

The Four Humours in the Age of AI

Seasonal Rhythms as Constitutional Maintenance

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Slide-by-slide companion — Astrological Association Conference 2026, Saturday 19 September, 12:00–13:00.

Epistemic tiers. **ACCEPTED** settled scholarship or physiology · **FRONTIER** active research, plausible, not settled · **SPECULATIVE** author's conjecture or mapping · **SYMBOLIC** astrological/humoral register — not causal evidence · **N/A** housekeeping. Citations are inline [n]; the numbered list is at the end.

Front matter

1 Title — The Four Humours in the Age of AI **N/A**

Title slide with vintage anatomical plate. Subtitle states the thesis: seasonal rhythm is a form of constitutional (humoral) maintenance.

Sources: none required.

2 About Me **N/A**

Photo collage: family, Rhode Island neurology office, jiu-jitsu, hiking. Script covers the speaker's route into astrology fourteen years ago and use of temperament in clinic via consultation charts.

Sources: none required.

3 Important Health Information **N/A**

Educational-purposes disclaimer; no diagnosis or treatment from this material; consult a personal physician.

Sources: none required.

4 Main Ideas for this Talk **N/A**

Three take-homes: (1) daily, monthly, and seasonal cycles shape the humoral model of health; (2) modern living has altered our exposure to those cycles ("zeitgeber famine"); (3) therapeutic responses exist. A *zeitgeber* is German for "time-giver" — an external cue, chiefly sunlight, that resets an internal clock.

Sources: zeitgeber concept — Aschoff [1].

Chapter 1 — What are the Humors?

5 Chapter 01 — What are Humors? **N/A**

Section divider listing the four humors: Blood (sanguine), Yellow Bile (choleric), Black Bile (melancholic), Phlegm (phlegmatic).

Sources: image credit on slide — Magnific.

6 The Four Humors — Fluid · Element · Qualities · Season · Organ ACCEPTED

Reference table. Each humor is paired with an element (air, fire, earth, water), a quality pair (hot/cold × wet/dry), a season, and a seat organ (liver, gallbladder, spleen, brain/lungs). The doctrine is the foundation of Greek and Roman medicine and dominated Western thought for two thousand years. Tier is ACCEPTED as history of medicine, not as physiology.

Sources: Hippocrates, *On the Nature of Man* [2]; Galen, *On the Natural Faculties* and *De temperamentis* [3]; Temkin, *Galenism* [4].

7 Aristotle's Primary Motor of the Material World ACCEPTED

Diagram of the four qualities turning through the four seasons. The "motor" is the natural, self-directed movement of heat toward dryness and cold toward wetness: winter cold increases wetness; spring heat melts it; summer is hot and drying; autumn cools as the Sun withdraws. ACCEPTED as Aristotelian doctrine.

Sources: Aristotle, *On Generation and Corruption* II.2–3 and *Meteorologica* IV [5].

8 Aristotle's Motor — Heat Dries, Cold Wets ACCEPTED

Animated schematic: Sun and water as the two agents. The Sun is the active driver of the cycle; water (ice, liquid, vapor) is the passive medium. Caption: "Cold lets the wet settle — ice and dew hold the land."

Sources: Aristotle, *Meteorologica* I–II (exhalations, evaporation, condensation) [5].

9 The Quality Cycle — Blood Rising SYMBOLIC

Wheel mapping qualities → seasons → humors: spring/blood (hot-wet), summer/yellow bile (hot-dry), autumn/black bile (cold-dry), winter/phlegm (cold-wet). Each humor "swells as the year passes through it." Closing claim: the birth moment stamps a preferred humoral balance readable by astrology — SYMBOLIC register.

Sources: Hippocrates, *On the Nature of Man* 7 (seasonal dominance of humors) [2]; Galen, *De temperamentis* [3]; astrological temperament doctrine — Lilly, Lehman [6].

10 Factors Impacting Humoral Balance — The Six Non-Naturals ACCEPTED

The six "non-naturals" — factors not innate to the body that shift humoral balance and double as therapeutic levers: Air (environment, climate, season), Food & Drink, Motion & Rest, Sleep & Waking, Retention & Evacuation, Passions of the Soul. "Naturals" are what one is born with; non-naturals are external. The list is Galenic; the fixed six-fold term is later Galenism.

Sources: Galen, *Ars medica* [7]; García-Ballester 1993 on the origin of the term [8].

11 Digestion — Humors Created by Digestion SYMBOLIC

Anatomical figure with humoral seats: yellow bile at liver/gallbladder (the "stove"), phlegm at stomach/small intestine and respiratory tract, blood at the heart, black bile derived in colon and filtered/stored in the spleen. Kitchen analogy: food must be "cooked" (concocted) to make humors. Stove too hot → excess yellow bile melts phlegm → stomach trouble (summer risk); stove too cold → undigested residue → black bile (winter risk, excess phlegm → respiratory disease).

Sources: Galen, *On the Natural Faculties* (concoction, spleen as black-bile filter) [3]; Galen, *De atra bile* [9].

12 The Quality Cycle in the Body — Blood Rising SYMBOLIC

The same anatomical figure as the digestion slide, now with each humor's season written beside its organ: blood in spring (heart and vessels), yellow bile in summer (liver and gallbladder), black bile in autumn (colon, spleen), phlegm in winter (stomach, lungs). Caption: the Sun circles the body; each humor swells in the season and in the organ that makes it. Reinforces the seasonal-emphasis doctrine of slide 9 at the level of the organs.

Sources: Hippocrates, *On the Nature of Man* 7 (seasonal dominance of humors) [2]; Galen, *On the Natural Faculties* [3].

13 Season, Diet, and Disease: Two Cases SYMBOLIC

Two case cartoons showing the same qualities in the weather, the food, and the body adding up to the illness. Summer, hot and dry: heavy food and beer in summer heat → excess bile from the liver → gallbladder attack, severe right-sided abdominal pain. Winter, cold and wet: cold food and cold air → phlegm (grey-white mucus), congestion of the lungs → pneumonia with fever, deep cough, dyspnea. Excess heat and hot food breed bile; excess cold and cold food cool the digestion and breed phlegm.

Sources: Hippocrates, *Aphorisms* III (seasonal diseases) [10]; Galen [3].

14 The Temperaments in the Person ACCEPTED

Table of temperament → dominant humor → qualities → disposition (sanguine cheerful/sociable; choleric ambitious/easily angered; melancholic reserved/analytical; phlegmatic calm/slow to change), illustrated with the four Wizard of Oz companions. Galenic typology became a staple of medieval and Renaissance psychology; script also cites Shakespeare and The Who's *Quadrophenia* (1973) as modern uses.

Sources: Galen, *De temperamentis* [3]; Klibansky, Panofsky & Saxl, *Saturn and Melancholy* [11]; Wizard of Oz temperament mapping is popular commentary, not scholarship; *Quadrophenia* — Townshend's four-personality concept [12].

15 Calculating Humors & Temperament — Three Clocks, Read Together SYMBOLIC

Three dials: the year clock (Sun's sign = season of birth), the month clock (lunar phase), the day clock (Ascendant = time of day). Every historical version of the astrological temperament calculation anchors on Sun, Moon, and Ascendant; the chart is read as a "three-clock phase stamp" of the birth moment — the initial conditions of innate temperament. Standing ruling: this samples *phase*; it never competed with monoamine theories of temperament.

Sources: Ptolemy, *Tetrabiblos* III [13]; Lilly, *Christian Astrology* (1647) [6]; Lehman, *Traditional Medical Astrology* [6].

16 Embodied Rhythms ACCEPTED

Concentric year / month / day rings with Sun, Moon, Ascendant glyphs. The humors "born from these cycles" develop internal clocks. The circadian clock *anticipates* sunrise rather than merely reacting to it; monthly and seasonal internal rhythms are visible in hormone pulses. ACCEPTED for circadian anticipation; monthly and seasonal internal clocks in humans are FRONTIER.

Sources: anticipation — Pittendrigh [14]; Mohawk, Green & Takahashi 2012 [15]; seasonal human rhythms — Wehr 1992 [16].

17 Neil Armstrong — Temperament Calculation (Lehman) SYMBOLIC

Natal chart (5 Aug 1930, 12:31 AM, Wapakoneta OH, tropical Regiomontanus, AA rating, Lehman method). Worksheet: Ascendant Gemini (hot-wet, weighted ×2); ruler Mercury occidental (hot-wet); Moon Sagittarius, ruler Jupiter, 2nd quarter; Sun season summer; Lord of the Geniture Jupiter (exalted in Cancer). Totals Hot 7 ·

Cold 0 · Wet 4 · Dry 3 → Sanguine 11 > Choleric 10. No Cold at all; moisture more or less even. Prescribe on the heat axis.

Sources: Lehman method [6]; birth data — Astrodatabank (Rodden AA) [17]; LLOG doctrine — Lilly [6], Ibn Ezra [18].

18 Daniel Johnston — Temperament Calculation (Lehman) **SYMBOLIC**

Natal chart (22 Jan 1961, 5:56 PM, Sacramento CA, AA rating, Lehman method). Ascendant Leo; ruler Sun; Moon Aries, ruler Mars, 1st quarter; Sun season winter; Lord of the Geniture Saturn in Capricorn (rulership) in the 6th, conjunct Jupiter in fall, square a peregrine Moon, combust. Totals Hot 5 · Cold 2 · Wet 3 · Dry 4 → Choleric 9 > Sanguine 8. Heavily phlegmatic by planets, choleric–sanguine by calculation, missing only melancholic — which the Saturn Lord of the Geniture supplies. All four humors pull on him. Moisture more or less even; prescribe on the heat axis.

Sources: Lehman [6]; Astrodatabank [17]; Johnston biography — *The Devil and Daniel Johnston* (2005 documentary) [19].

19 Natal Quality Map Comparison **SYMBOLIC**

Radar plots of the four qualities. Armstrong: zero Cold — entirely heat-adapted, sanguine–choleric, very hot. Johnston: heat-dominant on the worksheet, but with Cold present and every quadrant represented, so he can be pulled in any direction. Sets up the two prescriptions in Chapter 5.

Sources: author's quality-map graphic from worksheet totals [6].

20 Interlude — The Four Temperaments by Way of Pavlov **N/A**

Interlude divider introducing a new way to think about temperament: Pavlov's three properties of the nervous system — Strength, Balance, Mobility.

Sources: Pavlov, Conditioned Reflexes [20].

21 Pavlov's Dogs: Three Kinds of Nerve Power **FRONTIER**

A century ago Pavlov taught dogs that a signal means food, then noticed the dogs were not alike under stress: some stayed steady, some got frantic, some quit. He tested each nervous system three ways. Strength — how much can it take? (signal louder and louder; the weak dog's brain shuts off). Balance — can it hit the brakes? (fast beat = food, slow beat = none; the unbalanced dog drools at both — all gas, no brakes). Mobility — how fast can it switch? (swap the signals; the inert dog stays on the old habit). Sorting by these three gave four types, and Pavlov borrowed Galen's names: weak = melancholic; strong, unbalanced = choleric; strong, balanced, mobile = sanguine; strong, balanced, inert = phlegmatic. For astrologers: strength, balance, mobility answer to fixed, double-bodied, moveable. Pavlov's typology is ACCEPTED history; its correspondence to the modalities is the author's overlay.

Sources: Pavlov, Conditioned Reflexes (1927) and Lectures on Conditioned Reflexes (1928) [20]; Teplov–Nebylitsyn tradition via Strelau [21].

22 One Interrupt, Four Switches **SPECULATIVE**

Four people at table tennis; a voice from the kitchen — “Make dinner!” — and each walks to the stove. The trace beneath each figure shows the nervous system in three states: phase lock (in the rally, rhythm held), phase shift (“Dinner!” breaks the lock), re-lock (settled into the new task). Pavlov's claim restated: four temperaments are four nervous systems sorted by strength, balance, and mobility. Slide footer: temperament ↔ switch dynamics is the author's mapping, SPECULATIVE.

Sources: EEG phase lock/shift/reset — Thatcher, North & Biver 2008 [22]; Pavlov [20].

23 The Switch — Sanguine: The Healthy Switch **SPECULATIVE**

Strong, balanced, mobile. The call comes and the wave barely wobbles; clean release, and within two seconds the new wave is as smooth as the old. The best switcher of the four. Because everything comes easily, the difficulty is finding real discharge.

Sources: Thatcher 2008 [22]; Pavlov's strong-balanced-mobile type [20]; mapping SPECULATIVE.

24 The Switch — Choleric: The Stall Is “Cannot Stop” **SPECULATIVE**

Strong but unbalanced: the accelerator outruns the brake. The wave explodes and the choleric reaches the stove fastest — but the thought bubble reads “Rematch!” The body switched; the mind did not. A fast ripple rides the wave and never clears; the flame under the pot is the highest of the four. Not a lack of speed — a lack of brake.

Sources: Pavlov's strong-unbalanced type [20]; Thatcher 2008 [22]; mapping SPECULATIVE.

25 The Switch — Phlegmatic: The Stall Is “Switches Slowly” **SPECULATIVE**

Strong, balanced, inert. The call comes and nothing happens; the phase shift is nearly a flat line, ten seconds to the stove. But the re-lock grows into the largest, smoothest wave of the four. Slowest to arrive, deepest once there; the cost is the transition. Give this system warning: wake the engine, then steer it.

Sources: Pavlov's strong-balanced-inert type [20]; Thatcher 2008 [22]; mapping SPECULATIVE.

26 The Switch — Melancholic: The Stall Is “Cannot Start” **SPECULATIVE**

Pavlov's weak type — not weak character, but low load capacity: a sensitive system that strong input overwhelms. The wave is ragged even during the rally, because part of the attention was always watching itself. The call brings a startle, a storm, seven seconds, then commentary (“I lost that point,” “too much salt”). The wave stays noisy until the last thought — “Just stir” — then smooths. Difficulty starting and staying with something.

Sources: Pavlov's weak type [20]; Thatcher 2008 [22]; mapping SPECULATIVE.

Chapter 2 — What is Chronobiology?

27 Chapter 02 — What is Chronobiology? **N/A**

Section divider: biological rhythms, internal clocks, and temporal structures that regulate living organisms.

Sources: none required.

28 Core Concept: Biological Rhythms **ACCEPTED**

Five rhythm classes with examples: circadian (~24 h: sleep-wake, temperature, hormones), ultradian (<24 h: REM cycles, hunger, attention), infradian (>24 h: menstrual cycle, seasonal affect), circannual (~1 yr: hibernation, migration, breeding), tidal (~12.4 h: coastal organisms). Point: the ancients' categories reappear under different names.

Sources: Dunlap, Loros & DeCoursey, *Chronobiology: Biological Timekeeping* [23]; Refinetti, *Circadian Physiology* [24].

29 Nested Oscillators of the Body **ACCEPTED**

Concentric diagram: Brain/SCN master clock (~24 h, light-entrained via melanopsin retinal cells) → organ clocks (heart SA node ~1/s; liver hepatocyte clock entrained by feeding; kidney tubular clock driving the nocturnal BP dip) → cellular TTFL loop (PER/CRY–CLOCK/BMAL1) → mitochondrial redox loop (NAD+/SIRT, ultradian). Each level keeps its own time; structure sets the pace. Slide flags the food-clock (FEO) locus as unidentified.

Sources: Mohawk, Green & Takahashi 2012 [15]; Takahashi 2017 (TTFL) [25]; Damiola 2000 [26]; Stokkan 2001 [27]; Peek et al. 2013 (NAD+ mitochondrial rhythm) [28].

30 The Body's Solar System — Organ Clocks as Nested Spheres **SYMBOLIC**

Organ oscillators arranged from slowest to fastest with planetary rulers: SCN (~24 h, light-entrained) as the outer sphere; bone (♂, months–years); liver (♀, ~24 h set by meals); gallbladder (♂, 90–120 min); kidney (♀, ~2/min); lungs (♀, one breath ~4 s); gut (♂, 3 waves/min); heart (♂, ~1/s) at the core. Script notes the sequence follows Chaldean order except Sun = Moon at the heart. Physiology **ACCEPTED**; the planetary assignment is **SYMBOLIC** and must not be read as mechanism.

Sources (as listed in speaker notes): Mohawk, Green & Takahashi 2012 [15]; Damiola 2000 [26]; Stokkan 2001 [27]; Park & Blanke 2019 heartbeat-evoked potentials [29]; Yasuma & Hayano 2004 respiratory sinus arrhythmia [30]; von Holst 1939 relative coordination [31]; gastric slow wave / migrating motor complex — standard GI physiology [32].

31 Brain Waves (EEG) **ACCEPTED**

Standard EEG bands (delta, theta, alpha, beta, gamma) shown as traces; slow waves form a container for fast waves — introduces "nested rhythms."

Sources: image — Laurens R. Krol, CC0 (credited on slide) [33]; Buzsáki, *Rhythms of the Brain* [34].

32 Nested EEG Rhythms and the Planets **SYMBOLIC**

Two tables side by side: EEG bands scale by a near-constant factor (~e) from delta 1–4 Hz to ripples 80–200 Hz; Titius–Bode planetary spacing ($a = 0.4 + 0.3 \cdot 2^n$). Explicit disclaimer in script: not a claim that EEG is linked to planets — only that the same architecture (slow containing fast, spaced to avoid interference) appears in both. Shape/pattern firewall applies: structural homology ≠ causal mechanism.

Sources: Penttonen & Buzsáki 2003 [35]; Buzsáki & Draguhn 2004 [36]; Titius–Bode — Nieto 1972 [37] (empirical rule, no accepted physical basis; breaks at Neptune).

33 EEG Is Nested the Same Way **ACCEPTED**

Synthetic traces: delta 1.2 Hz container; theta 6 Hz inside delta; gamma 40 Hz inside theta; scalp EEG as the sum. Shaded delta up-states let theta swell and gamma ride theta crests. "Slow phase gates fast amplitude." Traces are illustrative, not recorded data.

Sources: Lakatos et al. 2008 [38]; Lisman & Jensen 2013 [39].

34 Jupiter Inside One Saturn Cycle — Computed **ACCEPTED**

Heliocentric Jupiter true-minus-mean longitude, 1997–2026, from Swiss Ephemeris. Band ±6°, mostly Jupiter's own eccentricity (equation of center); Saturn's perturbation adds ~±0.35° on an ~880-yr period. Used only as an analogy: the slow body "provides the container" for the faster one. **ACCEPTED** as celestial mechanics; the container metaphor is **SYMBOLIC**.

Sources: Swiss Ephemeris (Astrodienst) [40]; Great Inequality — Laplace 1785 / Wilson 1985 [41].

35 One Hormone, Three Clocks **FRONTIER**

Schematic model: annual envelope (Sun/year) contains the lunar-month envelope on daily pulses, which contains the circadian envelope on pulses. Each clock is a container; the pulse keeps its freedom inside all three. Circadian and annual envelopes are ACCEPTED; a lunar-month hormonal envelope in humans is FRONTIER (menstrual cycle $\approx$ but not locked to the Moon).

Sources: Wehr 1992 [16]; Helfrich-Förster et al. 2021 (menstrual–lunar coupling, contested) [42]; pulsatility — Lightman & Conway-Campbell 2010 [43].

36 Entrainment — External Zeitgeber vs Internal Oscillator **ACCEPTED**

Two coupled sine waves with a phase-lag scale. The external time-giver provides a range within which the internal oscillator moves; sleep, eating, and menstrual timing need not be exact but are kept in bounds. Health = flexible coupling; disease = a timing fault (coupling lost, or gone rigid) — offered as what the old physicians called humoral imbalance.

Sources: Pittendrigh & Daan 1976 (entrainment theory) [14]; Roenneberg & Merrow 2016 [44]; Glass 2001, "Synchronization and rhythmic processes in physiology" [45].

37 Phase Error — When Clocks Drift Apart **ACCEPTED**

Left: entrained state, SCN/liver/activity/core-temperature peaks stacked. Right: desynchronized state after night light, late meals, shift work, jet lag — peaks scatter. Key point: no single clock is broken; they have stopped agreeing ("a band where everyone plays their own beat"). Downstream costs: metabolic (insulin resistance, weight, dyslipidemia), cardiovascular (loss of nocturnal BP dip, hypertension), mood and sleep (insomnia, depression, SAD), immune and oncologic (inflammatory tone; shift work IARC Group 2A).

Sources: Roenneberg & Merrow 2016 [44]; Scheer et al. 2009 (misalignment, PNAS) [46]; IARC Monographs vol. 124 (2019) [47].

Chapter 3 — How do Humors and Chronobiology Interact?

38 Chapter 03 — How do Humors and Chronobiology Interact? **N/A**

Section divider.

Sources: none required.

39 The Seasonal Cycle of the Qualities and the Humors **FRONTIER**

NYC 1991–2020 climatological normals: temperature anomaly (red) peaks in summer; near-surface pressure (dashed blue) is used as the proxy for "wetness" — heat lifts water so surface pressure falls (dry); cold condenses it near the earth (wet). Humor bands mapped beneath: phlegm/winter, blood/spring, yellow bile/summer, black bile/autumn. Climate data ACCEPTED; pressure-as-humidity proxy is the author's convention; humor mapping SYMBOLIC.

Sources: NOAA NCEI 1991–2020 U.S. Climate Normals, Central Park [48]; Hippocrates, *Airs Waters Places* [49]; seasonal humor dominance — *Nature of Man* [2].

40 The Lunar Cycle of the Qualities and the Humors SYMBOLIC

Same warmth/moisture curves compressed to one synodic month: waxing crescent = spring/blood, waxing gibbous = summer/yellow bile, waning gibbous = autumn/black bile, waning crescent = winter/phlegm. This is the traditional lunation-as-miniature-year doctrine; there is no accepted meteorological or physiological warmth–moisture lunar cycle of this form.

Sources: Ptolemy, *Tetrabiblos* I.8 (lunar phases and qualities) [13]; Lilly [6]; Cajochen 2013 lunar-sleep finding contested after replication failure [50].

41 The Diurnal Cycle of the Qualities and the Humors ACCEPTED

Temperature and moisture over 24 h: coldest, dampest hour at dawn (dew), hottest, driest mid-afternoon. Humor mapping: phlegm toward dawn, blood through the morning, yellow bile in the afternoon, black bile as evening cools and dries. Diurnal meteorology ACCEPTED; humor mapping SYMBOLIC (it matches the classical assignment of hours).

Sources: diurnal temperature/humidity cycle — standard meteorology, e.g., Oke, *Boundary Layer Climates* [51]; classical diurnal humor sequence — Galen / medieval regimen literature [3][4].

42 Menstrual Cycle & Thermal Qualities FRONTIER

Trajectory across a cold/hot × dry/moist plane by cycle day: cold-moist (phlegmatic/follicular) → hot (ovulation, d13) → hot-dry (luteal, d19–22) → cooling (d26). Based on the ~0.3–0.5 °C basal-temperature rise after ovulation and luteal changes in fluid handling. Temperature shift ACCEPTED; the moisture axis is inferred and the quadrant labels are SYMBOLIC.

Sources: basal body temperature — Baker & Driver 2007 [52]; luteal fluid/sodium handling — Stachenfeld 2008 [53].

43 Sleep Cycle & Thermal Qualities FRONTIER

Same plane: sleep occupies the cold-moist quadrant (core temperature falls, skin warms), waking arcs through hot quadrants. Caption on slide: axes relative, not calibrated. Core-temperature decline at sleep onset is ACCEPTED; the "moist" axis is a humoral reading.

Sources: Kräuchi et al. 1999 [54]; Harding, Franks & Wisden 2019 (temperature and sleep) [55].

44 Mitochondria: Where the Blood-Essence Becomes Fire SPECULATIVE

Four-step wheel: 1 loading (cold-wet, the chamber fills) → 2 swelling (hot-wet, fire meets fluid) → 3 thermogenesis (hot-dry, heat dries) → 4 reset (cold-dry, ash then refill). Script: mitochondria as the "heart of the blood humor"; chyle (the old term for the nutritive product of digestion) fuels them; cites the report that mitochondria run near 50 °C. Aristotle's cycle mapped onto mitochondrial physiology is the author's SPECULATIVE overlay; the 50 °C measurement is FRONTIER (contested methodology).

Sources: Chrétien et al. 2018 (mitochondria ~50 °C, PLoS Biol) [56]; mitochondrial swelling/permeability — Halestrap 2009 [57]; Galen on chyle and blood formation [3].

Chapter 4 — Modern Impact on Chronobiology

45 Chapter 04 — Modern Impact on Chronobiology N/A

Section divider: artificial illumination, shift patterns, continuous indoor environments.

Sources: none required.

46 Modern Life — The Zeitgeber Famine: The Flattened Signal **ACCEPTED**

Log-scale illuminance bars: pre-industrial day up to ~100,000 lux; pre-industrial night ~0 (moon and stars); indoor day a few hundred lux; modern evening 30–100 lux. Day and night have collapsed from a "canyon" to almost touching. Two problems: on/off contrast and intensity.

Sources: Wright et al. 2013 (natural vs electrical light, Curr Biol) [58]; illuminance ranges — CIE / IES standard tables [59].

47 Artificial Light and AC/Heated Homes **ACCEPTED**

Two panels: lit interior held at ~16 h versus the natural day-length curve; indoor ~21 °C versus the outdoor annual temperature curve. The body never receives the long winter night that melatonin duration would read as "winter," nor the hot/cold seasonal swing.

Sources: Wehr 1991/1992 (melatonin duration and photoperiod) [16]; thermoneutral indoor living — Johnson et al. 2011 (obesity and thermoneutrality) [60].

48 Modern Life — The Zeitgeber Famine: The Stretched Meal Window **ACCEPTED**

Ancestral eating window ~10–11 h versus modern 15+ h. Feeding across 15+ hours decouples metabolic organ clocks (liver, pancreas, gut) from the SCN.

Sources: Gill & Panda 2015 (smartphone-logged eating windows, Cell Metab) [61]; Damiola 2000 [26]; Stokkan 2001 [27].

49 Social Zeitgeber Depletion **ACCEPTED**

Removed: shared meals at fixed hours, common work start times, communal worship and market days, synchronous leisure. Replaced by: remote/asynchronous work, solo eating on no schedule, digital sociality at all hours, isolation as default. Ehlers, Frank & Kupfer: social routines are entrainment cues, strongest for those whose light entrainment is already weak.

Sources: Ehlers, Frank & Kupfer 1988 [62]; Holt-Lunstad 2015 [63].

50 Energy Changes in Brain and Body — Farmer 1826 vs Desk Worker 2026 **FRONTIER**

Stacked bars and table: farmer ~3,800 kcal/day (muscle 1,500, brain 480); desk worker ~2,400 kcal/day (muscle 150, brain 480). Brain share rises from 13% to 20% of total energy and from 22% to 40% of carbohydrate; muscle glucose uptake shifts from contraction-driven to insulin-driven. Brain ~20% figure is ACCEPTED; the 1826 farmer budget is an author estimate.

Sources: brain energy share — Raichle & Gusnard 2002 [64]; contraction- vs insulin-mediated glucose uptake — Richter & Hargreaves 2013 [65]; farmer energy budget.

51 Stress Didn't Get Bigger. It Lost Its Rhythm. **FRONTIER**

Cortisol over 24 h: the entrained axis shows a sharp morning peak and steep decline; the flattened axis shows a low peak and a wandering curve. Without a defined rhythm, cortisol signals become "ubiquitous stress." Cortisol awakening response and diurnal slope are ACCEPTED; flattened slope as a disease driver is FRONTIER (association, mixed causality).

Sources: Adam et al. 2017 (diurnal cortisol slope meta-analysis) [66]; Weitzman et al. 1971 (24-h cortisol pattern) [67].

52 The Endotoxin Famine — Stress from Below FRONTIER

Five-step chain: industrial food (fiber-stripped, emulsified, eaten all day) → gut barrier loosens (gram-negative bloom) → endotoxin (LPS) leaks into blood → brain reads infection (IL-6, TNF, IL-1) → stress axis fires, chronic disease follows. Lower panel: black bile as the spleen's filter — tradition drained it each autumn; the modern famine gives no autumn signal and black bile builds up. Metabolic endotoxemia is FRONTIER; endotoxin-as-black-bile is the author's working thesis.

Sources: Cani et al. 2007 [68]; Chassaing et al. 2015 [69]; Galen on spleen and black bile [3][9]; Gaspervic, *The Gut Origin of Black Bile* (HMS working paper) [70].

53 The Season Orbit and the Humors That Stopped Turning SPECULATIVE

The year drawn as an orbit through the four quality quadrants; the modern constitution is shown parked off-center. Perpetual mild-damp indoor climate → phlegmatic excess; processed food and endotoxemia → melancholic excess; isolation ("Saturn vigil") → melancholy. Net: the constitution stalls at one phase angle, cold and dry.

Sources: synthesis of slides 44–50 [16][60][62][68]; humoral reading SYMBOLIC/SPECULATIVE.

Chapter 5 — Methods to Address Modern Influences

54 Chapter 05 — Methods to Address Modern Influences N/A

Section divider; two pendulums "out of phase."

Sources: none required.

55 The Repair Order — The Six Non-Naturals as Nested Oscillations FRONTIER

Concentric rings: 1 Air → 2 Sleep & Waking → 3 Food & Drink → 4 Motion & Rest → 5 Retention & Evacuation → 6 Passions (repaired last). Rule: outside → in; slow rhythms first, fast ones ride on them. "Rebuild the carriers before the riders." The ordering of the classical list as slow-to-fast is the author's interpretation.

Sources: Galen, *Ars medica* [7]; nesting rationale — Lakatos 2008 [38]; ordering FRONTIER (author).

56 Six Levers, One Order ACCEPTED

One general intervention per non-natural, in the repair order, each naming the clock it sets. Air — bright days, dark nights, live the season (the master clock). Sleep & Waking — the same wake time every day; wake time is the anchor, not bedtime (the 24-hour rhythm). Food & Drink — eat in daylight; coffee is a morning drug (the organ clocks). Motion & Rest — move at the same hour, morning is best (the muscle clock). Retention & Evacuation — the same appointment every morning (the gut clock). Passions — people, music, purpose, at fixed hours; they ride on everything above. None of it is exotic: one instruction six times — put it back on a clock. That first move is the same for everyone. The second move is not: once the rhythm is back, push toward the opposite quality, and which way depends on the temperament.

Sources: Galen, *Ars medica* [7]; Hippocrates, *Regimen* [71]; Roenneberg & Merrow 2016 [44]; Ehlers, Frank & Kupfer 1988 [62].

57 Neil Armstrong — Seasonal Quadrants on the Chart SYMBOLIC

Chart overlaid with seasonal cross-sections (0° Aries = spring). Heavy planetary presence in the Summer quadrant — a hot, sanguine–choleric constitution. Not likely to be pulled by the modern zeitgeber famine; his failure mode is drive with no off-switch.

Sources: author's seasonal-quadrant overlay (script: "I used my intuition"); temperament doctrine [6]. SYMBOLIC.

58 Neil Armstrong — Quality Map vs. the Modern Default SYMBOLIC

Armstrong's natal quality map (choleric — hot and dry, per the slide label) against the modern default: phlegmatic–melancholic, cold, stalled at the seam. Because he is so hot, the modern pull does not drag him cold; the danger runs the other way.

Sources: author's graphic synthesizing slides 24 and 51.

59 Daniel Johnston — Seasonal Quadrants on the Chart SYMBOLIC

Johnston's planetary emphasis falls in the Winter quadrant. Phlegmatic by planets, choleric–sanguine by calculation, melancholic by his Saturn Lord of the Geniture — all four pull, so he is exposed to the modern constitution's pull toward phlegmatic–melancholic.

Sources: as slide 62 [6].

60 Daniel Johnston — Quality Map vs. Modern Famine Map SYMBOLIC

Johnston's map with the famine state superimposed: one phase angle, almost no amplitude. He is the case that gets pulled into the cold, stalled region where depression lives. Where Armstrong needs one instruction, Johnston needs a clock.

Sources: author's graphic; Johnston biography [19].

61 One Instruction, One Clock FRONTIER

Same five levers, two prescriptions. Armstrong (Hot 7 · Cold 0 · Wet 4 · Dry 3): "Cool down." Every lever points the same way — cooler, earlier, calmer; he cannot stop, so give him back the night. Johnston (Hot 5 · Cold 2 · Wet 3 · Dry 4, Saturn rules): "Give him a clock." No single direction works because he moves between phases; fix the hours — light, sleep, meals, walks — cool the hot phase, warm the cold phase; psychiatric care is the treatment.

Sources: Galen, De temperamentis (push toward the opposite quality) [3]; social rhythm therapy — Frank 2005 [72].

62 Step 1 — Light: 89,000 Wrists ACCEPTED

The largest personal light-exposure study run: 88,905 UK Biobank adults wore a wrist light sensor for 7 days and were followed 8 years. Against the dimmer half, the brightest nights carried +21 to +34% mortality risk; the brightest days –17 to –34%. Armstrong: night is the cold half of the day (melatonin, falling temperature, engine idling) — darkness is a brake, and with no Cold in his chart the night is the only cold he gets; a pilot's schedule takes it away. Johnston: bipolar disorder has a hot phase (little sleep, racing ideas, cannot stop) and a cold phase (withdrawn, slowed, cannot start); light is a stimulant, so give it at midday in the cold phase, dosed by a clinician, and take it away in the hot phase. "Bright days, dark nights: 89,000 wrists agree."

Sources: Windred et al. 2024 [73]; melatonin/temperature at sleep onset — Kräuchi 1999 [54].

63 Step 3 — Food: The Second Zeitgeber **ACCEPTED**

Light sets the brain's clock; the liver, gut, and fat keep clocks of their own and set them by meals. Eat at midnight and the brain is in London while the liver is in New York — jet lag without the plane. The day: eat in daylight, front-load, stop 2–3 hours before bed. The year: the Hippocratic regimen turns the diet like a wheel — winter warm, dry, roasted; spring softer, greens; summer cool, moist, boiled; autumn drier, warmer. Noon is summer, midnight is winter. Before bed: warm milk, a pinch of salt, a little sugar, to quiet the night stress hormones. Same clock for both men (ACCEPTED); Armstrong cooling foods, Johnston foods by phase.

Sources: Hippocrates, Regimen in Health [71]; Damiola 2000 [26]; Stokkan 2001 [27]; Wilkinson 2020 [74].

64 Diet by Temperament **SYMBOLIC**

Galen's rule: push toward the opposite quality; for both men prescribe on the heat axis. Sanguine (hot-wet, surplus, no outlet): lighter plates at fixed hours, bitter spring greens; avoid sweets, feasting, grazing. Choleric (hot-dry, cannot stop): cooling — greens, fruit, barley, lettuce, cucumber; avoid late spice, alcohol, stimulants. Melancholic (cold-dry, cannot start): warm and regular — soups, stews, butter, olive oil; never skip breakfast (the starter motor); avoid cold, dry, skipped meals. Phlegmatic (cold-wet, slow to switch): light, warm, spiced — ginger, pepper, thyme, small supper; avoid cold, heavy, sweet, late. Armstrong eats from the cooling rows; Johnston eats by phase — cool in the hot phase, warm in the cold phase, plus the modern pull.

Sources: Galen, De temperamentis and De alimentorum facultatibus [3]; Hippocrates, Regimen [71]. Humoral dietetics SYMBOLIC; timing ACCEPTED.

65 Johnston: Rhythm Is the Intervention **ACCEPTED**

Johnston's publicly documented illness was bipolar disorder; its best-tested adjunct is literally a clock. The anchors: wake, breakfast, midday light, walk with people, supper, dark, sleep — the same hours every day. Social rhythm therapy (ACCEPTED): fixed sleep, wake, meal, and social hours; patients who kept the rhythm stayed well longer. Dark therapy (FRONTIER): darkness and blue-blocking glasses for mania. Midday bright light (FRONTIER): 68% remission against 22% on a dummy lamp for bipolar depression. None of this replaces the psychiatrist — but the add-ons are dark, light, and fixed hours. When medicine wants to move a stuck state, it reaches for the zeitgebers. The strongest evidence in this talk that re-imposing rhythm moves a stuck state.

Sources: Frank et al. 2005 [72]; Henriksen et al. 2016 [75]; Sit et al. 2018 [76].

66 Constitutional Maintenance **FRONTIER**

How the method works: by the humors, against the modern pull. (1) The humor is the lean — each constitution gets stuck in its own way: sanguine surplus with no outlet, choleric cannot stop, phlegmatic slow to switch, melancholic cannot start. (2) Modern life is the pull — dim days, lit nights, food at all hours, no seasons; everyone drifts cold. (3) Rhythm is the repair — restore the time-givers (light, meals, fixed hours), then push toward the opposite quality. “The lean you were born with. The pull we all live in. The rhythm that repairs both.” Armstrong sits in the hot row; Johnston spans all four.

Sources: Synthesis of Chapters 4–5 [7][44][62][73].

Close

67 Overview — Main Ideas for this Talk N/A

Closing recap of the three arcs: Natural Cycles & Humors (circadian and seasonal mapping, physiological equilibrium, humoral balance dynamics); Modern Environment (artificial light, environmental stressors, desynchronization); Therapeutic Protocols (targeted chronotherapy, lifestyle and diet alignment, restorative interventions).

Sources: none required.

68 Closing — Presenter, Schedule, Documentation (QR) N/A

Masen Clark Gaspervic, Saturday 19 September 2026, 12:00–1:00 PM. QR code to the written summary, citations, and research notes at neuroastrology.net. (Standing open item: QR URL finalization.)

Sources: none required.

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