

REFERENCES

Source Summary — *what the cited work establishes or demonstrates.*

Application in “We Are” — *how the author uses it in the book.*

- [1] Wheeler, J. A. (1990). Information, physics, quantum: The search for links. In W. Zurek (Ed.), *Complexity, Entropy, and the Physics of Information* (pp. 3–28). Addison-Wesley. <https://doi.org/10.1201/9780429500459-19>

Source Summary: Introduces the 'It from Bit' doctrine: every physical quantity derives from binary yes/no questions posed by observers, making the universe irreducibly participatory.

Application in “We Are”: Grounds the book's core claim that conscious observation is not passive but constitutive — the universe evolved to observe itself, cited across Parts I and V.

- [2] Penrose, R. (1989). *The Emperor's New Mind*. Oxford University Press. <https://doi.org/10.1093/oso/9780198519737.001.0001>

Source Summary: Argues that consciousness involves non-computable quantum processes, transcending algorithmic computation and requiring a quantum theory of gravity.

Application in “We Are”: Supports the book's premise that consciousness has a physical quantum substrate, cited in Part VII's covalent-bond discussion.

- [3] Mandelbrot, B. B. (1982). *The Fractal Geometry of Nature*. W. H. Freeman. <https://doi.org/10.1119/1.13295>

Source Summary: Establishes fractal geometry as the mathematics of self-similar natural forms: the same recursive rule, repeated at every scale, generates apparent complexity.

Application in “We Are”: Underpins the book's argument that geometric laws recur across all scales — the observer sharing electrons is not metaphor but fractal physical reality.

- [4] Moore, K. L., Persaud, T. V. N., & Torchia, M. G. (2019). *The Developing Human: Clinically Oriented Embryology* (11th ed.). Elsevier. <https://www.elsevier.com/books/the-developing-human/moore/978-0-323-61154-1>

Source Summary: The standard clinical embryology reference, tracing human development from fertilization through organogenesis with integrated molecular biology.

Application in “We Are”: Primary embryology reference for Parts II and VII, cited to show the 3, 7, 13 architectural constants manifesting in the staged construction of the biological observer.

- [5] Sadler, T. W. (2018). *Langman's Medical Embryology* (14th ed.). Wolters Kluwer. <https://www.wolterskluwer.com/en/solutions/ovid/langmans-medical-embryology-702>

Source Summary: Concise clinical embryology covering molecular mechanisms of development, including DNA base-pairing chemistry and RNA transcription.

Application in “We Are”: Cited in Part II for G-C base pairing (3 hydrogen bonds vs. 2 in A-T) as an instantiation of the number 3 in molecular chemistry.

- [6] Piaget, J. (1954). *The Construction of Reality in the Child*. Basic Books. <https://doi.org/10.1037/11168-000>

Source Summary: Establishes the four invariant stages of cognitive development, identifying concrete operations as beginning around age 7.

Application in “We Are”: Cited for the 'Age of Reason' at 7 (concrete operational stage) and for the triadic developmental model (0–7–13) cross-referenced with the genetic reading frame.

[7] Piaget, J., & Inhelder, B. (1969). *The Psychology of the Child*. Basic Books.
<https://doi.org/10.4324/9781315009506>

Source Summary: Surveys the full cognitive development sequence from sensorimotor to formal operational stages, including the qualitative reorganization at ages 7 and 11–13.

Application in “We Are”: Provides psychological evidence that 7 and 13 are genuine transition thresholds — each marking a qualitative reorganization of the observer's cognitive structure.

[8] Erikson, E. H. (1950). *Childhood and Society*. W. W. Norton. <https://wwnorton.com/books/9780393310689>

Source Summary: Proposes eight psychosocial stages across the lifespan; the fifth stage (Identity vs. Role Confusion) centers on adolescence around age 12–18.

Application in “We Are”: Cited for the identity-formation transition at age 13, corroborating the book's identification of 13 as the archetypal threshold into abstract self-awareness.

[9] Gilbert, S. F. (2014). *Developmental Biology* (10th ed.). Sinauer Associates.
<https://global.oup.com/ushe/product/developmental-biology-9780878939787>

Source Summary: The leading developmental biology textbook, covering the triplet genetic code (three nucleotides = one codon) and germ-layer patterning in detail.

Application in “We Are”: Cited for the triadic reading frame as the foundational structure of the genetic code, and in Part VII's codon-count analysis of the 64-codon matrix.

[10] MacLean, P. D. (1990). *The Triune Brain in Evolution.: Role in Paleocerebral Functions* Plenum Press.
<https://link.springer.com/book/9780306431685>

Source Summary: Proposes that the human brain comprises three evolutionarily layered subsystems: reptilian (instinct), limbic (emotion), and neocortical (abstract thought).

Application in “We Are”: Cited in the 'Trinity of the Vessel' section as anatomical evidence that the brain itself is structured as a three-layer system — a biological Rule of 3.

[11] Kandel, E. R., Schwartz, J. H., & Jessell, T. M. (2000). *Principles of Neural Science* (4th ed.). McGraw-Hill. <https://neurology.mhmedical.com/book.aspx?bookid=1049>

Source Summary: The standard neuroscience reference, detailing the three principal neuron types: sensory (afferent), motor (efferent), and interneurons (integrating).

Application in “We Are”: Cited for the three neuron types as a biological tripartite Rule of 3 — intake, output, and the neutral processor translating one into the other.

[12] Newton, I. (1704). *Opticks.: Or, a Treatise of the Reflexions, Refractions, Inflexions and Colours of Light*. Sam. Smith and Benj. Walford. <https://doi.org/10.5479/sil.302475.39088000644674>

Source Summary: Demonstrates through prism experiments that white light separates into seven spectral colors (ROYGBIV), establishing the seven-color spectrum as canonical.

Application in “We Are”: Cited in the 7×7 Matrix (Part II) for Sight: the seven colors of visible light as one of seven sensory categories each subdivided into seven distinctions.

[13] Helmholtz, H. (1954). *On the Sensations of Tone as a Physiological Basis for the Theory of Music* (A. J. Ellis, Trans.). Dover Publications. (Original work published 1863).
<https://archive.org/details/onsensationsoflo0000helm>

Source Summary: Grounds the diatonic musical scale — seven distinct notes (C–B) — in the physics of harmonic resonance and the physiology of the cochlea.

Application in “We Are”: Cited in the 7×7 Matrix's Hearing entry: seven key notes of the diatonic scale as evidence of the number 7 in auditory design.

[14] Montagna, W., & Parakkal, P. F. (1974). *The Structure and Function of Skin* (3rd ed.). Academic Press. <https://www.elsevier.com/books/the-structure-and-function-of-skin/montagna/978-0-12-505263-4>

Source Summary: Definitive reference on skin histology, describing five epidermal strata plus two dermal layers — seven skin layers total.

Application in “We Are”: Cited in the 7×7 Matrix's Touch entry for the seven layers of skin as structural evidence of 7 in the observer's physical architecture.

[15] Amoore, J. E. (1970). *Molecular Basis of Odor*. Charles C Thomas. <https://archive.org/details/molecularbasisof0000amoo>

Source Summary: Proposes the stereochemical theory of olfaction, identifying seven primary odor categories based on molecular shape fitting receptor sites.

Application in “We Are”: Cited in the 7×7 Matrix's Smell entry: seven primary odors (Camphoraceous, Musky, Floral, Minty, Ethereal, Pungent, Putrid) as a further 7-fold sensory structure.

[16] Breslin, P. A. S., & Spector, A. C. (2008). Mammalian taste perception. *Current Biology*, 18 (4), R148–R155. <https://doi.org/10.1016/j.cub.2007.12.017>

Source Summary: Reviews the molecular mechanisms of taste, covering the five classic modalities plus emerging evidence for fat and pungency receptors.

Application in “We Are”: Cited in the 7×7 Matrix's Taste entry: seven taste distinctions (Sweet, Sour, Salty, Bitter, Umami, Fat, Pungency) as a seventh sensory structure.

[17] Eliade, M. (1959). *The Sacred and the Profane: The Nature of Religion*. Harcourt Brace Jovanovich. <https://archive.org/details/sacredprofanenat00elia>

Source Summary: Argues that religious consciousness universally divides reality into sacred and profane modes, organized around seven-level cosmological structures across cultures.

Application in “We Are”: Cited in the 7×7 Matrix's Intuition entry for the 7 chakras, showing 7 as a universal organizing constant across both scientific and spiritual traditions.

[18] Ekman, P. (1992). An argument for basic emotions. *Cognition & Emotion*, 6 (3–4), 169–200. <https://doi.org/10.1080/02699939208411068>

Source Summary: Argues for a small set of biologically grounded, cross-culturally universal basic emotions — typically six or seven — linked to distinctive facial expressions.

Application in “We Are”: Cited in the 7×7 Matrix's Emotion entry as empirical evidence for seven universal emotional categories in the observer's sensory design.

[19] Ekman, P., & Friesen, W. V. (1971). Constants across cultures in the face and emotion. *Journal of Personality and Social Psychology*, 17 (2), 124–129. <https://doi.org/10.1037/h0030377>

Source Summary: Cross-cultural study finding identical facial muscle patterns for basic emotions in literate Western and isolated Papua New Guinean groups — confirming biological universality.

Application in “We Are”: Cited alongside [18] to reinforce that the seven-category emotional structure is pan-human rather than culturally contingent.

[20] Bohm, D. (1980). *Wholeness and the Implicate Order*. Routledge. <https://doi.org/10.4324/9780203995150>

Source Summary: Proposes that observable reality is a surface 'explicate order' derived from a deeper, undivided 'implicate order' in which everything is holistically enfolded.

Application in “We Are”: Cited in Part III for caution about overly loose application of formal frameworks, and in the Epilogue for the internal-combustion model of cosmological wave-compression.

[21] Stewart, I. (1995). *Nature's Numbers: The Unreal Reality of Mathematics*. Basic Books.
<https://archive.org/details/naturesnumbersun00stew>

Source Summary: Surveys the pervasive role of mathematical patterns in nature — Fibonacci sequences, symmetry, chaos — arguing that mathematical structure is inherent in physical processes.

Application in “We Are”: Cited in Part V to support the thesis that connecting opposite polarities reveals the whole: the same mathematical laws govern physics, biology, and philosophy.

[22] Livio, M. (2002). *The Golden Ratio: The Story of Phi, the World's Most Astonishing Number* Broadway Books. <https://archive.org/details/goldenratiostory00livi>

Source Summary: Documents the golden ratio $\phi \approx 1.618$'s genuine occurrence in Fibonacci spirals, plant phyllotaxis, and DNA's helical parameters — a mathematical inevitability, not aesthetic choice.

Application in “We Are”: Cited for the cross-domain recurrence of the same mathematical pattern, showing that studying any echo in isolation misses the harmony of the whole framework.

[23] Kauffman, S. A. (1995). *At Home in the Universe: The Search for Laws of Self-Organization and Complexity*. Oxford University Press. <https://global.oup.com/academic/product/at-home-in-the-universe-9780195111309>

Source Summary: Proposes that self-organization — ordered structure spontaneously emerging from simple rules — is a law of nature complementing natural selection.

Application in “We Are”: Cited alongside [22] to show that complexity emerging from simple recursive rules is universal, supporting the framework's claim that one law underlies all scales.

[24] Alberts, B., Johnson, A., Lewis, J., Raff, M., Roberts, K., & Walter, P. (2002). *Molecular Biology of the Cell* (4th ed.). Garland Science. <https://www.ncbi.nlm.nih.gov/books/NBK21054/>

Source Summary: Standard molecular cell biology textbook, covering the four DNA bases, meiosis (four-stage cell division), and the molecular machinery of the cell.

Application in “We Are”: Cited for the four DNA bases (A, T, G, C) and the four stages of meiosis as instantiations of the number 4 in the reproductive architecture of the observer.

[25] Sherman, S. M., & Guillery, R. W. (2006). *Exploring the Thalamus and Its Role in Cortical Function* (2nd ed.). MIT Press. <https://mitpress.mit.edu/9780123705617/exploring-the-thalamus-and-its-role-in-cortical-function/>

Source Summary: Argues the thalamus is not merely a relay but an active gatekeeper regulating which signals reach the cortex — the brain's central switchboard.

Application in “We Are”: Cited in Part V: the thalamus as the neurological counterpart to the framework's convergence point — the neutral gating station between input and output.

[26] Chalmers, D. J. (1996). *The Conscious Mind: In Search of a Fundamental Theory*. Oxford University Press. <https://global.oup.com/academic/product/the-conscious-mind-9780195117899>

Source Summary: Distinguishes the 'hard problem' of consciousness — why subjective experience exists at all — from the tractable 'easy problems' of cognitive function.

Application in “We Are”: Cited in Parts IV and V as the philosophical benchmark: the book's framework addresses the hard problem by arguing consciousness is the universe's self-observing architecture.

[27] Nagel, T. (1974). What is it like to be a bat? *The Philosophical Review*, 83(4), 435–450.
<https://doi.org/10.2307/2183914>

Source Summary: Establishes the 'what it is like' criterion: subjective experience has a first-person character that no objective physical description can fully capture.

Application in “We Are”: Cited alongside [26] and [28] to frame the explanatory gap the book's consciousness framework must bridge — and claims to resolve through systemic integration.

[28] Tononi, G. (2008). Consciousness as integrated information: A provisional manifesto. *The Biological Bulletin*, 215(3), 216–242. <https://doi.org/10.2307/25470707>

Source Summary: Proposes Integrated Information Theory (IIT): consciousness is identical to integrated information Φ , graded and substrate-independent.

Application in “We Are”: Cited in Part V: Tononi's Φ resonates with the book's claim that consciousness is proportional to the degree of systemic integration achieved.

[29] Jung, C. G. (1968). *Man and His Symbols*. Dell Publishing.
<https://archive.org/details/manhissymbols00jung>

Source Summary: Presents archetypes as universal symbolic patterns in the collective unconscious — inherited psychic predispositions manifest in myth, dreams, and art across all cultures.

Application in “We Are”: Cited in Part II: 3, 7, and 13 are not arbitrary — they are archetypal constants encoded in the human psyche, not just mathematics.

[30] Campbell, J. (1949). *The Hero with a Thousand Faces*. Pantheon Books.
https://archive.org/details/herowiththousand0000camp_k2g3

Source Summary: Identifies the monomyth — a universal three-act hero's journey (Departure, Initiation, Return) — recurring across virtually all human mythological traditions.

Application in “We Are”: Cited alongside [29] as a cross-domain three-act structure reflecting universal psychic transformation — the same tripartite pattern the book identifies in physics and biology.

[31] Bejan, A., & Zane, J. P. (2012). *Design in Nature: How the Constructal Law Governs Evolution in Biology, Physics, Technology, and Social Organizations*. Doubleday. <https://doi.org/10.1016/j.physrep.2012.11.005>

Source Summary: The Constructal Law: every flow system evolves to provide progressively easier access for its currents, generating the tree-branching architectures seen throughout nature.

Application in “We Are”: Cited in the systemic-organization discussion as cross-domain evidence that structural design is inherent in nature, not imposed — the framework's pattern is a physical law.

[32] Shannon, C. E. (1948). A mathematical theory of communication. *Bell System Technical Journal*, 27 (3), 379–423; 27(4), 623–656. <https://doi.org/10.1002/j.1538-7305.1948.tb01338.x>

Source Summary: Founds information theory: information is reduction of uncertainty, measured in bits (binary yes/no distinctions), with a precise entropy formula $H = -\sum p \log p$.

Application in “We Are”: Cited in Part VII for the number 2 as the foundational binary constant — Shannon's 0/1 is the ultimate expression of the framework's two-state duality.

[33] Cleveland Clinic. (n.d.). Electrocardiogram (EKG).
<https://my.clevelandclinic.org/health/diagnostics/24253-electrocardiogram-ekg>

Source Summary: Clinical reference explaining the EKG waveform: P wave (atrial depolarization), QRS complex (ventricular depolarization), T wave (repolarization).

Application in “We Are”: Cited in Part III's Rhythmic Model section: the EKG's PQRST waveform as the primary biological example of the book's wave-pattern framework.

[34] MedlinePlus. (n.d.). Electrocardiogram. <https://medlineplus.gov/lab-tests/electrocardiogram/>

Source Summary: National Library of Medicine's evidence-based reference for EKG structure, waveform components, and clinical interpretation.

Application in “We Are”: Cited alongside [33] as a secondary clinical reference confirming the EKG waveform's structure and physiological significance.

[35] Sayood, K. (2018). Information theory and cognition: A review. *Entropy*, 20 (9), 706. <https://doi.org/10.3390/e20090706>

Source Summary: Reviews applications of Shannon information theory to cognitive science, identifying where the formal analogy holds and where it breaks down.

Application in “We Are”: Cited in Part III alongside [20] as a methodological caution: formal mathematical frameworks must be applied with care when imported across disciplines.

[36] Hawking, S. W. (1974, 1975). Black hole explosions? *Nature*, 248, 30–31; Hawking, S. W. (1975). Particle creation by black holes. *Communications in Mathematical Physics*; Particle creation by black holes, 43 (3), 199–220. <https://doi.org/10.1038/248030a0>

Source Summary: Derives that quantum field effects cause black holes to emit thermal radiation and slowly evaporate — the first major result combining general relativity with quantum mechanics.

Application in “We Are”: Cited in Part V: the event horizon's evaporation threshold is a structural analog for the framework's convergence point — where a system must integrate or collapse.

[37] Polchinski, J. (1998). *String Theory. Volume I: An Introduction to the Bosonic String*. Cambridge University Press. <https://doi.org/10.1017/CBO9780511816079>

Source Summary: The graduate textbook for bosonic string theory, proving that internal consistency requires exactly 26 spacetime dimensions (25 spatial + 1 time).

Application in “We Are”: Cited in Part VII: bosonic string theory requires precisely $26 = 13+13$ dimensions, grounding the framework's $13+13+1 = 27$ -point Math X structure in physics.

[38] Watson, J. D., & Crick, F. H. C. (1953). Molecular structure of nucleic acids: A structure for deoxyribose nucleic acid. *Nature*, 171 (4356), 737–738. <https://doi.org/10.1038/171737a0>

Source Summary: Proposes the anti-parallel DNA double helix: two strands running $5' \rightarrow 3'$ and $3' \rightarrow 5'$, held together by complementary base pairs — structural necessity, not convention.

Application in “We Are”: Cited in Part VII as molecular embodiment of the book's $+1/+0$ operational duality: two anti-parallel, complementary strands encoding the observer-observed relationship.

[39] Hoyle, F. (1954). On nuclear reactions occurring in very hot stars. I. The synthesis of elements from carbon to nickel. *The Astrophysical Journal Supplement Series*, 1, 121–146. <https://doi.org/10.1086/190005>

Source Summary: Introduces the triple-alpha process: three helium nuclei fuse in a three-step sequence to form carbon-12, the essential element for organic life.

Application in “We Are”: Cited in Part I: the three-step nuclear reaction that produces carbon is the framework's Rule of 3 operating at the stellar scale — the universe building its own observer.

[40] Bekenstein, J. D. (1973). Black holes and entropy. *Physical Review D*, 7 (8), 2333–2346. <https://doi.org/10.1103/PhysRevD.7.2333>

Source Summary: Establishes that black hole entropy is proportional to event horizon area, leading to the holographic principle: a volume's information is encoded on its boundary.

Application in “We Are”: Cited in Part V alongside [36]: thermodynamic grounding for the claim that information at the convergence point is preserved on the boundary, not destroyed.

[41] Landau, L. D., & Lifshitz, E. M. (1987). *Fluid Mechanics* (2nd ed. Vol. 6, Course of Theoretical Physics). Pergamon Press. <https://doi.org/10.1016/C2013-0-03799-1>

Source Summary: *The rigorous mathematical treatment of fluid mechanics, covering Navier-Stokes equations, vortex dynamics, and the equations of rotational fluid flow.*

Application in “We Are”: *Cited in Parts III and V to provide the fluid-dynamic theoretical foundation for the conical-spring vortex model of the framework's wave-compression mechanism.*

[42] Hanahan, D., & Weinberg, R. A. (2011). Hallmarks of cancer: The next generation. *Cell*, 144 (5), 646–674. <https://doi.org/10.1016/j.cell.2011.02.013>

Source Summary: *Identifies ten core hallmarks — capabilities cancer cells must acquire — as the comprehensive framework for understanding malignant transformation.*

Application in “We Are”: *Cited for the 13 Hallmarks framework (ten core + three spatial from [96]) as the book's key biological instantiation of 13 as the Rule of Transformation.*

[43] Coogan, M. D. (Ed.). (2018). *The New Oxford Annotated Bible: New Revised Standard Version with the Apocrypha* (5th ed.). Oxford University Press. (Primary biblical source for Genesis citations.) <https://global.oup.com/academic/product/the-new-oxford-annotated-bible-9780190276072>

Source Summary: *The standard scholarly annotated Bible with critical introductions and verse-by-verse annotations by leading biblical scholars.*

Application in “We Are”: *Cited in Part V for Genesis passages on humanity's fractured creative state — the same divided condition the framework's convergence model addresses.*

[43–continued] Coogan, M. D. (Ed.). (2018). [All biblical passages cited throughout *We Are*] *The New Oxford Annotated Bible: NRSV with Apocrypha* (5th ed.). Oxford University Press. <https://global.oup.com/academic/product/the-new-oxford-annotated-bible-9780190276072>

Source Summary: *Same scholarly edition used as the single source for all scriptural quotations in the book — Genesis, Galatians, Luke, 2 Timothy, Jeremiah, and Matthew.*

Application in “We Are”: *Cross-reference note: all biblical passages throughout the book draw from this one authoritative edition, ensuring textual consistency and academic traceability.*

[44] Coogan, M. D. (Ed.). (2018). *The New Oxford Annotated Bible: New Revised Standard Version with the Apocrypha* (5th ed.). Oxford University Press. (Primary biblical source for Galatians citations.) <https://global.oup.com/academic/product/the-new-oxford-annotated-bible-9780190276072>

Source Summary: *Same scholarly edition as [43], here for Paul's letter to the Galatians, which addresses the conflict between flesh and spirit — divisive law versus unifying grace.*

Application in “We Are”: *Cited in Part V: Galatians' 'flesh vs. spirit' maps structurally to the framework's +1 (inward compression) vs. +0 (outward projection) operational duality.*

[45] Bohr, N. (1928). The quantum postulate and the recent development of atomic theory. *Nature*, 121 (3050), 580–590. <https://doi.org/10.1038/121580a0>

Source Summary: *Introduces the complementarity principle: quantum systems exhibit mutually exclusive wave/particle properties; observing one necessarily precludes observing the other.*

Application in “We Are”: *Cited in Part I for the observer-effect principle and in the convergence-point discussion, where the act of observation forces a definite state from superposed probability.*

[46] Varela, F. J. (1996). Neurophenomenology: A methodological remedy for the hard problem. *Journal of Consciousness Studies*, 3 (4), 330–349. <https://doi.org/10.14704/nq.2003.1.4.26>

Source Summary: *Proposes neurophenomenology: rigorously correlating first-person phenomenological reports with third-person neurobiological data to bridge the explanatory gap.*

Application in “We Are”: *Cited as the theoretical foundation for Part VIII's methodology: the book's first-person float-tank observations are treated as valid neurophenomenological data.*

[46-cont.] See also: Varela, F. J., Thompson, E., & Rosch, E. (1991). *The Embodied Mind*. MIT Press.

Source Summary: Develops 'enaction': mind and world are co-constituted through embodied action — cognition is not representation of a pre-given world but its enactment.

Application in “We Are”: Extended framework behind [46]; provides the enactive cognitive science basis for treating the author's introspective observations as empirical data, not mere anecdote.

[47] Prigogine, I. (1980). *From Being to Becoming: Time and Complexity in the Physical Sciences*. W.H. Freeman and Company. <https://archive.org/details/frombeingtobecom0000prig>

Source Summary: Shows that open systems far from equilibrium spontaneously self-organize into ordered 'dissipative structures,' establishing irreversibility as a source of order.

Application in “We Are”: Cited in Part I to support the establishment of the first measurable gradient — the dissipative condensation phase where inward friction meets expanding heat.

[48] Peebles, P. J. E. (1966). Primordial helium abundance and the primordial fireball. II. *Astrophys. J.*, 146, 542– 552. <https://doi.org/10.1086/148912>

Source Summary: Derives the 25% primordial helium abundance from Big Bang nucleosynthesis, one of the key quantitative predictions and confirmations of Big Bang cosmology.

Application in “We Are”: Cited in Part I for the nucleosynthesis stage: the condensation gradient cooling below atomic stability thresholds to produce the hydrogen/helium from which stars form.

[49] Burbidge, E. M., Burbidge, G. R., Fowler, W. A., & Hoyle, F. (1957). Synthesis of the elements in stars. *Reviews of Modern Physics*, 29 (4), 547–650. <https://doi.org/10.1103/RevModPhys.29.547>

Source Summary: The foundational B²FH paper: demonstrates that virtually all elements heavier than helium are synthesized inside stars through nuclear burning processes.

Application in “We Are”: Cited in Part I for stellar nucleosynthesis as the three-stage process (hydrogen → helium → heavy elements) by which stars build the matter of which observers are made.

[50] Atkins, P. W., & de Paula, J. (2014). *Atkins' Physical Chemistry* (10th ed.). Oxford University Press. [link](#)

Source Summary: The standard physical chemistry reference; its atomic orbital chapters show that s, p, d, f orbitals have 1, 3, 5, 7 spatial orientations respectively — the odd-number progression.

Application in “We Are”: Cited in Part II for orbital spatial orientations (1, 3, 5, 7) mirroring the framework's odd- number progression, and in Part V for the wave-particle orbital-filling model.

[51] Franklin, R. E., & Gosling, R. G. (1953). Molecular configuration in sodium thymonucleate. *Nature*, 171 (4356), 740–741. <https://doi.org/10.1038/171740a0>

Source Summary: Reports X-ray diffraction data (Photo 51) confirming DNA's helical structure: 34 Å helical repeat, ~20 Å diameter, 10 base pairs per turn.

Application in “We Are”: Cited in Part VII alongside [38]: Franklin's empirical data confirmed the double-helix geometry that encodes the book's anti-parallel structural framework at the molecular level.

[52] Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological Review*, 63 (2), 81–97. <https://doi.org/10.1037/h0043158>

Source Summary: Finds that human working memory reliably holds 7 ± 2 chunks, reflecting an intrinsic capacity limit of the cognitive system — not practice or attention.

Application in “We Are”: Cited in Part II: 7 ± 2 as neuropsychological confirmation that 7 is the observer's cognitive processing constant — built into the architecture of human information processing.

[53] Barrow, J. D., & Tipler, F. J. (1986). *The Anthropic Cosmological Principle*. Oxford University Press. <https://global.oup.com/academic/product/the-anthropic-cosmological-principle-9780192821478>

Source Summary: *Surveys the many ways fundamental physical constants appear precisely calibrated for carbon-based life and consciousness to arise.*

Application in “We Are”: *Cited in Part IV for the anthropic fine-tuning argument, which parallels the book's claim that the universe's architecture is observer-directed rather than accidental.*

[54] Young, T. (1802). The Bakerian Lecture: On the theory of light and colours. *Philosophical Transactions of the Royal Society of London*, 92, 12–48. <https://doi.org/10.1098/rstl.1802.0004>

Source Summary: *The original double-slit experiment: light passing through two slits produces interference fringes, proving its wave nature; later extended to electrons, revealing wave-particle duality.*

Application in “We Are”: *Cited for the double-slit experiment as direct evidence that observation collapses quantum superposition — the foundational demonstration of the observer effect.*

[55] Witten, E. (1995). String theory dynamics in various dimensions. *Nuclear Physics B*, 443 (1–2), 85–126. [https://doi.org/10.1016/0550-3213\(95\)00158-0](https://doi.org/10.1016/0550-3213(95)00158-0)

Source Summary: *Proposes M-theory: the five superstring theories are limiting cases of a single 11-dimensional framework, unifying string theory in the 'second superstring revolution.'*

Application in “We Are”: *Cited in Part III and the Epilogue alongside [20] for wave-pattern compression when movement has no observable medium — the cosmological internal-combustion model.*

[56] Okazaki, R., et al. (1968). Mechanism of DNA chain growth. I. *Proceedings of the National Academy of Sciences*, 59(2), 598–605. [doi](https://doi.org/10.1073/pnas.59.2.598)

Source Summary: *Discovers that the lagging strand is synthesized discontinuously as short Okazaki fragments — a structural consequence of the anti-parallel geometry and 5' → 3' polymerase directionality.*

Application in “We Are”: *Cited in Part VII: the discontinuous replication of the lagging strand demonstrates that the anti-parallel geometry imposes functional asymmetry — one strand leads, one follows.*

[57] Crick, F. H. C. (1966). The genetic code — yesterday, today, and tomorrow. *Cold Spring Harbor Symposia on Quantitative Biology*, 31, 3–9. <https://doi.org/10.1101/SQB.1966.031.01.007>

Source Summary: *Retrospective review of genetic code decipherment: 64 codons → 20 amino acids + 3 stop codons, with the wobble hypothesis explaining synonymous codon degeneracy.*

Application in “We Are”: *Cited in Part VII for the 64 → 20 reduction as a convergence structure, and the three stop codons as the framework's Rule of 3 operating at the molecular-code level.*

[58] Merleau-Ponty, M. (1962). *Phenomenology of Perception* (C. Smith, Trans.). Routledge & Kegan Paul. (Original work published 1945). <https://doi.org/10.4324/9780203720714>

Source Summary: *Argues that perception is not passive data reception but the active engagement of a living body: the body is the irreducible subject of experience, not merely its instrument.*

Application in “We Are”: *Cited in Part VIII as the foundational philosophy for the book's methodology: first-person embodied experience is valid empirical data, not mere subjectivity.*

[59] Damasio, A. R. (1999). *The Feeling of What Happens: Body and Emotion in the Making of Consciousness*. Harcourt Brace. [https://doi.org/10.1016/S0303-2647\(99\)00053-4](https://doi.org/10.1016/S0303-2647(99)00053-4)

Source Summary: *Proposes that consciousness arises from the brain's continuous mapping of the body's current state — emotion and bodily feeling are inseparable from conscious knowing.*

Application in “We Are”: *Cited in Parts IV and VIII: the somatic marker hypothesis supports the book's argument that the body is not peripheral to consciousness but its generative substrate.*

[60] Lilly, J. C. (1977). *The Deep Self: Profound Relaxation and the Tank Isolation Technique*. Simon & Schuster. <https://archive.org/details/deepself00john>

Source Summary: Documents the isolation tank as an instrument for investigating consciousness without sensory input, revealing how the brain generates internal structure when external input is removed.

Application in “We Are”: Cited in Part VIII: Lilly's technical work on the float tank (including the Berger chamber solution for tactile interruptions) directly informed the author's own float-tank protocol.

[61] Metzger, W. (1930). Optische Untersuchungen am Ganzfeld: II. Zur Phänomenologie des homogenen Ganzfeldes. *Psychologische Forschung*, 13 (1), 6–29. <https://doi.org/10.1007/BF00406757>

Source Summary: Establishes the Ganzfeld effect: uniform visual input causes the perceptual field to fade ('Troxler fading'), after which the visual system generates internal structure.

Application in “We Are”: Cited in Part VIII: the author's float-tank visual experiences (internal light patterns emerging from sensory near-zero) are explained by the Ganzfeld effect.

[62] Pribram, K. H. (1991). *Brain and Perception: Holonomy and Structure in Figural Processing*. Lawrence Erlbaum Associates. <https://doi.org/10.4324/9781315802268>

Source Summary: Proposes the holonomic brain theory: the brain stores and processes information through wave- interference patterns distributed across neural tissue, analogously to a hologram.

Application in “We Are”: Cited in Part VIII: the distributed, wave-interference model of brain processing supports the book's claim that consciousness operates as a holographic wave system.

[63] LeDoux, J. E. (1996). *The Emotional Brain: The Mysterious Underpinnings of Emotional Life*. Simon & Schuster. [https://doi.org/10.1016/S0166-2236\(00\)01707-8](https://doi.org/10.1016/S0166-2236(00)01707-8)

Source Summary: Demonstrates that the amygdala mediates fear and emotional memory through a 'low road' pathway that bypasses conscious cortical processing — emotions precede awareness.

Application in “We Are”: Cited in Part VIII: deliberately activating emotional arousal in the float tank (using the amygdala's pre-conscious pathway) amplifies the framework's observational sensitivity.

[64] Bejan, A. (1997). Constructal-theory network of conducting paths for cooling a heat generating volume. *International Journal of Heat and Mass Transfer*, 40 (4), 799–816. [https://doi.org/10.1016/0017-9310\(96\)00175-5](https://doi.org/10.1016/0017-9310(96)00175-5)

Source Summary: The original Constructal Law paper: optimal heat-conducting geometry is a tree-branching network, showing that tree architectures emerge naturally from flow-access physics.

Application in “We Are”: Cited in the energy and heat-transfer section to show that the framework's branching, hierarchical structure is an energetically optimal design, not an arbitrary choice.

[65] Kim, T. Y. (1996). *The Seven Steps to Inner Power: How to Break Through to Awesome Life*. New World Library. <https://archive.org/details/sevenstepstoinne0000kimt>

Source Summary: Grandmaster Kim's guide to self-mastery through seven mental, emotional, and spiritual disciplines rooted in Jung SuWon martial philosophy.

Application in “We Are”: Cited in Part VIII: reading Kim's book at age 14 was a formative experience that introduced the author to intentional consciousness practices — a direct precursor to the framework.

[66] Vase, L., Riley, J. L., & Price, D. D. (2002). A comparison of placebo effects in clinical analgesic trials versus studies of placebo analgesia. *Pain*, 99 (3), 443–452. [https://doi.org/10.1016/S0304-3959\(02\)00205-1](https://doi.org/10.1016/S0304-3959(02)00205-1)

Source Summary: Meta-analysis showing placebo pain relief is substantially larger when subjects receive positive verbal suggestions — expectation and conditioning drive the placebo response.

Application in “We Are”: Cited in Part VIII as foundational evidence that the observer's expectation directly modulates physiological pain response — a clinical demonstration of observer effect.

[67] Wager, T. D. Rilling, J. K. Smith, E. E. Sokolik, A. Casey, K. L. Davidson, R. J. & Cohen, J. D. (2004). Placebo-induced changes in fMRI in the anticipation and experience of pain. *Science*, 303 (5661), 1162–1167. <https://doi.org/10.1126/science.1093065>

Source Summary: *fMRI evidence that placebo reduces neural activation in pain-processing regions (ACC, thalamus, insula) — measurable brain changes from expectation alone.*

Application in “We Are”: *Cited in Part VIII: neuroimaging proof that belief-state produces real changes in neural pain processing before experience, confirming observer effect at the brain level.*

[68] Zubieta, J. K. Bueller, J. A. Jackson, L. R. Scott, D. J. Xu, Y. Koeppe, R. A. & Stohler, C. S. (2005). Placebo effects mediated by endogenous opioid activity on μ -opioid receptors. *Journal of Neuroscience*, 25 (34), 7754–7762. <https://doi.org/10.1523/JNEUROSCI.0439-05.2005>

Source Summary: *PET imaging shows placebo analgesia activates endogenous μ -opioid receptors in the ACC, amygdala, and PAG — molecular-level neurochemical change from belief.*

Application in “We Are”: *Cited in Part VIII: the observer's belief state produces measurable opioid release — molecular evidence that consciousness directly modulates neurochemistry.*

[69] Cerritelli, F. Chiera, M. Abbro, M. Megna, V. Esteves, J. E. & Gallace, A. (2021). The challenges and perspectives of the integration between virtual and classification systems of placebo analgesia. *European Journal of Pain*, 25 (4), 735–753. <https://doi.org/10.3389/fnins.2021.662414>

Source Summary: *Reviews frameworks for classifying placebo mechanisms — expectation, conditioning, social learning — and considers VR as a tool for studying and amplifying them.*

Application in “We Are”: *Cited in Part VIII's placebo taxonomy section for the contemporary classification of placebo mechanisms underlying the observer's expectation-driven physiological responses.*

[70] Benson, H. Lehmann, J. W. Malhotra, M. S. Goldman, R. F. Hopkins, J. & Epstein, M. D. (1982). Body temperature changes during the practice of g Tum-mo meditation. *Nature*, 295 (5846), 234–236. <https://doi.org/10.1038/295234a0>

Source Summary: *First Western scientific documentation of Tibetan g Tum-mo meditation: practitioners voluntarily raised peripheral skin temperature by up to 8.3°C under controlled conditions.*

Application in “We Are”: *Cited in Part VIII as rigorous empirical evidence that advanced contemplative practice produces objectively measurable physiological changes — trained mind reshaping body.*

[71] Kozhevnikov, M. Elliott, J. Shephard, J. & Gramann, K. (2013). Neurocognitive and somatic components of temperature increases during g-tummo meditation: Legend and reality. *PLoS ONE*, 8 (3), e58244. <https://doi.org/10.1371/journal.pone.0058244>

Source Summary: *Disambiguates g Tum-mo into two mechanisms: vase breathing (core temperature via metabolic heat) and visualization (peripheral vasodilation via mental imagery).*

Application in “We Are”: *Cited alongside [70] as modern replication with EEG evidence, linking specific brain- state changes to each physiological mechanism of temperature control.*

[72] Kox, M. van Eijk, L. T. Zwaag, J. van den Wildenberg, J. Sweep, F. C. G. J. van der Hoeven, J. G. & Pickkers, P. (2014). Voluntary activation of the sympathetic nervous system and attenuation of the innate immune response in humans. *Proceedings of the National Academy of Sciences*, 111 (20), 7379–7384. <https://doi.org/10.1073/pnas.1322174111>

Source Summary: *First peer-reviewed demonstration that trained individuals using the Wim Hof Method can voluntarily suppress the innate immune response to bacterial endotoxin.*

Application in “We Are”: *Cited in Part VIII: proof that a specific voluntary technique can override autonomic immune function — the most dramatic clinical example of observer-modulated biology.*

[73] Yehuda, R. Daskalakis, N. P. Bierer, L. M. Bader, H. N. Klengel, T. Holsboer, F. & Binder, E. B. (2016). Holocaust exposure induced intergenerational effects on FKBP5 methylation. *Biological Psychiatry*, 80 (5), 372–380. <https://doi.org/10.1016/j.biopsych.2015.08.005>

Source Summary: *Finds altered FKBP5 gene methylation in children of Holocaust survivors — a transgenerational epigenetic signature of parental trauma passed to unexposed offspring.*

Application in “We Are”: *Cited in Part VIII's epigenetics section as human evidence that the observer's psychological experience leaves heritable molecular marks across generations.*

[74] Dias, B. G., & Ressler, K. J. (2014). Parental olfactory experience influences behavior and neural structure in subsequent generations. *Nature Neuroscience*, 17 (1), 89–96. <https://doi.org/10.1038/nn.3594>

Source Summary: *Mouse study: olfactory fear conditioning in parents produces enhanced fear responses and enlarged olfactory receptor patches in offspring who never experienced the stimulus.*

Application in “We Are”: *Cited alongside [73]: direct experimental demonstration that an observer's acquired experience alters the neural architecture of its descendants — experience becomes biology.*

[75] Koonin, E. V., & Dolja, V. V. (2013). A virocentric perspective on the evolution of life. *Current Opinion in Virology*, 3 (5), 546–557. <https://doi.org/10.1016/j.coviro.2013.06.008>

Source Summary: *Argues viruses are ancient, foundational participants in the evolution of cellular life — not merely parasites — and that the virosphere has been a major driver of genome evolution.*

Application in “We Are”: *Cited in Part VIII: the virocentric model supports the book's argument that apparent boundaries between self and other (organism and virus) are functional, not ontological.*

[76] Kleidon, A. (2010). Life, hierarchy, and the thermodynamic machinery of planet Earth. *Physics of Life Reviews*, 7(4), 424–460. <https://doi.org/10.1016/j.plrev.2010.10.002>

Source Summary: *Models Earth as a thermodynamic machine organized in hierarchical layers, each dissipating the solar energy gradient — life plays an active thermodynamic role.*

Application in “We Are”: *Cited in Part VIII: Earth's thermodynamic hierarchy provides a macroscale instantiation of the framework's layered, gradient-driven organizational structure.*

[77] Truman, J. W., & Riddiford, L. M. (1999). The origins of insect metamorphosis. *Nature*, 401 (6752), 447–452. <https://doi.org/10.1038/46737>

Source Summary: *Examines the evolutionary origin of the three metamorphic stages (larva → pupa → imago), showing they are driven by the ecdysone/juvenile-hormone hormonal system.*

Application in “We Are”: *Cited in Part VIII: insect metamorphosis is the most visible biological instantiation of three-stage transformation — the same tripartite Initiation-Promotion-Progression structure.*

[78] Berenblum, I., & Shubik, P. (1947). The role of croton oil applications, associated with a known carcinogen, in tumour initiation of the mouse's skin. *British Journal of Cancer*, 1 (4), 379–391. <https://doi.org/10.1038/bjc.1947.36>

Source Summary: *Establishes the two-stage carcinogenesis model through mouse-skin experiments: Initiation (permanent DNA damage) followed by Promotion (non-mutagenic proliferative stimulus).*

Application in “We Are”: *Cited in Part II for the Initiation stage of the three-stage carcinogenesis model, establishing that transformation begins with a single irreversible molecular event.*

[79] Foulds, L. (1954). The experimental study of tumor progression: A review. *Cancer Research*, 14(5), 327–339. <https://pubmed.ncbi.nlm.nih.gov/13160935/>

Source Summary: *Formalizes Progression as the third stage of carcinogenesis: a stepwise, irreversible acquisition of increasingly aggressive phenotypic properties.*

Application in “We Are”: Cited in Part II: Foulds' formalization completed the Initiation → Promotion → Progression triad — the canonical three-stage framework the book uses as a Rule of 3 example.

[80] Pitot, H. C. (1993). The molecular biology of carcinogenesis. *Cancer*, 72 (3 Suppl), 962–970. <https://pubmed.ncbi.nlm.nih.gov/8334660/>

Source Summary: Reviews the molecular mechanisms of each carcinogenesis stage: DNA mutation (Initiation), clonal expansion (Promotion), and multistep malignant progression (Progression).

Application in “We Are”: Cited in Part II for the mechanistic detail behind each of the three stages, grounding the Rule of 3 instantiation in molecular biology.

[81] National Center for Biotechnology Information. (n.d.). The molecular basis of cancer. In Alberts et al., *Molecular Biology of the Cell* (4th ed.). NCBI Bookshelf NBK21554. <https://www.ncbi.nlm.nih.gov/books/NBK13982/>

Source Summary: Open-access online chapter covering proto-oncogenes, tumor suppressor genes, and the multiple mutations required for malignant transformation.

Application in “We Are”: Cited as an accessible, citable open-access reference for the molecular oncology concepts in the carcinogenesis discussion.

[82] Kiecker, C., Bates, T., & Bell, E. (2016). Molecular specification of germ layers in vertebrate embryos. *Cellular and Molecular Life Sciences*, 73 (5), 923–947. <https://doi.org/10.1007/s00018-015-2092-y>

Source Summary: Reviews the molecular signals (Wnt, BMP, Nodal) specifying the three germ layers — ectoderm, mesoderm, endoderm — from pluripotent embryonic cells.

Application in “We Are”: Cited for the three embryonic germ layers as the same tripartite structure as carcinogenesis stages, reinforcing the Rule of 3 across developmental and oncological biology.

[83] Solnica-Krezel, L., & Sepich, D. S. (2012). Gastrulation: Making and shaping germ layers. *Annual Review of Cell and Developmental Biology*, 28, 687–717. <https://doi.org/10.1146/annurev-cellbio-092910-154043>

Source Summary: Reviews gastrulation — the embryonic process establishing and positioning the three germ layers through coordinated cell movements.

Application in “We Are”: Cited alongside [82]: gastrulation is the developmental event that physically creates the three-layer body architecture mirrored by carcinogenesis's three-stage sequence.

[84] Valastyan, S., & Weinberg, R. A. (2011). Tumor metastasis: Molecular insights and evolving paradigms. *Cell*, 147 (2), 275–292. <https://doi.org/10.1016/j.cell.2011.09.024>

Source Summary: Enumerates and mechanistically describes all seven steps of the metastatic cascade, from local invasion through distant colonization.

Application in “We Are”: Cited as the primary reference for the seven-step metastatic cascade — the book's biological instantiation of 7 as the number of steps in the observer's most dangerous transformation.

[85] Friedl, P., & Wolf, K. (2003). Tumour-cell invasion and migration: Diversity and escape mechanisms. *Nature Reviews Cancer*, 3 (5), 362–374. <https://doi.org/10.1038/nrc1075>

Source Summary: Describes two major cancer invasion modes — single-cell (mesenchymal/amoeboid) and collective — and how cancer cells transmigrate through basement membranes.

Application in “We Are”: Cited for Step 2 of the metastatic cascade: intravasation — the specific mechanisms by which cancer cells penetrate vessel walls to enter the bloodstream.

[86] Chambers, A. F., Groom, A. C., & MacDonald, I. C. (2002). Dissemination and growth of cancer cells in metastatic sites. *Nature Reviews Cancer*, 2 (8), 563–572. <https://doi.org/10.1038/nrc865>

Source Summary: Documents that fewer than 0.01% of circulating tumor cells survive to form metastases — the bottleneck is survival in the bloodstream, not invasion.

Application in “We Are”: Cited for Step 3: survival in the circulation — establishing that the lethal rarity of successful metastasis makes each surviving step an increasingly critical threshold.

[87] Reymond, N., d’Água, B. B., & Ridley, A. J. (2013). Crossing the endothelial barrier during metastasis. *Nature Reviews Cancer*, 13 (12), 858–870. <https://doi.org/10.1038/nrc3628>

Source Summary: Reviews the selectin/integrin adhesion mechanisms and transmigration pathways by which circulating tumor cells arrest at and cross the vessel wall at distant organs.

Application in “We Are”: Cited for Steps 4 and 5: arrest and extravasation — the specific molecular handshake enabling cancer cells to anchor and exit the vasculature at a distant site.

[88] Sosa, M. S., Bragado, P., & Aguirre-Ghiso, J. A. (2014). Mechanisms of disseminated cancer cell dormancy: An awakening field *Nature Reviews Cancer*, 14 (9), 611–622. <https://doi.org/10.1038/nrc3793>

Source Summary: Reviews how disseminated cancer cells can survive in foreign tissue for years in a dormant quiescent state before proliferating.

Application in “We Are”: Cited for Step 6: micrometastasis formation — dormancy explains why cancers recur decades after apparent cure, a temporal dimension of the seven-step progression.

[89] Obenauf, A. C., & Massagué, J. (2015). Surviving at a distance: Organ-specific metastasis. *Trends in Cancer*, 1 (1), 76–91. <https://doi.org/10.1016/j.trecan.2015.07.009>

Source Summary: Reviews how dormant micrometastases undergo angiogenic switch to grow into clinically detectable metastases at organ-specific sites — Paget’s seed-and-soil principle.

Application in “We Are”: Cited for Step 7: colonization — the final step completing the seven-stage cascade, where the framework arrives at a clinically lethal, self-sustaining new system.

[90] Bleyer, A. (2009). CAUTION! Consider cancer: Common symptoms and signs for early detection of cancer in young adults. *Seminars in Oncology*, 36(3), 207–212. See also: American Cancer Society, “Seven Warning Signs of Cancer.” <https://doi.org/10.1053/j.seminoncol.2009.03.004>

Source Summary: Presents the CAUTION mnemonic — seven cardinal clinical warning signs of cancer established by the American Cancer Society.

Application in “We Are”: Cited for the seven clinical warning signs of cancer as the third 7-fold structure in the cancer biology section, alongside the seven metastatic steps and seven hallmarks in each compartment.

[91] Friend, S. H. Bernards, R. Rogelj, S. Weinberg, R. A. Rapaport, J. M. Albert, D. M. & Dryja, T. P. (1986). A human DNA segment with properties of the gene that predisposes to retinoblastoma and osteosarcoma. *Nature*, 323 (6089), 643–646. <https://doi.org/10.1038/323643a0>

Source Summary: Reports the molecular cloning of RB1 at chromosome 13q14.2 — the first tumor suppressor gene isolated in humans, absent in retinoblastoma and osteosarcoma cells.

Application in “We Are”: Cited for RB1 on chromosome 13 as a biological instantiation of 13 as the guardian locus — the chromosome whose loss permits malignant transformation.

[92] Knudson, A. G. (1971). Mutation and cancer: Statistical study of retinoblastoma. *Proceedings of the National Academy of Sciences*, 68 (4), 820–823. <https://doi.org/10.1073/pnas.68.4.820>

Source Summary: The ‘two-hit hypothesis’: statistical analysis of retinoblastoma incidence infers that both alleles of a tumor suppressor must be inactivated for tumor formation.

Application in “We Are”: Cited alongside [91]: Knudson predicted RB1 before it was cloned — cited for the two-hit mechanism that the book maps to the framework’s dual-threshold requirement.

[93] Wooster, R. Bignell, G. Lancaster, J. Swift, S. Seal, S. Mangion, J. & Stratton, M. R. (1995). Identification of the breast cancer susceptibility gene BRCA2. *Nature*, 378 (6559), 789–792. <https://doi.org/10.1038/378789a0>

Source Summary: *Identifies and clones BRCA2 at chromosome 13q12.3, the second major breast cancer susceptibility gene, involved in homologous recombination DNA repair.*

Application in “We Are”: *Cited for BRCA2 also residing on chromosome 13 — a second guardian gene at the same locus, reinforcing that chromosome 13 is the genome's primary protective address.*

[94] Pino, M. S., & Chung, D. C. (2010). The chromosomal instability pathway in colon cancer. *Gastroenterology*, 138 (6), 2059–2072. <https://doi.org/10.1053/j.gastro.2009.12.065>

Source Summary: *Reviews chromosomal instability (CIN) as the primary mechanism generating LOH at tumor suppressor loci including chromosome 13q14 in colorectal cancer.*

Application in “We Are”: *Cited to show CIN as the mechanism by which chromosome-13 tumor suppressors are lost — the physical process behind the Rule of 13's biological disruption.*

[95] Bièche, I., & Lidereau, R. (2000). Loss of heterozygosity at 13q14 correlates with RB1 gene underexpression in human breast cancer. *Molecular Carcinogenesis*, 29 (3), 151–158. <https://pubmed.ncbi.nlm.nih.gov/11105946/>

Source Summary: *Confirms LOH at 13q14 correlates with reduced RB1 expression in breast cancer — chromosome-13 loss is a measurable, reproducible oncogenic event.*

Application in “We Are”: *Cited alongside [94] to document that chromosome-13 LOH produces functional gene silencing — the biological consequence of losing the framework's guardian number.*

[96] Gavish, A. Tyler, M. Greenwald, A. C. Horev, E. Bornfeld, D. Capponi, S. & Tirosh, I. (2023). Hallmark-based spatial organization of cancer cells in tumors. *Cell Reports*, 42 (12). (Originally: bioRxiv 2022.06.18.496114v2.) <https://doi.org/10.1016/j.celrep.2023.113488>

Source Summary: *Uses spatial transcriptomics to show that 7 hallmarks are active inside cancer cells and 6 in the surrounding microenvironment — a spatial division of hallmark labor.*

Application in “We Are”: *Cited as the source of the three additional spatial hallmarks bringing the total to 13, and for the 7/6 (or in the book's reading, 7+6=13) spatial division within the tumor.*

[97] Bohr, N. (1928). [Same as [45]] The quantum postulate and the recent development of atomic theory. *Nature*, 121 (3050), 580–590. <https://doi.org/10.1038/121580a0>

Source Summary: *The complementarity principle: quantum systems require mutually exclusive descriptions (wave/particle); measurement forces a definite state from superposition.*

Application in “We Are”: *Cited specifically in Part IV for orbital electron complementarity alongside [98] — the wave function describes all possible positions until observation collapses it.*

[98] Pauli, W. (1925). Über den Zusammenhang des Abschlusses der Elektronengruppen im Atom mit der Komplexstruktur der Spektren. *Zeitschrift für Physik*, 31 (1), 765–783. <https://doi.org/10.1007/BF02980631>

Source Summary: *Introduces the exclusion principle: no two electrons can share the same four quantum numbers, so each orbital holds exactly two electrons — one spin-up, one spin-down.*

Application in “We Are”: *Cited in Part IV for 'The Pairing Constant': each orbital pair is the quantum embodiment of the framework's two-state complementary duality at the atomic scale.*

[99] Sørensen, S. P. L. (1909). Enzymstudien. II. Mitteilung. Über die Messung und die Bedeutung der Wasserstoffionenkonzentration bei enzymatischen Prozessen. *Biochemische Zeitschrift*, 21, 131–304. <https://doi.org/10.1007/s10698-025-09532-6>

Source Summary: *Introduces the pH scale: $pH = -\log[H^+]$, running from 0 (maximum acid) through 7 (neutral) to 14 (maximum alkaline) — symmetric about the neutral midpoint.*

Application in “We Are”: Cited in Part IV: the pH scale's 0–7–14 structure, symmetric about 7, is an instantiation of the framework's 14-unit continuum with 7 as the neutral convergence point.

[100] Greenberger, D. M., & Yasin, A. (1988). Simultaneous wave and particle knowledge in a neutron interferometer. *Physics Letters A*, 128 (8), 391–394. [https://doi.org/10.1016/0375-9601\(88\)90114-4](https://doi.org/10.1016/0375-9601(88)90114-4)

Source Summary: Derives the duality relation $V^2 + D^2 \leq 1$: gaining particle (which-path) information reduces wave (interference) visibility by a precisely determined amount.

Application in “We Are”: Cited in Part IV: makes complementarity quantitative — the wave-particle trade-off is mathematically precise, supporting the framework's measured duality constant.

[101] Britannica. (n.d.). Covalent Bond. Retrieved from <https://www.britannica.com/science/covalent-bond>

Source Summary: Reference entry defining covalent bonds as formed when two atoms share one or more electron pairs, covering single/double/triple bonds and bond polarity.

Application in “We Are”: Cited in Part VII for the definition and properties of covalent bonds — the electron-sharing model used to describe the observer-observed relationship at the atomic level.

[102] Chemistry LibreTexts. (n.d.). Covalent Bonds. Retrieved from [https://chem.libretexts.org/Bookshelves/Physical_and_Theoretical_Chemistry_Textbook_Maps/Supplemental_Modules_\(Physical_and_Theoretical_Chemistry\)/Chemical_Bonding/Fundamentals_of_Chemical_Bonding/Covalent_Bonds](https://chem.libretexts.org/Bookshelves/Physical_and_Theoretical_Chemistry_Textbook_Maps/Supplemental_Modules_(Physical_and_Theoretical_Chemistry)/Chemical_Bonding/Fundamentals_of_Chemical_Bonding/Covalent_Bonds)

Source Summary: Open-access module covering Lewis structures, VSEPR geometry, valence bond theory, and molecular orbital descriptions of electron sharing.

Application in “We Are”: Cited alongside [101] as a quantum-mechanically detailed open-access reference for covalent bonding — the electron-sharing framework in the Part VII self-observation model.

[103] Gray, H. B., & Winkler, J. R. (2003). Electron tunneling through proteins. *Quarterly Reviews of Biophysics*, 36 (3), 341–372.

Source Summary: Reviews quantum mechanical electron tunneling across 10–20 Å distances through protein matrices — the biophysical mechanism of biological electron-transfer chains.

Application in “We Are”: Cited in Part VII: long-range electron tunneling through protein is evidence that quantum information transfer underlies biological cognition, not just conventional chemistry.

[104] Nirenberg, M. (2004). The invention of the genetic code. *American Scientist*, 92 (5), 437–445. Retrieved from <https://www.americanscientist.org/article/the-invention-of-the-genetic-code>

Source Summary: First-person historical account of deciphering the complete 64-codon/20-amino-acid genetic code, from the first poly-U experiment to the final codon assignments.

Application in “We Are”: Cited in Part VII's genetic-code section for the historical decoding of the codon table — the human story behind the 64 → 20 convergence structure the book analyzes.

[105] Chemistry LibreTexts. (n.d.). DNA Base Pairs. Retrieved from [https://chem.libretexts.org/Bookshelves/Organic_Chemistry/Map:_Organic_Chemistry_\(Wade\)_Complete_and_Semesters_I_and_II/Map:_Organic_Chemistry_\(Wade\)/27:_Nucleic_Acids/27.02:_DNA_Base_Pairs](https://chem.libretexts.org/Bookshelves/Organic_Chemistry/Map:_Organic_Chemistry_(Wade)_Complete_and_Semesters_I_and_II/Map:_Organic_Chemistry_(Wade)/27:_Nucleic_Acids/27.02:_DNA_Base_Pairs)

Source Summary: Explains Chargaff's base-pairing rules: A pairs with T via 2 hydrogen bonds; G pairs with C via 3 hydrogen bonds — different bond counts for each pair.

Application in “We Are”: Cited in Part II for the G-C base pair's 3 hydrogen bonds as an independent molecular instantiation of the number 3 at the chemical foundation of the genetic code.

[106] Watson, J. D., Baker, T. A., Bell, S. P., Gann, A., Levine, M., & Losick, R. (2014). *Molecular Biology of the Gene* (7th ed.). Pearson.

Source Summary: *Rigorous treatment of molecular genetics including the complete 64-codon genetic code, degeneracy, wobble base pairing, and replication machinery.*

Application in “We Are”: *Cited in Part VII's codon analysis for the complete codon table and leading/lagging strand distinction — the technical reference for the genetic code's numerical structure.*

[107] Chemistry LibreTexts. (n.d.). Nucleobases. Retrieved from [https://chem.libretexts.org/Bookshelves/Organic_Chemistry/Supplemental_Modules_\(Organic_Chemistry\)/Nucleic_Acids/Nucleobases](https://chem.libretexts.org/Bookshelves/Organic_Chemistry/Supplemental_Modules_(Organic_Chemistry)/Nucleic_Acids/Nucleobases)

Source Summary: *Covers the five nucleobases — purines (A, G) and pyrimidines (T, C, U) — their ring structures, Watson-Crick pairing, and the methyl group distinguishing thymine from uracil.*

Application in “We Are”: *Cited in Part VII for the five-nucleobase alphabet and the single methyl group distinguishing DNA from RNA — the minimal chemical marker the book identifies as structurally significant.*

[108] NCBI Bookshelf. (2002). The Structure and Function of DNA. In *Molecular Biology of the Cell* (4th ed.). NBK26821. Retrieved from <https://www.ncbi.nlm.nih.gov/books/NBK26821/>

Source Summary: *Open-access reference for DNA's double-helix structure: anti-parallel strands, major/minor grooves, base-stacking, and the central dogma.*

Application in “We Are”: *Cited in Part VII as a freely accessible structural reference for the double-helix geometry and strand polarity — the online companion to Alberts [24] for the anti-parallel analysis.*

[109] Alberts, B. Johnson, A. Lewis, J. Morgan, D. Raff, M. Roberts, K. & Walter, P. (2014). *Molecular Biology of the Cell* (6th ed.). Garland Science.

Source Summary: *Current standard cell biology textbook; details strand polarity (5' phosphate end, 3' hydroxyl end) and why polymerases can only extend chains in the 5' → 3' direction.*

Application in “We Are”: *Cited in Part VII for the 5' → 3' polarity constraint — the fundamental directionality that makes the two anti-parallel strands functionally asymmetric and non-interchangeable.*

[110] Berg, J. M., Tymoczko, J. L., Glukhova, A., & Stryer, L. (2015). *Biochemistry* (8th ed.). W. H. Freeman.

Source Summary: *The standard biochemistry reference; covers deoxyribose sugar chemistry — the 5' phosphate and 3' hydroxyl — and thymine's methyl group distinguishing it from uracil.*

Application in “We Are”: *Cited in Part VII for the 5' and 3' carbon chemistry specifying strand directionality, and for the methyl group as the chemical marker of DNA's information-storage role.*

[111] Lodish, H. Berk, A. Kaiser, C.A. Krieger, M. Scott, M.P. Bretscher, A. Ploegh, H. & Matsudaira, P. (2016). *Molecular Cell Biology* (8th ed.). W.H. Freeman.

Source Summary: *Integrates molecular biology and cell biology; details RNA's multiple roles (mRNA, tRNA, rRNA) as the information-versatile middle layer between DNA template and protein product.*

Application in “We Are”: *Cited in Part VII for RNA as the neutral mediator between the anti-parallel DNA strands — structurally analogous to the framework's neutral (+0) operational state.*

[112] Boyle, L., Finn, K., & Turok, N. (2018). CPT-symmetric universe. *Physical Review Letters*, 121 (25), 251301. <https://doi.org/10.1103/PhysRevLett.121.251301>

Source Summary: *Proposes the Big Bang as the contact point between two CPT-symmetric universes — our universe and an anti-universe — together forming a self-contained CPT-symmetric whole.*

Application in “We Are”: *Cited in the Epilogue: the CPT-symmetric pair of universes is the cosmological-scale model of the framework's anti-parallel duality — the Big Bang and Big Crunch as one event viewed from opposite ends.*

[113] Bojowald, M. (2001). Absence of singularity in loop quantum cosmology. *Physical Review Letters*, 86 (23), 5227. <https://doi.org/10.1103/PhysRevLett.86.5227>

Source Summary: Shows that loop quantum cosmology resolves the Big Bang singularity: quantum geometry at Planck densities produces a 'bounce' — a prior collapsing universe transitions to expansion.

Application in “We Are”: Cited in the Epilogue: the LQC bounce supports the book's model of extreme compression creating a new expansion — the singularity is not an end but a reversal point.

[114] Hartle, J. B., & Hawking, S. W. (1983). Wave function of the universe. *Physical Review D*, 28 (12), 2960. <https://doi.org/10.1103/PhysRevD.28.2960>

Source Summary: The no-boundary proposal: the universe's quantum state describes a self-contained geometry with no initial singularity — it spontaneously arises from nothing, self-bounded.

Application in “We Are”: Cited in the Epilogue alongside [112–113]: the no-boundary universe is self-causing and self-containing — the cosmological expression of the framework's closed, observer-generated loop.

[115] Coogan, M. D. (Ed.). (2018). *The New Oxford Annotated Bible: NRSV* (5th ed.). Oxford University Press. [Luke 17:21] ISBN: 978-0190276089

Source Summary: Same scholarly edition as [43]; Luke 17:21 — 'the kingdom of God is within you' — annotated for translation ambiguity of the Greek 'entos hymōn' (within/among).

Application in “We Are”: Cited in Part V: interpreted not as spatial destination but as a state of perfect systemic integration — the kingdom is the convergence point realized within the observer.

[116] Coogan, M. D. (Ed.). (2018). *The New Oxford Annotated Bible: NRSV* (5th ed.). Oxford University Press. [2 Timothy 2:13] ISBN: 978-0190276089

Source Summary: Same scholarly edition; 2 Timothy 2:13 — 'if we are faithless, he remains faithful — for he cannot deny himself' — part of an early Christian creedal hymn.

Application in “We Are”: Cited in Part V: 'he cannot deny himself' maps to the structural necessity that the observer cannot negate its own projection — the $x+y(+0)$ operation is irreversible.

[117] Coogan, M. D. (Ed.). (2018). *The New Oxford Annotated Bible: NRSV* (5th ed.). Oxford University Press. [Jeremiah 29:11] ISBN: 978-0190276089

Source Summary: Same scholarly edition; Jeremiah 29:11 — 'For I know the plans I have for you... plans for your welfare' — Jeremiah's letter to the Babylonian exiles.

Application in “We Are”: Cited in the Epilogue as a cultural encoding of the framework's claim that systemic movement toward integration is built into the structure of existence, not contingent.

[118] Coogan, M. D. (Ed.). (2018). *The New Oxford Annotated Bible: NRSV* (5th ed.). Oxford University Press. [Matthew 7:7] ISBN: 978-0190276089

Source Summary: Same scholarly edition; Matthew 7:7 — 'Ask, and it will be given you; search, and you will find' — from the Sermon on the Mount's teaching on prayer.

Application in “We Are”: Cited in the Epilogue for the anti-parallel feedback loop: asking activates a response — the framework's demand-supply structure encoded in the oldest religious teaching on petition.

[119] Aesop. (1998). *Aesop's Fables* (L. Gibbs, Trans.). Oxford University Press. ISBN: 978-0192840509

Source Summary: Classical allegorical fables attributed to Aesop (c. 620–564 BCE), including the warning 'Be careful what you wish for' traced across multiple ancient traditions.

Application in “We Are”: Cited in the Epilogue alongside [118]: the ancient fable's warning that systems deliver precisely what is requested is humanity's oldest recognition of the feedback-loop principle.

[120] Helmholtz, H. (1858). Über Integrale der hydrodynamischen Gleichungen, welche den Wirbelbewegungen entsprechen. *Journal für die reine und angewandte Mathematik*, 55, 25–55.

Source Summary: Derives the three Helmholtz vortex theorems governing vortex-tube behavior in inviscid fluids — the mathematical foundation of all vortex dynamics.

Application in “We Are”: Cited in Part III (Section 2.5.1) for the mathematical foundation of the conical-spring infinity-vortex model: opposing directional flows in the framework's compression geometry.

[121] Maxwell, J. C. (1865). A dynamical theory of the electromagnetic field. *Philosophical Transactions of the Royal Society of London*, 155, 459–512.

Source Summary: Presents Maxwell's four field equations unifying electricity, magnetism, and light — predicting electromagnetic waves traveling at the speed of light.

Application in “We Are”: Cited in Part III (Section 2.5.2) for anti-polar electromagnetic field propagation: opposing but coupled fields as the physical model for the framework's anti-parallel charge structure.

[122] van de Sande, J. H., et al. (1988). Parallel-stranded DNA. *Science*, 241 (4865), 551–557.

Source Summary: Demonstrates that parallel-stranded DNA (both strands 5' → 3') does not adopt the canonical B- form double helix — base-pairing angles are wrong and the structure is far less stable.

Application in “We Are”: Cited in Part VII as direct experimental proof that the anti-parallel geometry is not arbitrary but necessary: remove it and the double helix collapses. The anti-parallel structure is the structure. The following entries are foundational primary sources in molecular biology and astrophysics that provide essential scientific context for the book's analyses of DNA structure, the genetic code, and stellar nucleosynthesis.

[123] Megyesi, M.S., Nawrocki, S.P., & Haskell, N.H. (2005). Using accumulated degree-days to estimate the postmortem interval from decomposed human remains. *Journal of Forensic Sciences*, 50 (3), 618–626.
<https://doi.org/10.1520/JFS2004017>

Source Summary: Establishes a quantitative framework for estimating postmortem interval using Total Body Score (TBS) and Accumulated Degree-Days (ADD), documenting that decomposition follows a predictable sequence of stages regardless of environmental temperature — only the rate varies.

Application in “We Are”: Cited in Part II, Section 7 as the foundational forensic reference confirming that human decomposition transitions occur at consistent, stage-specific thresholds (Days 1, 3, 7, 13), validating the framework's archetypal constants through biological breakdown.

[124] Gill-King, H. (1997). Chemical and ultrastructural aspects of decomposition. In W.D. Haglund & M.H. Sorg (Eds.), *Forensic Taphonomy: The Postmortem Fate of Human Remains* (pp. 93–108). CRC Press.

Source Summary: Provides the biochemical and microscopic foundation for postmortem autolysis: cellular enzymes, no longer regulated by living metabolic processes, begin breaking down cellular membranes from within — self-digestion as the first stage of decomposition.

Application in “We Are”: Cited in Part II, Section 7 for Day 1 autolysis as the biological initiation event — the +1 operation ceases, and the system begins its return along the thermodynamically determined path of least resistance.

[125] Henssge, C. & Madea, B. (2007). Estimation of the time since death. *Forensic Science International*, 165 (2–3), 182–184. <https://doi.org/10.1016/j.forsciint.2006.05.017>

Source Summary: Reviews the principles and methodologies of death-time estimation, emphasizing that postmortem changes (algor mortis, livor mortis, rigor mortis) follow quantifiable time-dependent curves requiring statistical rigor and standardization.

Application in “We Are”: Cited in Part II, Section 7 for the early postmortem triad (cooling, blood pooling, muscle stiffening) as measurable physical markers beginning within hours of death — Day 1 as the first observable departure from biological function.

[126] Hyde, E.R., Haarmann, D.P., Lynne, A.M., Bucheli, S.R., & Petrosino, J.F. (2013). The living dead: Bacterial community structure of a cadaver at the onset and end of the bloat stage of decomposition. PLoS ONE, 8 (10), e77733. <https://doi.org/10.1371/journal.pone.0077733>

Source Summary: First culture-independent microbial analysis of human cadavers during bloat stage, documenting the transition from aerobic to anaerobic bacterial communities (*Clostridium*, *Bacteroides*) as the internal microbiome shifts from symbiont to decomposer.

Application in “We Are”: Cited in Part II, Section 7 for Day 3 bloat stage microbiology: the gut microbiome, no longer regulated by the immune system, consumes the host from within — the triadic relational system (host tissue, bacteria, chemical environment) driving all subsequent breakdown.

[127] Vass, A.A. (2001). Beyond the grave — Understanding human decomposition. *Microbiology Today*, 28, 190–193.

Source Summary: Outlines the biological and chemical stages of human decomposition from autolysis through putrefaction to diagenesis, emphasizing the critical role of microorganisms in gas production (hydrogen sulfide, methane, ammonia) during the bloat stage.

Application in “We Are”: Cited in Part II, Section 7 for the gas-production mechanism at Day 3: anaerobic bacterial metabolism produces the characteristic bloating and greenish discoloration (sulfhemoglobin formation) marking the infrastructure stage of decomposition.

[128] Catts, E.P. & Goff, M.L. (1992). Forensic entomology in criminal investigations. *Annual Review of Entomology*, 37 (1), 253–272. <https://doi.org/10.1146/annurev.en.37.010192.001345>

Source Summary: The foundational text for forensic entomology, establishing insect succession patterns on decomposing remains as a systematic tool for postmortem interval estimation — blowfly larvae activity peaks during active decay and generates metabolic heat accelerating tissue breakdown.

Application in “We Are”: Cited in Part II, Section 7 for Day 7 active decay: insect activity reaches maximum intensity as the full cascade of decomposition mechanisms (bacterial, enzymatic, larval) operates simultaneously — the completion of one directional dissolution cycle.

[129] Payne, J.A. (1965). A summer carrion study of the baby pig *Sus scrofa* Linnaeus. *Ecology*, 46 (5), 592–602. <https://doi.org/10.2307/1934999>

Source Summary: The classic ecological study documenting six decomposition stages and demonstrating that arthropods remove ~90% of exposed carrion within 6 days, while protected carrion decomposes far more slowly — establishing insect activity as the primary driver of rapid mass loss.

Application in “We Are”: Cited in Part II, Section 7 for Day 7 active decay mass loss: the body loses the majority of soft tissue during this phase through the combined action of bacterial digestion, autolysis, and larval feeding — the most rapid and dramatic stage of the entire sequence.

[130] Carter, D.O., Yellowlees, D., & Tibbett, M. (2007). Cadaver decomposition in terrestrial ecosystems. *Naturwissenschaften*, 94 (1), 12–24. <https://doi.org/10.1007/s00114-006-0159-1>

Source Summary: Conceptualizes the “Cadaver Decomposition Island” (CDI) as a localized fertility zone where decomposing remains significantly alter soil microbial biomass, carbon mineralization, and nematode abundance — the advanced decay transition where the microbial ecosystem shifts from soft-tissue decomposers to residual-material communities.

Application in “We Are”: Cited in Part II, Section 7 for Day 13 advanced decay transition: the microbial ecosystem shifts as soft tissue is exhausted, marking the transformation threshold where the biological vessel’s identity dissolves and constituent materials begin ecosystem reintegration.

[131] Mann, R.W., Bass, W.M., & Meadows, L. (1990). Time since death and decomposition of the human body: Variables and observations in case and experimental field studies. *Journal of Forensic Sciences*, 35 (1), 103–111. <https://doi.org/10.1520/JFS12806J>

Source Summary: Documents eight years of forensic case and experimental field data, establishing that environmental variables (temperature, humidity, insect access, burial depth) alter decomposition rate but never alter decomposition sequence — the stage order is invariant.

Application in “We Are”: Cited in Part II, Section 7 as empirical proof that the $1 \rightarrow 3 \rightarrow 7 \rightarrow 13$ decomposition sequence is chemically and biologically determined: environmental factors compress or extend the timeline but cannot reorder the stages — the path of least resistance is structurally invariant.

[132] Altan-Bonnet, G., Libchaber, A., & Krichevsky, O. (2003). Bubble dynamics in double-stranded DNA. *Physical Review Letters*, 90(13), 138101. <https://doi.org/10.1103/PhysRevLett.90.138101>

Source Summary: Investigates the stochastic fluctuations of localized denatured zones (“bubbles”) in double-stranded DNA, demonstrating that the double helix spontaneously and continuously denatures into flexible single-stranded regions even under physiological conditions—a process known as DNA breathing. This thermal fluctuation is critical for protein-DNA interactions and reveals that DNA stability is not static but a dynamic equilibrium.

Application in “We Are”: Cited in Part VII, Section 8.0 to demonstrate that the 32 + 32 antipolar architecture is not a frozen structure but a dynamic equilibrium. The hydrogen bonds between complementary base pairs continuously form and break, enabling the helix to maintain overall structural stability while permitting functionally essential local fluctuation—illustrating the framework’s principle of stability through dynamic opposition rather than rigidity.

[133] Hargittai, M., & Hargittai, I. (2009). *Symmetry through the Eyes of a Chemist* (3rd ed.). Springer. <https://doi.org/10.1007/978-1-4020-5628-4>

Source Summary: A comprehensive text exploring how symmetry principles and polyhedral geometries (including Platonic solids) underpin molecular structure and crystallography.

Application in “We Are”: Provides the geometric foundation for understanding how the Platonic solids serve as structural templates in forming molecular bonds and crystalline configurations.

[134] Caspar, D. L. D., & Klug, A. (1962). Physical principles in the construction of regular viruses. *Cold Spring Harbor Symposia on Quantitative Biology*, 27, 1–24. <https://doi.org/10.1101/sqb.1962.027.001.005>

Source Summary: Establishes the principle of quasi-equivalence to explain how identical protein subunits self-assemble into icosahedral viral shells based on geometric efficiency.

Application in “We Are”: Cited to demonstrate how biological systems rely on regular polyhedral geometry—specifically the 20-faced icosahedral structure with 20 triangular faces—to optimize structural stability and self-assembly at the macromolecular scale.

[135] Nelson, D. L., & Cox, M. M. (2017). *Lehninger Principles of Biochemistry* (7th ed.). W. H. Freeman. <https://www.macmillanlearning.com/college/us/product/Lehninger-Principles-of-Biochemistry/p/1464126119>

Source Summary: A definitive biochemistry textbook detailing the molecular structure, chemical properties, and catalytic roles of the 20 standard amino acids that compose proteins.

Application in “We Are”: Serves as the basic reference for the 20 fundamental amino acids, demonstrating the finite molecular alphabet from which complex biological structures are built.

Additional References: Foundational Primary Sources

[S1] Watson, J. D., & Crick, F. H. C. (1953). Genetical implications of the structure of deoxyribonucleic acid. *Nature*, 171 (4361), 964–967.

Source Summary: *Companion to [38]: proposes semi-conservative replication as a logical consequence of the double helix — each strand is the template for a complementary new strand.*

Application in “We Are”: *Cited in the Supplemental section for establishing that the anti-parallel structure is also the replication mechanism — the template relationship is the structural relationship.*

[S2] Meselson, M., & Stahl, F. W. (1958). The replication of DNA in *Escherichia coli*. *PNAS*, 44 (7), 671–682.

Source Summary: *The 'most beautiful experiment in biology': density-labeling confirms semi-conservative replication — each daughter helix retains one intact parental strand.*

Application in “We Are”: *Cited for the experimental proof that each strand of the anti-parallel helix serves as a permanent template, embodying the framework's 'one becomes two' replication principle.*

[S3] Chargaff, E. (1950). Chemical specificity of nucleic acids and mechanism of their enzymatic degradation. *Experientia*, 6 (6), 201–209.

Source Summary: *Establishes Chargaff's rules: in double-stranded DNA, A=T and G=C in molar quantities — the complementarity constraint enforcing anti-parallel structure.*

Application in “We Are”: *Cited for the base-complementarity rule that makes the two strands perfectly anti-parallel and complementary — the molecular foundation of the observer-observed symmetry.*

[S4] Crick, F. H. C. (1958). On protein synthesis. *Symposia of the Society for Experimental Biology*, 12, 138–163.

Source Summary: *The original 'central dogma': information flows DNA → RNA → Protein, never in reverse — establishing the directionality of biological information.*

Application in “We Are”: *Cited for the central dogma's directional information flow, which the book maps to the framework's operational sequence: +1 (DNA) → neutral mediator (RNA) → expressed structure (protein).*

[S5] Nirenberg, M. W., & Matthaei, J. H. (1961). The dependence of cell-free protein synthesis in *E. coli* upon naturally occurring or synthetic polyribonucleotides. *PNAS*, 47 (10), 1588–1602.

Source Summary: *Poly-U mRNA directs polyphenylalanine synthesis in cell-free extract — the first crack in the genetic code, establishing UUU = phenylalanine.*

Application in “We Are”: *Cited as the experimental breakthrough that began decoding the 64-codon table analyzed in Part VII for its convergent 32+32 anti-parallel structure.*

[S6] Crick, F. H. C. (1966). Codon–anticodon pairing: The wobble hypothesis. *Journal of Molecular Biology*, 19 (2), 548–555.

Source Summary: *The wobble hypothesis: flexible base-pairing at the third codon position allows one tRNA to recognize multiple synonymous codons, reducing the required tRNA count from 64 to ~45.*

Application in “We Are”: *Cited for codon degeneracy — the wobble mechanism is what enables the 64-codon code to converge to just 20 amino acids, the molecular reduction the book analyzes as a convergence structure.*

[S7] Kornberg, A. (1960). Biologic synthesis of deoxyribonucleic acid. *Science*, 131 (3412), 1503–1508.

Source Summary: *Discovers DNA polymerase I and establishes that DNA synthesis requires a template and proceeds exclusively in the 5' → 3' direction — directionality as a biochemical law.*

Application in “We Are”: Cited for the 5' → 3' directionality constraint: this asymmetry makes the two anti-parallel strands functionally non-interchangeable — one leads, one follows, permanently.

[S8] Bethe, H. A. (1939). Energy production in stars. *Physical Review*, 55 (5), 434–456.

Source Summary: Nobel Prize-winning derivation of the pp chain and CNO cycle: the quantitative nuclear physics of how stars fuse hydrogen into helium, generating stellar energy.

Application in “We Are”: Cited for the stellar fusion process underlying Stage 2 of the book's three-stage cosmological model — stars as the universe's second-stage transformation engines.