

- uniform, requiring new tables regularly
 - b. Simon Mayr (Marius) obtained even more accurate mean periods (within 0.03%), but failed to detect variation in synodic periods
 - c. Perhaps because Mayr did not rush to print, but worked out orbits first, or perhaps for other reasons, his names for the satellites were adopted by the astronomical community
6. A new discovery: the Moon presents essentially the same face to us, save for a small variation that Galileo first announced in 1632 (the libration in longitude)
- D. Some Background to Galileo's *Dialogue*
1. Impact of all these discoveries, especially as reported by Galileo, was to underscore the limitations of the old dogmatism and, with it, the rapidly disappearing grounds for maintaining Ptolemy over Copernicus
 - a. Continuing excitement of new discoveries, exposing old dogmatic claims as never having had any merit in the first place
 - b. By implication, then, a threat to authority of Church doctrine based on Aristotelian natural philosophy, and even more so to the university Scholastic curriculum
 2. Opposition develops in Rome, especially after Foscarini's book defending Copernicanism (1615), leading to the decree of 1616 against Copernicanism
 - a. The step Galileo was trying to prevent, as in his widely circulated manuscript letter to the Duchess of Tuscany on "The Use of Biblical Quotations in Matters of Science"
 - b. Galileo called to audience with Cardinal Bellarmine, where he apparently promises not to defend Copernicanism in the future
 3. In 1621, Pope Paul V died (and Grand Duke Cosimo as well), to be replaced (1623) by Urban VIII (Cardinal Maffeo Barberini), a Florentine friend and former supporter of Galileo
 - a. Based on audiences with Pope, he decides to write *Letter to Ingoli*, responding to latter's 1616 physical arguments against Copernicanism
 - b. Urban VIII read this without objection, leading Galileo to conclude that so long as he steered clear of scriptural arguments and presented Copernicanism as a hypothesis, he could resume his defense of it in the new Vatican climate
 - c. 'Hypotheses': not theoretical conjectures, but propositions entertained without asserting their truth for purposes of drawing conclusions from them
 4. Publication of *The Assayer* in 1623 (dedicated to Urban VIII) turns open dispute with Fr. Grassi, a Jesuit in Rome, into something a good deal more intense, adding to the enmity toward Galileo among many in Rome
 5. Began work on the *Dialogue* in 1625, completing it in 1630 after some interruptions, but then taking 18 months to get it approved by the censors in Rome and Florence
 - a. An immediate big splash, drawing the attention of Rome and Galileo's enemies
 - b. Within 6 months the printer is ordered to suspend sales, and Galileo is ordered to Rome to stand trial