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How Copernicus saw what Ptolemy and everyone else for 1400 years missed

WHAT COPERNICUS DISCOVERED was not a new idea, since the heliocentric idea is ancient, but an argument for taking that idea seriously. Further, the argument does not require any information or any technical apparatus that was not available in the *Almagest*, hence available to Ptolemy himself and a long line of successors over the intervening 14 centuries. Consequently a first puzzle is how Copernicus managed to see what so many had missed for so long.

And a second puzzle comes from noticing that the tremendous burst of discovery that marks the beginning of modern science c. 1600 came from a very small group of men (Stevin, Gilbert, Galileo, Kepler), none of whom ever met, but all of whom were sufficiently ardent Copernicans to be moved to write a book expounding the Copernican view. Some of the discoveries not only have no connection to the Copernican view (dealing with formation of images, water pressure, and so on), but had been discussed since the Greeks, and were managed with apparatus which could have been used by the Greeks. So apparently there was something about being a committed Copernican c. 1600 that enabled discovery even of things having nothing to do with being a Copernican and which had been missed by everyone over many prior centuries.

I summarize the explanations of these two puzzles worked out in my “It started with Copernicus” and earlier work, and comment briefly on some criticisms of the arguments.

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