The file **back_door_text_ed.pdf** is a pdf I made on April 2, 2007 from a Word file I had created on March 26. (I have that Word file as well, apparently in the state from which the pdf was made.) It contains a transcription I made of the part of the Antikythera Mechanism's Back Cover Inscription (BCI) that is preserved in mirror-reversed offsets on Fragment B-1, soon after I was given access by the AMRP to CT images of Fragment B. It differs in mostly minor details from the edition of this part of the BCI that was published in *Almagest* 7.1 in 2016, but it testifies that already at that date I had read the inscription considerably more accurately than any previous edition of which I am aware (compare the Stamires-Price transcription in *Gears from the Greeks* or the more extensive provisional transcription included in the Supplementary Information of the AMRP's 2006 paper in *Nature*). In particular, I was the first to read the names of the planets Mars (Ἄρεως Πυροέντος), Jupiter ([Φα]έθοντος) and Saturn ([Φα]ίνοντος) in lines 22–24 (now numbered 23–25) so that in lines 18–24 (now 19–25) the names of all the planets except Mercury appear together with the Sun in the order Venus, Sun, Mars, Jupiter, Saturn, which is one of the orders of presumed increasing distance from the Earth commonly encountered in ancient Greek astronomy, for example in Ptolemy's works.

(In 2007 Price's name "Back Door Inscription" was still commonly used for the inscription now called the Back Cover Inscription.)

I did not, so far as I can remember, share this transcription with any colleagues at the time, though I did let colleagues know that I had read the names of planets other than that of Venus (which had been partially read and identified already in 1902, and was until my 2007 readings the *only* apparent reference to a planet that was known to be in the BCI). I showed and explained the readings at the end of a plenary lecture on the Mechanism that I delivered at the International Congress of History of Science and Technology in Budapest on August 2, 2009: http://www.conferences.hu/ichs09/Plenary_lectures.htm

On April 12, 2011 (10:14 AM New York time) I wrote the following email to Dr. Tony Freeth:

Dear Tony,
This idea came to me last night. I've been trying to make sense of the way the inscription describes the front display, which in various ways seemed not to make sense with either a Wright-style or an Evans-style front dial. I'm pretty sure this is the correct solution.
Yours,
Alex

Attached to this email was the file **Cosmos.pdf**, a pdf of a Word file that I had created at 7:09 AM that same day. In this document I proposed, on the basis of the passage in the BCI, that the front dial of the Mechanism incorporated a schematic cosmological "picture" of a geocentric system in which small spheres representing the Sun and planets would have been seen to revolve around the zodiac (represented by the Zodiac Scale partly extant in Fragment C) while travelling through circular bands or rings representing the "zones" belonging to each body in the geocentric cosmology, in the appropriate order of distance from the Earth at center. I

stated that the BCI text was compatible with two ways of effecting this display: either the little spheres could have been carried on mobile rings driven by the gearwork, or the rings could have been engraved on a static background behind revolving pointers on which the little spheres were fixed at the appropriate radial distances.

In the email quoted above, "Wright-style" refers to M. T. Wright's working-model reconstruction of the Mechanism which had knife-shaped revolving pointers but no small spheres or concentric rings. "Evans-style" refers to the suggestion in the *Journal for History of Astronomy* (2010) paper by Evans, Carman, and Thorndike that there could have been five small subsidiary dials within the circle surrounded by the Zodiac Scale, in a kind of "rose-window" arrangement, showing what stage each planet was at in its synodic cycle rather than longitudinal motion through the zodiac.

Dr. Freeth replied by email, describing my proposal as "very, very interesting and persuasive on a first reading," adding that he was uncertain whether the revolving-rings version of it was mechanically viable whereas the spheres-on-pointers version looked viable. From among subsequent emails we exchanged over the next couple of hours, I quote just the following message I sent at 11:55 AM:

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Yes, I have no objection to this. But the surviving inscription doesn't
have the word "gnomonion" preserved in any of the lines describing
planets. I guess it could have been always in the gaps between the
preserved words. The lines of the inscription have to have been quite
long, I think more than twice the longest preserved line.
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(What I was not objecting to was a combination of pointers with spheres mounted on them, which Dr. Freeth was apparently inclined to prefer to the revolving rings since it would mean having simultaneously the cosmological display and the possibility of reading off zodiacal longitudes of the planets.)

On the following day, April 13, I emailed Dr. Freeth with another attached document **Planets.pdf** that I had written that morning to explain the BCI readings, since he had asked me if the planets' names were actual readings or some kind of extrapolation from the structure of the inscription's text—he said he was not aware of any planetary name except for Venus having been read before. In this email I also wrote:

In the Cosmos note I forgot to point out that, if there was a concentric rings portrayal of the planetary system, the word "above" would naturally mean "further from the Earth", i.e. further from the center of the display. Incidentally, if this idea is right, it proves that the Mechanism was conceived as representing a geocentric cosmology.

These exchanges led to our collaboration on the paper, "The Cosmos in the Antikythera Mechanism," published as *ISAW Papers* 4 in February, 2012. By the time that paper was written, Dr. Freeth had concluded that a revolving-rings display was not mechanically viable, so the paper only mentions the possibility to dismiss it.

In Freeth *et al.*, "A Model of the Cosmos in the Ancient Greek Antikythera Mechanism," *Scientific Reports* 2021, the mobile ring version of the Mechanism's front dial is a central, highlighted element of the authors' reconstruction of the front face and the gearwork behind it. Moreover, the arguments from the BCI, including the absence of surviving mentions of the pointers, are presented there essentially as I set them out in my documents and emails from 2011. These debts are not acknowledged in the paper; all one reads there is (Supplementary Discussion S2 p. 8):

In the period 1905-06, a pioneering researcher, Rehm[1], proposed a ring system for the planets (Supplementary Fig. S17), wrongly suggesting that the five rings in Fragment B were for the five planets. We now know that these rings were a fixed part of the Metonic Calendar on the Upper Back Dial[4,7]. A model of the Antikythera Mechanism (Price & Deroski) in the National Archaeological Museum in Athens has concentric rings for the Sun and Moon. In another publication[9], the authors (Freeth & Jones) wanted to create a ring display for the planets because of the description in the BCI but were unable to find a satisfactory mechanical solution for the Moon phase device (Supplementary Discussion S6).

(Rehm, as is well known, was making a wrong interpretation of the remains of a different dial, the spiral Metonic Dial of the back face, while Deroski's solar and lunar rings have no known motivation.)