Tomorrow’s news today

Astrology, fate, and the way out

by Daryn Lehoux

Abstract: By looking in detail at the philosophical and technical intricacies of a set of ancient astrological theories and their treatment of issues of determinism and free will, I show that there are good reasons to question the grounds for a distinction between science and pseudoscience, modern and premodern.


dig, if you will, a picture

A thought experiment: Imagine for a minute that astrology is true. Perhaps surprisingly, this may only require a minor shift in the physics we are familiar with. All we need is to assume that the world we live in is sensitively influenced by some force exerted by the sun, the moon, and the stars – something like gravity, but with different effects. Gravity actually provides a nice parallel here, since it is something everyone believes in, but something no one has ever seen directly.

We are pretty certain of gravity because we have so often seen what we take to be its effects, but of course such reasoning is not really foolproof. This is not to say that we should doubt gravity, only that our knowledge of it is more about what we think we’ve seen it do (and about what other people have told us they have seen it do) than about what it actually is. So without yet positing a stuff of astrological influence, let us just admit for the time being that such a stuff exists, and then look to see what it explains and how it works. On the face of it this change is not major, but the world where such a force exists becomes interestingly different from our own.

Given this shift, the affairs of humans ranging from the outcomes of political campaigns to the successes we have in love and business are now, to a greater or lesser extent, accounted for by stellar influence. Having opened up this particular possibility, we simultaneously open up an epistemological possibility, the possibility of our knowing more about the future than we otherwise might. The epistemological problems that confront us with making the predictions themselves may be no different from those that confront the modern physicist or the biologist. If the predictions are based to some extent...
in observations of past correlation, then we are faced with the same problems around induction and generalization that philosophers of science will be familiar with. To the extent that the predictions are based in an understanding of the physics of stellar influence, the certainty of those predictions reduces to the certainty of that physics itself. In short, the strength of a belief in astrological prediction is correlatable with the strength of a belief in one's physics, the sufficiency of the data set, or some combination of both. And in complex cases, one may have an understanding of the physics of stellar causation that derives in part from past observations or the testimony of authorities.

But what kinds of predictions are we talking about? On the ancient understanding, astrology covered a lot more ground than a modern newspaper horoscope does. Astrology could account for everything from an individual's personality quirks and dispositions, to large-scale political and social events, crop yields, plagues, storms, earthquakes, and more. Its predictive and explanatory ranges included some of what is covered by the modern disciplines of psychology, economics, sociology, meteorology, epidemiology, seismology, and other sciences. One of the major ways in which ancient astrology differs from these modern sciences is in the kinds of predictions it offers: they are not statistical. To see the force of this point, think of an insurance company. My insurance company currently knows, with a frightening degree of accuracy, my chances of dying or sustaining various and alarmingly specific kinds of injuries this year. Ancient astrology, on the other hand, often claims to be able to predict what year I will actually die in: not just likelihoods, but specific outcomes. The difference is twofold: when I say the insurance company knows my chances of dying, I don't really mean mine so much as "anyone in my demographic". Ancient astrology, on the other hand, claimed to be much more personal, precise, and specific. It often claimed it could tell individuals exactly what they were going to do, when they were going to do it, and why. Within the framework of our thought experiment, astrology is a very powerful tool indeed.

So powerful, in fact, that it may not leave people much room to make what they would see as their own decisions. On a strong reading of the power of the stars over human affairs, it may be the case that individuals do not have what you and I would consider to be free will. Indeed, as we shall see, a strict determinism seems to have been associated with astrology quite commonly in Greco-Roman antiquity. But not every proponent of astrology was a strict determinist. There were a number of softer, non-determinist, positions available, and it is these that I want to spend some time digging in to. What we shall see is that nondeterminist arguments were intimately linked with many of the standard arguments both for and against astrology. By subtly and carefully emphasizing certain aspects of the justifications for astrology, or by co-opting and reworking objections to determinist astrology, nondeterminist accounts became viable and powerful challenges to the simpler determinist accounts. The questions raised by this analysis will involve looking at a wide range of sources from several different cultures across a fairly wide swath of time. There are both philosophical and historical reasons for running across time and space in this way: the now well-established historical connections between Greco-Roman and Mesopotamian astrology are one reason. I hope also to show that certain philosophical themes

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1 Under nondeterminist, I mean to include a range of opinions that agree on the basic premise that the future is not strictly determined. There are of course varying grades of nondeterminism, ranging from the belief that earthly affairs may be partly but are certainly not completely determined, to the much stronger belief that determinism in any degree is false (a position we might call antideterminism).
inhere in these different astrological traditions as well, but this will necessitate our taking what might appear at first glance to be some unusual methodological and historical detours en route.

This Is the Way, Step Inside

I began by offering a hypothetical modification in our physics in order to allow for the possibility of astrology. But this is not the only way to justify astrology as a legitimate science. In antiquity, there were several different – if sometimes overlapping – approaches taken, of which the physical justification was only one. Indeed, even as I was lobbying for a physical justification at the outset, I was slipping, almost but not quite inevitably, into talk of the effects of stellar influence as visible. This visibility points to a second possible justification for astrology: empiricism. If, like Newton, I choose to non fingere hypotheses, I can call on an account that looks for an evidential basis in our experiences of the world, rather than in our theoretical understanding of the world. Where a causal account begins with certain posits (and I am here deliberately hearkening to W.V. Quine’s use of that term) and proceeds to deduce their effects, the empirical account begins from experience and, in most cases, induces general correlative rules from there. As we shall see, though, not all ancient empirical accounts of astrology are necessarily inductivist, which offers an interesting twist on how we can understand empiricism in antiquity.

Perhaps the most influential of the ancient physical accounts is that offered by Ptolemy in his Tetrabiblos. There Ptolemy accounts for the effects of the stars on earth in terms of the four Aristotelian qualities: hot, cold, wet, and dry. Mars, which is hot and dry, has a particular set of effects on the periechon, the ambient or atmosphere in a broad sense (somewhere between plain old breathable air, and what we mean when we refer to the atmosphere of a room). For Ptolemy, the aetherial stars are known in the first instance to have an effect on the four sublunar elements in a way that will be familiar to readers of Aristotle: the motions of the surrounding aether stir up fire and air, earth and water. But there is more. Almost in the same breath, Ptolemy talks of the effluence (aporrhoia) or radiation (diadosis) of the stars. Beyond mere contact stirring of one element by another, he is saying that something is quite literally flowing out from the stars, which outflow he refers to as a force (dynamis). As if this were not enough, we next get an invocation of the standard Greek force that accounts for causation at a distance: sympathy. Watch:

It should be very clear to all – and briefly at that – that there is some kind of power radiating and emanating from the aetherial and eternal substance to the whole of the earthly and completely changeable realm, where the primary elements of fire and air are contained and altered by the movements from the aether, and contain and alter everything else, earth and water and the plants and animals within them. . . . The

2 A good overview is still Anthony Long, 'Astrology: Arguments Pro and Contra', in Jonathan Barnes et al., eds., Science and Speculation (Cambridge, 1982), 165–92. I do, however, have some strong methodological reservations about some of the details of Long’s approach: “Seldom, one could say from our point of view, have knowledge, intelligence, and rhetorical skill been more misused than in the opening three chapters of Ptolemy’s Tetrabiblos” (178), and we are told elsewhere that Ptolemy’s “ingenuity” was “misplaced” (187). Although I think Long does try to be sympathetic to his sources, the attitude betrayed in these passages occasionally gets the better of him, and, as I am arguing here, there are better methodological alternatives.

3 Ptolemy, Tetrabiblos 1.2.2.

4 Radiation in the sense of “spreading out in all directions”.
moon especially, since it is closest to the earth, radiates its effluence, and most things (both inanimate and animate) are sympathetic to it and are altered by it: the flow of rivers increasing and waning with its light, the surges of the seas changing with its risings and settings, and plants and animals either completely or partly waxing and waning with it. 5

The language here is very careful, with a recurring reference to some outflowing from the stars that accounts for earthly things co-moving (syntrepō) with them. The preponderance of verbs compounded with the prefix syn- (syntrepō [thrice], sympatheō, synauxō, symmeioomai [twice], and symplēroō) is very deliberate here and has the effect of portraying earthly affairs as in concert with heavenly ones. The influence or effluence is of a particular sort. It is not just a cause of any old change, but a cause of harmonic changes (in the sense that the harmonics in a piano are caused by sympathetic vibration). The system has an important unity beyond bald cause-and-effect statements. Rivers, plants, and animals co-wax and co-wane with the moon. And in general the hot and cold, wet and dry mixtures embodied in the planets and stars co-move the hot and cold, wet and dry mixtures embodied in all things down here on earth. It is the importance of the co-part of the co-movement that the invocation of sympathy is meant to underscore. For sympathy is just the co-moving of related bodies across apparent distances. Ptolemy’s physics is complicated. It is neither pure Aristotelianism, nor pure Stoicism, nor is it quite an intermingling of the two. 6 Instead we see the four qualities mapped onto an account simultaneously invoking sympathy and stellar radiation, which are again two different kinds of explanation not usually found together. 7

Ptolemy does not here (or anywhere) tell us how he thinks this physics was itself developed. Instead he simply uses what he sees as a plausible account of astral influence, and treats it as a given. He does, however, recognize the potential epistemological problems here when he distinguishes the inherent certainty of mathematical astronomy with the more hypothetical nature of astrology, which he reduces to a set of questions about the epistemological status of physics. He doesn’t, as it turns out, have as much confidence in astrology as he does in astronomy, “because of the instability and inscrutability of matter”. 8 More on this presently.

Now some ancient thinkers are even more cautious about physical and causal accounts than Ptolemy is. Sextus Empiricus goes to some length in the Adversus mathematicos to discount causal accounts generally, and astrological causation specifically. What is interesting, though, is that Sextus does still allow some kinds of astrology to stand. Astrological weather prediction, which claims to be based in observation rather than causation (or to anachronize a little: induction rather than deduction), is perfectly acceptable to Sextus. He opens his attack on astrology thus:

It now lies before us to inquire into astrology, or “mathematics”, by which I do not mean the whole of arithmetic and geometry taken together, . . . nor the predictive ability of the followers of Eudoxus, Hipparchus, and other such men, which some

5 Ptolemy, Tetrabiblos 1.2.2–3. All translations are my own.
7 And while many modern accounts of sympathy tend to talk of it in radiative terms, there is little evidence for this reading outside of passages such as this one. To explain sympathy as it appears in most ancient sources in terms of radiation is to turn what is being offered as an explanans into an explanandum. For explorations on the nature of sympathy, see Daryn Lehoux, “Tropes, Facts, and Empiricism,” Perspectives on Science 11 (2003): 326–45.
8 Ptolemy, Almagest 6.12–15.
people also call “astronomy”, for this is the observation of phenomena, as in agriculture
and navigation, from which it is possible to foretell droughts and downpours, plagues
and earthquakes, and other such atmospheric changes.9

His acceptance here of astrometeorology is, as I have shown elsewhere, dependent on one of his
particular positions in the logic of signs. In conditional statements of the form if \( x \), then \( y \), the
connection between the sign, \( x \), and its sequens, \( y \), is acceptable for Sextus only if it is known
through experience. Observation accounts are experiential (reminiscent) and therefore
acceptable, and causal accounts are theoretical (indicative) and therefore uncertain. Sextus
rejects horoscopic astrology based on his assumption that it is grounded in causation rather than
observation.

A different tack is taken by the astronomer Geminus of Rhodes. What is curious is that for
Geminus it is because of physics itself that we are prevented from offering a physical explanation
of astrology. Geminus argues this by laying before us what he sees as damning evidence against
astrological causation. He refers us to a story about Mount Cyllene just west of Corinth, a story
that is also told about Mt. Athos in the Pseudo-Aristotelian Problems.10 Pilgrims sometimes
venture to the top of this very high mountain, ten stades up (about two km), where they perform
sacrifices to Hermes, including the usual burning of a sacrificial animal’s thighbone. But when
those same pilgrims return in later years, they find the ashes of their previous sacrifices perfectly
undisturbed. This is because, Geminus tells us, there is no wind up that high. Our pilgrims have
ascended above the changeable atmosphere. But if the changeable atmosphere doesn’t even reach
up ten stades, how can it possibly be affected by the terribly distant stars? The physics, he says, is
impossible. It is as though the earth were surrounded by an immoveable buffer zone, so that the
motions of the aetherial stars are now separated from the motions of the changeable atmosphere.
As when someone visits a loved one in prison: they can both touch the glass partition, but they
cannot touch each other.

Nevertheless, Geminus tells us, we can still use signs in the sky to predict changes in the
atmosphere: past observations can be carefully collected and used to formulate predictions about
the future. We may no longer have a ready answer for why a particular star forebodes a particular
wind, but we do still know that it does. As Quintus says in Cicero’s De divinatione: non quoero cur,
quoniam quid eveniat intellego, “I do not ask why, but I know what happens”.11

A third justification that we find in ancient sources is, like the causal account, ontological, but
rather than positing physical forces to account for stellar influence, it posits theological ones. It
invokes the gods as real causal agents in the world. They become actors in the drama of the
physical world, and their interest in our welfare has them sending us important messages in the
stars. The Stoics perhaps put it best:

If there are gods and (a) they love us, and (b) they are not ignorant of the future, and
(c) they know that the knowledge of the future would be useful for us, and (d ) it is
not beneath their majesty to communicate with us, and (e) they know how to
communicate with us, then divination [of which astrology is one type] exists.12

9 Sextus Empiricus, Adversus mathematicos 5.1–2, italics mine.
10 Geminus, Elementa astronomiae 17.3; Aristotle, Problematia 944b11 f. Compare also Aristotle, Meteorologica 340b36.
11 Cicero, De divinatione 1.15.
12 This formalizes the argument in Cicero’s De divinatione 1.82–84. Cicero does also tell us that Panaetius was one of the
very few Stoics who rejected astrology, but his reasons for doing so are unknown (2.42).
This is rather a more exhaustive spelling out of an implication that is usually shortened just to “If there are gods then there is divination”, which version depends on a conception of deity that implies all of (a) through (e), a conception that is more or less common in antiquity. As for the big premise, the existence of the gods, it was taken as given by nearly everyone in antiquity, widespread atheism being a very modern prejudice. And it is worth pointing out here the insufficiency of modern readings of ancient science that see science as fundamentally beginning with the separation of deity from causal explanations. Such a position is both historically and philosophically myopic. Not only do the gods guarantee the truth of astrology, but, in the first-century Stoic author Marcus Manilius, they also initially seem to reveal the secrets of the heavens to the first investigators:

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\text{[sacerdotes,] quibus ipsa potentis numinis accendit castam praesentia mentem, inque deum deus ipse tulit patuitque ministris. hi tantum movere decus primique per artem sideribus videre vagis pendentia fata.}
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(The very presence of powerful divinity kindled a pure mind for the priests, and god himself brought them to god and revealed himself to his servants. These began our noble art, and by that art were the first to see the fates that dangle from the wandering stars.)

Manilius then tells us that the diligent investigators went on to use careful observations over long periods to develop the science of astrology fully.

But the Stoics and other Greco-Roman philosophers are not the only theistic astrologers going in antiquity. In Mesopotamia, to be sure, neither version of the Stoic implication is spelled out. Instead we simply see a belief in divination simultaneously held with a belief in gods. Nonetheless we can work out the deep dependence of divination on a belief in active divinities. The basic conception seems to have been that the gods know something about the future and often communicate that knowledge to us. If we are skilled at reading the signs sent by the gods, then we can know what to expect. In Mesopotamia, as in Stoicism, the gods send signs in many different media. Mesopotamian omen texts are classified by the types of signs: signs in sacrificial livers, signs in the heavens, signs in the day-to-day world around us, signs from anomalous births, and more. Because of their belief in talkative deities, the Mesopotamian world becomes a semiotically rich place.

One important difference between the Stoic and Mesopotamian conceptions of their respective signifying gods consists in the relationships between the deities and humanity. Where for the Stoics, the divine consists in the essential orderedness and rationality of the universe, in what

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13 Cicero’s argument is at De div. 1.9–10. The notable exceptions here are (1) the Epicureans, who would deny pretty much all five of the qualifications, and (2) clause (c), which was seen as a potential weak spot for the deterministic Stoics, since a revelation of the inevitable future would not allow us to avoid that future (one thinks of Oedipus here). See Cicero, De divinatione.


15 Manilius, Astronomica 1.48–52.


17 One or two collections (e.g., medical texts) depend on the apodoses rather than the protases for their classification as a collection.
Dirk Gently calls the world's fundamental interconnectedness, we see in Mesopotamia more of an emphasis on the multifariousness of divinities and divine intentions, as well as an emphasis on the dependence of human affairs on these multifarious divine intentions. One of the recurring themes in all Mesopotamian divinatory and related texts (not just astrology) is that the gods make decisions – or more properly, judgments – about the fates of people. Indeed, the word for fate itself, šintu, is derived from the verb šiāmu, to make a legal decree. As I and others have argued, the Babylonian omen literature uses some interesting legal jargon: the chain of communication in divination begins with the (divine) judicial council, the puhrum, the divinatory consultation itself is sometimes called a “legal case” (awātum), and the apodoses of omens were the “verdicts” (purussū) of the gods.18 Where the code of Hammurabi lists the decisions of the great king in a court of law, the omen texts list the divine verdicts passed down by the gods. The jurisprudential understanding of omina is underscored as well by the structural parallels between the omen texts and law codes:

Codex Hammurabi, paragraph 6: šumma awīlum makkūr ilim u ekallim išriq, awīlum šū iddāk. (If a citizen steals valuables belonging to a god or to the palace, then that citizen shall be killed.)19

Enūma Anu Enlil, 59–60.4.2: šumma Dilbat ina Du’ūzi ippuh-ma māšū ana pānī-ša izzizū, šar akkadi ihalliq. (If Venus rises in the month of Tammuz and Gemini stands in front of it, the king of Akkad will die.)20

The structures in both genres are identical, probably not by accident: šumma + preterite clause + present/future clause.

We also see in the so-called historical omens repeated attempts to ground the connections between protases and apodoses by historicizing the omens themselves as a set of legalistic precedents, handed down by the gods at particular points in the more-or-less distant past. And this is what I meant earlier when I said that not all ancient empirical accounts were inductive: on a precedent-based system we need the experience of particular precedents in the past, but we only need single paradigmatic instances rather than large collections of data.

This raises a historiographic point that is worth mentioning explicitly. There has been some debate in Assyriological circles about how to treat the so-called historical omens, whether or not

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19 In Martha T. Roth, Law Collections from Mesopotamia and Asia Minor (Atlanta, 1995).

20 Erica Reiner, Babylonian Planetary Omens, part 3 (Groningen, 1998), 118. Transcription and translation mine.
some of the omens should be seen as derived from real reports of actual historical events. When an omen says, “if there is an eclipse of such-and-such a sort, then such-and-such will happen”, is this because, at some remote point in the past, someone actually observed and recorded that there was such an eclipse followed by just such a real historical event? Some ancient omens do seem explicitly to say that this is the case. Does this mean that some omens record real historical data? And does this mean that at its heart the omen tradition is empirical? Most recently, Francesca Rochberg has argued against a historicist position, though she does not there refute the particular position I have argued for, which makes the point that, regardless of how we as modern historians weigh the empirical and historical veracity of the historical omens, the historical claims do turn out to be epistemologically important to the participants in the ancient divinatory traditions. Rochberg is disagreeing with a set of historicist claims about whether some omens can be taken as reports of historical events by modern historians. Whether or not they are “really” true in this latter sense is of no concern to me here. I only care about what work the historical claims were doing within the ancient traditions themselves.

Seven Views of Jerusalem

So we have four different models for grounding astrology in antiquity: physical, empirical, theological, and jurisprudential. Because each of these is an epistemology for astrology generally, each has important, and importantly different, implications for our understanding of our relationships with the actual futures predicted. More to the point, each of these epistemologies has different implications for, and different ways of dealing with, questions of human free will and determinism. To be sure, the sharpness of the distinction between these four models is a function of the particular critical distance at which we stand. In the first instance, the fourfold categorization I am offering is not made explicitly as a fourfold division in my sources, and in some sources the distinctions are less sharp than I am portraying them here (see my comments on Seneca, and on Ptolemy’s observational account, later in this essay). The point of the particular models I argue for here is to draw out some fruitful distinctions for examining the interrelationships between epistemologies, ontologies, and larger theoretical developments in general. It may be the case that if we stand at an even further remove we may see that some


22 Rochberg, The Heavenly Writing; Lehoux, ‘The Historicity Question’ in Mesopotamian Divination'.
grounding assumptions are shared by several of my epistemological camps. One is the agreement that the universe is non-random. Even in the Mesopotamian model, the gods may act arbitrarily from our point of view, but they themselves are a constant. It is not as though they may wink out of existence or be replaced by different kinds of entities at any moment. Further, we can see close relationships between the Ptolemaic and the Stoic accounts, both of which invoke causes we would class as physical, and sympathy and antipathy in particular. The theistic and empirical accounts may also be seen as sharing a bipolar heavens/earth superstructure. Without just running back into hand-waving “as-above-so-below” accounts, we can see that there are semiotic similarities in the theistic and observational accounts. A bare theistic account does not necessarily have direct Ptolemy-type physical causation where the stars instigate a causal chain of events. (Although the Stoic model often will run in this direction, it is importantly loaded with extra assumptions about the unity and beneficence of the Cosmos as a whole). Like the bare observation account, bare theism may only imply the correlation of events as signs rather than tying stellar and earthly events into a simple and direct causal chain. The difference, though, is that bare observation accounts aim to make no causal assumptions at all, where the theistic accounts will run to some version of third-party causation. In the Mesopotamian case, the third-party causation is direct: the gods send signs because they know of future events about which they wish to (or are compelled to) warn us. These future events may be (but are not necessarily) caused by the same gods that send the warnings. In the Stoic case, on the other hand, we have quite a different situation where the world itself is an ordered divinity, and the signs emerge as part of the same very complex unfolding of an inevitable causal chain that also brings about the foretold events. The causation is not on the simple divine-third-party model we see in Mesopotamia; rather, it is part and parcel of the constitution of the universe, a constitution that is itself the very definition of divine ordered rationality.

Dead Eyes Opened

Of all the predictive sciences in antiquity, astrology is particularly prone to questions of determinism. This is because, unlike omens from the flights of birds, or from marks in a sacrificial liver, where the diviner never really knows what to expect, where every day is, so to speak, Wednesday (“anything can happen day”), the signs from which astrologers make their predictions are unique in that they are themselves predictable and regular. I know in advance that there will be an eclipse next year that will forebode the death of the king. Since the motions of the stars are mechanical and regular, that may mean that the death of the king, and everything else, is simply fallout from the original constitution of the universe.

Accordingly, many classical sources straightforwardly equated belief in astrology with belief in determinism. As Tacitus said: “Most men do not doubt that what will happen to them is predestined from birth”, and the blame for any incorrect predictions can be laid squarely on the shoulders of the inept practitioner. One of the most interesting and colorful arguments for this determinism comes in Firmicus Maternus’s triumphalist description of the death of the Neoplatonic philosopher Plotinus, where Plotinus is forced to revise his rejection of fate when the goddess Fortune, personified and apparently vindictive, teaches him a hard lesson:

23 I would like to thank Thomas Laqueur for drawing my attention to this set of points and for pushing me to elaborate on them.
24 Tacitus 6.22.
(Look how in one part of his work {Plotinus} attacks the power of the necessity of fate – quite foolishly and carelessly it seems to me – and he forcefully rebukes people who fear the decrees of Fortune. He grants no power to the stars, and he offers no necessity to fate, but says that everything is within our power. ... And look how, when he was secure in this impudent rashness, the power of fate compelled everything: first his limbs became stiff from a chilling and torpor in his blood, and the sharpness of his eyes slowly lost their clarity as the light in them failed. After this, his whole skin erupted in a pestilence fed by malignant humors, so that his putrid body melted away into death with soured blood, failing limbs. Every day and every hour small parts of his viscera were dissolved by the creeping disease, and what was seen as intact one moment was deformed the next by the ulceration destroying his body. Thus corrupted and dissolved in appearance, the whole shape of his body fallen apart, all that remained in the – so to speak – dead body was the mind so that, being destroyed by the horrible progressing disease, he was convinced by his own torments and by the authority of true reason to see the force and power of fate. Thus broken and with a mangled, destroyed body, he received the sentence passed by Fortune.)

25  Firmicus Maternus, Mathesis 1.18–21.

26  Indeed, many Christian rejections of astrology were just rejections of determinism. The way around this objection was, as Manuel Commenus saw (Catalogus codicum astrologorum graecorum [CCAG] 1.106 f.; cf. Tester, A History of Western Astrology, 95) and Augustine alludes to, seeing the stars as mere signs, rather than causes.
For the physical reading of astrological prediction, where the stars themselves have a direct effect on earthly affairs, attempts to reconcile nondeterminism with predictability tend to cluster around the physics or the epistemology of physics. In the case of Ptolemy, we see him give some careful consideration to the conditions under which reliable prediction would be possible. He treats these conditions hypothetically: *What*, he asks, *would prevent* someone who accurately knew (a) the exact and minute motions of the stars, (b) the nature of each of their particular effects, and (c) the effects of their combinations, from predicting the particular conditions of the atmosphere? But notice here that it is not quite yet the fates of humans he can predict reliably. It is the conditions of the atmosphere, the ambient. To get to human personalities, complexions, dispositions, and so on, we need to go one step further and formulate arguments about how the physics of the atmosphere interacts with the physical composition of people. Such arguments are not far to find in Greek sources generally, nor in Ptolemy in particular, but the double level of causation sets the final human predictions at two removes from the original signs.

The possibility of acquiring all the requisite knowledge is an important qualifying factor. Ptolemy tells us immediately how difficult this is. The science, he says, is very large, complex, and heterogeneous, and because it deals with physical matter, can only attain to a limited degree of certainty. Thus there are some things that by their very nature simply *cannot be predicted* due to the inherent uncertainty of matter: "The whole science of the qualities of matter is conjectural rather than certain" (*eikastikē einai kai ou diabebaiōtikē*). For matter is "flimsy and uncertain" (*asthenes kai dyseikaston*). And this is no minor point for Ptolemy. It is just the dependence of astrology on the uncertainties of physics that steps astrology as a science down a rung from astronomy. Where the truths of astronomy, being mathematical, are certain and knowable, the truths of astrology, being physical, are merely probable.

Ptolemy’s epistemological point about physics is not the same thing as a modern skepticism about astrology, however. Modern skeptics say that astrologers are too much like fairground *psychics*. Ptolemy is saying they are too much like *physicists*.

The other salient factor in Ptolemy’s non-determinist account has to do with the second, mundane half of the two-tier astrological causation model. Although the atmosphere is known to have an effect on people, it is not, Ptolemy reminds us, the only game in town. There are quite a lot of other causes at work in the developing of a particular person’s constitution. These *synaitiai* combine with the astrological causes to produce particular effects. Ptolemy cites the qualities of the seed of the parents and the geographical location as two of the primary co-causes. Pliny also invokes the complexity of causal networks as a qualifying factor when emphasizing the important effects of the stars on the weather. The world, in a sense, has its sea legs: the boat may rock, but there are factors that can counteract it to move a person in directions independent of just the boat’s motion alone.

27 This is a slight modification of *Tetrabiblos* 1.2.7: The grammatical cases have been changed to protect the innocent.
28 *Tetrabiblos* 1.1.1.
29 Older versions of the history of astronomy tended to make great hay of Ptolemy’s separating his astronomy and astrology into two books (the *Almagest* and the *Tetrabiblos*), as though that pointed to doubts Ptolemy had about astrology as a body of knowledge. But Ptolemy is clear that even if it is less *certain*, astrology is more *useful* than astronomy.
30 *Tetrabiblos* 1.2.8.
Ptolemy’s explicit mention of the importance of geographical location bears some elaboration. Geographical variation is a standard trope in astrological texts, one of the *explananda* that frequently wants accounting for. The basic idea here is that astrologers need to explain why people born in one country are so similar to each other and so different from everyone else. Why are the Ethiopians all so dark and the Scythians all so pale, if it is the stars that are responsible for human complexions and characteristics? In a marvelously self-serving passage Firmicus Maternus has an imaginary interlocutor frame the question thus:


(If Saturn makes people prudent, serious, slow, greedy, and quiet, and Jupiter mature, good, kind, and moderate . . . why are some groups constituted so as to have particular common characteristics? The Scythians alone attack with beastly and savage cruelty, the Italians show an ever-noble regality and glory, the Gauls are thick, the Greeks effeminate, Africans cunning, Syrians greedy, Sicilians sharp-witted, Asians always preoccupied with luxurious pleasures, and Spaniards foolish with ridiculous boastfulness.)

For Ptolemy the explanation is simple: geography and local climate are important co-causes of personal characteristics, ones that astrological causation works *with* to make one Scythian more or less cruel than another Scythian, one Roman more or less noble than another.

What is interesting here is the difference in the roles played by geographical variance. In Ptolemy it arises as a *qualification* to strict determinism, where in Firmicus Maternus it comes in as a difficult *objection* to Firmicus’s strictly deterministic astrology (its difficulty is shown up by the number of feints Firmicus makes at answering the objection before finally looking it in the eye at the very end of book one). This co-opting of objections to deterministic astrology by non-determinist astrologers like Ptolemy is not uncommon, and it is rhetorically quite powerful. We see this retooling of objections to astrology being put to powerful use by Seneca in the *Naturales quaestionees*, in a passage slightly but interestingly different from the multiple causation arguments of Pliny and Ptolemy. The difference in Seneca is that instead of appealing to the multiplicity of mundane causal forces, he cites the multiplicity of astrological causes as leading to uncertainty about the future and inaccuracy of prediction. Where opponents of astrology were fond of parading famous mistaken predictions, Seneca preempts that move by admitting that mistakes not only *can* be made, but *must* sometimes be made. But these are mistakes of interpretation *only*, and this raises an important point: we may not be able to monitor all the effects of the stars, but there are effects nonetheless. Where in Ptolemy and Pliny the effects were moderated by other causes, Seneca is saying that the effects are still all-important. Seneca is a determinist, if one who is less confident about our *knowledge* of the science of astrology than

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32 Firmicus Maternus, *Mathesis* 1.2.2–3.
33 See also Long, ‘Astrology: Arguments Pro and Contra’.
34 Seneca, *Naturales quaestiones* 2.32.6–8.
Firmicus Maternus was. And here we should note that the physical astrologies of Ptolemy and Pliny can only be nondeterministic if the extra sets of causes are entirely independent of the stars. For Stoics this simply cannot physically be the case, due at one end of the stick to the fundamental interconnectedness of all things, and at the other end to their firm belief in fate – each enforcing the other in that charming Stoic way.

The second justification for astrology, observation and experience, picks up on this question of the knowability of the future. If we know the stars through past observation, then how much certainty do we really have about the future? Asking this question in an ancient context is not to raise David Hume’s problem of induction, however. Instead, we see general questions about the acceptability of observation framed, when the question is asked, in terms of kinds of sign inference, or in terms of rhetoric. We have already seen that observation accounts do often play a role in justifications of astrology, sometimes on their own (as in Sextus and Geminus), and sometimes in conjunction with other arguments (as in Manilius’s combination of divine revelation and human investigation). Ptolemy offers us yet another variation:

> And furthermore, the observations of the ancient configurations of the planets with which we accommodate similar ones obtaining now to the outcomes seen by them under the earlier circumstances, can at long intervals be more or less similar but never identical, because the precise arrangement of everything in the heavens relative to the earth either never happens, or never happens on a human time scale, unless one pretends to know and comprehend the incomprehensible. Thus predictions, differing from the established paradigms, are sometimes given the lie.

In part, this claim works because of the very high degrees of accuracy to which Ptolemy wants to hold astronomy and astrology. Sloppier astrologers may be happy with “Mars is retrograde in Taurus”, but Ptolemy is here emphasizing that the latitude, longitude, speed, and direction of Mars in combination with those of all the other planets will, if we are to speak precisely, never recur exactly identically. Worse astronomers may say so, but Ptolemy has a rather large and detailed understanding of astronomy (the *Almagest*) to back him up. The devil, he knows, is in the details.

But this is not really a non-determinist argument. It is more like Seneca’s argument for an imprecise astrology than it is like Ptolemy’s earlier causal arguments for a non-determinist astrology. In later discourses we do sometimes see non-determinism attached to an idea of the stars as signs rather than causes, but this is not what Ptolemy is up to here.

But what about the Mesopotamians? Were they determinists like the Stoics, or non-determinists? The answer is, as it turns out, extremely tricky. At one level, they seem to have had a number of ways out of any particular ominous prediction, but at another level, they seem not to have had any. Let us see how.

The evidence rests almost entirely on a set of texts closely related to the divinatory corpora, a set of texts known as apotropaic rituals. There has been some debate on how exactly to understand the apotropaic rituals, debate I hope to complicate by throwing yet another position into the ring. At a purely descriptive level, the apotropaic rituals were rites to be performed in the

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36 *Tetrabiblos* 1.2.7.
event of an ominous sign in order, let us say, to deflect the predicted outcome. The main corpus of apotropaic texts, the so-called nambrubi (literally, "undoing") texts, seems to have been quite large, with more than 135 tablets attested in colophons in the library of Aššurbanipal (seventh century BC). Richard Caplice divided nambrubi rituals up into those that work to destroy the evil sign, those that destroy a substitute for the evil sign, those that partially destroy the evil sign (he calls this obstruction), and those that ritually simulate the predicted outcome. The most famous and dramatic example of the last type of ritual, simulation, is the so-called substitute-king ritual. In the case of a lunar eclipse, for example, the relevant omen runs: "If there is an eclipse, the king will die", a rather inconvenient prediction for the powerful person of the king himself, as well as for the kingdom in general. In order to make things as smooth as possible, the substitute-king ritual could be performed. The basic idea was to demote the king, say, Aššurbanipal, and promote some poor fellow to "king" in his place. The new "king" would be dressed in royal robes and allowed to haunt the palace, but he had a tablet with the evil omen on it hung round his neck, and, after an appointed time, he was executed. Aššurbanipal was then reappointed king. The practice is reflected in the correspondence of Esarhaddon, where the near universal formula for addressing letters to the king is ana šarri belīya, "To the king, my lord". We find, after the report of a lunar eclipse, a new formula: ana ikkari belīya, "To the farmer, my lord".

The substitute-king ritual works on the second half of the omen statement. Given the universal omen form of if \( x \) then \( y \), [protasis \( \Rightarrow \) apodosis] in the substitute king we see the ritual acting out of the apodosis of the omen in such away as to minimize its impact. The other three of Caplice’s classes, destruction, obstruction, and substitution, all work on the protasis, such that we either literally or symbolically destroy the cause of the sign itself. For a dog that howls ominously outside my house at night, I can perform the appropriate ritual and cast a properly sanctified clay model of the dog into the river. Here, as Stefan Maul has pointed out, the ritual is saturated in legal jargon and cast in such a way as to make it look like a kind of appeal of the original verdict passed by the gods.

But the legal appeal model for which Maul has argued only goes some of the way toward explaining the complex and intertwining layers at play in the nambrubi. We see not only the legalistic appeal to the gods but also prayers, incantations, and magical rites designed to destroy the cause of the evil sign, as it were, retroactively. In many instances, the sign is as if it never happened after the performance of the nambrubi. But in the case of the astral omens, where the signs are literally unearthly, above the level of accessibility, the actual or ritual destruction or repeal of the sign itself is not, it seems, possible. Instead, we have to rely on enactment of the ominous prediction itself.

Looking then at the substitute-king situation, where we have the ritual enactment of the apodosis, we can see at one and the same time both a strict adherence to the inevitability of the omen and also a sense of its avoidability. There is something slippery about the kind of nominalism it relies on. We may want to say that the "real" king hasn't really faced the music, and that the substitute "king" is the victim of an attempt to fleece the gods, especially considering the

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37 Richard I. Caplice, *The Akkadian Nambrubi Texts: An Introduction* (Los Angeles, 1974); Maul, ‘How the Babylonians Protected Themselves Against Calamities Announced by Omens’, on the other hand, works from a handful of rituals to draw conclusions about the contamination posed by the sign itself. Without wanting to suggest that Maul’s analysis is wrong, I would point out that it is limited to nambrubi for only a handful of signs.


39 Maul, ‘How the Babylonians Protected Themselves Against Calamities Announced by Omens’.
decision-making power that, as we can see from the letters, seems to have rested in the nominal “farmer, my lord”. Is anyone really thinking of him as a farmer if he is being still entrusted with major state decisions? The answer is yes – at least at one important level: if we take into consideration the ritualistic context of the substitution, we see that the substitute king has been appointed, in a detailed rite and with appropriate prayers, as the substitute for the purposes of the omen itself. He is, for these intents and purposes, the king. And that, it seems, is enough. Insofar as the omen came true, under these constraints, then we can see a strong determinism at play. Insofar as Aššurbanipal himself gets to survive the prediction, we see some degree of avoidability. The relationships in Mesopotamia between prediction and fate are thus complicated by a set of possibilities for either parallel fulfillment or semiotic retraction, possibilities we do not see in the classical astrologers.40

Reel Around the Fountain

Ancient astrology is far from monolithic. I have explored here one aspect of the epistemology of astrology, the interrelationships between the various positions on determinism and the various justifications for the efficacy of astrology. By suspending our disbelief for a little while, we have allowed the ancient arguments for astrology a little bit of healthy breathing room.

The upshot is this: if we admit new entities, particularly entities like gods and physical forces, into the world, we simultaneously admit new possibilities, and even new necessities. There is a ripple effect here, and one that does not stay confined to ontology. Different entities can cause the world to behave in radically different ways: ontologies imply, and this in complex ways. An important way in which many treatments of astrology have failed us is in their tendency to overemphasize a disjunction in the methodology and epistemological standards across the great modern/premodern, or science/pseudoscience divides. Asking you to imagine that astrology is true is not the same thing as asking you to pretend for a moment that you are foolish, credulous, or superstitious or to completely cease being rational for the time being. Astrology is, in the ancient discourses, both highly rational and eminently empirical. It is surprising how much evidence there was for it, and how well it sustained itself in the face of objections.

I have also tried to work around, for the moment, readings of astrology that account for its ancient popularity using psychological, semantic, or social explanations,41 explanations along the lines that astrology filled a need for comprehension and control of the chaotic universe in premodern societies; or else it only seemed true because the predictions it made were vague enough to be polyvalently adaptable to any outcome; or else it facilitated professional status distinctions and social control mechanisms for learned elites over the ignorant masses.42

Some of these explanations may be correct (although I would vehemently oppose explanations in terms of the second, polyvalent vagueness), but at the same time they ignore much historical evidence as well. Defenders of astrology often wielded formidable arguments that need to be

40 Although classical magical authors may be a source for such interpretations. See Fritz Graf, Magie dans l’antiquité gréco-romaine: idéologie et pratique (Paris, 1994).
41 I should credit Peter Struck with isolating the three heads of this particular hydra.
42 For a recent example, of the “filling a need for comprehension and control” thesis, see Maul, “How the Babylonians Protected Themselves Against Calamities Announced by Omens.”
taken very seriously on their own terms if we are to fully understand the roles of astrology in the worlds in which it operates. The fact is that most ancient thinkers who talk about it seem to think that astrology really did work, and for very good reasons. A “Duck Dodgers in the 24½th century” may well look back at the baby steps of the simple physics of the twenty-first century. But his accounting for my belief in twenty-first-century physics solely in terms of sociological control mechanisms or the psychological need to impose desperate order on a chaotic universe would be to miss what I see as the major reason for accepting our physics as true: it works, as best as anyone can tell, quite well. It accounts for the phenomena that some of our best minds have seen. Okay, not all the phenomena, not all the time, but – as for the ancient astrologers – enough to be satisfying.

Notes

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