

Planet	Mag.	Planet	Mag.	Planet	Mag.
416 Vaticana	11.5	635 Vundtia	12.6	690 Wratislavia	11.8
126 Velleda	11.5	1260 Walhalla	14.1	411 Xanthe	12.5
487 Venetia	11.8	1417 Walinskia	14.7	156 Xanthippe	11.3
499 Venusia	13.0	877 Walküre	12.9	625 Xenia	12.1
245 Vera	12.5	1153 Wallenbergia	13.8	990 Yerkes	15.8
490 Veritas	12.3	987 Wallia	14.0	351 Yrsa	12.2
612 Veronika	14.6	256 Walpurga	13.2	1340 Yvette	14.6
4 Vesta	6.5	890 Waltraut	13.5	1301 Yvonne	13.7
144 Vibia	10.7	1057 Wanda	13.0	999 Zachia	14.3
1097 Vicia	15.0	886 Washingtonia	13.5	421 Zähringia	14.2
12 Victoria	9.7	729 Watsonia	12.9	1242 Zambesia	12.3
397 Vienna	12.2	1352 Wawel	13.9	1336 Zeelandia	13.9
1053 Vigdis	14.9	1438 Wendeline	15.2	851 Zeissia	13.5
1310 Villigera	13.6	621 Werdandi	13.9	169 Zelia	11.3
366 Vincentina	12.3	226 Weringia	13.0	633 Zelima	12.9
231 Vindobona	12.4	1302 Werra	14.3	654 Zelinda	11.1
759 Vinifera	13.8	930 Westphalia	13.5	840 Zenobia	13.0
1076 Viola	14.1	931 Whittemora	13.4	693 Zerbietta	12.8
557 Violetta	13.7	392 Wilhelmina	12.2	531 Zerlina	14.0
50 Virginia	11.7	747 Winchester	11.0	438 Zeuxo	11.8
494 Virtus	12.3	717 Wisibada	14.0	689 Zita	14.2
1439 Vogtia	14.5	852 Wladilena	12.7	865 Zubaida	14.1
1380 Volodia	15.3	827 Wolfiana	14.8	785 Zwetana	12.6

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## Pseudo-Science and Revelation

By N. T. BOBROVNIKOFF

*The significance of this paper will be more fully understood and appreciated after a reading of the paper, begun in the December, 1940, and ended in the January, 1941, issue of this publication, under the title "The Revelation in Thunder and Storm." In that paper certain inferences were made and conclusions reached which the present paper considers unwarranted. We are pleased to give our readers the opportunity of viewing the question in the new light furnished by the scholarly paper which follows.* EDITOR.

Of all the books of the Bible none is more mysterious than the Revelation of St. John. On the Isle of Patmos John saw a vision of the ultimate destiny of the Church of God and of the worldly empire. This vision with the encouragement of the victory of Christ in the very near future he addressed to the seven churches in seven cities of the Roman province Asia.

There is nothing more certain than that the visions of the apocalypse cannot be taken literally. Babylon in the vision is surely not the historic city of Babylon which by that time had ceased to exist; nor is the new Jerusalem coming down from heaven with the walls of jasper of 12,000 stades or 1,500 miles long and high and with the twelve gates of pearl to be thought of as an ordinary city. Even in small details the book cannot

be interpreted literally. Thus (Rev. 1:16), the first figure had seven stars in his right hand, which fact does not prevent him (Rev. 1:17) from placing the same right hand on John. As if warning us against literal interpretations, John explains (1:20) that in this vision seven stars represent the angels of the seven churches.

It is obvious that a cosmic philosophy underlies these visions. Eclipses of the sun and moon, falling stars, and earthquakes follow each other, and most visions are seen in the heavens. This much is admitted by all modern interpreters of the apocalypse, although the most thorough of them, R. H. Charles<sup>1</sup>, seems to think that the author of the apocalypse did not understand the astrological significance of the images used by him. We might say the situation is analogous to a modern English speaking person's using the word "Monday" without any association with the moon, or the word "panic" without any reference to the pagan god Pan.

Charles has emphasized the importance of Hebraistic elements in the apocalypse. On the other hand, researches of Cumont<sup>2</sup> and Boll<sup>3</sup> reveal such saturation of the Hellenistic world with astrological ideas that astronomical references of the apocalypse acquire a new significance. The history of the astronomical interpretation of the apocalypse is given by Charles<sup>4</sup>. Of the new attempts of this kind, that of F. Boll<sup>5</sup>, one of the best authorities on Hellenistic culture, deserves attention.

The purpose of this note is the criticism of a book published by N. Morozov in Russian in 1907 and translated into German in 1912 under the title, *Die Offenbarung Johannis, eine astronomisch-historische Untersuchung*. It has been recently brought to the attention of the readers of this magazine by M. S. Kissel<sup>6</sup> who obviously shares Morozov's view. Morozov finds it possible to establish the exact date of the vision which turns out to be September 30, A.D. 395, in defiance of history, and to name John Chrysostom as the author of the apocalypse. In what follows I hope to show that neither the astronomical interpretation nor the chronological results obtained by Morozov deserve the slightest confidence.

I must admit that in the original Russian the book is fascinating. To certain types of minds, Morozov's method appears to be convincing. One does not notice that his method is simply picking up what fits into his theory, leaving the rest unmentioned. This is the old method ridiculed by Schopenhauer. Throw a handful of rice on the floor. Remove all the grains that do not make significant figures, such as letters of the alphabet. Attach significance to the remaining grains.

Morozov's theory was accepted by me wholeheartedly when I read this book some thirty years ago, and I was influenced by it for some time. In my excuse, I can plead that at that time I was fifteen years old. A later book by Morozov is even more fantastic. It concerns the prophets, and he tries to show, by the astronomical method, that they lived after the time of John Chrysostom!

Since the crux of the problem is in the chronological investigation made possible by the position of the planets and the eclipse of the sun, I shall restrict my remarks only to this aspect of the book.

Morozov's reasoning is briefly the following: The procession of the four horsemen of the apocalyptic vision (Rev. 6:2) is taken to mean four planets which are identified mainly by the color of the horses; namely, the white horse with Jupiter, the red one with Mars, the black one with Mercury, and the pale one with Saturn. The constellations in which the planets were supposed to have been at the time of the vision were identified from the description of the riders. Thus Mercury was in Libra because the rider of the black horse had scales in his hand. Finally, the vision of "a woman clothed with the sun and the moon under her feet" (Rev. 12:1) is taken to mean an eclipse of the sun occurring when the sun was at the feet of the constellation Virgo. Approximate calculations showed that an eclipse of the sun on September 30, A.D. 395, would satisfy the assigned positions of the planets. Morozov's assignment of the planets to the corresponding constellations for that date was later confirmed by rigorous calculations carried out by two Poulkovo astronomers, Liapin and Kamensky. At first glance this application of the astronomical method to historical problems seems to be very convincing until one begins to analyze its logical and historical basis. Of course, the woman of the vision may very well mean the constellation Virgo, or the dragon (Rev. 12:3), the constellation Hydra. This does not mean, however, that the vision contains the chronological elements which make it possible to determine the date and hour of the vision.

Any exact assignment of the planets to the constellations (such as the moon at Virgo's feet) is hopeless. Modern constellations are not always the same as the ancient ones, and too little is known about their evolution to be sure of anything. Neither the position of the figures nor their extent has been invariable. Taking Virgo again as an example, we find it pictured with the head toward Leo on the early Roman planisphere of Geruvigus,<sup>7</sup> with the head toward Scorpio in the Babylonian zodiac,<sup>8</sup> with the head toward the celestial pole in the Egyptian zodiac of Dendera,<sup>9</sup> and with the head away from the pole in another Egyptian zodiac described by Daressy.<sup>10</sup> Therefore, the expression, "the moon at Virgo's feet," is rather meaningless unless we establish the system of the zodiac used. Nor is there much certainty about the attributes of the figures representing the constellations. Virgo, again, although always preserving the semblance of a woman (a mermaid in the Babylonian zodiac!), was pictured with wings or without wings, as Astraea, Irene, Isis, etc. Although she has always had an ear of corn in her left hand, in her right hand she has had an olive branch, a palm branch, scales, a child, or even a sword. Remembering that Orion also has a sword and that Hercules<sup>11</sup> was sometimes represented with a sword instead of the familiar club, the assertion of Morozov that Perseus is the only constella-

tion with a sword seems a slight overstatement. That was his justification for putting Mars in Aries, "under Perseus." No matter where you put Mars, it is always possible to find a nearby constellation with a sword.

According to Morozov, the author of the apocalypse recorded what he saw, as indeed, is explicitly stated by the seer himself (Rev. 1:2), yet Morozov comes to the conclusion that the eclipse was not visible in Patmos, that Mars was under the horizon at the moment of the vision, and that anyway the eclipse occurred at 5:00 P.M. and no planets or stars could be seen at that time. Thus, a *reductio ad absurdum* is complete.

Coming now to the identification of the planets, one is struck with the arbitrariness of assignment. Why are there only four planets participating in the procession? To be sure, the sun and the moon are assigned places elsewhere, but the omission of the planet Venus seems strange. At the supposed time of the vision Venus was in Ophiuchus just a few degrees southeast of Saturn. If the reference to the "bright and morning star" (Rev. 22:16) has any astronomical significance, it must mean the planet Venus, but this planet was near its eastern elongation and was, therefore, an evening star. This fact is conveniently overlooked by Morozov.

The identification of the planets as horses of different colors cannot be said to be based on anything but imagination. The question of the color of the planets in ancient literature was discussed in great detail by Boll and Bezold in their exhaustive investigation, *Antike Beobachtungen farbiger Sterne*.<sup>12</sup> Although actual words describing the color differ from author to author, the general ideas expressed by them were fairly consistent. We have the following scheme:

<i>Apocalyptic Horses</i>		
Mercury: yellowish or bluish	<i>μέλας</i>	black
Venus: white	—	—
Mars: red	<i>πυρρός</i>	red
Jupiter: white and gray	<i>λευκός</i>	white
Saturn: black <sup>13</sup>	<i>χλωρός</i>	pale

We see that with the exception of Mars the apocalyptic colors have little in common with the colors of the planets. Morozov tries to make *μέλας* mean inconspicuous, but by no stretch of imagination is this possible. The meaning of the word is plain black, as black as ink, *τὸ μέλαν* being the Greek word for ink. Referring to the eclipse of the sun just a few lines down, the seer says, "*ὁ ἥλιος ἐγένετο μέλας*" (Rev. 6:12), and no one will maintain that the sun in eclipse is inconspicuous. This same word *μέλας* was used by the ancients in connection with Saturn and never with Mercury. The situation is no better with Jupiter. The horse is *λευκός* or pure white, used to describe Venus and not Jupiter. Now, if the apocalyptic horses really were planets, we should identify them as follows: the black horse with Saturn, the red one with Mars,

the white one with Venus, and the pale one with Mercury. Morozov's scheme, therefore, falls to pieces.

But why should the horses be identified with the planets? I do not believe there is a single instance in ancient literature to allow this interpretation. The planets were *πρόσωπα*, that is, faces or persons,<sup>14</sup> which might ride horses, but not *vice versa*. Indeed, in the phantasmagorical but beautiful imagery of the apocalypse, a centaur Sagittarius riding a horse Jupiter is grotesque.

There are other horses in the vision which were overlooked by Morozov. There were 200,000,000 horsemen (Rev. 9:16); there were countless locusts that looked like horses (Rev. 9:7); there were the armies of the heaven on white horses (Rev. 19:14), and, above all, the Faithful and True sitting upon a white horse (Rev. 19:11) described very much in the same fashion as the horseman identified with the planet Jupiter. Are these also planets?<sup>15</sup>

The eclipse of the sun, which supplies the most exact date of the event, is not very convincing. "The sun became black as sackcloth of hair, and the moon became as blood," (Rev. 6:12). If the first part of this quotation is an adequate description of the solar eclipse, the second part describes just as well the eclipse of the moon. Do we have, then, a simultaneous eclipse of the sun and the moon with an earthquake and a meteoric shower to boot ("and the stars of heaven fell unto the earth")? A little later when the fourth angel sounded, the third part of the sun and of the moon was darkened, and a third part of the stars (Rev. 8:12). Again, then, a partial eclipse of the sun and of the moon with something unheard of happening to the stars? Such passages should deter anybody from the attempt to take the apocalypse literally.<sup>16</sup>

The interpretation of the "woman clothed with the sun, and the moon under her feet" (Rev. 12:1) as the conjunction of the sun and the moon resulting in an eclipse is altogether not tenable. The garments of the woman are here described, the expression, "*γυνή περιβεβλημένη τὸν ἥλιον*," referring without question to the sun in the upper part of the figure worn as a cloak. Also the crown of twelve stars not mentioned by Morozov belongs to this vision as part of the attire of a queen. Obviously we have to deal here with a complex cycle of Regina Coeli, discussed in detail by Boll.<sup>17</sup>

But the reader may say, "Morozov's hypothesis has worked so well. Did not the Pulkovo astronomers confirm by exact computations the positions of the planets as assigned by him on the basis of the apocalypse text? Does not that prove the essential correctness of his hypothesis?" Not in the least. The exact computations did nothing but to check Morozov's rough results. Morozov started with the assumption of Jupiter in Sagittarius, Saturn in Scorpio, and the eclipse of the sun occurring at the end of September or at the beginning of October. The only two unassigned planets were Mercury and Mars. Mercury, being close to the sun, must have been not far from the feet of Virgo, that is, either

in Virgo or in Libra. It happened to be in Libra. So far as Mars is concerned the designation "under Perseus" or under any constellation with a sword is too indefinite.

The procedure, therefore, boils down to this: Jupiter, Saturn, the sun, and the moon are assigned their places within the wide limits of the constellations. Select, then, the years satisfying these conditions, and select from these years those which satisfy also the conditions for Mercury and Mars. There is no proof here of anything but the obvious truth that given a sufficiently long time a stated configuration of the planets is bound to occur.

What is the result? The date fixed by Morozov for the vision is September 30, A.D. 395, and the author of the apocalypse is none other than John Chrysostom. This is nothing but sheer nonsense. When I mentioned Morozov's theory to a classic scholar, his reply was that it sounded like saying that the Canterbury Tales were written not by Chaucer but by Lord Byron. The style of the apocalypse is absolutely unique. There are so many Hebraisms in it that it is generally accepted that the author was a Jew thinking in Hebrew and writing in Greek.

In so far as the date of the apocalypse is concerned, the date of few books of the New Testament has been better established. The apocalypse is mentioned by many authors before A.D. 395, often with long quotations from it verbatim.<sup>18</sup> There is abundant evidence that the apocalypse was in circulation both in the West and in Asia during the second half of the second century. Historical research has established beyond much doubt that the apocalypse was addressed by a person of influence and authority to seven of the leading churches of Asia between the years A.D. 90 and 96. It was written during the persecution of the Christians by the Emperor Domitian. A few historians differing from this interpretation assign it to the persecution by the Emperor Nero, that is, still earlier. Its author is unknown, and there is no conclusive proof either for or against the authorship of the Apostle John, as has been generally maintained from the second century onward.

## REFERENCES

<sup>1</sup> See his *Studies in the Apocalypse*, 1913, and especially his *Commentaries*, 1920, two volumes of the most minute analysis of the apocalypse.

<sup>2</sup> *Les Religions orientales dans le Paganisme Romain*, sec. ed., 1929, Ch. 7.

<sup>3</sup> *Sphaera*, 1903.

<sup>4</sup> *Studies*, p. 50 ff.

<sup>5</sup> *Aus der Offenbarung Johannis*, 1914.

<sup>6</sup> *Popular Astronomy* 48, 537, 1940, and 49, 13, 1941.

<sup>7</sup> B. Brown, *Astronomical Atlases, Maps, and Charts*, 1932, frontispiece.

<sup>8</sup> E. Zinner, *Geschichte der Sternkunde*, 1931, p. 57.

<sup>9</sup> F. Boll, *Sphaera*, plate 3.

<sup>10</sup> *Ibid.*, plate 6.

<sup>11</sup> *Ibid.*, p. 102.

<sup>12</sup> *Abhandlungen der K. Bayerischen Ak. der Wiss., Phil.-philol. und. hist. Klasse*, 30, 1 Abh., 1916.

<sup>13</sup> Designation "black" seems strange in connection with any planet. Boll thinks that Saturn being the farthest planet was assigned the last color on the ancient color scale from white to black.