix firmly").

Ignorance of things Greek germane to the topic is also shown in the description at the front of the book and the caption on p. 66, of a manuscript of a horoscope as if from the second century. While this might be merely ambiguously expressed (since the horoscope, being Hadrian’s, has that date) it may well mislead. While the manuscript is left without identification, it is at the earliest from the thirteenth century.

We cannot accept the notion of a direct link between the language of Matthew and that which we presume to have characterized the horoscope drawn by the Magi. Because of the linguistic faults specified, Molnar’s paraphrase, however plausible, cannot be accepted as a primitive oral stage in the transmission of the Matthaean story. In the written gospel which has become canonical, apart from minor variant readings, the wording runs as printed editions have it. In verse 9 no early quotation, allusion or comment ever read the words in an astrological sense. The Greek of that verse means what all translators, not only recent English-speaking translators, give. After their visit to Herod, the star preceded or led the Magi and stopped its course over the place where the child was. Greek readers never saw it otherwise. An early “apocryphal” document treating of Mary’s birth and childhood and the birth of Jesus, entitled “Protevangelium of James” or “Nativity of Mary”, dates from the mid-second century. It is known by references, certain in Origen and ostensible in Clement of Alexandria, and now is represented in a third- or fourth-century papyrus, other early manuscripts and many early translations. In this, the visit of the Magi has its place, describing how the star preceded them, leading them into the cave where the child is standing by his mother, the star resting upon his head. There are embellishments but the basic meaning of the transmitted gospel text is reflected here.

Other early references to the star are found in other second-century writers. We may name especially Ignatius of Antioch (an account widely different from the gospel) and Justin the martyr (close references to a text akin to the gospel but seen as fulfillment of the prophecy of Balaam). For a full assessment, all these should be taken into account.

In conclusion, we have to greet Molnar’s work with gratitude for the explanation in astrological terms of the phrase “in its rising”, with the chart that is provided on p. 91 of his book. This might suggest some kernel of reminiscence behind the words, to be linked with the factors of dating the birth around 6 b.c., e.g. the matter of an heliacal rising at the same time as the conjunction of powerful planets in Aries to which past astronomers have already pointed. If this were admitted, it might give some substance to the visit of the Magi as a verifiable event. But Molnar’s attempt to characterize the whole Matthaean account in chapter 2 of the gospel (or rather one verse in it) as reflecting at various other points technical terminology breaks down on the linguistic grounds that I have summarized.2

Students of the treatment of the story by the earliest fathers observe that an astrological reference was eschewed by them.3 Given that the gospel references are minimal although significant, we might go further and suggest that this tendency to underplay astrology has already begun in the development of this tradition before the
writing of the gospel. All that survives which might have a direct link with a Magian horoscope is the tiny phrase “in its rising”, fossilized in later strata. Molnar appears to have discovered the significance of this phrase which has survived in Matthew. It will be a further task, and I think it is for the philologist, to try to determine how it reached the evangelist’s work.

J. Neville Birdsall

REFERENCES
1. Some of these paragraphs have appeared in an article by me in The tablet, an independent Catholic journal published in London.
2. His attempt to bring Herod’s feigned desire to worship (προσκυνήσω) into this argument (p. 156, fn. 18) is ridiculous: it is a very common word and in Matthew alone covers gestures of submission from the worship of gods to the submission of slaves.

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BOOK REVIEWS

FAITH ISSUES IN HISTORICAL CONTEXT


This volume consists of sixteen papers delivered at an international conference (1998) sponsored primarily by the Pascal Centre for Advanced Studies in Faith and Science (Ancaster, Ontario). The contributions were revised and refereed by independent readers before being submitted to final publication and consequently they surpass the usual quality of conference papers. The purpose of the conference was to explore systematically the roles of theistic commitments in the context of theory formation and evaluation. Eleven of the papers are case studies spanning the disciplines of astronomy (4), natural philosophy (2), biology (4), and psychology (1), while a further three defy any easy disciplinary rubric. Two introductory essays (Brooke, Wykstra) address the broad theme of the multiple functions of theistic beliefs in the content of science, a feature that makes this volume somewhat unusual among the vast array of literature on science and religion.

Marked by historiographic sophistication, the essays tend to eschew distinctions such as internal v. external and allow for a wide range of historical frameworks. They all, however, seek to place their subjects in their historical context and avoid