Astronomia Carolina.

A NEW
THEORIE
OF THE
Cœleſtial Motions.

Compoſed according to the Beſt Obſer-
vations and moſt Rational Grounds of Art.

Yet far more Eaſie, Expedite and Per-
ſpicuous than any before Extant.

WITH

Exact and moſt Eaſie Tables thereunto, and
Precepts for the Calculation of Eclipſes. &c.

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The old supposition of solid orbs to support and carry the planets, I count scarce worth the mentioning; the Earth we see hath no such orb, and nature itself with all observations of the true motions of secondary planets and of comets plainly demonstrating the impossibility of any such thing

Nor shall I here mention any of those many and gross absurdities, which will necessarily follow in all such systems, as attribute to the sun or fixed stars any of the Earth's natural motions.

But farther to clear the truth from all seeming contradictions; whereas we see that all corporeal substances appertaining to this our earthly globe do (proportionably to their quantities) tend downward towards the Earth's center; let us observe that this comes to pass by the natural magnetic power of the Earth, attracting its parts, a property common to every one of the planets, whereby (according to the Creator's will) they become compact bodies, and do retain their constant form; the Sun also and fixed stars (though of a different principle) having the like retentive faculty:

And that the air, the clouds, a bird flying, a stone falling from any height, an arrow or bullet shot or driven any way, and all things else within the sphere of the Earth's activity (whether otherwise moved or not) do naturally and exactly follow her annual diurnal motion, for that we the Earth's inhabitants cannot possibly perceive or be made sensible thereof, any other way then by such real demonstrations as are here given; we shall exemplify this in the planets *Jupiter* and *Saturn*, whole attendants (at a far larger distance) do not only keep their constant revolutions about them, but together with them about the Sun; the like doth our Moon about the Earth, and both about the Sun. So that by the impulse and universal consent of nature (whether accidentall motions be annexed or not) all things so near the Earth do precisely keep the same motion with it.

Streete, *Astronomia Carolina*, p. 11

Table 10.1 *Orbital elements of the planets adopted by seventeenth-century authors, compared with Newcomb's values for 1600*

	Eccentricity	Aphelion	Mean distance
Mercury			
Newcomb (for 1600)	0.205 55	251°14' 9″	0.387 10
Kepler (K − N)	+0.004 50	+ 1°35'49″	+0.000 98
Boulliau (B − N)	+0.004 52	+ 23'38″	−0.001 25
Wing 1651 (W − N)	+0.004 85	+ 1°34' 6″	−0.000 70
Wing 1669 (W − N)	+0.004 84	− 7'54″	−0.001 10
Streete (S − N)	+0.000 34	− 31″	0
Venus			
Newcomb (for 1600)	0.006 97	305°55'51″	0.723 33
Kepler (K − N)	−0.000 05	− 4°41'29″	+0.000 80
Boulliau (B − N)	+0.000 87	− 32'46″	+0.000 65
Wing 1651 (W − N)	−0.000 05	+ 32'41″	−0.000 26
Wing 1669 (W − N)	+0.000 36	− 6°55'41″	+0.000 74
Streete (S − N)	+0.000 18	− 3°22'50″	0
Earth			
Newcomb (for 1600)	0.016 88	276° 4' 2″	1.000 00
Kepler (K − N)	+0.001 12	− 19'54″	0
Boulliau (B − N)	+0.000 96	− 28'38″	0
Wing 1651 (W − N)	+0.000 99	− 20'34″	0
Wing 1669 (W − N)	+0.001 00	− 20'34″	0
Streete (S − N)	+0.000 44	+ 21'26″	0
Mars			
Newcomb (for 1600)	0.093 04	148°41'58″	1.523 69
Kepler (K − N)	−0.000 39	+ 17'56″	−0.000 19
Boulliau (B − N)	−0.000 65	+ 17'54″	−0.000 19
Wing 1651 (W − N)	−0.000 55	+ 18' 2″	+0.001 31
Wing 1669 (W − N)	−0.000 39	+ 15' 4″	−0.000 02
Streete (S − N)	−0.000 50	+ 6'24″	0
Jupiter			
Newcomb (for 1600)	0.047 84	187°53'27″	5.202 7
Kepler (K − N)	+0.000 38	− 1° 1'26″	−0.002 7
Boulliau (B − N)	+0.000 72	+ 7'55″	+0.010 5
Wing 1651 (W − N)	+0.000 46	+ 53″	+0.020 5
Wing 1669 (W − N)	+0.000 01	− 8'20″	+0.013 3
Streete (S − N)	+0.000 32	− 27'25″	−0.001 6
Saturn			
Newcomb (for 1600)	0.056 93	265°13'24″	9.546
Kepler (K − N)	0	− 15'48″	−0.036
Boulliau (B − N)	+0.000 81	+ 46'22″	−0.004
Wing 1651 (W − N)	+0.000 56	+ 46'36″	−0.013
Wing 1669 (W − N)	+0.000 56	+ 56'36″	−0.013
Streete (S − N)	+0.000 42	+ 53'49″	−0.008