A CANDLESTICK

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OUR FATHER'S UNIVERSE

WHAT IS GRAVITATION?—Continued

We have seen (Vol. 1 No. 1) (1.) That Earth is a transverter mill for the transversion of cosmic circulation into Earth's own cosmorbitation. (2.) that in this work, she exerts only 5.7ths of her energy of transversion.

How does Earth exert the rest of her energy of transversion? For exert it all, she must. Non-exerted energy is non-existent energy. Earth can exert her transversion energy only in transversion of translatory motion into her own orbitation. To search out, if God will, with His help, and under His tuition, how, in her total orbitation Earth exerts 5.7 times so mush of her energy of transversion as is accounted for in her cosmorbitation, is the task appointed us in this number of "A Candlestick."

All the cosmic circulation that Earth receives at her present cosmorbital radius in her present cosmorbital time, Earth transverts into her present cosmorbitation. She has no surplus cosmic circulation to transvert. Therefore, Earth must exert her surplus energy of transversion upon her present cosmorbital motion. That means that Earth must expend her surplus energy of transversion in transverting her present cosmic orbit into 5.7 epicyclic orbits; and Earth's present cosmic orbit must act as deferent to bear these monthly epicycles around the cosmic center once a year. If the 5.7 monthly epicycles are to be borne around the cosmic center in 365 days, the time of each monthly epicycle must be 64 days. The centrifugy of each monthly epicycle must equal that of Earth's pure rotation as an orb, considered apart from the rotative centrifugy of Earth's rotating molecules; and apart from the orbital centrifugy of their revolution around Earth's axis of rotation. This centrifugy of Earth's pure primary rotation as an orb, we have learned (Vol. 1, No. 1) is satisfied only when its centrifugal equation is d above t equals 1. That the radius of each of the 5.7 monthly epicycles in terms of Earth's radius may equal the time of revolution therein in terms of Earth's time of rotation; the radius of each of the 5.7 monthly epicycles must equal 64 of Earth's radii or 256,000 miles. Epicyclic speed (64 above 64) equals 1, and epicyclic cenrtifugy equals Earth's centrifugy of pure rotation.

The centrifugy of each of the 5.7 epicycles equals the pure rotative centrifugy of Earth. The total epicyclic centrifugy of all the 5.7 epicycles is 5.7 times that of Earth's pure rotative centrifugy. Since the 5.7 epicycles are borne around the cosmic center once a year by Earth's cosmic orbit, they thereby become a part of Earth's total cosmorbitation. Therefore, Earth's total cosmorbital centrifugy becomes 5.7 times the fraction 1 above 5.7. This equals 1. Thus Earth's total cosmorbital centrifugy becomes equal to Earth's rotative centrifugy.

This was the situation, with a 365 day year of 5.7 months of 64 days each, when Earth captured the rotating orb, Luna; and imprisoned her in the center of Earth's monthly epicyclic orbit; and robbed her of all her separate rotation, appropriating it to the acceleration of Earth's motion in equal Earth's rotative centrifugy.

As we found that Earth's cosmorbital speed square multiplied by Earth's radius gave the same demanded orbit (64 square times 4,000 miles, equals 16.4 million miles); so now also we find that Earth's Lunorbital speed square (4.6 times Earth's radius) gives for Earth's demanded Lunorbit 18,500 miles.

As we found that Earth's cosmorbital time square (133,400 days) multiplied by Earth's radius gave us for the cosmorbital radius demanded by Earth's molecules for their discrete, cosmorbital revolution 530 million miles; so now, likewise, we find that Earth's Lunorbital time square (784 days) multiplied by Earth's radius (4,000 miles) gives us for the Lunorbit demanded by Earth's rotating molecules for their discrete Lunormital revolution, 3,000,000 miles.

As we found that Earth's actual, compromise cosmorbit is a mean proportional between the two demanded cosmorbits; so now likewise, we find that Earth's actual compromise Lunorbit (240,000 miles) is a mean proportional between the two demanded Lunorbits.

As we found that Earth's solar gravitation is Earth's centripetal urge toward the smaller cosmorbit (16.4 million miles) and that it is counterbalanced by the centrifugal urge of Earth's rotating molecules toward the larger cosmorbit (530 million miles); so now, likewise, we find that Earth's lunar gravitation is her centripetal urge toward the 18,500 mile Lunorbit; and that it is counterbalanced by the centrifugal urge of Earth's rotating molecules toward the 3,000,000 mile Lunorbit.

As, at present cosmorbital radius 93,000,000 miles) 5.7 epicycles of 256,000 miles radius and 64 day period are required to enable cosmorbital centrifugy to equal Earth's centrifugy of rotation; so, likewise, at Earth's present lunorbital radius (240,000 miles) 13 epicycles of 8,500 mile radius and of 2.14 day period are required to make Earth's lunorbital centrifugy equal to Earth's centrifugy of rotation.

As Earth's 5.7 epicycles borne by Earth's cosmorbit around the cosmic center causes Earth to appear to trace a serpentine path along her cosmorbit, half the time inside thereof, and half the time outside thereof; so, likewise, Earth's 13 epiepicycles upon her lunorbit cause her to appear to trace a seprentine path along her lunorbit, half the time inside and half the time outside thereof.

The Moon's libration in longitude is caused, in part by the reaction of her unceasing contribution of her energy of rotation to the acceleration of Earth's lunorbital motion against the unceasing variation in length of Earth's lunorbital radius and speed, due to Earth's epiepicycles.

Of course, all the foregoing discussion raises the inevitable question: Does Earth revolve around her moon? If so, what evidence is there thereof? Abundant evidence and conclusive.

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This was the situation, with a 365 day year of 5.7 months of 64 days each, when Earth captured the rotating orb, Luna; and imprisoned her in the center of Earth's monthly epicyclic orbit; and robbed her of all her separate rotation, appropriating it to the acceleration of Earth's motion in Earth's monthly epicyclic orbit; which from now on we may name Earth's Lunorbit to contra-distinguish it from Earth's other orbit, which we may name her cosmorbit. This capture, imprisonment, and despoliation of Luna caused six important changes in Earth's Lunorbitation It (1) shortened the radius of Earth's Lunorbit; (2) changed it from a circle to an ellipse; (3) hastened Earth's Lunorbital motion; (4) thereby shortened Earth's Lunorbital time, and increased the number of Earth's months from 5.7 to 13; (5) changed the equation of Earth's Lunorbital centrifugy from d above t equals 1 to d above t square equals 1, thereby reducing it from equality with Earth's pure rotative centrifugy to one 13th of the Earth's total rotative centrifugy; and (6) altered the effect of Earth's Lunorbitation upon Earth's tides. In effecting these changes. Luna gave up all her separate rotation to Earth's Lunorbitation, and still ceaselessly continues to surrender it for the eternal maintenance of these changed conditions.

Now that Earth has at the center of her lunar orbit a rotator that, like a shaft to its pulley, contributes its rotation to the acceleration of Earth's Lunorbital motion; just as the sun at the center of Earth's solar orbit, contributes of his rotation to accelerate the motion of all the planets; so now let us treat the subject of Earth's Lunorbitical gravitation precisely as we treated the subject of Earth's cosmorbital gravitation (Vol. 1, No. 1); and apply to it precisely the same reasoning and calculation.

As we multiplied cosmorbitical distance (93,000,000 miles) by Earth's cosmorbital centrifugy 1 above 5.7 and thereby found Earth's demanded cosmorbital distance (16.4 million miles); so now, likewise let us multiply Earth's Lunorbital radius (240,000 miles) by her Lunorbital centrifugy (one 13th) and find Earth's demanded Lunorbit (18,500 miles); at which radius Lunorbital centrifugy would see the Lunorbit; and that it is counterbalanced by the centrifugal urge of Earth's rotating molecules toward the 3,000,000 mile Lunorbit.

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As to nature thereof, this evidence divides itself into (1) presumptive, (2) confirmatory, and (3) demonstrative.

Let us consider first presumptive evidence already in hand:

(1) If Earth revolves around her moon with an orbital radius of about 240,000 miles, this revolution must make a difference of nearly half a million miles in her monthly distance from the Sun. This difference in distance should make an observable and measurable corresponding difference in the apparent diameter of the Sun.

(2) The amount of this difference should be about 10 seconds of arc.

(3) Suns apparent diameter should be greatest at new Earth (full moon).

(4) Should be least at full Earth (new moon).

(5) Nearly stationary at new Earth.

(6) Ditto at full Earth.

(7) Lengthening should be most rapid at Earth's third quarter.

(8) Shortening most rapid at Earth's first quarter.

(9) Changes in apparent diameter should be uniform, rythmic, and regular.

(10) All the above phenomena should be observable when attention first is called to the relation between the moon's phases, and variation in apparent solar diameter.

(11) These phenomena should be uninterrupted from the time when first noticed down to present; thereby creating the presumption that they have been existent throughout geologic ages before rivers, winds and months became masculine.

For 75 years astronomers have known these 30-day changes in the apparent diameter of the Sun. For twenty years they have known that these changes in apparent diameter of the Sun keep perfect time with the phases of Earth's moon. Why, then, is this evidence presumptive instead of demonstrative and conclusive? Because there is a bare possibility that these changes in apparent diameter are caused by actual changes in the

sun's bulk. This possibility is slight to the vanishing point; because, by the law of chances, if the above 11 conditions are met and realized by the actual phenomena, the presumption that Earth revolves around her moon becomes about 40 million to one. How this presumption can be converted into demonstarted certainty will be stated a few paragraphs farther on.

Now we turn from presumptive evidence already ascertained to evidence readily obtainable.

(12) If Earth revolves around her moon, instead of her moon around Earth. Earth's tides should be affected thereby; and an adequate, correct, and satisfactory tidal theory should be made possible. Of Newton's tidal theory based upon gravitational attraction and the revolution of Earth's moon around Earth, Young's textbook of astronomy says that, as an explanation of actual tidal phenomena, it is "very unsatisfactory." Oft the theory itself he says that "it is certainly inadequate and in some respects incorrect".

(13) If Earth revolves around her moon once a month, during the half month between full Earth and new Earth, she is advancing to meet cosmic radiation. This should cause a higher temperature from cosmic radiation during this half of the month than during the half month from new Earth to full Earth, when Earth is retreating from the cosmic center. This difference in temperature has a double cause: (1) During the half month from full Earth to new Earth, Earth arrests more cosmic radiation than in the other half month; and (2) the energy of arrestation is greater, increasing temperature proportionally to square of energy of arrestation. This phenomenon corresponds as to immediate cause with the higher temperature of Earth's autumn months, when, owing to eccentricity of Earth's cosmorbit, Earth is advancing to meet cosmic radiation; and with the lower temperature of Earth's vernal months, when Earth is retreating in her cosmorbit from the cosmic center, and must be overtaken by cosmic radiation.

That the heat received from the Sun at Earth's surface actually does vary by so many as 10 degrees every few days, is an already ascertained truth. If an examination of U. S. daily weather statistics for the past 50 years shall show that during the week of Earth's third quarter (moon's first quarter) more heat is received from the sun than during the week of Earth's first quarter (moon's third quarter), another presumptive proof that Earth revolves around her moon will have been added.

(14) When Earth is about 93 million miles from Venus and Earth is at her third quarter, the elongation of the cosmorbit of Venus, measured from Earth half a day after quadrature, should be 1.5 minutes of arc longer than when measured half a day before quadrature.

(15) At Earth's first quarter, 1.5 minutes of arc longer than etc.

The semi-revolution of the major axis of Earth's lunorbit should make a 9-year, 20-seconds-of-arc variation in the length of the sun's apparent diameter.

Now, from presumptive evidence, we turn to confirmatory evidence that Earth revolves around her moon. Of this there are many important items; we shall adduce but one.

(16) Great Sirius revolves in an epicycle around his correlatively tiny companion star; as Earth revolves in an epicyvle around her little moon.

Astronomers are put to their wits 'end to reconcile with the Newtonian theory of gravitational attraction this behavior of Sirius and his companion star. To reconcile observed truth with imperiled theory, some astrono-

TERRESTRIAL GRAVITATION

At Earth's surface, each kind of atom has its own weight, radius, speed of atomic rotation, and rotative centrifugy, measured in terms of the weight, radius, rotative speed and rotative centrifugy of the hydrogen atom.

Under standard conditions, weight, radius, speed and centrifugy of each kind of atom are coequal. Thus, weight, radius, speed and centrifugy of the oxygen atom are 16 times those of the hydrogen atom. Weight, radius, speed and centrifugy of the radium atom are 256 times those of the hydrogen atom.

Weight of an atom is (1) positively its urge Earth center-ward toward the smaller terrorbit demanded by its atomic rotation; and (2) negatively, is the inability of its deficient terrorbital centrifugy to maintain a terrorbit 4,000 miles distant from Earth's center. This Earth's center-froward centrifugy is the resultant of (1) rotative axifugy, (2) vortical circulative polipety. Both axifugy and polipety are deficient. Hence the atom has a tendency axis-ward and Earth-equatorial planeward. The resultant is a tendency Earth centerward. The solid Earth resists this tendency. Consequently the atom employs its surplus rotative centrifugy in transverting part of its terrorbital motion into a series of atomic epicycles superposed upon the atoms terrorbit. In this way, total orbital centrifugy, (terrorbital and epicyclic) equals the atoms rotative centrifugy.

Terrorbital speed is measured in terms of the atom's rotative speed. Thus, terrorbital speed of oxygen is relatively one 16th that of hydrogen. Terrorbital speed of radium is relatively one 256th that of hydrogen.

Radius of each atomic epicycle equals terrorbital speed times atomic radius. Thus, radius of the epicycle of oxygen is one-16th times 16 equals 1; of radium one 256th times 256 equals 1.

Hence Avagadro's law for the hydrogen half of the atomic scale, and radio activity for the radium half. Avagadro's law should be restated and amplified thus: At Earth's surface, under standard conditions of temperature and pressure, epicycles of all atoms are co-equal in radius. If epicyclic radius be less than atomic radius, such atoms form solids, if the two radii be co-equal they form liquids If the epicyclic radius be greater they form gasses. In gasses, co-equal epicycles cause co-equal volumes to contain co-equal numbers of atoms. In solids, co-equal epicycles cause radio activity proportional to atomic radius. In the very large atom, the atomic epicycle has retreated so near to the atomic center that epicyclic revolution of the atom concurs with atomic rotation and thus multiplies atomic rate of rotation, and increases atomic rotative centrifugy as the square of the rate. The atom cannot enlarge to accommodate the multiplied atomic centrifugy; therefore, must radiate it. Thus, the radium atom transverts Earth's rotation into radium's epicycle; and everts Earth's rotation into radium radiation.

Heat is a function of the atomic epicycle; not of the atom. If the epicycle be circular great heat may coexist with absence of either temperature or light. For heat is amount of epicyclic motion, temperature is epicyclic ellipticity times epicyclic rate. Light is an octave of temperature.

Gasses emit little light, because the epicycle is larger than the atom that travels it. Dense solids emit much light because larger than their epicycles. Volumes of gasses are congregations of atomic epicycles in orderly juxta-

must be overtaken by cosmic radiation.

That the heat received from the Sun at Earth's surface actually does vary by so many as 10 degrees every few days, is an already ascertained truth. If an examination of U. S. daily weather statistics for the past 50 years shall show that during the week of Earth's third quarter (moon's first quarter) more heat is received from the sun than during the week of Earth's first quarter (moon's third quarter), another presumptive proof that Earth revolves around her moon will have been added.

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Astronomers are put to their wits end to reconcile with the Newtonian theory of gravitational attraction this behavior of Sirius and his companion star. To reconcile observed truth with imperiled theory, some astronomers tell us that the tiny moon of Sirus is composed of matter two or three million times the volumetric gravity of water! Other astronomers choose the other horn of the dilemma and tell us that Sirius is composed of matter so tenuous that, compared therewith, the vacuum of a Crooke's tube is a bar of solid lead!

From evidence presumptive, and from evidence corroborative, we turn now to evidence demonstrative and conclusive.

(17) At Earth's third quarter (moon's first quarter) a two-hour (60 minutes before quadrature and 60 minutes after) solar parallax when translated, from what it is under actual conditions into what it would be under ideal, or standard, conditions, should work out Earth's cosmorbital radius, about 93,000,000 miles.

(18) A similar two-hour parallax at new Earth (full moon), when similarly translated, should make said radius about 96,000,000 miles.

(19) At Earth's first quarter (moon's third quarter) cosmorbital radius should work out about 93,000,000 miles.

(20) At full Earth (new moon), radius should work out about 90,000,000 miles.

(21) A seven-day parallax between Earth's third quarter and new Earth should work out about 95,000,000 miles.

(22) Between new Earth and Earth's first quarter, about 95,000,000 miles.

(23) Between Earth's. first quarter and full Earth, about 91,000,000 miles.

(24) Between full Earth and Earth's third quarter, about 91,000,000 miles.

(25) A fourteen-day parallax between Earth's third quarter and Earth's first quarter should work out about 95,000,000 miles.

(26) A 14-day parallax between Earth's first quarter and third quarter should work out 91 million miles.

(27) (28) (29) (30) A light-aberration parallax taken at both quadratures and at both syzigys should give results corresponding with those of (17), (18), (19), (20).

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Gasses emit little light, because the epicycle is larger than the atom that travels it. Dense solids emit much light because larger than their epicycles. Volumes of gasses are congregations of atomic epicycles in orderly juxtaposition and mutual accommodation. Gasses are not riotous bedlams of atoms.

Because atomic heat is a function of the atom's epicyclic speed, which equals atomic rotative speed which equals atomic weight; The product of atomic heat-capacity by atomic weight is the same for all kinds of atoms. Thus, O's atomic speed (one-16th of H's) times O's weight (16) equals 1 same as H's.

Because Earth is the solidified core of a bi-polar vortex changing vortical motion into vortical tendency, we have terrestrial electricity, which is rotative axifugy, and terrestrial magnetism, which is Earth's circulative polipity altered by Earth's solidity from motion into tendency.
