THE UNIVERSAL FORCE OF TIME

The G1/G2 Dimensional Gate

One exact step between the register of the surface and the register of the sky — and every value with two faces crosses it: the year, the planet, the fall of a stone, light, the atom and the lines of the Sun

Stephen Daubney · The Daubney Foundation · 2026 · Rev 3

Tau (T) is the living fabric of time itself — the sole substance of which all physical reality is composed. It is generated by the Sun, as by every star for its own system, and flows outward in the form of the DNA double helix, creating matter, which it deposits at nodal points — the planets — and creating life. Every particle, force, wavelength and conscious experience is a structured configuration of T-flow. The conservation law $d\Sigma T = 0$ governs all change: T is never created or destroyed at a node, only redistributed.

THE GATE, NUMBER FIRST

1.000090150603356

$(5^{10}/(2^4 \cdot 3^9 \cdot \pi^3))$ — G2 = G1 × the gate, for every value with two faces

year **365.2840913775 → 365.3170219587** · free fall **9.8174770425 → 9.8183620939** · × 2400 = sidereal day 23:56:04.069

ABSTRACT

The Earth keeps two times at once. It has a day measured against the Sun and a day measured against the stars, a year on one register and a year on the next, and the two are never the same — because they are not read in the same dimension. The Universal Force of Time names the boundary between them: **the G1/G2 dimensional gate**, a single exact step that separates the register of the surface from the register of the sky. This paper sets out the gate, number first, and follows it through every value in the theory that has two faces.

The gate is

- **1.000090150603356201 $(5^{10}/(2^4 \cdot 3^9 \cdot \pi^3))$** — ninety parts in a million, a pure address of 2, 3, 5 and π, not a fitted correction.

From that one step the paper:

- sets out the **four clocks** of the Earth — the **solar day 86,400 s (G1)**, the **sidereal day 86,164.0690254726 s (G2, 7500π × the step)**, the **lower year 365.2840913775 days ($15\pi^4/4$, G1)** and the **upper year 365.3170219587 days (× the step, G2)**;
- shows that **G1 carries the speed and G2 carries the period**: the G1 rotation speed **465.0941502045 m/s ($15\pi^3$)** times the G2 sidereal day is the **equatorial circumference 40,074,404.4616 m**, and the **equatorial radius 6,378,039.5615 m**;
- sets out the book's **Earth ladder**, G0 to G3, on which the **mass ($5\pi^5/2^8$ on G1)**, the **radius ($25\pi^5/12$)** and the **year ($15\pi^4/4$)** each climb one gate at every rung;
- carries the gate through **free fall** (**9.817477042468 → 9.818362093947**), **light** (**299,789,233.683 → 299,816,259.863**), **hydrogen's quantum** (**13.6048896 eV → 13.6061160890 eV**, the ground state on G2) and **Mercury's year** (**87.9444881075 → 87.9524163562 days**) — every one exactly one step;
- shows where the half step comes from — the **surface pair of free fall**, reached through a square root — and why it is not the G2 face;
- places the **sodium D line 588.9955242462 $(2^3 \cdot 3^{10} \cdot \pi^4/5^7)$** in the dimension below G1 and the **helium D3 line 587.5538877803 $(5^{25}/(2^{33} \cdot 3^{10}))$** four helium steps below it;

- shows that the year the stars mark, **365.2566126366 ((3600/π²) × 730/729)**, is the **gap between the Moho and one helical turn above it, 29.8824867431 km**, and that the Moho's circumference is **40,000 km exactly**;
- and corrects the earlier versions, which gave the star-marked year and the Moho circumference without their routes, put the G2 free fall on the half step, gave the hydrogen quantum and the helium line in forms since superseded, and benchmarked values against figures off the lattice.

It closes with what stands, what is open, the conditions that would break it, and an appendix from which every number can be rebuilt. Every figure has been recomputed from its lattice form at thirty digits, π carried as a symbol.

THE FORMULAS OF THIS PAPER, NUMBER FIRST

Every result in this paper is carried by one of the formulas below, each written with the number first and the lattice form in brackets behind. Each is worked in full in the part named beside it.

```
FORMULA U1     THE GATE                                                          Part One
    1.000090150603356201        ( 5¹⁰/(2⁴·3⁹·π³) )                    90.1506 in a million

FORMULA U2     THE FOUR CLOCKS                                                   Part Two
    solar day      86,400 s                ( 2⁷·3³·5² )                G1
    sidereal day   86,164.0690254726 s      ( 7500π x the gate )        G2     read 23:56:04.069
    lower year     365.2840913775091 d      ( 15π⁴/4 )                  G1
    upper year     365.3170219587432 d      ( 15π⁴/4 x the gate )       G2

FORMULA U2b    THE YEAR FROM THE GAP ABOVE THE MOHO                              Part Two
    20000/π x (r - 1) = 29.88248674307706   x 2 / 9375 x 180/π  ->  365.2566126365757  ( 3600/π² x 730/729 )

FORMULA U3     G1 CARRIES SPEED, G2 CARRIES PERIOD                               Part Three
    465.0941502044973 m/s  x  86,164.0690254726 s   =   40,074,404.4616 m      / 2π  =  6,378,039.5615 m

FORMULA U4     THE EARTH LADDER                                                  Part Four
    G1   mass 5.976946968462528 ( 5π⁵/2⁸ )   radius 6375.410099693364 ( 25π⁵/12 )   year 15π⁴/4
    G0, G2, G3   =   G1  x  the gate to the power -1, +1, +2

FORMULA U5     FREE FALL ACROSS THE GATE                                         Part Five
    flow rate   9.817477042468104  ->  9.818362093946918          one full step
    surface     9.805487562539485  ->  9.805929537888606          half a step, through a square root

FORMULA U6     LIGHT AND THE ELECTRON                                            Part Five
    299,789,233.6830893  ->  299,816,259.8633855                 one full step
    299,789,233.6830893  x  α  =  2,187,000 m/s   ( 3⁷ km/s )

FORMULA U7     HYDROGEN'S QUANTUM                                                Part Six
    1312.2 kJ/mol ( 3⁸/5 ) / 96.450617283950617  =  13.6048896 eV  ->  13.6061160890 eV   one step

FORMULA U8     THE YELLOW LINES                                                  Part Six
    sodium D2   9375 x 2π / (100 x the gate)   =  588.9955242462013   ( 2³·3¹⁰·π⁴/5⁷ )
    helium D3   588.9955242462013 / (helium/4)⁴  =  587.5538877802527  ( 5²⁵/(2³³·3¹⁰) )

FORMULA U9     MERCURY ACROSS THE GATE                                           Part Six
    87.94448810753124 d  ( 2³·3⁷·π/5⁴ )   x  the gate   =   87.95241635619598 d   ( 5⁶/(2·3²·π²) )
```

THE TERMS THIS PAPER USES

An address. Every value in this framework is a product of powers of 2, 3, 5 and π, and nothing else. That product is the value's address. A number that needs any other prime — 7, 11, 17 — is not on the lattice.

The π-degree. The degree of an address is the power of π it carries, and the degree says what kind of thing the value is. An even degree is a **room** — a state, a thing that sits; it pairs, like a pair of circles. An odd degree is a **road** — a transport, a thing that carries; it is the unpaired circle. A half degree is a **door** — a source, which squares to a whole address.

A register. A register is a level at which T is read — the celestial register of the Sun and planets, the atomic register of the proton and electron, the biological register of DNA. The names G0, G1 and G2 mark neighbouring registers. **The G-bond step** is the smallest structural step between adjacent faces of one value, **1.000090150603356201 ($5^{10}/(2^4 \cdot 3^9 \cdot \pi^3)$)** — the amount by which a G1 face is multiplied to give its G2 face.

The free decade. Moving a value by a power of ten costs nothing on the lattice, because ten is two times five: the move shifts twos and fives together and changes nothing else. That is why 9.817477… and 98.17477… are one address, and why 486 nm and 486,000 pm are the same line.

The veil. The veil is 180/π = 57.29577951308232, the number that turns radians into degrees.

The day, 864. 864 is the day: 86,400 seconds in a day, written at its decade. It is the ground state of the DNA helix.

The helical turn. A turn is one revolution of the helix. The helical turn is the step from one revolution to the next, **1.004693930041152263 ($5^6/(2^6 \cdot 3^5)$)**.

The 612 step and the 703 step. The 612 step is helium divided by four, **1.000612842467910952 ($2^9 \cdot 3^5 \cdot \pi/5^8$)**; the 703 step is the span of hydrogen's ionisation faces end to end, **1.000703048319385397 ($800/(81 \cdot \pi^2)$)**. They are named so that the reader meets the family of small steps of which the G-bond step is the smallest.

Free fall. Free fall is not the acceleration of a body pulled by a force; it is the correction that tops a rotation up to a full day, one value with the speed of light read in a different unit of time: **9.817477042468104 ($5^2 \cdot \pi/2^3$)**.

The radial mass. A radial mass is a mass spread over a radius rather than held at a point; dividing a node mass by 9375 turns it into a radius.

Why a value can be carried from one kind of quantity to another. An energy is a count of T, and the unit is a choice of clock: a joule is energy counted in seconds, a kilojoule per mole the same energy counted in minutes, an electron-volt the same energy in the spin-orbit register. A length, an angle, a time and a number of base pairs can likewise be one count read at different registers.

How the numbers were checked. No value in this paper was found by a search, so no statistical test is needed to judge it. A p-value answers the question "how often would I see a landing this close if the thing were not real?"; a control is a set of decoys built to resemble the real values, run through the same search to find out how often chance alone lands; a standard deviation is the typical distance of a measurement from its mean, the spread of the ruler. Each matters when a result is found by looking. Every result here is an exact identity worked from its address, forwards and backwards.

PART ONE — THE GATE

Two registers, not two approximations

Ask the standard picture how long a day is and it will give two answers. Measured from one noon to the next, the Earth turns in 86,400 seconds. Measured from one passage of a distant star to the next, it turns in a little less — about four minutes less. The textbook explains the gap as geometry: while the Earth turns, it also moves along its orbit, and must turn a little further to face the Sun again. That explanation treats the two days as two views of one motion.

The Universal Force of Time reads them differently. T — time itself — flows outward from the Sun in the form of the DNA helix and is read in registers, nested one inside another. The surface we stand on is one register, G1. The sky above us, the frame of the stars, is the next, G2. **The two days are not two views of one motion; they are the same rotation read in two dimensions of time.** And what separates the two dimensions is not a vague difference but a single, exact step.

```
FORMULA U1     THE GATE
    the step     1.000090150603356201        ( 5¹⁰/(2⁴·3⁹·π³) )
    the gap      0.000090150603356201        90.1506 parts in a million
```

This is the G1/G2 dimensional gate. It is built from five to the tenth over two to the fourth, three to the ninth and π cubed — nothing else. It is not a correction chosen to make two figures agree, and it is not an uncertainty. It is an address on the lattice, as exact as the numbers it separates, and it is the same step wherever a value has a G1 face and a G2 face.

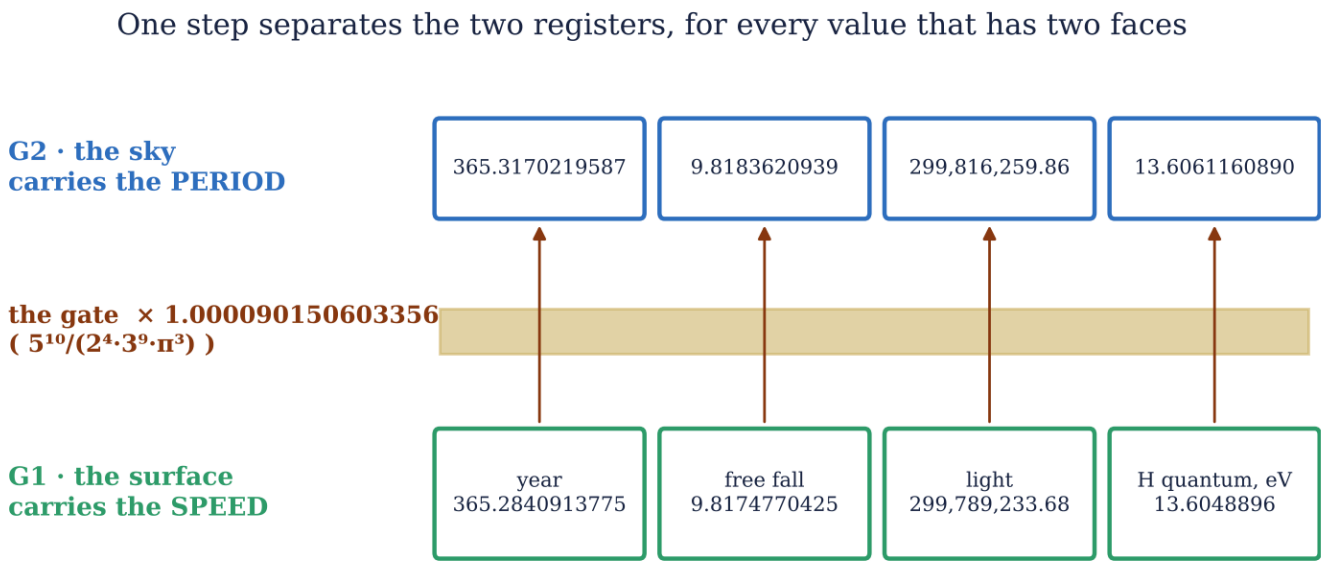


Figure 1 — One step separates the two registers. The year, the free fall, the speed of light and hydrogen's quantum each have a G1 face on the surface and a G2 face in the sky; every G2 face is its G1 face multiplied by the gate, $5^{10}/(2^4 \cdot 3^9 \cdot \pi^3)$.

Why the gate carries π cubed

The gate carries π to the minus three. That is not decoration; it is what makes it a gate. A value's power of π tells you what kind of thing it is — an even power a room, a state; an odd power a road, a carrier. A step that carries an odd power of π turns a road into a room and a room into a road. So the G1 face and the G2 face of one value are never the same kind of thing: Mercury's G1 year, carrying π to the plus one, is a road; its G2 year, carrying π to the minus two, is a room. **Crossing the gate does not just make a value a little larger; it changes what the value is.**

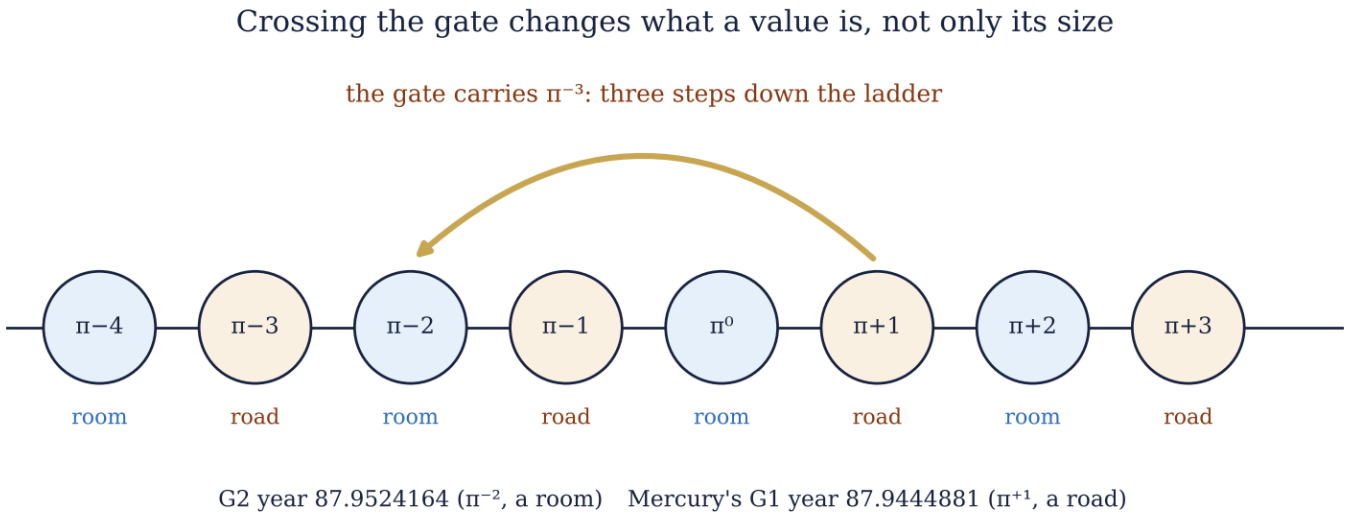


Figure 2 — Crossing the gate changes what a value is. The π-degrees alternate room, road, room; the gate carries π^{-3} and moves a value three places down the ladder — Mercury's G1 year, a road at π^{+1}, becomes its G2 year, a room at π^{-2}.

PART TWO — THE FOUR CLOCKS

Two days and two years

The Earth keeps four clocks, two on each side of the gate.

```
FORMULA U2     THE FOUR CLOCKS
    the solar day        86,400 s                ( 2⁷·3³·5² )                  G1, the Sun-day
    the sidereal day     23564.0690254726        ( 7500π x the gate )          G2, the star-day
                         read on the clock:  23 h 56 m 04.069 s  =  86,164.0690254726 s
    the lower year       365.2840913775091 days  ( 15π⁴/4 )                    G1, the Earth's orbital time
    the upper year       365.3170219587432 days  ( 15π⁴/4 x the gate )         G2
```

The day-clocks and the year-clocks follow the same shape, one scale apart. On each, the G1 clock is the one tied to the surface — the solar day, the Earth's own orbital time — and the G2 clock is the one tied to the sky. **The upper year is the lower year carried up exactly one gate.** The sidereal day carries the gate too: 7500π on the G1 side, 7500π times the step on the G2 side, and the digits of the G2 value read straight off as the clock — twenty-three, fifty-six, oh-four point oh-six-nine.

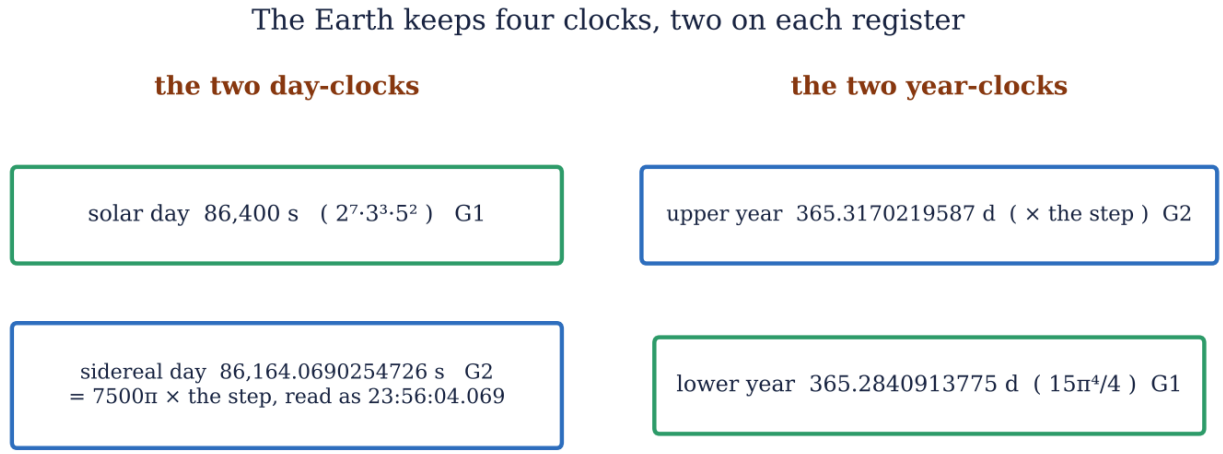


Figure 3 — The Earth keeps four clocks, two on each register. The solar day and the lower year sit on G1; the sidereal day and the upper year sit on G2. The year the stars mark, 365.2566126366, comes from the gap above the Moho.

The year the stars mark: the gap above the Moho

There is a fifth year, and it is the one the stars mark. It does not come from the gate; it comes from the helical turn, read in the ground beneath our feet. The Mohorovičić discontinuity — the seam at the top of the Earth's mantle — sits at a radius of 20,000/π kilometres, and its circumference is forty thousand kilometres exactly. Carry it up one helical turn and you reach 6396.0802 km. The space between the two is a layer 29.88 kilometres thick, and that layer is a year.

```
FORMULA U2b    THE YEAR FROM THE GAP ABOVE THE MOHO
    the Moho                 6366.197723675813 km      ( 20000/π )          circumference 40,000 km exactly
    x the helical turn       6396.080210418890 km      ( 5¹⁰/(2·3⁵·π) )     one helical turn up
    the gap = Moho x (r - 1) 29.88248674307706 km      ( 20000/π x 73/15552 )
      x 2 / 9375             0.006374930505189772     ->  6.374930505 at its decade, a radius
      x 180/π                365.2566126365757 days                         the year the stars mark

    the same year, in one line:   3600/π²  x  730/729   =   365.2566126365757
```

The year the stars mark is the gap between the Moho and one helical turn above it, read through the veil. The seventy-three that appears in 730/729 is not a stray prime; it is the helical turn itself, five to the sixth over two to the sixth and three to the fifth, minus one — 15,625 less 15,552. It belongs to a step, not to an address,

which is why it shows up in the gap and nowhere in the four clocks. Each clock is a face; this year is the width between two faces, read as time.

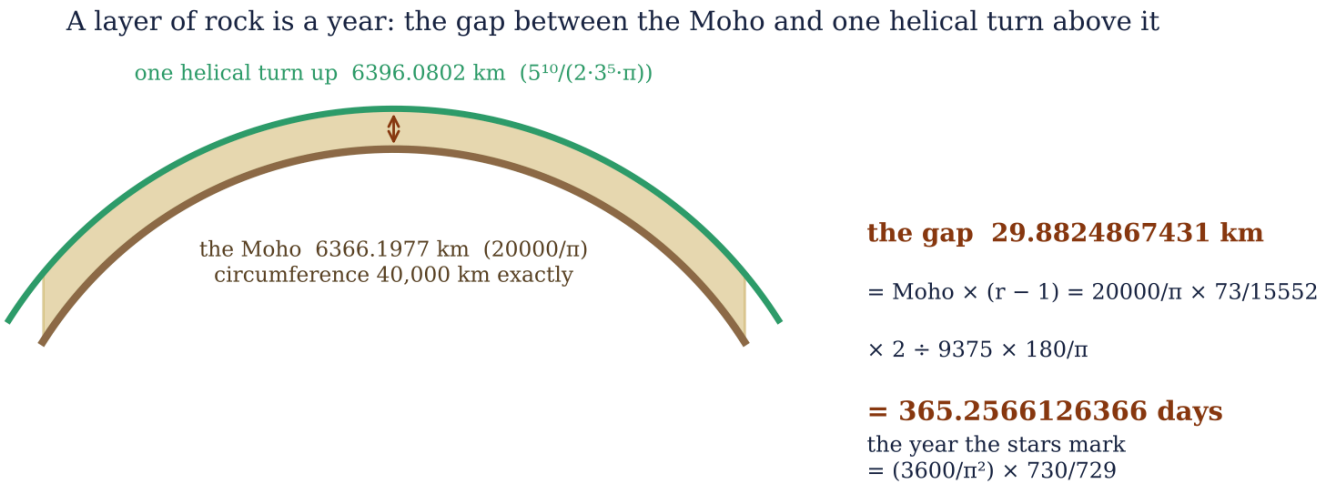


Figure 4 — A layer of rock is a year. The Moho, 20000/π, with a circumference of forty thousand kilometres exactly; one helical turn above it, 6396.0802 km. The 29.88 km between them, × 2 ÷ 9375 × the veil, is the year the stars mark, (3600/π²) × 730/729.

PART THREE — G1 CARRIES SPEED, G2 CARRIES PERIOD

The size of the Earth from the two registers

Here is the gate doing work. The G1 register carries the speed of the Earth's turning; the G2 register carries its period. Neither alone gives the planet's size. Together they do.

```
FORMULA U3     G1 CARRIES SPEED, G2 CARRIES PERIOD
    the G1 rotation speed      9.817477042468104 x 24 x (2π)² / 2   =   4650.941502044973
                               at its decade:  465.0941502044973 m/s         ( 15π³ )
    x the G2 sidereal day      86,164.0690254726 s
    =  40,074,404.4616 m                                                     the equatorial circumference
    / 2π  =  6,378,039.5615 m                                                the equatorial radius
                                                 =  7.5π² x the sidereal day in seconds
```

The speed comes from below the gate and the period from above it, and their product is the circumference of the equator. The equatorial radius is not the accident of how much dust gathered where; it is the meeting of two registers of time. This is what the framework calls the two movements: every body that carries T turns on itself and travels on an arc at once, and the turning belongs to one register while the arc belongs to the next. The gate is not a barrier between them. It is the coupling — the exact ratio by which the inner movement and the outer movement are locked together.

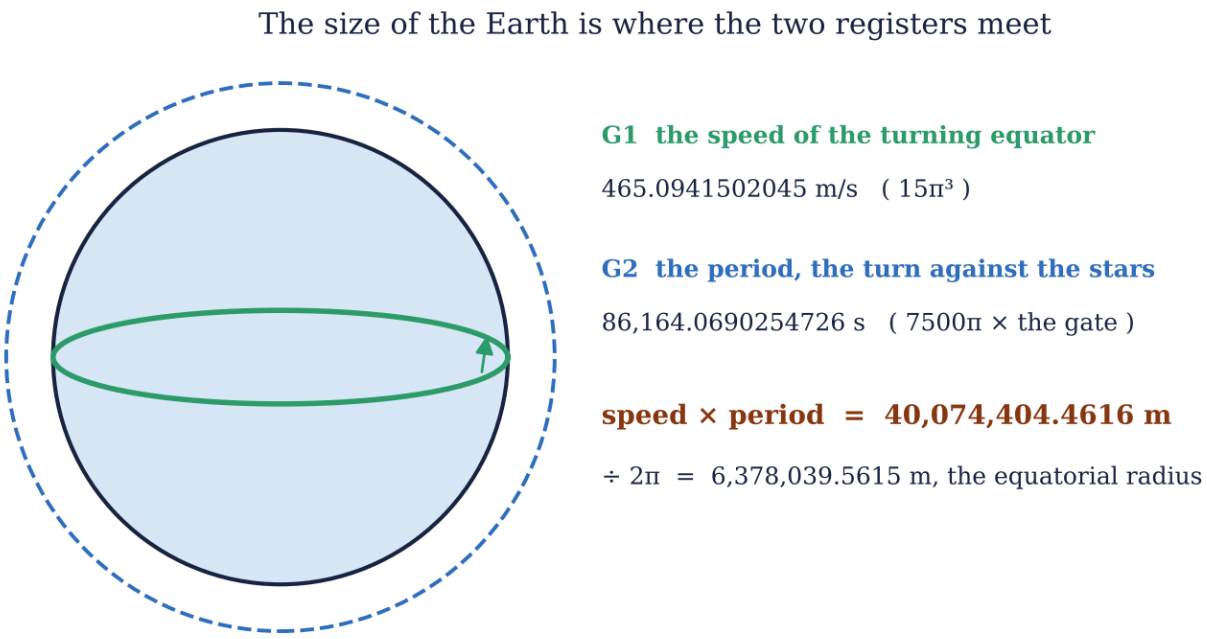


Figure 5 — The size of the Earth is where the two registers meet. The G1 speed of the turning equator, 15π³, times the G2 period of the turn against the stars, is the equatorial circumference, 40,074,404.46 m.

PART FOUR — THE EARTH READ AT FOUR DEPTHS

Mass, radius and year climb together

If the gate is real, it should apply not only to clocks but to the planet itself. It does. The book sets out the Earth at four depths — G0, G1, G2 and G3 — and at every depth its mass, its radius and its year move together, each by exactly one gate per rung.

FORMULA U4 THE EARTH LADDER

register	mass, x10²⁴ kg	radius, km	year, days
G0	5.976408191658147	6374.835404435357	365.2511637647192
G1	5.976946968462528	6375.410099693364	365.2840913775091
G2	5.977485793837963	6375.984846760494	365.3170219587432
G3	5.978024667788831	6376.559645641420	365.3499555086891

on G1: mass $5\pi^5/2^8$ radius $25\pi^5/12$ at its decade year $15\pi^4/4$
each rung = the rung below x 1.000090150603356

A change in the flow of T changes the mass, the radius and the length of the year rigidly, together. They are not three properties that happen to be related; they are one object read at four depths, and the depths are the Sun's. The G1 rung is the cleanest: the mass is five π to the fifth over two to the eighth, the radius twenty-five π to the fifth over twelve, the year fifteen π to the fourth over four. Values for the Earth printed in different places — a mass given as the equatorial face, a radius from the solar-system chapter — turn out to be rungs of this one ladder, not competing determinations.

The Earth read at four depths: mass, radius and year climb together

register	mass ×10²⁴ kg	radius, km	year, days
G0	5.976408191658	6374.835404435	365.251163765
G1	5.976946968463	6375.410099693	365.284091378
G2	5.977485793838	6375.984846760	365.317021959
G3	5.978024667789	6376.559645641	365.349955509

G1: $5\pi^5/2^8$ $25\pi^5/12$ $15\pi^4/4$ — every rung is the one below × the step 1.000090150603

Figure 6 — **The Earth read at four depths.** Mass, radius and year at G0, G1, G2 and G3; each rung is the rung below multiplied by the gate. On G1 the three are $5\pi^5/2^8$, $25\pi^5/12$ and $15\pi^4/4$.

PART FIVE — FREE FALL AND LIGHT ACROSS THE GATE

Free fall: one full step, and where the half step comes from

The free fall at the Earth's surface is hydrogen's Balmer-β line, 486 nm, read in degrees and divided by the day: 9.817477042468, twenty-five π over eight. That is its G1 face. Carry it across the gate and you have its G2 face.

```
FORMULA U5     FREE FALL ACROSS THE GATE
    the flow rate, G1     9.817477042468104          ( 5²·π/2³ )
    the flow rate, G2     9.818362093946918          ( x the gate )                one full step
       x 2400  =  23564.0690254726                   the sidereal day

    the surface reading, G1   9.805487562539485      ( 100·√(5⁵·π³/(2⁹·3⁹)) )
    the surface reading, G2   9.805929537888606      ( x √(the gate) )              half a step
```

The flow-rate faces of free fall are one full gate apart, like every other pair in this paper — and the G2 face, multiplied by the day, is the sidereal day. **Free fall is the gear between the solar day and the sidereal day: it is what completes a turn that, measured against the stars, comes in short.**

There is a second pair, the surface readings — what an instrument on the ground records after the flow rate has passed through the Earth's rotation and the mile and back. That chain ends in a square root, and a square root halves every exponent, the gate's included. So the surface pair sits half a gate apart, 45.0743 in a million. **The half step is real, but it belongs to the surface readings, not to the G2 face.** The earlier versions of this paper put the G2 free fall on the half step; it is corrected here.

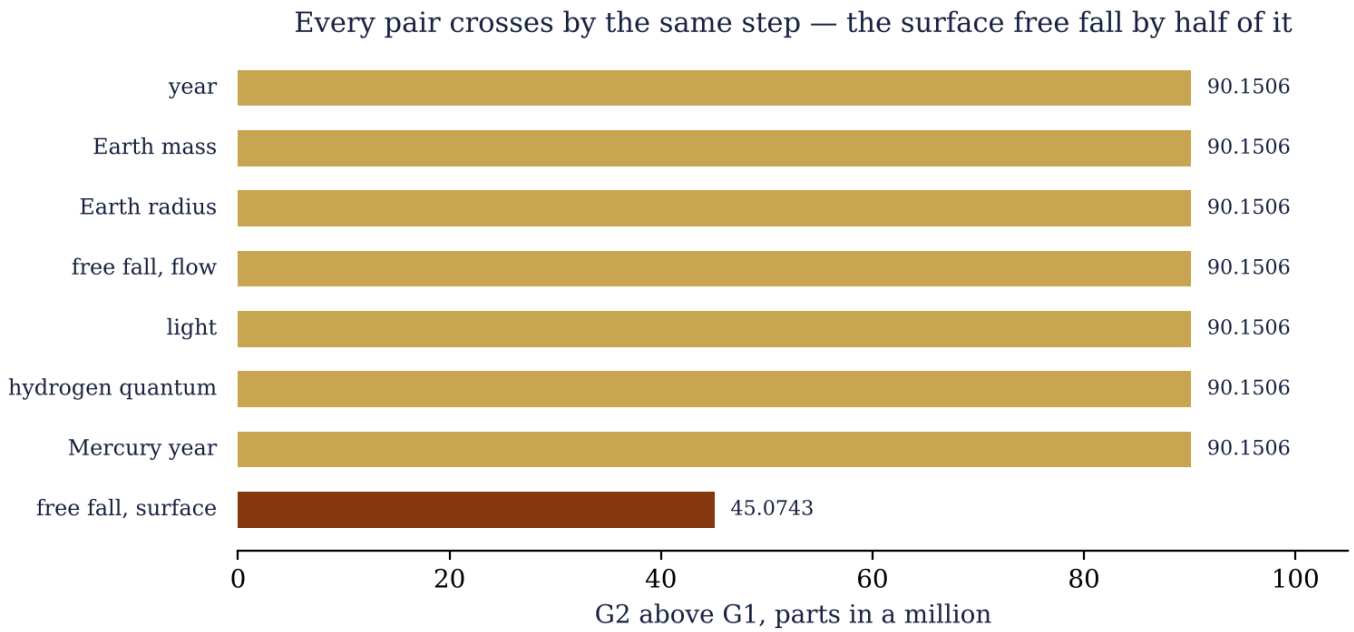


Figure 7 — Every pair crosses by the same step. The year, the Earth's mass and radius, free fall, light, hydrogen's quantum and Mercury's year each sit 90.1506 parts in a million higher on G2; only the surface reading of free fall, reached through a square root, moves by half of it, 45.0743.

Light: the same step, and the gear to the electron

Square the G1 free fall and carry it through the clock of a day, 864 × 3600, and it is the speed of light on the G1 register. Free fall and light are one value read in two dimensions of time.

```
FORMULA U6     LIGHT AND THE ELECTRON
    light, G1       299,789,233.6830893 m/s      ( 2³·3⁵·5⁶·π² )         = g1 x g1 x 3,110,400
    light, G2       299,816,259.8633855 m/s      ( x the gate )           = g1 x g2 x 3,110,400

    light, G1  x  α  ( 3²/(5³·π²) )   =   2,187,000 m/s   ( 3⁷ km/s )     the electron's speed, no π
```

The G2 speed of light is the G1 free fall met by the G2 free fall — one foot on each side of the gate — and it is the G1 speed one step up. Multiplied by the fine structure constant, the G1 speed of light is the electron's speed, three to the seventh kilometres a second, with every π gone. The figure science tabulates for the speed of light sits between the two rungs, because it is read across the gate: an instrument on the surface timing light from the sky.

PART SIX — THE ATOM AND THE LINES ACROSS THE GATE

Hydrogen's quantum

```
FORMULA U7     HYDROGEN'S QUANTUM
    1312.2 kJ/mol                    ( 3⁸/5 )              three-fifths of the electron's speed, in thousands
    / the Faraday  96.450617283950617   ( 5⁶/(2·3⁴) )
    =  13.6048896 eV                 ( 2⁸·3¹²/10⁷ )        G1, the integer face
    x the gate  =  13.6061160890 eV                        G2, the ground state
```

Hydrogen's quantum has a G1 face and a G2 face one gate apart, and the ground state of the atom sits on G2. The G1 face, 13.6048896, is the integer face, the dimension of the G1 speed of light. The G2 face, 13.6061160890, is the ground state — the face to which lithium links it. The atom, like the planet, keeps a value on each side of the gate.

The yellow lines of the Sun

The Sun's spectrum is crossed by dark lines, and the strongest yellow pair belongs to sodium. In the Universal Force of Time those lines are where the source is measured — and they too sit on either side of a dimensional step.

```
FORMULA U8     THE YELLOW LINES
    sodium D2     9375 x 2π / (100 x the gate)     =   588.9955242462013     ( 2³·3¹⁰·π⁴/5⁷ )
    helium/4                                       =   1.000612842467911     ( 2⁹·3⁵·π/5⁸ )
    helium D3     588.9955242462013 / (helium/4)⁴  =   587.5538877802527     ( 5²⁵/(2³³·3¹⁰) )   no π
```

Sodium is the gate run backwards from 9375 round the circle: the dimension directly below G1. The 9375 — three times five to the fifth — is the number that turns a mass into a radius and the height above which solid matter does not stand. Helium's D3 line lies four helium steps below sodium, and in those four steps every π cancels: the line is five to the twenty-fifth over two to the thirty-third and three to the tenth. The Fraunhofer lines share one chart but not one dimension — which is why no single formula gives every line, and why each must be reached by its own step from a known face.

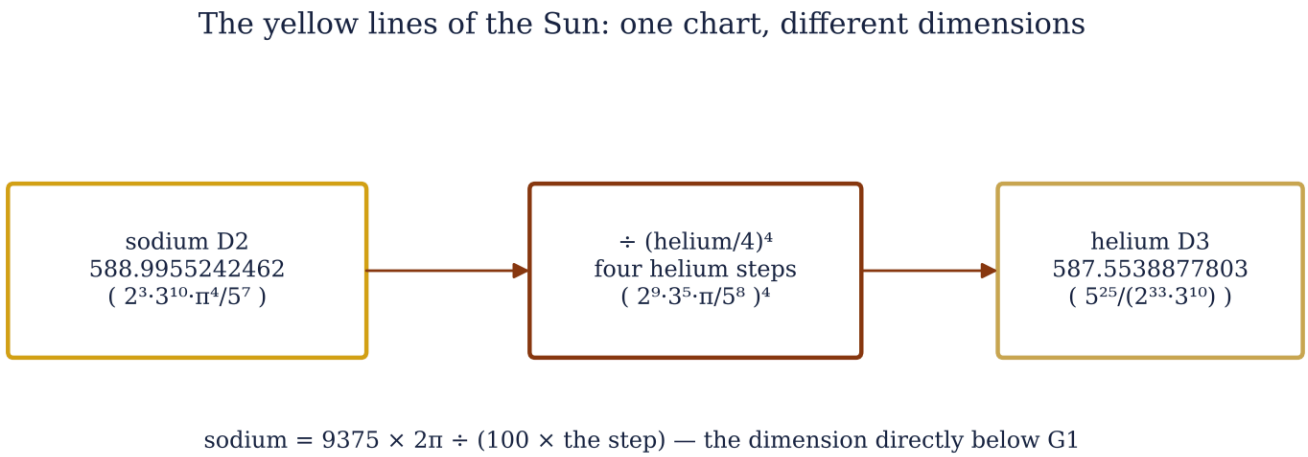


Figure 8 — **The yellow lines of the Sun.** Sodium D2 is 9375 × 2π divided by 100 and by the gate; helium D3 is sodium divided by four helium steps, and π-free.

Mercury

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FORMULA U9     MERCURY ACROSS THE GATE
    orbit, G1      87.94448810753124 d       ( 2³·3⁷·π/5⁴ )          π +1, a road
    x the gate  =  87.95241635619598 d       ( 5⁶/(2·3²·π²) )        π -2, a room
    orbit, G1 x 24 / 100  =  21.10667714580750 cm                    hydrogen's radio line
```

The innermost planet shows the gate's other property. Its two years are one gate apart, and the gate's π to the minus three turns the G1 year, a road, into the G2 year, a room. The G1 year, counted in hours, is hydrogen's twenty-one centimetre line; the G2 year, divided by the fine structure constant, is one hundred and twenty-five times the Faraday. The gate is what lets the same planet speak to the atom on one side and to the chemist on the other.

A WORKED WALK THROUGH THE GATE

A reader in a lecture theatre should be able to cross the gate with a pocket calculator. Here is the crossing, step by step.

Build the gate. Take five to the tenth, 9,765,625. Divide by two to the fourth, 16, by three to the ninth, 19,683, and by π cubed, 31.00628. The answer is 1.0000901506. Write down that it carries π to the minus three: that one fact will explain half of what follows.

Cross with the year. Take the lower year, fifteen π to the fourth over four, 365.2840913775 days. Multiply by the gate: 365.3170219587. That is the upper year. Divide the upper by the lower and you get the gate back, to every digit. Nothing else separates them.

Cross with the planet. Take the Earth's mass on G1, five π to the fifth over two to the eighth, 5.976946968. Multiply by the gate: 5.977485794. Take its radius on G1, 6375.410100 km, and multiply by the gate: 6375.984847.

Mass, radius and year have each climbed one rung, and by the same amount.

Cross with the fall. Take the free fall, twenty-five π over eight, 9.8174770425. Multiply by the gate: 9.8183620939. Multiply that by 2400 and read the digits as a clock: 23 hours, 56 minutes, 4.069 seconds. The student has turned a falling stone into the Earth's turn against the stars.

Couple the two sides. Go back to the G1 free fall. Multiply by 24 and by two π twice, and halve it: 4650.9415, the rotation speed at its decade. Multiply the speed, 465.09415 metres a second, by the sidereal day in seconds, 86,164.069. The answer, 40,074,404.46 metres, is the equator. Divide by two π and the radius appears: 6,378,039.56 metres. The speed came from below the gate and the period from above.

Cross with the atom. Take 1312.2, three to the eighth over five. Divide by the Faraday, 96.4506173. The answer, 13.6048896, is hydrogen's quantum on G1. Multiply by the gate: 13.6061161, the ground state on G2.

Watch a road become a room. Take Mercury's G1 year, 87.9444881 days; its form has one π upstairs. Multiply by the gate, which carries three π downstairs. The result, 87.9524164 days, has two π downstairs. The student can watch the kind of value change as it crosses.

Find the half step. Finally, take the free fall through the mile and back — the rotation speed times four, times 3125 over 1944, divided by 360 and by 864 — and take the square root. The answer, 9.8054876, is the surface reading. Climb it by the square root of the gate and it moves by 45.07 in a million, not 90.15. The square root has halved the step, and the student has seen exactly where the half step lives.

Nothing in the crossing was adjusted. No figure was fitted and no gap was closed by a chosen correction. Each step is a multiplication by one fixed number, and each result is predicted — in its digits and in its power of π — before the arithmetic is done.

WHY THE STANDARD PICTURE DOES NOT SEE THE GATE

The standard picture measures a great many of the values in this paper, and measures them well. It does not see the gate for three reasons, none of them a fault of its instruments.

First, it treats every quantity as a single fact. A planet has one mass, one radius, one year. It has no place for two faces of the same value one exact step apart, so when two careful measurements of the same thing differ by ninety parts in a million, it reads the difference as error or as a small physical effect to be modelled away.

Second, it measures across the gate without knowing it. An instrument on the ground timing a motion whose clock belongs to the sky — light from a star, the Earth's turn against the stars, the year as the stars mark it — takes a reading with one foot on each side. The result lands between two exact faces, and a figure that lands between faces looks like a messy, irreducible number. The tabulated sidereal year and the tabulated speed of light are both such readings.

Third, it puts values read in different dimensions into one equation. The charge on the electron, the speed of light, the ground state of hydrogen and the Faraday are each read on a particular face, and not all on the same one. Combined as though they shared a register, they leave small gaps that seem to demand corrections. Read face by face, across the gate where the gate lies, the gaps are the gate itself.

PART SEVEN — WHAT THIS REVISION CORRECTS

- **The sidereal year.** Rev 2 gave the year the stars mark as $(3600/\pi^2) \times 730/729$, **365.2566126366**, without its route. The number stands. Its route is now shown: it is the **gap between the Moho and one helical turn above it, 29.8824867431 km**, carried through 9375 and the veil, and the 73 in 730/729 is the helical turn minus one, 15,625 − 15,552. It is not one of the four clocks: the year-clocks are the **lower year 365.2840913775 ($15\pi^4/4$)** and the **upper year 365.3170219587 (× the gate)**.
- **A contradiction removed.** Rev 2 gave the ratio of the star-marked year to the G1 year correctly as 0.99992, and then also called the ratio of the two years the gate, 1.00009. Both cannot be one ratio: the gate is the upper year divided by the lower year; the star-marked year comes from the gap above the Moho.
- **The G2 free fall.** Rev 2 gave it as the G1 value times the square root of the gate, 9.817919558. The G2 free fall is **9.818362093947 (× the gate)**; the half step belongs to the **surface pair, 9.805487562539 and 9.805929537889**.

- **Hydrogen's quantum.** Rev 2 gave 13.599998 eV. The G1 face is **13.6048896 eV** and the ground state on G2 **13.6061160890 eV**, one gate apart.
- **Helium D3.** Rev 2 wrote helium D3 as sodium times (1 − 27 × the gap), a form that is not a lattice address. Helium D3 is **587.5538877803 ($5^{25}/(2^{33}\cdot3^{10})$)**, sodium D2 divided by four helium steps.
- **Light and the electron.** Rev 2 wrote light divided by α as three to the seventh. It is light **multiplied** by α that gives 3^7 km/s.
- **The two circumferences.** Rev 2 gave the product of the two movements as forty thousand kilometres. Forty thousand kilometres exactly is the circumference of the **Moho, radius 6366.1977236758 km (20000/π)**. The G1 speed times the G2 period is the **equatorial circumference, 40,074,404.4616 m**. Both are now in the paper, each in its place.
- **No off-lattice benchmarks.** Every comparison with the tropical year, catalogue lines and tabulated constants has been withdrawn. The framework's values are the values.
- **New in this revision:** the gate's π to the minus three as the road-to-room switch; the four clocks; the Earth ladder G0 to G3; the G2 speed of light; sodium's lattice form; Mercury's two years across the gate.

CONCLUSION — ONE STEP BETWEEN THE GROUND AND THE SKY

The difference between a day measured against the Sun and a day measured against the stars is one of the oldest facts in astronomy, and it has always been explained as geometry. The Universal Force of Time says it is something deeper: the same rotation read on two registers of time, separated by one exact step. Once that step is named, it turns up everywhere a value has two faces — in the year, the mass and the radius of the planet, in the fall of a stone and the speed of light, in the quantum of hydrogen, in the yellow lines of the Sun and the two years of Mercury. **One number, five to the tenth over two to the fourth, three to the ninth and π cubed, is the distance between the ground and the sky.**

It explains, too, why so many of science's careful figures resist a clean form. They are readings taken across the gate, with one foot on each side, and they land between the faces. Read on one side or the other, every value in this paper is an exact address; read across the gate, they look like measurement.

WHAT STANDS, WHAT IS OPEN

Forced, and stated at full force. The gate is $5^{10}/(2^4\cdot3^9\cdot\pi^3)$. The upper year is the lower year times the gate. The G2 free fall is the G1 free fall times the gate, and times the day it is the sidereal day. The G1 speed times the G2 period is the equatorial circumference. The Earth's mass, radius and year climb the ladder together, one gate per rung. Each is an exact relation in this paper.

Arrived at, and exact on every line. The G2 speed of light as g1 × g2 × 3,110,400; light × α = 3^7 km/s; hydrogen's quantum across the gate; sodium D2 as 9375 × 2π over 100 and the gate; helium D3 four helium steps below; Mercury's two years.

Open. Where each catalogued figure falls between its faces is owed. The G3 rung of the Earth, on which the book's equatorial mass and radius lie, deserves its own reading.

WHAT WOULD BREAK IT

- A value with two faces whose ratio is not the gate, or a power of it.
- An Earth ladder on which mass, radius and year do not move by the same step.
- A G2 free fall that, times the day, is not the sidereal day.
- A circumference that is not the G1 speed times the G2 period.

A NOTE ON THE NUMBERS

The values in this paper are written as plain numbers — not pinned to one unit, and not carried to one particular power of ten. Under the Universal Force of Time a quantity is not the property of one dimension: the same T-value shows up as a free fall at one register, a speed of light at another, a day at a third. The unit and the power of ten are the costume a number wears where it is read. That is why the G2 free fall, times the day, can be read straight off as a clock, and why 4650.94 is a rotation speed at its decade. Each number is given with its lattice address in brackets, so that the reader can rebuild it from 2, 3, 5 and π alone.

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APPENDIX — EVERY NUMBER, REBUILT

Each value below is rebuilt from its lattice form alone, at thirty digits with π carried as a symbol.

THE GATE		
step	$5^{10}/(2^4 \cdot 3^9 \cdot \pi^3)$	1.000090150603356200676414
√ step		1.000045074285832478684213
THE FOUR CLOCKS		
solar day	$2^7 \cdot 3^3 \cdot 5^2$	86,400
sidereal	7500π x step	23564.069025472603243994 71
lower year	$15\pi^4/4$	365.2840913775091396366512
upper year	x step	365.3170219587432436266593
the Moho	20000/π	6366.197723675813430755351
one turn up	$5^{10}/(2 \cdot 3^5 \cdot \pi)$	6396.080210418890487111134
the gap	20000/π x 73/15552	29.88248674307705635578322
star-marked year	$3600/\pi^2$ x 730/729	365.2566126365756698964544
SPEED AND PERIOD		
rotation speed	$15\pi^3$	465.0941502044973026321447
circumference	x 86164.06902547... s	40,074,404.46156382845357204
equatorial radius	/ 2π	6,378,039.561521787662123498
THE EARTH LADDER		
mass G1	$5\pi^5/2^8$	5.976946968462528384037916
mass G2	x step	5.977485793837963295507697
radius G1	$25\pi^5/12$, x10	6375.410099693363609640444
radius G2	x step	6375.984846760494181874877
year G0	/ step	365.2511637647191957394358
FREE FALL AND LIGHT		
g1	$5^2 \cdot \pi/2^3$	9.817477042468103870195761
g2	x step	9.818362093946918018331128
surface G1	$100 \cdot \sqrt{(5^5\pi^3/(2^9 3^9))}$	9.805487562539485379081368
surface G2	x √step	9.805929537888606098553223
light G1	$2^3 \cdot 3^5 \cdot 5^6 \cdot \pi^2$	299,789,233.6830892680470977
light G2	x step	299,816,259.8633854915833344
THE ATOM AND THE LINES		
H quantum G1	$2^8 \cdot 3^{12}/10^7$	13.6048896
H ground, G2	x step	13.606116089006034499678 05
sodium D2	$2^3 \cdot 3^{10} \cdot \pi^4/5^7$	588.9955242462013354367555
helium D3	$5^{25}/(2^{33} \cdot 3^{10})$	587.5538877802527034875864
Mercury G1	$2^3 \cdot 3^7 \cdot \pi/5^4$	87.94448810753123600023
Mercury G2	$5^6/(2 \cdot 3^2 \cdot \pi^2)$	87.95241635619598215615

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