



CHRONOLOGY & CATASTROPHISM

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BOOK REVIEW: *The Cosmic Origin of the Rigveda*



Sirius, the brightest star visible from Earth (bottom). The other bright stars are Betelgeuse (top right), and Procyon (top left), which is in the constellation of Orion. (Hubble European Space Agency, Akira Fujii)



Society for Interdisciplinary Studies ISSN 0953-0053

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CONTENTS

SOCIETY NEWS	2
ARTICLES:	
Trials on the Trails of Typhon and the Exodus, Part 1 by Marinus Anthony van der Sluijs	3
Thudkhaliya II and Hieroglyphic Luwian by Barry Curnock	23
Towards an absolute scientific date for the Egyptian New Kingdom: the Egyptian Civil Calendar revisited by Petra Ossowski Larsson and Lars-Åke Larsson	34
Reflections on 'Adam to Apophis; asteroids, millenarianism and climate change' by Phillip Clapham	44
BOOK REVIEW: The Cosmic Origin of the Rigveda reviewed by Peter Fairlie-Clarke	58
LETTERS:	
Ev Cochrane	59

ARTICLES

Trials on the Trails of Typhon and the Exodus

Part 1

Marinus Anthony van der Sluijs

Introduction

In a recent contribution to this journal, Donald Keith Mills revisited the convoluted subject of the comet Typhon and its putative appearance during the Hebrew Exodus, a mainstay of Velikovsky's theory [1]. While there is much to commend in Keith Mills' article, it remains to be seen whether "Rockenbach Falls" or "King Typhon Tumbles". This article is in two parts. In Part 1, I will remove some of the stumbling blocks, fill in a few remaining gaps on the classical perception of Typhon, trace all elements of Rockenbach's discussion of this comet to earlier sources and clarify the involvement of the 'giants'. Part 2, to be published in a later issue of *Review*, will examine a possible origin of one of Rockenbach's sources in Arabic astrology, make a case for a genuine antecedent to the comet Typhon in ancient Egyptian literature, analyse the rabbinical legend of the star 'Evil' in detail and consider the meaning of a star associated with the Exodus in a catacomb painting. All translations are my own, except where indicated otherwise.

Classical Sources

To begin with the classical material, I concur with Keith Mills that the passage in Pliny [2] is the oldest extant witness to Typhon as an astronomical object; that the grammatical reference of the opening words is most likely to the feminine noun *stella* ('star'); [3] and that Pliny's wording is ambiguous in respect of the question whether the king named the object 'Typhon' after himself or not. Although many a capable scholar opted for a positive answer to the latter, [4] I side with Keith Mills in the impression that the syntax of the sentence suggests the opposite. If *eius* had straightforwardly referred to *rex* ('the king'), it would presumably have been placed after that word instead of before it. Compare:

<i>cui nomen aevi eius rex dedit Typhon</i> (attested)	'to which the king of its/that time gave the name Typhon'
<i>cui nomen eius aevi rex dedit Typhon</i> (hypothetical)	'to which the king of the time gave its/his name Typhon' (?)
<i>cui aevi rex nomen eius dedit Typhon</i> (hypothetical)	'to which the king of the time gave his name Typhon'

Hence, I shall translate:

... and a terrible one was experienced by the peoples of Ethiopia and Egypt, to which the king of its time gave the name Typhon, fiery in appearance and twisted in the way of a coil, also grim to the sight, not really a star so much as something like a fiery knot.[5]

Yet why would Pliny have bothered to point out that the object was named by the king if that was all there was to the matter? Servius Auctus' text is unequivocal that Typhon was called after the king and lists Campester (3rd or 4th century AD?) and Petosiris (2nd century BC?), but not Pliny, as its sources. Accordingly, a plausible scenario is that Pliny, Servius Auctus and perhaps others independently drew on Petosiris. Pending the miraculous recovery of an original manuscript of the latter, the jury remains out on the possibility that the king, too, was called Typhon, even if Pliny did not say so in the clearest of terms. I will return to this problem later in this paper.

The context in which Pliny mentioned Typhon was that of cometary movement and directionality. Judging by the immediately preceding sentence, it appears that he cited Typhon as an uncommon example of a comet appearing towards the south, which according to him lacks radiance.[6] In the preceding chapter, Pliny had presented a classification of comets into ten-odd categories. Although he did not explicitly state to which of these Typhon belonged,

the amber-coloured *disceus* ('disc') would be a reasonable bet because of its shape and 'rays, which sparse it ... emits from the edge' (*radiis, quos ... raros e margine emittit*) (fig. 1). [7]

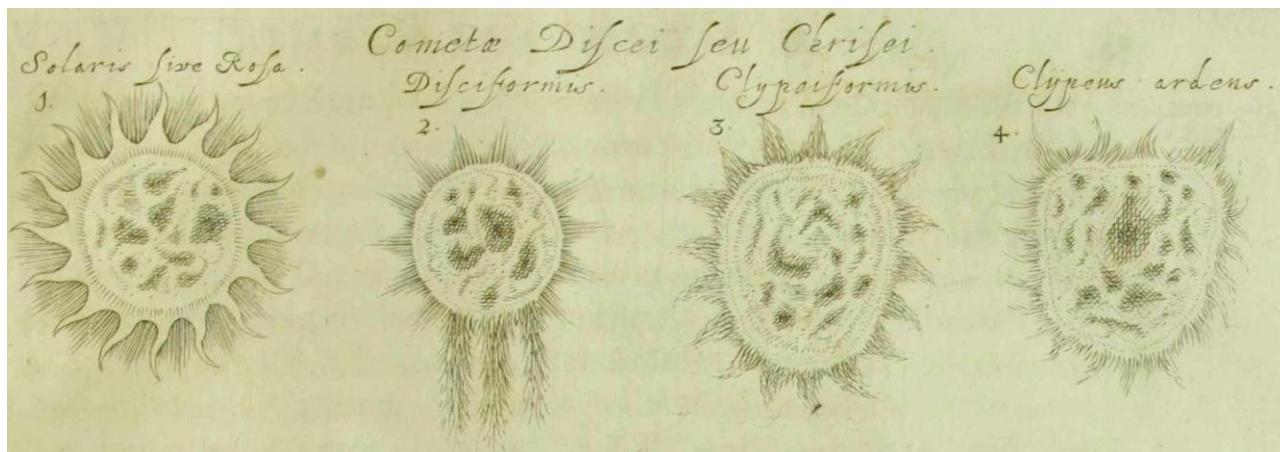


Fig. 1: Four subtypes of comet in the category *disceus* ('disc') or *chriseus* ('golden'), according to Hewelcke: *solaris* ('solar') or *rosa* ('rose'), *disciformis* ('disc-shaped'), *clypeiformis* ('shield-shaped') and *clypeus ardens* ('burning shield'). Hevelius, *Cometographia*, 1668, p. 442/443 Fig. G.

As for Servius Auctus, [8] the reading *immodicus* ('beyond measure') was not of Velikovsky's making, as Keith Mills would have it, [9] but was faithfully reproduced by Velikovsky from the source which he cited. [10] As the footnote to that source shows, it was based on a textual emendation proposed by Riess. [11] I agree that this 'improvement' of the text is uncalled for and that the preferred lection remains *modicus* ('modest'). [12]

Keith Mills observed that "no further information regarding the 'Typhon Comet' is forthcoming" from the work *De Mensibus (On the Months)* by John of Lydia (6th century AD). [13] He could have expressed more clearly, however, that the statement quoted from Arrian on the next page of his article was really lifted from that same work by John of Lydia, the ascription to Arrian being a hypothesis on Keyser's part. [14] This statement was: "The *Typhon* appears fiery and blood-red, shedding also fine locks of hair." [15] What is more, Keith Mills seems oblivious to two rather longer passages on Typhon in the list of comet types which John supplied in another treatise, entitled *De Ostentis (On Celestial Signs)*. The first of these reads:

The *Typhones*, however, are produced at the Southern Pole. These are fiery spheres and as if nodes of fire. These did not appear in Roman times, but, when they had appeared before the latter, they shook Egypt, hence Aristoteles maintains that they are produced from an underlying moist substance and for this reason they rarely appeared in Egypt on account of its underlying dryness. All the others, however, are produced at the Northern Pole whether they look either towards the East or the West. [16]

Interestingly, Typhon here appears in the plural (*Typhōnes*), confirming that it was thought of as a generic term for a class of objects. In the second passage, John is quoting directly from Campester:

Comet Typhon This is produced from the reflection of the air, but it is sickle-shaped, glistening, smoky, and gloomy and, wherever it looks, generally there will be ills, oppressive wars, foreign and intestine [*sic*] acts of sedition by the people, and lack of provisions, even illustrious commanders will be slain in the wars and especially if it should appear for three or four days, but, if it appears longer, it threatens the destruction and demolition of everything and nowhere will there be an end of the ills. Very many from the Roman army will die in war. Both camps and garrisons belonging to the Romans will be captured and the common people, being in a state of discord, will reprove even the magistrates themselves. There will be also a plague and no one, when praying, will be heeded. And there will be corresponding successions of the magistrates because of the fatuity of the rulers, also especially extremely fierce-burning and deadly conflagrations, incinerating whole cities, will occur. And, whereas the horrors will be general and insufferable everywhere, they will be worse to those in the West, for a powerful war from the East will beset them, but, because those setting out from the East are of divided opinion, the largest part of the army will be utterly destroyed, instances of sedition will be instigated by the armies, and the military authorities will assign punishments to one another. [17]

It was this assertion on the complete destruction wrought by Typhon should it appear for more than a few days which Velikovsky cited from a secondary source. [18]

Keith Mills did not examine Hephaestio of Thebes (*fl.* AD 415), but for the sake of completion it will do no harm to do so here. Again in the context of a typology of comets and citing Petosiris, Hephaestio gave "Titan" (*titàn*) as a synonym for 'Typhon' and submitted puzzling information about its course:

There is another comet, Titan, which is called Tiphôn, exceedingly painful and fiery, misshapen and slow-moving. Its tail extends rather far behind. Customarily it follows the sun along the boundaries of the arctic pole. Its appearance is the cause of many evils, the destruction of crops and kings in the East and West. [19]



Fig. 2: Francesco Giuntini (1523-1590), at the age of 60 years. Iunctinus, *Specvlvm Astrologiæ*, 1583, title page.

The ‘boundaries of the arctic pole’ (*tois pérași tou arktikou pólou*) are surely the virtual outer limit of the circumpolar zone, corresponding to the latitude of observation. [20] However, needless to say the sun is not seen towards the north pole in the northern hemisphere. Bearing in mind that all except the very brightest comets are only visible by night, ‘following the sun’ will have been jargon for appearing closer in time to sunset than sunrise.

Junctinus, finally, has received little attention in Velikovskian discourse. Velikovsky lumped him together with the preceding authorities in his list of “early authors” concerned with comet Typhon, adding that Wachsmuth, the editor of John of Lydia’s *De Ostentis*, “also printed excerpts from Hephaestion, Avienus apud Servium, and Junctinus.” [21] Yet Junctinus is nowhere to be found in Wachsmuth’s excerpts or anywhere in his book. [22] True to form, Velikovsky was quite remiss, for Junctinus was Francesco Giuntini (1523-1590; fig. 2) of Florence, a Carmelite theologian, mathematician and astrologer of the *Cinquecento*, belonging not in antiquity but the early modern period. Some sleuthing reveals that Velikovsky probably grouped this writer with the likes of Pliny and Servius because of his superficial reading of an entry in a standard encyclopedia which he cited in this context; although, as so often, he did not provide numbers for the pages he perused, he will have been led astray by this sentence on the comet Typhon: ‘Later it is mostly attributed to Saturn, thereby it acquired the

nickname *Niger* (Junctinus 316 b, 9).’ [23] The original passage in Giuntini is this:

Niger, which is altogether very similar to Saturn. And when it should appear, it indicates mortality by natural death, & death by the sword and beheading. [24]

In a later tractate, Giuntini elaborated:

And the one which is called *niger* is of the nature of Saturn, & its colour is more dark blue-green than black, which when it should appear indicates much mortality & beheading. [25]

In these two passages, Giuntini presented ‘Niger’ as the ninth in a classification of comets he derived from Leopold of Austria’s *Tractatus 5 de Annorum Revolutionibus* (13th century AD) [26] and the Latin 1524 edition *De Revolutionibus Nativitatum* of a work by the Egyptian physician and astronomer ‘Alī ibn Riḏwān (AD c988-c1061). It will be noted that the word ‘Typhon’ is absent from Giuntini’s discussions, so that Typhon’s association with the planet Saturn remains indefinite. [27] Be that as it may, Velikovsky could have avoided his blunder if he had more attentively read this encyclopedia entry or the one cited earlier on Typhon’s potential destruction of everything, which he cited in the next footnote. [28]

Rockenbach

A contemporary of Giuntini, Abraham Rockenbach (1536-1611), sometimes unmelodiously Latinised as ‘Abrahamus Rockenbachius’, was a German lawyer and mathematician, who had graduated from the university of Wittenberg. It should be pointed out that his tractate *De Cometis ...* was not first published in 1598, the edition of 1602 being the first one. [29] Keith Mills was perhaps misled by the bibliographic information supplied by Google Books, which cannot always be relied upon. The book’s long title, characteristic for its time, ends with the unmistakable indication that the book covers the period from the general flood to the year 1600. The title page also states that the work was ‘presented in public in the Philosophers’ College, in the year 1600, by the Catholics now called a jubilee’. [30]

The bewildering entry in which Rockenbach intertwines Typhon with the Biblical Exodus appears on pages 116 and 117, not 115, [31] in a portion of the book offering a chronological listing of past comet observations. Typhon is the fifth comet in this catalogue, the first one being dated to the year of the flood of Noah. Rockenbach’s date for the Biblical Exodus was not 1495 BC, as that of Jan Hewelcke (Johannes Hevelius) was, but 1510 BC; the ample instances of double dating in both the *anno mundi* (AM) and the Christian calendar eras which he supplied in the following pages prove that his world chronology commenced in 3963 BC. Keith Mills misspelled several words in the Latin text. [32] That Rockenbach, like Hewelcke, numbered the relevant chapter in Pliny’s second book as 25 instead of 23 was not an

error, [33] but correct for the time; the modern chapter numbers for this book were apparently introduced in the edition of Pliny's work published by the French Jesuit classicist Jean Hardouin (1646-1729) in 1685. [34] Keith Mills does not seem to be aware that Sutherland had already provisionally translated Rockenbach's Latin into English and drawn attention to the giants omitted by Velikovsky. [35] The first sentence mentioning the giants was not left out of Velikovsky's Latin, as Keith Mills seems to suggest, but only of his English translation. [36]

Now for the translation itself, the words *formam* and *caput* are best taken as accusative nouns both indicated by *repræsentans*, while the occurrence in this sentence of the two conjunctions & and *-que* shows that the adjective *convoluti* must refer back to *circuli*, not forward to *globi*, and the latter must be a genitive modifying *caput*. The rendition of *aspectu terribilis* ('terrible to behold') would appear to have dropped out of Keith Mills' translation. The words "Typhonq; à rege, tunc temporis in Aegypto imperium tenente, dictus est" should not be translated as "And it is said that King Typhon ruled in Egypt at that time", but as 'and called Typhon by the king who was wielding power in Egypt at that time'. *Aegiptijs* and *Aethiopibus* are in the dative, so that the translation – consistent with Pliny's account – ought to be 'to the Egyptians and Ethiopians', not 'of' them. [37] Oddly, while much of the text in Pliny and Hewelcke matches Rockenbach's text *verbatim*, Keith Mills has reproduced and translated the former two much more accurately than the latter, [38] almost as if he had not noticed the close textual interdependence between them. Finally, Keith Mills was rightly baffled about the appearance of the words *speculum Heroicum* in Rockenbach's text. It turns out that there is no *p* in the first word; the actual text reads *seculum Heroicum* ('the Heroic age'). In view of the fact that the reproductions of Rockenbach's Latin and its translations into English by Velikovsky, Sutherland, Keith Mills and others all contained such significant flaws, a fresh attempt is in order: [39]

<p>Anno mundi, bis millesimo, quadringentesimo, quinquagesimo tertio, Cometa, (ut multi probati autores, de tempore hoc statuunt, ex conjecturis multis) cuius Plinius quoque lib. 2. cap. 25. mentionem facit, igneus, formam imperfecti circuli, & in se convoluti caputq; globi repræsentans, aspectu terribilis apparuit, Typhonq; à rege, tunc temporis in Aegypto imperium tenente, dictus est, qui rex, ut homines fide digni asserunt, auxilio gigantum, reges Aegyptiorū devicit.</p>	<p>In the year of the world two thousand four hundred fifty three, there appeared a Comet (as many esteemed authors state of this time, based on many arguments), of which Pliny bk. 2 ch. 25 also makes mention, fiery, exhibiting the form of an imperfect circle rolled up into itself and the head of a ball, terrible to behold, and called Typhon by the king who held sway in Egypt at that time, which king, as people worthy of belief assert, with the help of the giants, subdued the kings of the Egyptians.</p>
<p>Visus quoq; est, ut aliqui volūt, in Siria, Babylonia, India, in signo capricorni, sub forma rotæ, eo tempore, quando filij Israel ex Aegypto in terram promissam, duce ac viæ monstratore, per diem columna nubis, noctu vero columna ignis, ut cap. 7. 8. 9. & 10. legitur profecti sunt.</p>	<p>It was also seen, as some wish, in Syria, Babylonia, India, in the sign of Capricorn, in the form of a wheel, at the time when the children of Israel set out from Egypt to the promised land, with the column of cloud by day and the column of fire indeed by night as a guide and leader of the way, as is read in chs. 7, 8, 9 & 10.</p>
<p>Dicit autem Plinius in dicto loco, hunc Cometam Aegiptijs & Aethiopibus interitū denunciassse, quemadmodū & Herodotus, tunc temporis seculum Heroicum, & gigantū cessasse dicit. Postea caritas annonæ septennalis, secuta est, anno mundi, bis millesimo, ducentesimo, tricesimo septimo, quando Iacob Patriarcha, cum filijs & nepotibus in Aegyptum profectus est, de quibus Genes. 46. Secuta quoque sunt tunc temporis & alia prodigia magna, interitum Pharaonis, & vicinorum populorum designantia.</p>	<p>Pliny also says in the said place that this comet announced destruction to the Egyptians & the Ethiopians, just like Herodotus said that at that time the Heroic age & that of the giants ended. After that followed the seven-year costliness of produce, in the year two thousand two hundred thirty seven, when Jacob the patriarch, with his sons & grandsons, set out to Egypt, of which Genes. 46. At that time, too, followed other great prodigies, signalling the ruin of Pharaoh, & of neighbouring peoples.</p>

Note the visual agreement of the 'imperfect circle' with the sickle shape assigned to Typhon by John of Lydia. [40] Contrary to Velikovsky's understanding, there is no indication that Rockenbach interpreted the column of cloud and fire as a physical part of the comet. Comets are seldom visible by daylight and if Typhon was confined to Capricorn, as Rockenbach states, how could it have guided the Israelites in any meaningful way? Like the stars, the comet would simply have risen and set in the course of a night. The guiding column of *Exodus* reads more like an object with a

strong vertical component reaching down to the horizon, while Typhon, according to this same sentence, had the shape of a wheel.

Rockenbach's Sources

Introduction

Without the benefit of Rockenbach's vaunted 'many authors and arguments', it would be well-nigh impossible to make heads or tails of his discussion of Typhon. Fortunately, a modest amount of diligent research sufficed to trace all elements of that discussion to a handful of 16th-century sources. No longer enigmatic, these were all printed books and not, as Velikovskiy naively asserted, handwritten manuscripts. [41] The quest to discover the influences on Rockenbach involves a roll call of mostly Lutheran humanists sporting Latinised surnames. It will be helpful to formally distinguish between two lineages of scholarly thought which eventually converged: the classicist tradition of commentaries on Pliny and the scientific study of comets as boosted by the Great Comet of 1577. These will now be discussed in turn.

Pliny's Commentators

Jacob Milich (Iacobus Milichius; 1501-1559; fig. 3) was a German mathematician, physician and astronomer, born in Freiburg im Breisgau, who studied under Erasmus and spent most of his career teaching in Wittenberg, where he also served as dean and rector. In 1535, he published a commentary on the second book of Pliny's *Natural History*. In this first edition, his comment on the Typhon passage was limited to the following:

That is, an awful and horrible comet appeared to the peoples of Egypt & Ethiopia to which the name Tiphon was given, by king Tiphon who was in charge of those places at that time. Nowhere else do I know this story to occur. This comet can be referred to the fourth species, which is called 'disc'. [42]

Worth noting is that Milich thus settled for the interpretation that the Egyptian king named the comet after himself; that he assigned Typhon to the *disceus* category of comets, in agreement with the assessment presented above; and that he did not remotely associate it at this time with Biblical history.

Over the next few decades, Milich's commentary on Pliny went through several revised editions, in which these views were developed further. One published in 1543 added this terse comment, repeated in the edition of 1553: 'On the Egyptian king Typhon, see Plutarch's book on Osiris.' [43] With this one stroke, Milich identified Pliny's king Typhon



Fig. 3: Jacob Milich (1501-1559). Engraved by Theodor de Bry (1528-1598). Wellcome Collection, no. 6513i, Wellcome Library, London (United Kingdom). Courtesy Wellcome Collection/CC BY. <https://iiif.wellcomecollection.org/image/V0004012.jpg/full/full/0/default.jpg>.

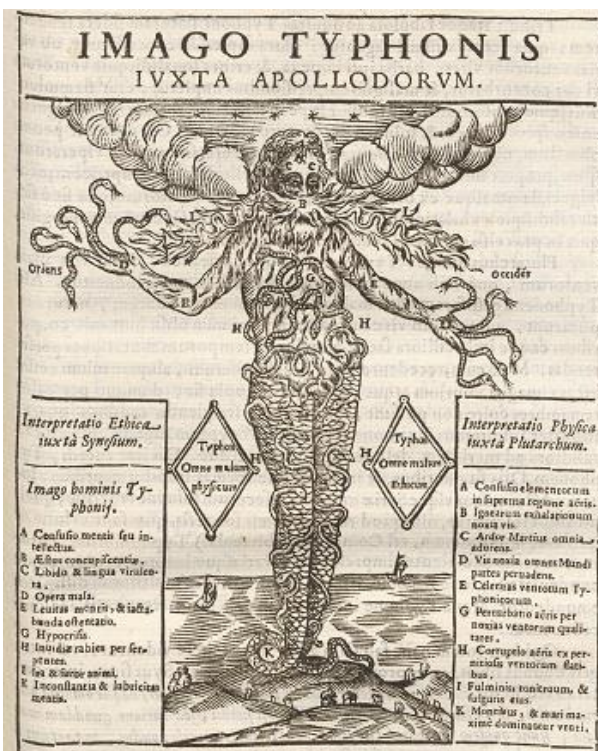


Fig. 4: Depiction of the giant Typhon in Greek myth after the description of Apollodorus. Athanasius Kircherus [Kircher], *Œdipvs Ægyptiacvs*, vol. 1, Vitalis Mascardi, Rome, 1652, p. 221.

with the well-known divine king of that name in Egyptian mythology, whom the Egyptians called ‘Seth’ – as Plutarch correctly stated. [44]

In 1562, the French Protestant writer Antoine du Pinet (c1510-c1584) released a translation of Pliny’s oeuvre into French. So liberal that it is better characterised as a paraphrase, this again treated ‘Typhon’ as the name of the comet and the divine king of Egyptian tradition, but additionally labelled the latter a giant:

Moreover, in the time of the Giant Typhon was seen a terrible comet on the shore of Egypt, & of Ethiopia, which presaged great calamities to those who were living in the said regions. This comet was flaming, & twisted like a snake, which is round, & had a hideous & crooked appearance: so that it was said that it was rather a knot of fire than a star. And this comet was called Typhon because of the Giant Typhon who was in power at that time. [45]

Plutarch had roughly compared the Egyptian myths of the strife between Typhon, Osiris and Horus to the exploits of the Titans, Giants and heroes in Greek lore, but had not directly stamped Typhon as a giant. [46] By doing exactly that, du Pinet practically linked Pliny’s Typhon with the monstrous giant Typhon of Greek myth, who was pitted against Zeus (fig. 4). Perhaps du Pinet introduced the giant aspect not only because of the similarity in name between the two Typhons, but also because of their shared sinuosity, which he emphasised in his text; the Greeks commonly envisioned the mythical giants with serpentine ‘legs’. Parenthetically, fusing the god, the giant and the king into one and the same terrestrial being is quite a different matter from Velikovskiy’s fusion of the god, the giant and the comet into one and the same celestial object. It epitomises a Euhemerist approach to myth instead of a catastrophist one, reducing mythical actors to mere mortals rather than extreme natural events.

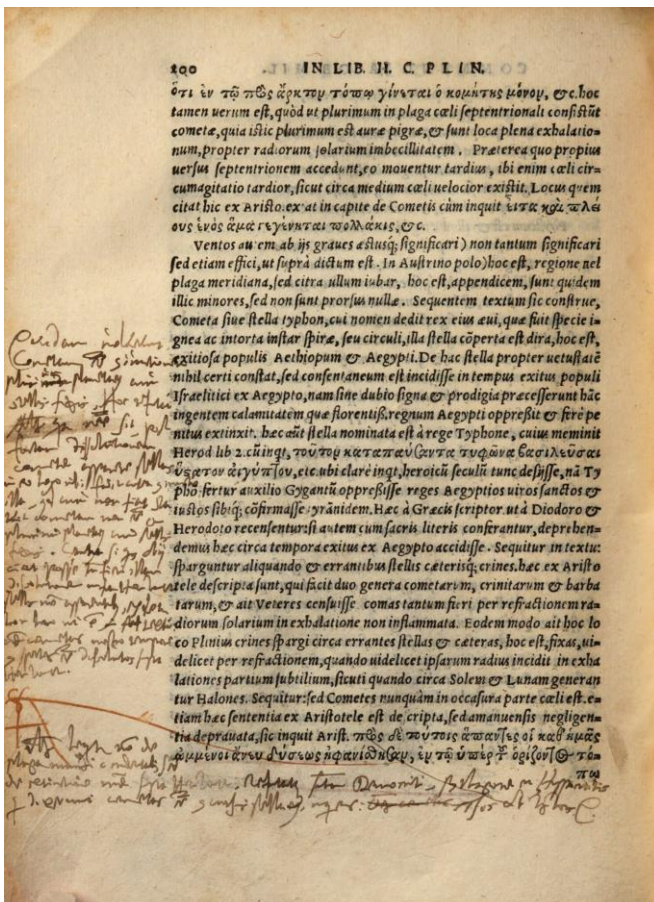


Fig. 5: The first known reference to an Exodus comet, associated with Typhon: page 200 of the 1563 edition of Jacob Milich’s commentary on Pliny, with an almost illegible handwritten note in the margin. As shown by the *ex libris* marks, this copy was formerly owned by physician Anthonius Jonas Kilianstein (d. 1638) and a Fr. Xav. de Hieber (1773), and was scanned in by the Münchener DigitalisierungsZentrum, Bayerische Staatsbibliothek, Munich (Germany).

Milich could hardly have seen du Pinet’s rendition, as he had passed away in 1559. However, the year after du Pinet went to press saw the publication of a new edition of Milich’s commentary on Pliny, posthumously reconstructed from his notes. In this, Milich maintained the link between Pliny’s astronomical Typhon and the Typhon of Egyptian myth, now associated with the giants. Writing history, he also conjectured – as no one had done before him – that the Israelites’ Exodus from Egypt had coincided with the appearance of a comet and that this could have been Typhon (fig. 5):

Construe the following text thus, The comet or star typhon, to which the king of its time gave the name, which was of a fiery and twisted appearance in the likeness of a coil, or of a circle, that star was found to be terrible, that is, devastating by the peoples of Ethiopia & Egypt. Of this star nothing certain is known on account of its age, but it would be fitting for it to fall in the time of the departure of the Israelite people from Egypt, for without doubt signs & prodigies preceded this enormous calamity which overthrew the very flourishing kingdom of Egypt & almost completely destroyed it. This star, they say, was named by king Typhon, whom Herod. bk. 2 called to mind, when he said τοῦτον καταπαύσαντα τυφῶνα βασιλεῦσαι ὕσατον [*sic*] αἰγύπτου, etc. where he clearly said that the heroic age then ceased, for Typhon is reported with the help of the Giants to have overthrown the Egyptian kings, holy & just men and for himself to have established despotism. This is written by the Greeks. As it was reckoned by Diodorus & Herodotus: And if they are, moreover, combined with sacred writ, we will perceive that this occurred around the time of the departure from Egypt. [47]

Milich evidently presupposed his readers’ familiarity with the passages he referenced from classical authors. These were congruous with Plutarch’s relay of the Egyptian myths about the ‘god’ Typhon. In the Herodotean passage, Typhon and Horus are the last in the pedigree of Egypt’s divine kings: “Before these men, they said, the rulers of Egypt were gods, but none

had been contemporary with the human priests. Of these gods one or other had in succession been supreme; the last of them to rule the country was Osiris' son Horus, called by the Greeks Apollo; he deposed Typhon, and was the last divine king of Egypt." [48] Diodorus' testimony, rightly relegated by him to "the realm of fable ... in keeping with the simplicity of primitive times", [49] deserves to be cited in full to facilitate an appreciation of Milich's rationale. It tells of the Giants' battle with the rightful kings, notably Osiris:

Furthermore, the Egyptians relate in their myths that in the time of Isis there were certain creatures of many bodies, who are called by the Greeks Giants, but by themselves ..., these being the men who are represented on their temples in monstrous form and as being cudgelled by Osiris. Now some say that they were born of the earth at the time when the genesis of living things from the earth was still recent, while some hold that they were only men of unusual physical strength who achieved many deeds and for this reason were described in the myths as of many bodies. But it is generally agreed that when they stirred up war against Zeus and Osiris they were all destroyed. [50]

They say, namely, that the gods who came into existence in the beginning, being few in number and overpowered by the multitude and the lawlessness of earth-born men, took on the forms of certain animals, and in this way saved themselves from the savagery and violence of mankind; but afterwards, when they had established their power over all things in the universe, out of gratitude to the animals which had been responsible for their salvation at the outset, they made sacred those kinds whose form they had assumed ... [51]

Diodorus did not name Typhon in these two passages, but he did elsewhere in the book and the context demands that those whom the Greeks called giants threw in their lot with Typhon as his "accomplices" (*sympṛaxantas*) in murdering Osiris. [52] As evidenced by Plutarch, the analogy between these Egyptian myths and the Greek traditions of Gigantomachy and Typhonomachy, in the early reign of Zeus, did not escape the Greeks and may have shaped their interpretation of the Egyptian lore somewhat. As Herodotus had also stated, the Egyptians traditionally dated these mythical events to before their 1st dynasty of kings and Diodorus took pains to stress the great antiquity of that era in the perception of the Egyptians as compared to the shallow chronologies then in vogue among the Greeks:

For inasmuch as it is generally accepted that Heracles fought on the side of the Olympian gods in their war against the Giants, they say that it in no way accords with the age of the earth for the Giants to have been born in the period when, as the Greeks say, Heracles lived, which was a generation before the Trojan War, but rather at the time, as their own account gives it, when mankind first appeared on the earth; for from the latter time to the present the Egyptians reckon more than ten thousand years, but from the Trojan War less than twelve hundred. [53]

Milich seems to have missed that last point, for he had no compunction in fitting Typhon and the giants into the slot in time corresponding to the Hebrew patriarchs; the mention of human kings of Egypt in the Biblical chapters on Abraham alone should have given him pause for thought. Perhaps he suppressed Diodorus' contention on the timescale because of a Biblically inspired need for a short chronology or a Jewish sentiment of having a longer history than any neighbouring nations. As it stands, even if the Typhon in the respective reports of Pliny, Herodotus and Diodorus was one and the same, Milich's chronological linkage of the end of Egypt's mythical era with the Biblical Exodus amounts to little more than guesswork, predicated on the reading of a king Typhon in Pliny's text, the common element of an associated crisis in Egypt and perhaps the tacit deduction that the Egyptian gods equated not only to the Greek 'heroes', but also to the 'giants' of Hebrew legend, who thrived until Joshua's conquest. [54]

Between 1545 and 1552, at about the same time when Milich would have been preparing the notes expressing his revised view, the Lutheran theologian Johann Funck (Johannes Funccius; 1518-1566), who had also studied in Wittenberg, produced a comparative chronicle of 'world history' in parallel columns, dating events in years since the creation of the world (*anno mundi* = AM), along with several other calendar eras. Funck dated the Israelite Exodus to Egypt's 18th dynasty, but removed the periods of Egypt's Old and Middle Kingdoms entirely, replacing the Hyksos of the 15th to the 17th dynasties with the sequence of the divine kings, Euhemeristically conceived as human rulers. As a result of this peculiar procedure, he juxtaposed episodes of Egyptian mythology with Biblical history, correlating the days of Job and Jacob with Osiris' dethronement at the hands of Typhon, aided by the giants, and the establishment of Typhon's tyrannical reign, all in AM 2223 (1740 BC); AM 2230 (1733 BC) would have been the year in which Isaac died while Horus and Isis defeated Typhon on the Arabian border; the Israelite descent into Egypt would have happened in AM 2239 (1724 BC); and the Exodus would have occurred in AM 2454 (1509 BC), in the reign of the 18th-dynasty king Acheres. [55] Writing long before the birth of Egyptology and the decipherment of hieroglyphs, Funck based the Egyptian events on classical sources, specifically Manetho, Diodorus and 'Berossus'. While the information from Manetho and, as seen, Diodorus is genuine, the other is spurious, having long since been exposed as a pseudo-Berossus fabricated by the Italian Dominican historian Giovanni Nanni (Annius of Viterbo; c1432-1502). [56] Funck was not concerned with the comet called Typhon.

It is not impossible that du Pinet had been exposed to Funck's chronology before linking Pliny's comet Typhon to the mythical giant of the same name. Milich died seven years or more after the publication of Funck's *opus*, but was clearly not aware of it. If he had been, he would probably have assigned an AM date to the year of the comet Typhon and would have explained why he linked the mythical king Typhon with the Israelite Exodus instead of the years running up to the descent into Egypt, as Funck had done. A classicist, Milich would not have needed Funck to be cognisant of the writings of Diodorus and Herodotus. Thus, one might say that Funck was the first to attempt to anchor the mythical king Typhon in Biblical time, but Milich was the first to do so for the comet Typhon, albeit without supplying a year in the *anno mundi* count. Funck dated Typhon close to the Israelites' descent into Egypt, Milich to their departure from Egypt. In 1566, a court intrigue led to Funck's decapitation.

Fallout of the Great Comet of 1577

The Great Comet of 1577 (C/1577 V1) was observed throughout Europe and delivered a great impetus to science, reflected in a proliferation of publications on cometology. Notably, it enabled the Danish astronomer Tycho Brahe (1546-1601) to establish that comets travel in space and not, as the prevailing Aristotelian paradigm had demanded, within the earth's atmosphere. Three developments in the comet's wake are germane to the present interest: its reception at Istanbul and the appearance of two German chronicles of comets, one in verse and the other in prose.

The Istanbul Interpretation



Fig. 6: Stephan Gerlach (1546-1612), at the age of 56 years. Gerlachius, *Stephan Gerlachs deß Aeltern Tage-Buch*, 1674, p. 0/1.

Stephan Gerlach (Stephanus Gerlachius; 1546-1612; fig. 6) was a German evangelical pastor, who spent the years 1573-1578 in Istanbul, then called 'Constantinople', as a chaplain to the Habsburg ambassador baron David Ungnad (1535-1600). In a letter which arrived on 25 February 1578, Gerlach informed his friend, the German classicist and historian Martin Kraus (Martinus Crusius; 1526-1607), of the impression the comet had made locally. Kraus reproduced this letter as follows in a monograph he released in 1584:

On the day 25 February '78 we received a letter from Gerlachius written 29 December '77, where, among other things, this 10 November (he says) a Comet was seen for the first time, dragging a long tail along: which, much higher now than in the beginning, is gradually disappearing. Some sages of the Turks (behold the fools) judged the star to be a new one, which now appeared for the third time. First, it would have been seen prior to the devastation of Gomorrhä: the second time, it would have presaged destruction to the Pharaoh. Now (because it appears not fiery, like in those times, but of a white colour) it would be a harbinger of fertility. [57]

In the two earlier occasions the reader recognises the Biblical catastrophes of the destruction of Sodom, Gomorrah and three other cities in the Dead Sea region by heavenly fire [58] and the Israelite Exodus. Kraus went on to furnish some background on two of the astrologers who were likely – but one cannot tell with certainty – involved in the prognostications:

A few months earlier, an Astrologer had been called to Constantinople from Halepo (Hierapolis), a city of Syria: who would advise the Sultan of his fate by means of the stars. This person erected a high and unroofed tower on the Galatean hill: on top of which he placed an Astrolabe, & multiple great circles of Copper-alloy: from that place he would predict, namely, which friendly Nations, which inimical one Murates will have. It took seven years for the work to be completed, at a stipend of three thousand Ducats a year: he would receive double that from the King upon the work being completed. His assistant is a Thessalonian Jew: the both of whom say that this comet threatens war to Persia & Arabia. [59]

'Halepo' is a Latin spelling of 'Aleppo', 'Murates' of the sultan's name, 'Murad (III)'. Kraus' account is consistent with Gerlach's own diary entries in German, published posthumously by his grandson. Providing a better temporal resolution of the events, these state that the comet was first seen in the city in the evening of 11 November 1577 and offer some more details on the building of the observatory:

The Sultan Murat enlisted a stargazer from Cairo who, at the Emperor's expense, would build outside Galata, on a hill where the house of the Venetian Andreas Gritt has stood, a tower which would be several fathoms deep under the earth and several fathoms wide underneath, so that he would also be able to see the stars in the sky from there by day. He has also had a large brass wheel made on brazen pillars and in 7 years wants to produce a work with which he will henceforth be able to determine for the Emperor all his luck and bad luck, friend and foe from the heavenly courses. His commission is 3000 ducats annually without his other expenses, for all of which he will be reimbursed. When the work is complete he will be given 6000 ducats. He has also brought in another stargazer, a Jew from Salonica who helped the Persian king with his work and would now teach astrology to the Sultan's teacher's son. This person says that the comet means misfortune for the barbarians. [60]

On 15 November, Gerlach recorded that the object then appeared smaller due to its proximity to the sun and that an Arab astrologer had predicted its coming beforehand:

Today the comet seemed a bit smaller, because of the sun's proximity. And M. Oswald tells me that an Arab had proclaimed previously to the Emperor that this comet would appear around this time and two other unusual stars would soon be seen, too, and that he would indicate their meaning when those arrived. [61]

This 'M. Oswald' was the renegade Austrian clockmaker Oswald Keyser *alias* Mahmud Mütefferika. News of the comet's association with the two Biblical events did not reach Gerlach until the 27th to the 29th of that month:

Today our majordomo says to my Merciful Lord that his scholars say: this comet has appeared only 3 times since the creation of the world. The 1st time when Sodoma and Gomorra were destroyed by fire from the sky, the 2nd time when Pharaoh drowned in the Red Sea. And now the 3rd time. [62]

The 'Merciful Lord' was David Ungnad. This firsthand account shows that the definitive historical interpretation of the comet followed almost three weeks on its first appearance. Comparison with the letter addressed to Kraus about a month later reveals differences in the provenance of the renowned Syrian astrologer, Cairo or Aleppo, and the exact location of the tower, on or outside the Galata hill. It is clear today that, confusingly, the tower was not the famous 'Galata Tower' built by the Genoese in 1348, but that it was probably located near present-day Taksim Square. [63]

The two authorities Gerlach described were indisputably the controversial Syrian polymath Taqī al-Dīn Muḥammad ibn Ma'rūf ash-Shāmī al-Asadī (c1526-1585) and the Sephardi rabbi David ben Shushan of Thessalonica, also known as David the Mathematician (Dāwūd al-Riyādī). [64] Sultan Murād III (1546-1595), who had ascended to power in 1574, appointed al-Dīn to build the famous observatory at Istanbul. The sources disagree as to whether al-Dīn was born in Damascus or Cairo, but he is known to have been active in Egypt before he was enlisted by the sultan. Assuming the accuracy of Gerlach's statement that al-Dīn was summoned to Istanbul a few months prior to the appearance of the comet, it may be that it was only then that he entered into the sultan's service as his personal fortuneteller and that he just happened to be in Hierapolis at that time, this being Manbij in the northeast of Aleppo Governorate. Alternatively, 'Halepo', 'on the Galatean hill' and perhaps the astrologer's arrival 'a few months earlier' could have been errors which Gerlach corrected in his manuscript after he had sent his letter to Kraus. [65] While the available sources differ as to the exact years in which the building began and ended, it would seem that the observatory was nearing completion when the comet made its appearance. It was certainly dismantled in 1580 or 1581, when the sultan and his advisors waxed sceptical about the reliability and morality of astrology. [66] It was perhaps in an echo of that sentiment that Gerlach or Kraus cast the two sages as patent charlatans, setting no store by their verdict regarding the comet's history.

The Constantinopolitan opinion regarding the comet of 1577 involved an Exodus comet without any mention of Typhon. Could it have reached Rockenbach, one way or another? Knowledge of it certainly enjoyed a wide circulation in Germany. In 1578, Christopher Hoddesdon (1534-1611) was based in Hamburg as a financial agent for Elizabeth I (1533-1601), queen of England and Ireland. In all likelihood, it was a copy of another letter by Gerlach from which he acquired the information which he forthwith communicated to the English court, years before Kraus' book saw the light of day:

My lord, by Mr. Allen of the 11th of this month [*sic*], since which has come into my hands the copy of a letter written from Constantinople, Jan. 12, a copy of which I send you word for word ... Hamburg, 20 March 1577 [*sic*].

From Constantinople, 12 Jan. / We first saw the new comet here on Nov. 10, seeming at first very small. Certain sophies or astrologians of the Turks affirm it to be a new star, which has shown itself but three times, the first at the destruction of Sodom and Gomorra, the second when Pharaoh perished in the Red Sea. Now the third time, forasmuch as it is not red of colour as at the other times, but of much 'bleaker' and whiter colour, it signifies plenty and fruitfulness. The Soldan Murat's astrologer, whom he called home from 'Helepo', with his companion, a Jew of Thessalonica, affirm it to signify wars with Africa and Persia; and it seems that they 'fail not in all points', since Ismael, the King of Persia, is dead, and the commons divided concerning the succession; whereby the Turk claims to have his portion therein, and to end those wars and controversies according to their custom, and already a principal nobleman of Persia with many thousands has revolted to the Turk. [67]

If the unnamed correspondent in this letter was Gerlach, he would have written it before altering 'Aleppo' to 'Cairo'. Note that 'sophies' is an old spelling for 'Sufis', while Kraus' 'Arabia' corresponds to 'Africa' in this version.

It could have been from Kraus that the Lutheran clergyman and dramaturge Zacharias Bachmann (Zacharias Rivander; 1553-1594) derived a condensed account of the Istanbul perception of the comet, contained in the almanac he published in 1591 for the Sunday of Advent:

In the year of Christ, 1578. On 10 December there was a comet at Constantinople of which the Turkish Emperor's astronomer from Halepo and a Jew from Thessalonica said that it is the star which appeared first when Sodoma and Gomorrha and for the second time when Pharaoh in the Red Sea drowned and perished [*sic*]. [68]

Bachmann's editing was careless, as '1578' should have read '1577' and 'December' 'November'. Warts and all, Wenzel Sturm (Wenceslaus Sturmius; 1520-1589), a theologian and pastor, incorporated Bachmann's text almost *verbatim* and with attribution, in the calendar of saints he put out in 1599, listed under 10 December. [69] The next year, an equally short extract appeared in the chapter for the year 1579 in a compendium of curiosities written by the jurist, diplomat, historian and theologian Johann Wolf (Johannes Wolfius; 1537-1600): '*Halepo, astronomer from Thessalonica [sic]*. / At this time a comet was seen in Constantinople, the like of which the astronomer Halepo said had not appeared in the world at any earlier time, except then when Sodoma & Gomorrha were burned up from heaven: & Pharaoh, despot of Egypt, was snuffed out in the Red Sea.' [70] Apart from the compounded error in the year, Wolf conflated the Syrian astronomer and the Jew, mistaking 'Halepo' for his name. [71]

The Ottoman take on the comet of 1577 continued to be cited sporadically in the 17th century. A gullible note of acceptance, based on a sort of numerological theory of comets, was still heard from Lutheran astrologer and chiliast Paul Nagel (Paulus Nagelius; c1575-1624), in the book on comets which the Great Comet of 1618 impelled him to write: 'One can show that the deluge, because the people had not repented, had to happen at the same time while without any doubt such terrible comets must have been seen. ... On this basis and foundation it was possible to know the time when Sodom and Gomorrha had to be extirpated by fire and brimstone from heaven while then, too, such terrible comets must have been seen before. One could have known when and at what time the amazing marvels in Egypt would happen, the Exodus would be seen and Pharaoh with his host would have drowned and suffocated, while then, too, such terrible comets would have been seen over Egypt, which the wise could have easily interpreted had they taken careful note after 400 years of the half great conjunction announced by God the Lord to Abraham.' [72] More than half a century later, the Age of Enlightenment had dawned and Erasmus Finx (Erasmus Francisci; 1627-1694), writing under pseudonym, was driven to heap scorn on the vacuity of the former comet specialists, taking the Istanbul interpretation as conveyed by Kraus as an example:

Who would endorse everything or value as an oracle what many prognosticators twaddle about? ... We have a laugh at that Mohammedan astrologer who, as Crusius reports in his *Turco-Græcia*, was summoned from Alepo to Constantinople in order to prophecy to the Sultan from the stars what good fortune and progress against his enemies he would have. He was associated with a Jewish astrologer from Thessalonica in the hope that four eyes of such dreamers would see better than two what the long-tailed comet appearing at that time was foretelling the Great Turk: A tower had to be built for them on a hill at Galata: there on top the Syrian star-prophet placed his astrolabe, along with many measuring circles, and endeavoured to research the comet, which nations would be friend or foe to the Sultan Murat. For this costly fool's work he required seven whole years and received annually three thousand ducats in compensation with the promise that he would receive double the amount upon completion of the work. At last the prophecy was issued that the comet threatened a war to the Persians and Arabs. [73]

A much more modern writer expressed similar scepticism regarding the motivations of the two Ottoman astrologers in relating the comet of 1577 to the two Biblical events, dismissing them as "attempts to give an astronomical colouring to occurrences recorded in Scripture. Thus the ... comet ... of the Exodus is evidently the fiery pillar or cloud which guided the Israelites out of Egypt." [74] This last comment lacks support in the text, like in the case of Rockenbach examined above.

Resuming the thread of the present investigation, it must be asked whether any of the writers marshalled above were among the 'many esteemed authors' Rockenbach claimed to have consulted. He would not have seen Hoddesden and is hardly likely to have read Kraus and Wolf, but there is a good possibility that the passages in Bachmann and Sturm had come to his attention when he prepared his presentation for 1600.

Schinbain's 'Famine Comet'

In a separate development, observation of the Great Comet of 1577 stimulated a Latin schoolmaster of the Catholic persuasion, Johann Görgen Schinbain (Johannes Georgius Tibianus; 1541-1611), to compose a catalogue in German of some 180 comets and other rare phenomena seen in the sky, beginning with early Biblical times and set to rhyme. Published in 1578, this appears to be the earliest collection of comets dated in Funck's system of years *anno mundi*. For

AM 2237, converting to 1726 BC, Schinbain listed in suspicious detail a comet presaging the famine in Egypt and the Levant at the time when the Hebrew patriarchs Jacob and Joseph ‘descended’ into Egypt:

At this time Arabia saw a horrible great star, stood eight nights long, resembling a wheel, in the region of Sagittarius it stood and shows towards the Orient, under Jove’s regiment. Indicated prolonged time of scarcity in the district of Egypt. Mercurius Trismegistus, a formidable philosopher, apparently (as they say) wrote many peculiar offerings regarding this star. [75]

The report from Istanbul associating the comet of 1577 with the destruction of Sodom and Gomorrah and the Israelite Exodus had not affected Schinbain, as his poem makes no mention of these two events. Instead, for the earliest times it features comets in AM 1656, linked with the flood, AM 2018, inspiring Abraham in Ur of the Chaldees to take up astronomy, and two in AM 228 and 1944 with non-Biblical associations.

Like all of these, the authenticity of the ‘famine comet’ of AM 2237 is doubtful. Overall, Schinbain was meticulous in his identification of sources, but for this entry he offered no more than a reference to the arcane ‘Mercurius Trismegistus’. Better known today as Hermes Trismegistus, this was a famed legendary Egyptian astrologer and alchemist, to whom much Hermetic literature was attributed pseudographically in late-ancient and medieval times. Although Schinbain probably copied some of the information on this comet from an earlier source, the astrologically precise references to Sagittarius and Jupiter could have been fanciful. At the end of his book, Schinbain provided tables specifying the astrological meanings of the appearance of a comet in each of the constellations and for each planetary station. For Sagittarius, he stated: ‘Death of a great lord, earthquake, war, scarcity and great cold.’ [76] And for the regiment of Jupiter: ‘Does it have its station in Jupiter, the religion changes. Hardship follows. A religious head will also come off. In addition alarm for the poor, nor will heresy stay away.’ [77] Did Schinbain or a predecessor put the cart before the horse as he invented comets on the slender basis of their supposed effects, in this case famine and the Israelites’ move from a Canaanite to an Egyptian environment?

Although Typhon is not named in Schinbain’s poem, it comports with this rotund comet in the sense of being frightful, lacking in rays and presumably classified as a *disceus*. Against that, the southern orientation which Pliny implied for Typhon is less applicable given the reference to the ‘Orient’. It cannot, therefore, be taken for granted that this comet was linked with Typhon before or by Schinbain. Whatever the case may be, Schinbain’s wheel-shaped comet apparently made its way into Rockenbach’s work, directly or indirectly, as an anonymous source comprised in Rockenbach’s ‘some’, with modifications: omission of Jupiter, the eight nights’ duration and Mercurius Trismegistus; change of Sagittarius to Capricorn; specification of the oriental countries involved but without mention of Arabia; and dated to the time of the Exodus instead of the seven-year famine.

Grau’s Synthesis

Georg Grau (Georgius Caesius; 1543-1604), who also studied at Wittenberg, was a Lutheran pastor, calendarist and sometime court astronomer for the margrave of Brandenburg-Ansbach. Prompted by the same comet of 1577, Grau produced a chronologically arranged compilation of historical comets in 1579, initially in Latin but followed in the same year by a paraphrase – more than a translation – in German. This work brought Milich’s thought experiment on the Typhon comet, Funck’s world chronology and Schinbain’s ‘famine comet’ together. Grau opened his discussion of the comet Typhon with an impression of Pliny’s account and a citation of Milich’s argument to match Typhon with the Israelite Exodus. This citation was not exact, but shuffled some sentences around and omitted the Greek words. [78] Grau then took issue with Milich by arguing that the correct Biblical correlation of Typhon’s manifestation as a comet was not with the *exodus* from Egypt, but with the *isodus* or entry into it some centuries earlier, necessitated by famine. In support, he cites Funck’s chronicle:

Typhon, king of Egypt, lived, according to the Chronology of Funccius, around the time of Job & Joseph, & the death of the Patriarch Isaac, that is, around the year of the world 2230. This comet therefore appeared in the time when the long famine, on which Genes. ch. 41. 42, began in the whole world, namely in the year of the world 2237. Then Jacob the patriarch with his children & grandchildren descended into Egypt. Gen. 46.

It was seen in Arabia, Syria, Babylonia, India, in the form of a wheel in Sagittarius, of which furthermore Mercurius Trismegistus is said to have written much. [79]

The sentence about the wheel-shaped comet came from a different source, as indicated by the words ‘by others’ inserted in the German version. [80] It was clearly dependent on Schinbain or, considering that Grau did not name Schinbain, shared the same source with him. The principal differences are that Grau dropped the eight nights and Jupiter, while specifying the reference to the ‘orient’ as the countries Syria, Babylonia and India. Grau’s inclusion of this sentence in his entry for Typhon resonates with the surmise above that Schinbain’s wheel-shaped comet really masked Typhon. As a final comment to this entry, Grau remarked that the Exodus belonged to a later date and was accompanied by its own prodigies:

The departure of Israel from Egypt, & the ruin of the Pharaoh with his army in the red sea, happened in the year of the world 2453. Which signs & prodigies preceded it, you have in Exodus. [81]

By identifying the king Typhon of Funck's chronicle with the comet of the same name, Grau was thus the first to assign the comet named Typhon a date in the AM calendar: 2237 (1726 BC). The Biblical Exodus (AM 2453 = 1510 BC) followed on several miraculous events, but a comet was not among them – in Grau's estimation – and, although he did not state it expressly, he probably held that the end of the 'heroic age' described by the Greeks coincided with the reign of Typhon in the age of Jacob, not the Exodus in the age of Moses.

Reconstructing Rockenbach

The perplexing handling of this material by Rockenbach and his successors can now be more satisfactorily unravelled. The most conservative hypothesis would be that Rockenbach relied solely on Grau, using the following thought process. He means to follow Grau in dating the king and comet Typhon to the Biblical time of Joseph and the famine, but also intends to accommodate Milich's notion of an Exodus comet, embedded in Grau's text, as the opinion of 'others' (*aliqui*) that this same Typhon 'also' (*quoq;*) made an appearance at the later time of the Exodus. However, by placing the year of the Exodus (AM 2453) at the outset of the whole entry, he muddles the chronology. This conclusion essentially concurs with Keith Mills', [82] the main difference being that Rockenbach's association of Typhon with the Exodus was not primarily the result of editorial errors, but of a poorly executed desire to fit in Milich's opinion.

From Grau's quotation of Milich, Rockenbach takes the statement of the giants assisting Typhon, meaning to transfer this aspect from the time of the Exodus to that of the descent into Egypt, just like Grau would have it but did not state as much. In Grau's own comments, Rockenbach misses the logical break between the sentence on Typhon's appearance as a wheel-shaped comet mentioned by Mercurius Trismegistus and that regarding the date of the Exodus, grouping them together as if part of the same event; in the process, he leaves out Arabia and substitutes Capricorn for Sagittarius, probably unintentionally. Grau's allusion to the miracles preceding the Exodus inspires Rockenbach's reference to the Biblical column of cloud and fire, though – as seen – without implying that this column was the comet. Returning to Grau's quotation from Milich, Rockenbach duplicates the reference to Herodotus' statement on the closure of the heroic age, adding that the giants ceased to exist concomitant with the devastation of Egypt prefigured by Typhon. The 'afterwards' (*Postea*) with which the final sentence on the seven-year famine opens would have been intended as following closely on the appearance of the comet in the immediately preceding sentence, presumed to have occurred at the time of Isaac, as Grau had had it. This interpretation is more transparent if the segment mentioning the wheel-shape and the Exodus is understood as an aside, placed between brackets as it were, which grew out of Grau's discursive remark on the Exodus.

Wrapping up, Keith Mills correctly felt that Rockenbach's assignment of Typhon to the Mosaic period lacks support in the available classical witnesses; it was undeniably a learned speculation originating with early Lutheran humanists. However, the association of Typhon with the Exodus did not spring inadvertently from Rockenbach's botched editing, but was consciously made by Milich and transmitted to Rockenbach via Grau. Although in theory all elements in Rockenbach's discussion can thus be traced to Grau, Rockenbach may well have seen Schinbain's poem, and the theory of the Great Comet of 1577 espoused by the Ottoman astrologers could have fed into his analysis, too, via Bachmann, Sturm or perhaps even Wolf or Kraus. The identification of these influences exonerates Rockenbach from the charge of having spun a yarn about his reliance on multiple respectable sources. The French anomalist Dominique Caudron would appear to be the only other modern researcher to have anticipated all of Keith Mills' main points and discovered the contributions of Milich and Grau. His survey left him cynical:

It is remarkable that Velikovsky makes of the comet Typhon that of the Exodus, when two centuries and a half before him William Whiston made of it that of the deluge. All this for a bolide commented on more than a millennium later. [83]

Rockenbach's Immediate Successors

Keith Mills painstakingly analysed the discussions of Typhon's comet by Rockenbach and Hewelcke, but had little to say regarding Herlicius. This was David Herlitz (1557-1636; fig. 7), a German physician, mathematician, astronomer, historian and poet who studied in Wittenberg, Leipzig and Rostock. The work by Herlitz which Hewelcke cited was not *Kurtzer Discvrs vom [sic] Cometen ...* (1619 [sic]), as Keith Mills assumed, [84] but his monograph on the comet of 1607 (published 1608). [85] Although the word 'Typhon' does not appear in it, the following account of a comet seen in AM 2237 (1699 BC) is doubtless what Hewelcke was referring to:

In the year of the world 2237 a horrible comet like a wheel would have appeared in all of Arabia for eight nights in the region of Sagittarius, under Jove's command, of which Mercurius Trismegistus would have related many marvels in his books: And would have been seen in Syria, Babylonia and even in the interior of India. Will perhaps also have announced the prolonged famine in Egypt. But this is not the occasion to elaborate on that. [86]



Fig. 7: David Herlitz (1557-1636). Engraved by Léonard Gaultier in c1600. Courtesy John Hay Whitney Medical Library, Historical Library, Yale University, New Haven (Connecticut, United States of America).

<http://whitney.med.yale.edu/gsd/cgi-bin/library?c=portengr&a=d&d=DportengrherlitzdAAB>

time a comet was known by that name of a pillar of smoke. After this comet, there was a dearth for seven years together, and that in all countries, viz. that spoken of in the Scripture in Joseph's time, which followed the seven years plenty in Egypt. Canaan, Ethiopia, Egypt and other countries felt the direful effects of that prodigy.

A. M. 2453. A comet was observed in Syria, Chaldea, &c. in the sign of Capricorn; in which year the children of Israel were delivered from their bondage to the Egyptians, when Pharaoh and his host received that fatal and memorable overthrow so much celebrated in the holy book of God. [90]

Notes and References

1. D. Keith Mills, 'Rockenbach Falls – and King Typhon Tumbles', *Chronology & Catastrophism Review* 2019: 3, pp. 33-43.
2. "diraque conperta Aethiopum et Aegypti populis, cui nomen aevi eius rex dedit Typhon, ignea specie ac spirae modo intorta, visu quoque torvo, nec stella verius quam quidam igneus nodus." Pliny, *Natural History*, 2. 23 (91), ed. H. Rackham, Pliny: *Natural History*, vol. 1: Praefatio, Libri I, II, 'Loeb Classical Library' 330, William Heinemann, London, 1949, p. 234.
3. So already C. Alexandre (ed.), *Caii Plinii Secundi Historiae Naturalis Libri XXXVII cum Selectis Commentariis J. Harduini ac Recentiorum Interpretum Novisque Adnotationibus*, vol. 1: *Continens Cosmologiam*, 'Bibliotheca Classica Latina sive Collectio Auctorum Classicorum Latinorum cum Notis et Indicibus', Nicolaus Eligius Lemaire, Paris, 1827, p. 296 n. 9.
4. e.g., J. G. Radlof, *Zertrümmerung der großen Planeten Hesperus und Phaëthon, und die darauf folgenden Zerstörungen und Ueberflutungen auf der Erde; Nebst neuen Ausschlüssen über die Mythensprache der alten*

This description follows Schinbain's in all respects, except that Herlitz offers the more specific list of Syria, Babylonia and India where Schinbain merely had 'orient'. As these are the exact three countries which Grau specified, but Grau left out the eight nights' duration and Jupiter, Grau and Herlitz must both have worked from some other source than Schinbain. This could be the mysterious text of Mercurius Trismegistus referred to.

Heinrich Eckstorm (Henricus Eckstormius; 1557-1622), a German theologian, solved the dating conundrum by postulating two comets: the wheel-shaped one associated with the famine of Jacob's day, Sagittarius and – following Schinbain or Herlitz – Jupiter in AM 2237, and Typhon associated with the Herodotean passage and the Exodus in AM 2454. [87]

Hewelcke did not cite Schinbain, but recognised that Rockenbach's discussion was garbled and, drawing heavily on Grau and Eckstorm, also resorted to a double comet, though he struck out any references to giants: Typhon in AM 2230 associated with Jacob's famine, and the wheel-shaped comet in AM 2453 seen outside Egypt and tied to the Exodus; like Rockenbach, he placed the latter in Capricorn. [88] This interpretation was the reverse of Eckstorm's as far as Typhon is concerned: for Eckstorm Typhon was the later comet, for Hewelcke the earlier one.

Like the Ottoman perception of the comet of 1577, these various ideas experienced a long *Nachleben* through the remainder of the 17th century, which it is not essential to review here. To cite but a single example, Increase Mather (1639-1723) was a Puritan clergyman and president of Harvard College for twenty years with some involvement in the Salem witch trials, who put out a catalogue of historical comets in the English language. In this, he posited Typhon as a comet for the famine beginning in AM 2230, in Sagittarius, and an Exodus comet in AM 2453, in Capricorn:

A. M. 2230. A fiery and terrible comet was seen, appearing in Sagittarius, coylng after a strange manner, representing the form of an imperfect circle. It was judged that Pliny speaks of this prodigy. It was by the king of Egypt then living called by the name of Typhon, i.e. *Vortex fumigans sed sine igne* [89].

Which seems to confirm their opinion, who think that in old

- Völker, G. Reimer, Berlin, 1823, p. 101 = The Shattering of the Great Planets Hesperus and Phaethon and the Ensuing Destructions and Floods on Earth; With New Considerations about the Myth-Language of the Ancient Peoples, tr. A.-M. de Grazia, Metron Publications, Princeton, NJ, 20092 (2006), p. 155; Joannes Harduinus (ed.), *Caii Plinii Secundi Naturalis Historiæ Libri XXXVII. Interpretatione et Notis Illustravit Joannes Harduinus*, vol. 1, Franciscus Muguet, Paris, 1685, p. 180 n. 6.
5. In German translation, the ambiguity is more easily expressed, e.g.: “Ein furchtbarer Komet . . . , dem König Typhon, der zu dieser Zeit regierte, seinen Namen lieh”, G. Winkler & R. König (trs.), *C. Plinii Secundi: Naturalis Historiæ; Libri XXXVII: Liber II = C. Plinius Secundus d. Ä.: Naturkunde; Lateinisch-deutsch; Buch II, ‘Sammlung Tusculum’*, Artemis & Winkler, Düsseldorf, 19972, p. 75.
 6. Winkler & König (op. cit., p. 75) rendered *iubar* (‘radiance’) as ‘the sparkling tail’ (“den funkelnden Schweif”), but the reading “no rays” of Rackham (op. cit., p. 235) is more defensible; while *iuba* means “mane” and hence “train, tail (of a comet)” (as in Pliny, *Natural History*, 2. 22 [89]), *iubar* properly stands for “The first light of day” and “Radiance, brightness (of heavenly bodies, fire, etc.)” – P. G. W. Glare (ed.), *Oxford Latin Dictionary*, Oxford University Press, Oxford, 20122, p. 1073 s.v. ‘*iuba*’, ‘*iubar*’.
 7. Pliny, *Natural History*, 2. 22 (89); 2. 23 (91). The translation of Winkler & König (op. cit., p. 73), “lassen nur wenige Strahlen aus dem Rande hervorgehen”, conveys this sense better than Rackham (op. cit., p. 233), who had “rays, which even the Quoit-star . . . emits in scattered form from its edge.”
 8. Campester and Petosiris, in Servius Auctus, *Commentary on Virgil’s Aeneid*, 10. 272. V. M. Clube & B. Napier (The Cosmic Serpent; A Catastrophist View of Earth History, Faber, London, 1982, p. 197) misattributed this passage to John of Lydia. Without crediting them, D. Cardona (‘Typhon and the Comet of the Exodus: Rockenbach’s Lost Source’, *Aeon; A Journal of Myth, Science and Ancient History* 5. 5, 2000, p. 61) reproduced their translation with the false attribution alongside a paraphrase of the same passage from Servius Auctus recognised as such, ignorant of the duplication while castigating Clube & Napier for borrowing from Velikovsky without giving credit (p. 63).
 9. Keith Mills, op. cit., p. 43 n. 29.
 10. C. Wachsmvth (ed.), *Ioannis Lavrentii Lydi Liber de Ostentis et Calendaria Graeca Omnia; Accedvnt Epimetra Dvo de Cometis et de Terrae Motibvs*, B. G. Tevbnerus, Leipzig, 1897, p. 171, in I. Velikovsky, *Worlds in Collision*, The MacMillan Company, New York, 1950, p. 84 n. 9. Cardona (op. cit., p. 61) messed up by labelling the globe both “immense” and “modest” on the same page.
 11. E. Riess (ed.), ‘Nechepsonis et Petosiridis Fragmenta Magica’, *Philologus; Zeitschrift für das classische Alterthum; Supplementband* 6. 1, 1892, p. 349 n., in Wachsmvth, op. cit., p. 171 n. 4.
 12. Cf. G. Thilo (ed.), *Aeneidos Librorvm VI-XII Commentarii, ‘Servii Grammatici qvi Fervntvr in Vergilii Carmina Commentarii’* 2, B. G. Tevbnerus, Leipzig, 1884, p. 422.
 13. Keith Mills, op. cit., p. 38.
 14. P. T. Keyser, ‘On Cometary Theory and Typology from Nechepso-Petosiris through Apuleius to Servius’, *Mnemosyne* 47. 5, 1994, p. 645, cf. 646 Figure 2.
 15. Apuleius, *De Mundo (On the World)*, 3. 16, in John of Lydia, *De Mensibus*, 4. 27 (116), ed. and tr. A. C. Bandy, *On the Months (De Mensibus); Ioannes Lydus; Translated and Edited*, The Edwin Mellen Press, Lewiston, NY, 2013, pp. 150 and 197.
 16. John of Lydia, *De Ostentis*, 16 (Greek) = 3 (English), ed. and tr. A. C. Bandy, *On Celestial Signs (De Ostentis); Ioannes Lydus; Translated and Edited*, The Edwin Mellen Press, Lewiston, NY, 2013, pp. 74 and 89.
 17. Campester, in John of Lydia, *De Ostentis*, 22 (Greek) = 9 (English), ed. and tr. Bandy, op. cit., pp. 84, 86 and 103, 105.
 18. [V.] Stegemann, ‘Komet’, in H. Bächtold-Stäubli (ed.), *Handwörterbuch des deutschen Aberglaubens*, vol. 5: Knoblauch-Matthias, De Gruyter, Berlin, 1933, p. 93, in Velikovsky, op. cit., p. 84; cf. [W. K. O.] Gundel, ‘Kometen’, in G. Wissowa (ed.), *Paulys Real-Encyclopädie der classischen Altertumswissenschaft; Neue Bearbeitung unter Mitwirkung zahlreicher Fachgenossen*, vol. 11. 21: *Katoikoi-Komödie*, J. B. Metzlersche Verlagsbuchhandlung, Stuttgart, 1921, pp. 1148, 1157; Clube & Napier, op. cit., p. 197.
 19. Petosiris, in Hephaestio of Thebes, *Apotelesmatica (Horoscope Casting)*, 1. 24. 11, ed. D. Pingree, *Hephaestionis Thebani Apotelesmaticorum Libri Tres*, vol. 1, ‘*Bibliotheca Scriptorvm Graecorum et Romanorum Tevbneriana*’, B. G. Teubner Verlagsgesellschaft, Leipzig, 1973, p. 76, trs. G. L. Irby-Massie & P. T. Keyser, *Greek Science of the Hellenistic Era; A Sourcebook*, Routledge, London, 2002, p. 90, with omission of the clarifying word “solar?” in square brackets after “Titan”.
 20. I thank Robert J. Johnson (personal communication, 1 February 2020) for this suggestion.
 21. Velikovsky, op. cit., pp. 83 and 84 n. 9, followed uncritically by Cardona, op. cit., p. 61; ‘Comets, Planets, and Joshua’s Miracle’, *Aeon; A Journal of Myth, Science, and Ancient History* 7. 1, 2006, p. 88.
 22. Wachsmvth, op. cit., pp. 165-172.
 23. “Er wird später meist dem Saturn zugeschrieben, davon erhielt er den Beinamen *Niger* (Junctinus 316 b, 9).” Gundel, op. cit., pp. 1178-1179 (cf. 1157, 1159, 1161, 1178), cited without page number in Velikovsky, op. cit., p. 84 n. 10. Compare A. Scherer, *Gestirnnamen bei den indogermanischen Völkern*, ‘Indogermanische Bibliothek’ 3, ‘Untersuchungen’, ‘Forschungen zum Wortschatz der indogermanischen Sprachen’ 1, Carl Winter Universitätsverlag, Heidelberg, 1953, p. 108.
 24. “*Niger*, qui vsquequaque Saturno est quāsimilimus. Quando autem apparuerit, significat mortalitatē per mortem naturalem, & mortem per gladium atque decollationem.” Franciscus Iunctinus Florentinus, *Specvlum*

- Astrologiae, quod Attinet ad Iudiciariam Rationem Nativitatum atque Annuarum Revolutionum: Cum nonnullis Approbatis Astrologorum Sententiis*, Philippus Tinghus Florentinus, Lyon, 1573, p. 317, reprinted in *Specvlvm Astrologiae*, vol. 2: *Comprehendens Commentaria in Theoricis Planetarvm, et in Sphaeram Ioannis de Sacro Bosco: Vnà cum Tabulis de Eclipsibus Georgii Pvrbachii, & Supputationibus Motuum Planetarum, secundum Decreta Alphonsii Regis Hispaniae: & Nicolai Copernici, cum Diuersis Aliis Tractatibus Astrologicis*, Q. Phil. Tinghus, Florentinus, Lyon, 1583, p. 1127.
25. “Et ille qui dicitur niger, est ex natura Saturni, & eius color est magis cęruleus quàm niger, qui quando apparuerit, significat mortalitatem multam, & decollationem.” Franciscus Iunctinus Florentinus, *Specvlvm Astrologiae*, vol. 1: *Vniuersam Mathematicam Scientiam, in Certas Classes Digestam, Complectens*, Q. Phil. Tinghus, Florentinus, Lyon, 1583, p. 1310.
 26. This will be the *Tractatus Quartus de Annorum Revolutionibus* by Leopold of Austria (13th century AD) held at the National Library of Austria in Vienna as Cod. 4146, 1r-199v Nr. 3.
 27. On the ancient theory of classifying comets according to their perceived associations with the respective planets, see further M. A. van der Sluijs, *Traditional Cosmology; The Global Mythology of Cosmic Creation and Destruction*, vol. 6: *Miscellaneous Themes*, All-Round Publications, Vancouver, Canada, 2018, p. 60; ‘Phaethon and the Great Year’, *Apeiron; A Journal for Ancient Philosophy and Science* 39. 1, 2006, p. 79; M. A. van der Sluijs & P. James, ‘Saturn as the ‘Sun of Night’ in Ancient Near Eastern Tradition’, *Aula Orientalis* 31. 2, 2013, p. 292; and on Saturn’s blackness and association with the *disceus* comet in astrology, pp. 279-280, 292-302. ‘Niger’ as the name of a type of comet was commonplace in 16th- and 17th-century works on astronomy.
 28. Stegemann, *op. cit.*, p. 108, in Velikovsky, *op. cit.*, p. 84 n. 11.
 29. *contra* Keith Mills, *op. cit.*, p. 34.
 30. “EXPOSITVS PVBLICE IN COLlegio Philosophorum, anno millesimo, sexcentesimo, à Catholicis hodiè jubilæus dicto”, Abrahamus Rockenbach, *De Cometis, Tractatus Novvs Methodicvs, in quo non Tantvm Causæ Cometarum, per Methodum Simplicis Quæstionis Exponuntur, sed etiam Effectus eorum, ex Probatissimis & Antiquissimis Veterum Scriptoribus, iuxta Temporum Seriem Annotantur: Ab Anno Videlicet Diluvij Generalis, post Conditum Mundum, Millesimo, Sexcentesimo, Quinqagesimo Sexto, usque ad Annum Millesimum, Sexcentessimum, post Nativitatem Christi, Salvatoris nostri, Jubilæus Dictum*, Officina Cratoniana, Wittenberg, 1602, title page.
 31. Rockenbach, *op. cit.*, pp. 116-117, *contra* Keith Mills, *op. cit.*, p. 35.
 32. “quadragesimo”, “convolute”, “imperiam”, “volute”, “interitv”, “quemadmodu” and “gigantu”. The word “capricorni” is spelled out in Rockenbach’s text, as it was in the Latin in Velikovsky, *op. cit.*, p. 83 n. 8; the astrological symbol occurs only in the citation of Rockenbach by Johann Hewelcke *alias* Johannes Hevelius (*Cometographia, Totam Naturam Cometarum; Utpote Sedem, Parallaxes, Distantias, Ortum & Interitum, Capitem, Caudarumq; Diversas Facies, Affectionesq; nec non Motum eorum Summè Admirandum, Beneficio Unius, ejusq; Fixæ, & Convenientis Hypotheseos Exhibens. In quâ Universa insuper Phænomena, Quæstionesque de Cometis Omnes, Rationibus Evidentibus Deducuntur, Demonstrantur, ac Iconibus Æri Incisis Plurimis Illustrantur. Cumprimis Verò, Cometæ Anno 1652, 1661, 1664 & 1665 ab ipso Auctore, Summo Studio Observati, aliquantò Prolixiùs, Pensiculatiùs; Exponuntur, Expenduntur, atq; Rigidissimo Calculo Subjiciuntur. Accessit, Omnium Cometarum, à Mundo Condito Hucusquè ab Historicis, Philosophis, & Astronomis Annotatorum, Historia, Notis & Animadversionibus Auctoris Locupletata, cum Peculiari Tabulâ Cometarum Universali*, Simon Reiniger, Gdańsk, 1668, p. 795) for the comet of 1495 BC, which Hewelcke divorced from that of 1718 BC. Velikovsky (*op. cit.*, p. 83 n. 8) mistakenly spelled “quadragesimo”, “ex Aegypto” in the first sentence, “Aegyptioru” and “volut”.
 33. Keith Mills (*op. cit.*, p. 37) seemed surprised at the difference in numbers.
 34. Harduinus, *op. cit.*, p. 179. The change in numbering systems took a while to catch on; W. Whiston (*A New Theory of the Earth, from its Original, to the Consummation of All Things. Wherein the Creation of the World in Six Days, the Universal Deluge, and the General Conflagration, as Laid Down in the Holy Scriptures, Are Shewn to Be Perfectly Agreeable to Reason and Philosophy. With a Large Introductory Discourse Concerning the Genuine Nature, Stile, and Extent of the Mosaick History of the CREATION*, Cambridge University-Press, London, 1737⁵, p. 200) still had ‘25’, while [A. G.] Pingré (*Cométographie ou traité historique et théorique des comètes*, vol. 1, L’Imprimerie Royale, Paris, 1783, p. 251, cf. 248) gave both ‘25’ and ‘23’. The translations by Antoine du Pinet (*L’Histoire du monde de C. Pline Second, Collationnee & corrigee sur plusieurs vieux exemplaires Latins, & enrichie d’annotations en marge, seruans à la conference & declaration des anciens & modernes noms des villes, regions, simples, & autres termes obscurs comprins en icelle. A quoy a esté adiousté vn traité des pois & mesures antiques, reduites à la Françoisé. Auec vne table fort ample des noms & matieres contenuës en ceste histoire: & vne autre petite table seruans à certaines observations, remarquees après l’impression de ce tome*, vol. 1, Claude Senneton, Lyon, 1562, p. 56) and Ph. Holland (*The Historie of the World. Commonly Called, the Natvrall Historie of C. Plinivs Secvndvs. Translated into English*, vol. 1, Adam Islip, London, 1601, p. 16), which latter Keith Mills recommended (*op. cit.*, p. 40), predictably had ‘25’.
 35. C. Sutherland, ‘A Note on Rockenbach’s *De Cometis*’, *Pensée; Student Academic Freedom Forum* 3. 3: *Immanuel Velikovsky Reconsidered* 5, Fall 1973, pp. 33-34. Sutherland mistyped “quadragesimo”, “probate”, “ex Aegypto” in the first sentence, and “volut”. He accidentally omitted “quinqagesimo” and, strangely for a medievalist, seems to have been unfamiliar with the former typographical practice of substituting a tilde for

- word-final nasals to save space (p. 34 n. 1). As for his translation, Rockenbach's words "ut aliqui volūt" do not mean "as if rolling along another road" (p. 34), but simply 'as some wish', cf. Velikovsky (*op. cit.*, p. 83): "Certain [authorities] assert" and Keith Mills (*op. cit.*, p. 35): "as some would say".
36. Velikovsky, *op. cit.*, p. 83. Compare the editor's comment to Sutherland, *op. cit.*, p. 33 n. *.
 37. In Pliny's text, the equivalent words *conperta Aethiopum et Aegypti populis* may also be translated, with *populis* taken as an ablative, as 'learned of from the peoples of Ethiopia and Egypt'. Keith Mills (*op. cit.*, p. 36) did this for the identical phrase in Hewelcke, but not in Rockenbach itself, where *Aegiptijs & Aethiopibus* allows only a dative reading.
 38. Keith Mills, *op. cit.*, pp. 36 and 41-42 n. 14.
 39. Rockenbach, *op. cit.*, pp. 116-117. As noted, a tilde over a vowel was a typographic abbreviation marking the elision of an *n* or *m* following the vowel. Another convention was to shorten the enclitic conjunction *-que* to the ligature here rendered as *-q;*.
 40. For more on crescentic comets, see M. A. van der Sluijs, 'Hll: Lord of the Sickle', *Journal of Near Eastern Studies* 68. 4, 2009, pp. 270-273, 275-276.
 41. *contra* Velikovsky, *op. cit.*, pp. 82, 84 and as predicted by Keith Mills (*op. cit.*, p. 33). Who were Clube & Napier (*op. cit.*, p. 217) thinking of when they assured: "Some mediaeval historians held that a comet appeared in the sky at the time of the Deluge, and another at the time of Exodus"? They confessed to being at a loss, after all, with regard to Rockenbach's sources (p. 220). They did, in the same breath, refer to the "fifteenth-century Christian propagandist Orosius". However, Orosius lived in the 5th century AD and regarded the Exodus as coeval with the world's burning by Phaethon without relating it or the Biblical deluge to a comet – *Historiae adversus Paganos (Histories against the Pagans)*, 1. 10. 19, tr. A. T. Fear, *Orosius; Seven Books of History against the Pagans; Translated with an Introduction and Notes*, 'Translated Texts for Historians' 54, Liverpool University Press, Liverpool, 2010, p. 60; cf. M. A. van der Sluijs, *Traditional Cosmology; The Global Mythology of Cosmic Creation and Destruction*, vol. 5: *Solar and Lunar Anomalies*, All-Round Publications, Vancouver, Canada, 2018, pp. 78-79.
 42. "Id est, dira et horribilis Cometa cōparuit populis Aegypti & Aethiopæ cui nomen est inditum Tiphon, a rege Tiphone qui isto tempore hæc loca tenuit. Hanc historiam nusquã alias scio extare. Potest referri hic Cometa ad quartam petiẽ quẽ disceus uocatur." Iacobus Milichius, *Commentarii in Librvm Secvndvm Historiæ Mvndi C. Plinii*, Petrus Brubacchius, Großenhain, 1535, p. 66r, cf. 65r.
 43. "De Typhone Rege Aegyptio uide Plutarchi lib. de Osiride." Milichius, *Liber II C. Plinii de Mvndi Historia, cvm Commentariis ... Diligenter Conscriptis & Recognitis*, Petrus Brubacchius, Frankfurt, 1543, p. 95v = *C. Plinii Liber Secundus de Mundi Historia cvm Commentariis ... Diligenter Conscriptis, & Postremò ab Autore Recognitis, & Multis in Locis Auctis. Anno Domini 1552*, Petrus Brubacchius, Frankfurt, 1553, p. 196. In these editions (respectively pp. 93r and 190), Milich counted the *disceus* as the fifth type of comet instead of the fourth.
 44. Plutarch, *Moralia: On Isis and Osiris*, 41 (367d), 49 (371b), 62 (376b).
 45. "Au reste, du temps du Geant Typhon, fut veuë vne comete terrible sur la Plage d'Egipte, & d'Ethiopia, qui presagea de grandes calamitez à ceux qui habitoyent esdictes regions. Ceste comete estoit flambante, & retortillee comme vn serpent, qui est en rond, & auoit vn aspect hydeux & de trauers: de sorte qu'on eust dict, que c'estoit plustost vn nœud de feu, qu'une Estaille. Et fut appelee ceste comete Typhon, pour raison du Geant Typhon, qui estoit lors en regne." dv Pinet, *op. cit.*, p. 56.
 46. e.g., Plutarch, *Moralia: On Isis and Osiris*, 25 (360d-f), 35 (364f).
 47. "Sequentem textum sic construe, Cometa siue stella typhon, cui nomen dedit rex eius æui, quæ fuit specie ignea ac intorta instar spiræ, seu circuli, illa stella cōperta est dira, hoc est, exitiosa populis Aethiopum & Aegypti. De hac stella propter uetustatẽ nihil certi constat, sed consentaneum est incidisse in tempus exitus populi Israelitici ex Aegypto, nam sine dubio signa & prodigia præcesserunt hãc ingentem calamitatem quæ florentiũ. regnum Aegypti oppreßit & ferẽ penitus extinxit. hæc aut̃ stella nominata est à rege Typhone, cuius meminit Herod lib 2. cū inq;t, τοῦτον καταπαύσαντα τυφῶνα βασιλεῦσαι ὕσατον [sic] αἰγύπτου, etc. ubi clarè inq;t, heroicũ seculũ tunc desiisse, nã Typhō fertur auxilio Gygantũ oppreßisse reges Aegyptios uiros sanctos & iustos sibiq; cõfirmasse tyrãnidem. Hæc à Græcis scriptor. ut à Diodoro & Herodoto recensentur: Et autem cum sacris literis conferantur, deprehendemus hæc circa tempora exitus ex Aegypto accidisse." Milichius, *C. Plinij Liber Secvndvs, de Mvndi Historia, cvm Commentariis ... Diligenter Conscriptis, & Postremò ab Autore, ante Discessum suum ex hac Uita, Recognitis, & Multis in Locis Auctis*, Petrus Brubacchius, Frankfurt, 1563, p. 200. The same text, but without the use of abbreviations, was reprinted in an even later edition, *C. Plinij Liber Secvndvs, de Mvndi Historia, cvm Ervdito Commentario ... Diligenter Conscripto: & nunc Denuo ex Prælectionibus Publ. in Academia Vitebergensi Recognito, Pluribusq; in Locis Aucto & à Mendis Repurgato: Opera & Studio Barthol. Schonbornii*, Jo. Steinmann, Leipzig, 1573, pp. 265-266.
 48. Herodotus, *Histories*, 2. 144, tr. A. D. Godley, *Herodotus; With an English Translation*, vol. 1: *Books I and II*, 'Loeb Classical Library' 118, William Heinemann, London, 1926, pp. 450-451.
 49. Diodorus of Sicily, *Bibliotheca (Library)*, 1. 86. 2, tr. C. H. Oldfather, *Diodorus of Sicily*, vol. 1: *Books I and II, 1-34*, 'Loeb Classical Library', 279, William Heinemann, London, 1933, pp. 292-293.
 50. Diodorus of Sicily, *Bibliotheca*, 1. 26. 6-8, tr. Oldfather, *op. cit.*, pp. 84-85. The Giants' self-designation is missing from the Greek.

51. Diodorus of Sicily, *Bibliotheca*, 1. 86. 3, tr. Oldfather, *op. cit.*, pp. 292-295. These “earth-born men” were the giants mentioned earlier. H. J. Rose (‘Mythological Scraps’, *The Classical Quarterly* 24. 2, 1930, pp. 107-108) and J. G. Griffiths (‘The Flight of the Gods before Typhon: An Unrecognized Myth’, *Hermes* 88. 3, 1960, p. 374) compiled classical sources for the ‘forgotten’ myth of the gods fleeing from Typhon disguised as animals, including Plutarch, *Moralia: On Isis and Osiris*, 72 (379f). A. Burton (*Diodorus Siculus; Book I; A Commentary*, ‘Études préliminaires aux religions orientales dans l’empire Romain’ 29, E. J. Brill, Leiden, 1972, p. 252, cf. 110-111) ran into a paradox in her attempt to reconcile the two passages quoted from Diodorus with each other and Egyptian iconography: “In fact, both chapters seem to be diametrically opposite explanations of a single type of relief, that of a large figure of Horus or Osiris smiting Seth and his followers, usually represented in much smaller proportions and in the form of animals such as crocodiles or hippopotami. Since Seth and his followers were occasionally called Giants by the Classical authors, the version given in ch. 26 is indeed a true explanation. But it is easy to see how a similar relief might be interpreted as showing a Giant (actually Horus, but mistakenly assumed to be Seth/Typhon) attacking a number of animals.” Perhaps the solution is twofold. On one hand, what the Greeks recognised as Giants were perceived by the Egyptians themselves as monstrous more than gigantic *per se*; thus, the dichotomy was that between Typhon and the monsters on one side and zoomorphic gods on the other, the latter often shown towering above the former. On the other hand, some mythical shapeshifting may be assumed on both sides. Griffiths (*op. cit.*, pp. 375-376), disproving Rose’s scepticism regarding an Egyptian origin of the myth, cited one Egyptian text in which Isis and Horus transform into animals in order to escape from Set, but also a few texts in which the confederacy of Set change into diverse animals; “In taking over the Egyptian myth, . . . the Greeks introduced those metamorphoses which would explain the animal forms of the principal Egyptian gods.” On Typhon as Set, see further part 2.
52. Diodorus of Sicily, *Bibliotheca*, 1. 21. 3, tr. Oldfather, *op. cit.*, pp. 64-65; cf. 1. 13. 4; 1. 21. 1-2; 1. 22. 6; 1. 88. 4, 6.
53. Diodorus of Sicily, *Bibliotheca*, 1. 24. 2, tr. Oldfather, *op. cit.*, pp. 76-77.
54. Compare J. J. Bimson, ‘Rockenbach’s ‘De Cometis’ and the Identity of Typhon’, *Society for Interdisciplinary Studies Review* 1. 4, 1977, p. 10.
55. Iohannes Funccius, *Chronologia hoc Est Omnium Temporum et Annorum ab Initio Mvndi, vsqve ad hunc Præsentem a Nato Christo Annum M. D. LII. Computatio. In qua Methodice Enumerantur Omnium Populorum, Regnorumque Memorabilium Origines ac Successiones. Item Omnes eorum Reges, quando quisq; Cæperit, quamdiu Regnarit, quid Dignū Memoria Gesserit. Quis Status Populi Dei Fuerit. Ac quemadmodum Translata Sint Imperia a Populo in Populum &c. Et si qui Uiri Illustres, quæ Facinora Egregia, ac si quid Amplius Memoratu Dignum Extitit, ea Omnia Breuiter suis Locis Referentur. Svntqve in hac Compvtatione Omnia Tempora, tum ex Sacris Biblijs, cum ex Optimis quibusq; Autoribus, Historicis, & Astronomorum Obseruationibus, Summa Fide ac Diligentia Conciliata. Item Commentariorum Libri Decem, in quibus quid Tradatur Proprio Titulo Indicatur*, Officina Lufftiniana, Kaliningrad, 1552, pp. 24-25, 32. For the conversion to ‘BC’ dates, compare p. 91. This short, Biblically motivated timeline required Funck (pp. 18, 25) to bizarrely equate the pharaoh of Abraham with Osiris and have the 18th dynasty follow directly on Horus’ rule – in AM 2242 (1721 BC). In his renowned compendium of marvels, Conrad Wolffhart, better known as Lycosthenes, followed Funck in dating the Exodus to AM 2453-2454 = 1510-1509 BC (*Prodigiorum ac Ostentorum Chronicon, quæ præter Naturæ Ordinem, Motum, et Operationem, et in Superioribus & his Inferioribus Mundi Regionibus, ab Exordio Mundi usque ad hæc nostra Tempora, Acciderunt. Quod Portentorum Genus non Temere Euenire Solet, sed Humano Generi Exhibitum, Seuertatem Iramq; Dei aduersus Scelera, atq; Magnas in Mundo Uicissitudines Portendit. Partim ex Probatis Fideq; Dignis Authoribus Græcis, atque Latinis: Partim etiam ex Multorum Annorum Propria Obseruatione, Summa Fide, Studio, Accedulitate, Adiectis etiam Rerum Omnium Ueris Imaginibus*, Henricus Petri, Basel, 1557, pp. 38-42).
56. Anniius of Viterbo, *Berosus de his quæ Praecesserunt Inundationem Terrarum*, publisher and place not stated, 1510, p. 8v.
57. “Die 25. Febru. 78. Literas accepimus Gerlachij 29. Decemb. 77. scriptas, ubi inter alia, hæc. Nouemb. 10. (inquit) primū hic uisus est Cometa, prolixam caudam trahens: qui nunc multò, quàm initiò, altior, paulatim euanescit. Sophi quidam Turcarū (ecce ineptias) iudicant: stellā nouam esse, quæ nunc tertio apparet. Primò, uisam fuisse ante Gomorrhæ excidium: secundò, Pharaoni interitum prænuntiassæ. Nunc (quia non igneo, ut illius temporibus, sed albo colore, apparet) fertilitatis prænuntiam esse.” Martinvs Crvsivs, *Tyrco-græciæ Libri Octo. Quibus Graecorum Status sub Imperio Turcico, in Politia & Ecclesia, Oeconomia & Scholis, iam inde ab Amisæ Constantinopoli, ad hæc usq; Tempora, Luculenter Describitur. Cvm Indice Copiosissimo*, Leonardvs Ostenivs, Basel, 1584, p. 501. J. H. Mordtmann (‘Das Observatorium des Taqī ed-Dīn zu Pera’, *Der Islam; Journal of the History and Culture of the Middle East* 13. 1-2, 1923, p. 86) erroneously gave the date of the letter as 29 September 1577.
58. *Genesis*, 19. 1-29.
59. “Paucos ante menses, ex Halepo (Hierapoli) Syriæ urbe, Constantinopolin uocatus est Astrologus quidam: qui Sultanum de fortuna sua ex astris præmoneat. Ideo in Galatensi colle extruxit profundam detectamq; turrim: cuius summo imposuit Astrolabium, & multos circulos ex Orichalco magnos: inde prædicturus scilicet, quas Gentes amicas, quas inimicus [*sic*], habiturus sit Murates. Operi perficiendo septennium sumpsit, quotannis

- stipendio triam millium Ducatorum: eius duplum, finito opere, à Rege accepturus. Adiutor ei est Iudæus quidā Thessalonicensis: qui ambo, cometam hunc, Persiæ & Arabiæ bellum minari dicunt.” Crvsivs, *op. cit.*, p. 501.
60. “Der Sultan Murat hat einen Sternseher von Cair verschrieben / der / auff des Käysers Unkosten ausserhalb Galata / auff einem Hügel / da des Venedischen Andreas Gritt Hauß gestanden / einen Thurn bauen solle / der etliche Klaffter tieff unter der Erden und unten etliche Klaffter weit sey / daß er auch die Sterne am Himmel darauß bey Tage sehen möge. Er hat auch ein groß Messing Rad auff Ehren-Säulen machen lassen und wil inner 7. Jahren ein Werck verfertigen / auß welchem er hernach dem Käyser all sein Glück / auß [*sic*] Unglück / Freund und Feind auß des Himmels Lauff / erforschen wil. Seine Bestallung ist Jährlich 3000. Ducaten / ohne seine andere Außgaben / die ihm alle wieder erstattet werden. Wann das Werck fertig ist / sollen ihm 6000. Ducaten gegeben werden. Er hat auch einen andern Sternseher / so ein Jud / von Salonick holen lassen / der dem Perser König zu seinem Werck helffen / und itzt des Sultans Lehrmeisters Sohn in der Sternkunst unterweisen solle. Jener sagt / daß der Comet der Barbarey ein Unglück bedeute.” Stephan Gerlach, diary entry for 13 November 1577, ed. Samuel Gerlachius, *Stephan Gerlachs deß Aeltern Tage-Buch / Der von zween glorwürdigsten Römischen Käysern / Maximiliano und Rudolpho, beyderseits den Andern dieses Nahmens / höchstseeligster Gedächtnüß / an die Ottomannische Pforte zu Constantinopel abgefertigten / und durch den wohlgebohrnen Herrn Hn. David Ungnad / Freyherrn zu Sonnegk und Breyburg u. Römisch-Käyserl. Raht / mit würcklicher Erhalt- und Verlängerung deß Friedens / zwischen dem Ottomannischen und Römischen Käyserthum und demselben angehörigen Landen und Königreichen u. glücklichst-vollbrachter Gesandtschaft: Auß denen Gerlachischen Zeit seiner hierbey bedienten Hoff-Prediger-Ampts-Stelle / eygenhändig auffgesetzten und nachgelassenen Schrifften / herfür gegeben durch seinen Enckel, Johann-David Zunner, Frankfurt am Main, 1674, pp. 408-409. The sultan’s teacher was Hoca Sa‘d ed-Dīn (c1536-1599) – Mordtmann, *op. cit.*, p. 86.*
61. “Heut: hat der Comet / wegen Naheit der Sonnen / etwas kleiner geschienen. Und sagt mir M. Oswald / daß ein Araber dem Käyser vorher verkündiget habe / daß dieser Comet eben umb diese Zeit erscheinen / und man auch noch bald zwey andere ungewöhnliche Sterne sehen werde / und wann die kommen / woll er anzeigen / was sie bedeuten.” Stephan Gerlach, diary entry for 15 November 1577, ed. Gerlachius, *op. cit.*, p. 409.
62. “Heut sagt unser Zausch zu meinem Gnädigen Herrn / seine Gelehrten sagten: dieser Comet sey nur / sint der Erschaffung der Welt 3. mahl erschienen. Das 1. mahl wie Sodoma und Gomorra mit Feuer vom Himmel verderbt / das 2. Mahl / wie Pharao im rothen Meer ersaufft worden. Und nun das 3. mahl.” Stephan Gerlach, diary entry for 27 to 29 November 1577, ed. Gerlachius, *op. cit.*, p. 418.
63. Mordtmann, *op. cit.*, pp. 90-92.
64. On David ben Shushan as al-Dīn’s associate, see A. Ben-Zaken, *Cross-Cultural Scientific Exchanges in the Eastern Mediterranean, 1560-1660*, The Johns Hopkins University Press, Baltimore, MD, 2010, pp. 21-24. This identification supersedes Babinger’s conviction (in Mordtmann, *op. cit.*, p. 96) that the Jew was Daniel ben Peraḥya ha-Cohen (d. 1575).
65. Thus Mordtmann, *op. cit.*, p. 86, *cf.* 88. For the possibility of a stronger Syrian identity of al-Dīn, see al-Ḥasan, in Ben-Zaken, *op. cit.*, p. 175 n. 25.
66. See further G. E. Tauber, *Man’s View of the Universe*, Crown Publishers, New York, 1979, p. 79; J. Samsó, ‘Astrology’, in A. Y. al-Hassan, M. Ahmed & A. Z. Iskandar (eds.), *The Different Aspects of Islamic Culture*, vol. 4: *Science and Technology in Islam*, part 1: *The Exact and Natural Sciences*, UNESCO Publishing, Beirut, 2001, p. 269; T. Heidarzadeh, *A History of Physical Theories of Comets, from Aristotle to Whipple*, ‘Archimedes; New Studies in the History of Science and Technology’ 19, Springer, Dordrecht, 2008, pp. 32-33.
67. letter from Constantinople by an unnamed person (12 January 1578), quoted in a letter from Christopher Hoddesdon to William Cecil, 1st baron Burghley (20 March 1578), ed. A. J. Butler, *Calendar of State Papers, Foreign Series, of the Reign of Elizabeth, 1577-1578. Preserved in the Public Record Office*, vol. 12, His Majesty’s Stationery Office, London, 1901, pp. 554-555 #720.
68. “Anno Christi, 1578. Den 10. Decembris / Ist zu Constantinopel ein solcher Comet gewesen / darvon deß Türchischen Keisers Astronomus von Halepo, vnd ein Jude von Thessalonica / gesagt / daß es der Stern sey / der erstmal erschienen / da Sodoma vnnnd Gomorrhā / das andermal / da Pharao im roten Meer ersoffen vnd umbkommen sey.” Zacharias Rivander, *Fest Chronica; Darinnen viel außerlesene / denckwürdige Historien oder Geschicht / die sich auff die Feyer und Sontage zugetragen / in der Ercklerung / der darauff geordenten Euangelien / nach Gelegenheit nützlich einzuführen. Deßgleichen / Mancherley schöne Exempel / wie Gott den rechten Gebrauch solcher Heiligtage belohnet / vnd den Mißbrauch gestrafft*, vol. 2: *Von den gewöhnlichen Sontagen / durchs gantze Jahr vber / Colligiret vnd zusammen bracht*, publisher and place not stated, 1591, p. 4v.
69. “Anno 1578. Ist zu Constantinopel ein solcher Comet gewesen / dauon des Türckischen Sultans Astronomus von Halepo / vnd ein Jüde von Thessalonica gesagt / das es der Stern sey / der erstmal erschienen / da Sodoma und Gomorrhā mit Feuer vom Himmel verfolget / das ander mal / da Pharao im rothen Meer ersoffen.” VVenceslavs Stvrnivs, *Calendarivm Sanctorum & Historiarum. Das ist: Kirchen Historia und tägliche Hausstaffel / darin nach ordnung gemeiner Calender durchs gantze Jahr aller heiligen Lehrer und Märterer Leben / Bekentnis vnd Leiden beschrieben. So wol auch viel Politische denckwürdige Historien aus der H. Schrifft vnd andern bewehreten Authoren zusammen getragen. Erstlich durch Andream Hondorff seligen Pfarherrn zu Droyssig angefangen / vnd in Druck gegeben / Nachmals durch Vincentium Sturmium gebessert.*

Jetzt aber ausss neue vbersehen / Mit vielen Historien biß auff die jetzige Zeit vermehret / vnd in eine richtige Volkommenheit gebracht, Henningus, Leipzig, 1599, p. 909.

70. “*Halepo Astronomus ex Thessalonia. / Hoc tempore Constantinopoli visus est cometa, cuius similem Halepo Astronomus non apparuisse mundo dixit vllō vnquam tempore antea, præterquàm tunc, cùm Sodoma & Gomorrha exurerentur cœlitus: & Pharaο tyrannus Ægypti in mari rubro suffocaretur.*” Iohannes Wolfius, *Lectionvm Memorabilium et Reconditarvm*, vol. 2: *Habet hic Lector Doctorvm Ecclesiæ, Vatvm, Politicorum, Philosophorum, Historicorum, Aliorumq; Sapientium & Eruditorum Pia, Grauiā, Mira, Arcana, & Stupenda; Iucunda Simul & Vtilia, Dicta, Scripta, atq; Facta; Vaticinia item, Vota, Omina, Mystera, Hieroglyphica, Miracula, Visiones, Antiquitates, Monumenta, Testimonia, Exempla Virtutū, Vitiōrum, Abusuum; Typos Insuper, Pictures, atq; Imagines: Sed et Ipsius Coeli ac Natvræ Horrenda Signa, Ostenta, Monstra, atq; Portenta; His Interiuncti Sunt quoq; Omnes Sacri Prophaniq; Ordines: Ex quibvs Omnibvs cvm Præteriti Status in Ecclesia, Republica, & Communi Vita Consideratio; Tum Impendentium Euentuum, ac Indies Magis Magisq; Ingrauescentium Malorum Præsagitio: Sed & Multorum Abstrusorum hactenus Desideratorum Reuelatio ob Oculos Perspicuè Ponitur*, Leonhardus Rheinmichol, Lauingen, 1600, p. 908.
71. This error was repeated in Pingré, *op. cit.*, p. 224; F. H. Baker, ‘Comet Lore’, *The Gentleman’s Magazine* 270, January-June 1891, p. 468.
72. “man kan demonstriren das diluuium, das es zur selben Zeit / weil die Leute nit Busse gethan / erfolgen müssen / do denn sonder Zweifel dergleichen erschreckliche Cometen werden gesehen worden seyn. ... Auß diesem Grundt vn Fundament hette man wissen mögen die zeit / wenn Sodom vnd Gomorrha mit fewer vnd schweffel vom Himmel sollen vertilget werden / do denn auch zu vor dergleiche schreckliche Cometen gesehen worden. Man hat wissen können / wann vnd zu welcher zeit die gewaltigen Wunder in Egypten angehen / die außführung gesehen / vnd Pharaο mit seinem Heer im Rothen Meer verschwemmet vnnd erseuffet worden / do mann denn zu vor auch dergleiche schrecklicher Cometen vber Egypten gesehen / welcher von den verstendigen Leicht hett mögen gedeudet werden / wenn sie auff die 400 Jahr die halbe grosse conjunction, von GOtt dem HERRN dem Abraham angekündiget gut achtung gegeben hetten.” Pavlvus Nagelivs, *Stellæ Prodigiousæ seu Cometæ per Oculum Triplicem Observatio & Explicatio. Das ist: Des neuen Cometen vnd Wunder Sterns im October / November vnd December 1618. erschienen / warhafftige Deutung vnd Außlegung per Magiam Insignem, dergleichen zuvor nicht gesehen: Allen Menschen auff Erden zur guten Nachricht vnd Warnung fürgestellt*, Joachim Mechlers Erben, Erfurt, 1619, pp. C 2r-v. He did not disclose his source for the appearance of these comets.
73. “Wer solte alles billichen / oder für Oracul schätzen / was mancher Prognosticant daher schwätzt? ... Wir lachen billich jenes Mahumetanischen Astrologi, welcher / wie Crusius, in seiner Turco-Græcia, berichtet / von Alexo nach Constantinopel gefordert worden / um dem Sultan aus dem Gestirn zu weissagen / was er für Glück und Progressen wider seine Feinde haben würde. Denselben ward ein Jüdischer Astrologus von Thessalonich zugeordnet / in Hoffnung / vier Augen dieser Phantasten solten besser / als zwey / sehen / was der damals erschienene langschweifigte Comet dem Groß-Türcken propheceyte: Man muste ihnen / auf einem Hügel zu Galata, einen Thurn bauen: da stellte der Syrische Stern-Prophet sein Astrolabium, samt vielen Messungs-Cirkeln / oben darauf / und bemühet sich dem Cometen abzuforschen / welche Völcker dem Sultan Murat würden hold oder feind seyn. Zu diesem kostbaren Narren-Werck brauchte er sieben gantzer Jahre / und bekam jährlich drey tausend Ducaten zur Recompense / mit dem Versprechen / daß er / nach Vollendung des Wercks / doppelt so viel solte empfangen. Zu letzt kam die Weissagung heraus / daß der Comet den Persern und Arabern einen Krieg drohete.” Gottlieb Unverrucht [Theophilus Anti-Scepticus; pseudonyms for Erasmus Finx *alias* Erasmus Francisci], *Verwerffung des Cometen-Bespotts / Oder gründliche Erörterung der Frage: Ob der Comet ein / oder kein Straff-Zeichen sey: Etwas oder nichts / gutes oder böses bedeute? / Worinnen die Vor-Bedeutlichkeit mit unverwerfflichen Beweißthümern begründet wird / Die Ungründe aber der Widersprecher klärlich entdeckt; / Neben dem auch die vielfältige Gedancken / von dem Ursprunge des Cometens / mit eingeführet werden. / Auf Veranlassung des neulichst-entstandenen Wunder-grossen und unvergleichlichen Comet-Sterns / Zur Abwarnung von roher Sicherheit / und Beförderung Christlicher Bußfertigkeit herausgegeben*, publisher not stated, Nuremberg, 1681, p. 13. An *erratum* restores ‘Alexo’ to ‘Alepo’ (p. 67).
74. Baker, *op. cit.*, p. 468. Mordtmann (*op. cit.*, p. 89) and Ben-Zaken (*op. cit.*, pp. 8-46) painted a more positive picture of the two astrologers’ intentions as intermediaries between Ottoman and Christian European science despite the general animosity between the cultures.
75. “Zu diser zeit Arabia / Ein grausam grossen Sternen sah / Stund acht nächtlang / vergleicht eim Rad / Vmb die reuier des Schützen Grad / Stund er vnd zaigt gen Orient / Vnder des Jouis Regiment. / Hat langwehrende thewre zeit / So in Egypten gweßt / bedeyt. / Mercurius Trismegistus / Ein gwaltiger Philosophus / Soll (wie man sagt) vil seltzam gaben / Von disem Stern geschriben haben.” Johann Görgen Schinbain, *Sternen oder Cometen Buch / In welchem die fürnemsten Cometen / deren bey 180. so hin vnd her / vor vnd nach Christi Geburt / an dem Firmament erschienen / sampt andern Meteorologicis / so sich in Lüfften zugetragen: Was auch gleich in jedem Jar besunder / für Effect oder würckung darauff gefolget: Beschriben vnd in Teutsche Rhythmos gestellet*, David Sartorius, Ingolstadt, 1578, p. C 2r.
76. “Aines grossen herren Tod / Erdbidem / Krieg / Teurung vnd grosse Kälte.” Schinbain, *op. cit.*, p. T 3v.
77. “Hat er im loue station / Verendret sich d Religion. / Es volgt auch Tribulation / Ein Gaistlich haupt soll auch abgon / Der Armen ängstigung darbey / Es bleibt auch nit auß Ketzerey.” Schinbain, *op. cit.*, p. T 2v.

78. Milichius, in Georgius Caesius, *Catalogvs, nunquam antea Visvs, Omnium Cometarvm secundvm Seriem Annorum a Diluio Consectorum, usq; ad hunc Præsentem post Christi Natiuitatem 1579 Annum, cum Portentis seu Euentuum Annotationibus, & de Cometarum in Singulis Zodiaci Signis, Effectibus: Ex quibus Prudens Lector posthac Facilmè de quouis Cometa Iudicare Poterit, &c. ex Multorum Historicorum, Philosophorum & Astronomorum, quorum Præfatio Mentionem Facit, Scriptis, Memoriae Causa, & propter alias Multiplices Vtilitates, Plurimo Labore & Diligentissima Inquisitione Collectus, & Dedicatus Amplissimo, Prudentissimoque Senatui Inclytæ Reipub. Noribergensis*, publisher not stated, Leutershausen, 1579, p. A 2r (#5).
79. “Vixit Typhon Aegypti rex, secundum Chronologiam Funcij, circa tempora Iob & Ioseph, & mortem Patriarchæ Isaac, id est, circa annum mundi 2230. hic igitur Cometa incidit in id tempus, quo fames diuturna, de qua Genes. 41. 42. cap. in toto orbe cepit, scilicet in annum mundi 2237. Tum Iacob Patriarcha cum filijs & nepotibus descendit in Aegyptum. Gen. 46. / Visus est in Arabia, Syria, Babylonia, India, in forma rotæ in Sagittario, de quo etiam Mercurius Trismegistus plura scripsisse dicitur.” Caesius, *op. cit.*, pp. A 2r-v (#5).
80. “von andern”, Caesius, *Chronick / oder ordenliche Verzeichnuß vnnd Beschreibung aller Cometen / von der allgemeinen Sündflut an nach erschaffung der Welt 1656. biß auff dis gegenwertiges jtztauffends nach Christi unsers Herrn unß Seligmachers Geburt 1579. Jar / und was darauff für zufell straffen und verenderungen erfolget / von Kriegen Theurung / Pestilentz etc.; Auch ein sonderliche erklerüg und Exempel / was der Cometstern durch alle 12. Himlische zeichen wirkung sey: Auß welchem der vernünfftige Leser forthin von einem jeden Cometen leichtlich wird urtheilen können / sc. Auß vilen Scribenten mit sonderm fleiß und bedencken auch auff das kurtzest zusammen gezogen*, publisher not stated, Leutershausen, 1579, #5.
81. “Exitus Israëlis de Aegypto, & interitus Pharaonis cū exercitu in mari rubro, incidit in annū mūdi 2453. Quæ signa & prodigia præceberint, habes in Exodo.” Caesius, *op. cit.* [78], p. A 2v (#5).
82. Keith Mills, *op. cit.*, p. 40.
83. “Il est remarquable que Velikovsky fait de la comète Typhon, celle de l’exode, alors que deux siècles et demi avant lui, William Whiston en faisait celle du déluge. Tout ça pour un bolide observé plus d’un millénaire plus tard.” D. Caudron [‘L’Oncle Dom’], ‘Chronique des prodiges celestes antiques (et souvent en toc)’, ‘1510 AC: comète de l’Exode’, at <http://oncle.dom.pagesperso-orange.fr/paranormal/ovni/catalogue/prod-1510.htm>, last edited 7 March 2017. Curiously, Keith Mills (*op. cit.*, p. 42 n. 20) recommended a page from Caudron’s website, without noticing Caudron’s overview of Rockenbach’s precursors. For Whiston’s views on Typhon, not yet contained in the 1696 edition (R. Roberts, London), see *op. cit.*, Cambridge University-Press, London, 1708², pp. 172-173, 185-187 = 1737⁵, pp. 173-174, 200-202.
84. Keith Mills, *op. cit.*, p. 41 n. 3.
85. Hevelius, *op. cit.*, pp. 794-795.
86. “Anno mundi 2237 sol in ganz Arabien ein grawsamer Comet wie ein Radt erschienen sein acht nächte lang umb die refier des Sagittarij, unter dem Regiment Iouis, davon der Mercurius Trismegistus in seinen Büchern viel wunder sol geschrieben haben: Und sol in Syrien Babilonien und gar biß in das innerste Indiam gesehen wurden sein. Wird villeicht die langwirige Tewrung in Egypten mit angemeldet haben. Aber hievon ist nicht gelegenheit weitleunfftiger zu melden.” David Herlicius, *Kurtze aber trewhertzige Erklerung des geschwäntzten neuen Sterns oder Cometen so sich im September dises 1607. Jahrs hat sehen lassen in der eil auff Ermanung und Bitten hoher und fürnehmer Leute gestellet*, Johann Witten, Lübeck, 1608, p. D Ir.
87. Henricus Eckstormius, *Historiae Eclipsium Cometarvm et Parelitorvm ... ex Optima Notae tam Antiquis quam Recentibus Scriptoribus Coll. ... Dissertatione Methodica*, J. Lucius, Helmstadt, 1621 (*non vidi*); cf. Hevelius, *op. cit.*, p. 795.
88. Hevelius, *op. cit.*, pp. 794-795. This is more or less how Keith Mills (*op. cit.*, p. 36) understood Hewelcke’s solution. Unfortunately, his reproduction of Hewelcke’s text (Keith Mills, *op. cit.*, pp. 41-42 n. 14 and 15) is rife with typographical errors: “comnjecturis”, “convolute”, “aspect”, the second instance of “tempore”, “collocate”, “Æthiopicum”, “ignues” and “promisam”. And the *Rithmi Germanici* (*Germanic Rhythms*) was not a person named “Fredericus” (*contra* Keith Mills), but the title of an obscure text (cf. the bibliography in Hevelius, *op. cit.*).
89. ‘Smoking spiral but without fire’.
90. I. Mather, *A Discourse Concerning Comets, in which their Origin and True Matter are Enquired into, and the most Remarkable Earthquakes, Famines and Wars, Attending their Appearance from the Beginning of the World, Chronologically Arranged, and the Historical Authorities Quoted*, Boston, 1683, reprinted W. Straford, London, 1811, p. 13.