



**UNFETTERED
JOURNEY
RESOURCES**

GARY F. BENGIER

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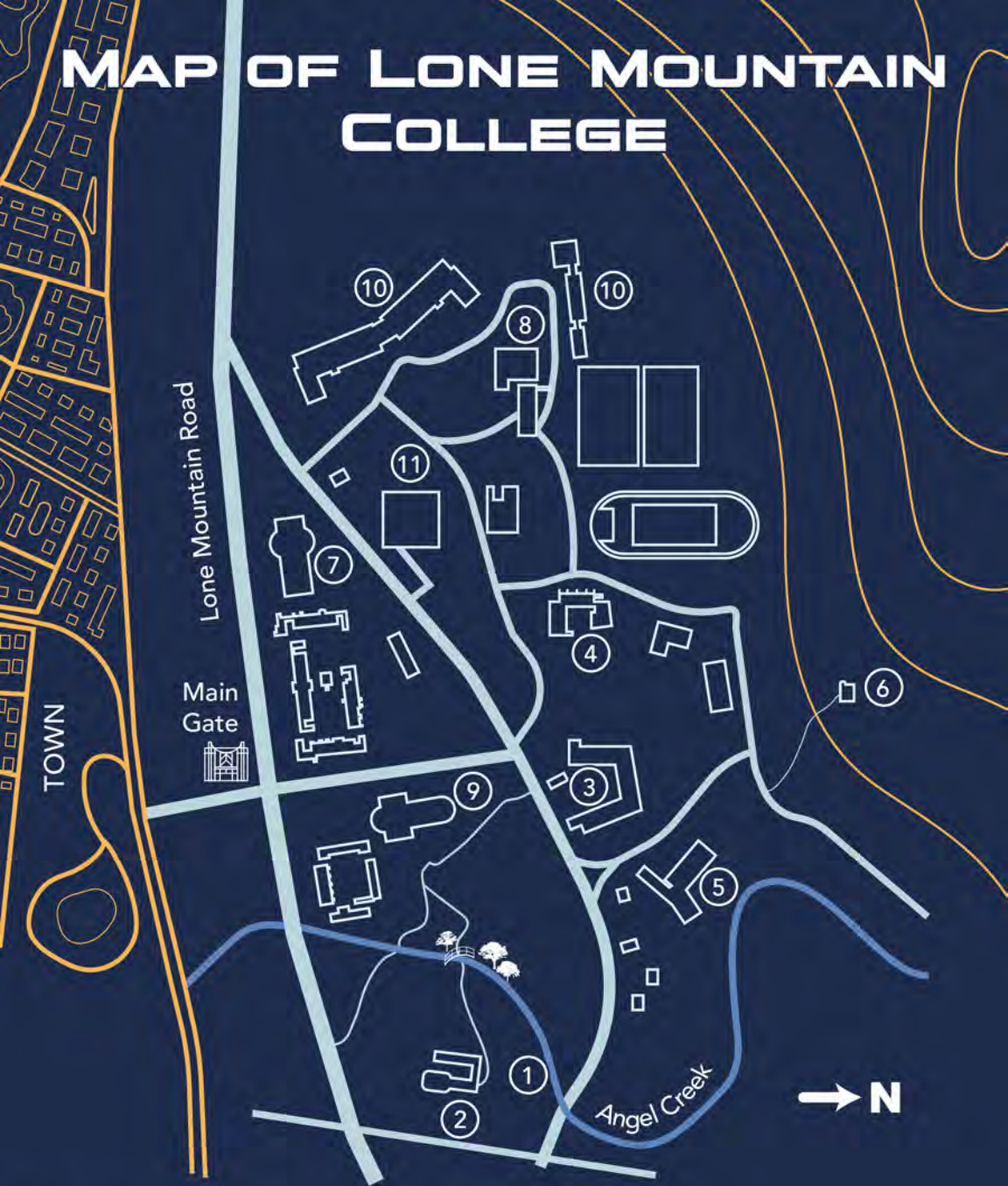


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For the readers of *Unfettered Journey*, please find these additional resources, including the maps from the book and the Glossary, in a handy format for easy reference.

MAP OF LONE MOUNTAIN COLLEGE



- | | |
|------------------------------|-----------------------|
| ① Hovercraft landing pad | ⑦ Philosophy building |
| ② Joe's apartment building | ⑧ Gym |
| ③ Student center | ⑨ Library |
| ④ Mathematics building | ⑩ Residence halls |
| ⑤ Political science building | ⑪ Power plant |
| ⑥ Dean's house | |

THE COMBAT DOME

STATE FOREST



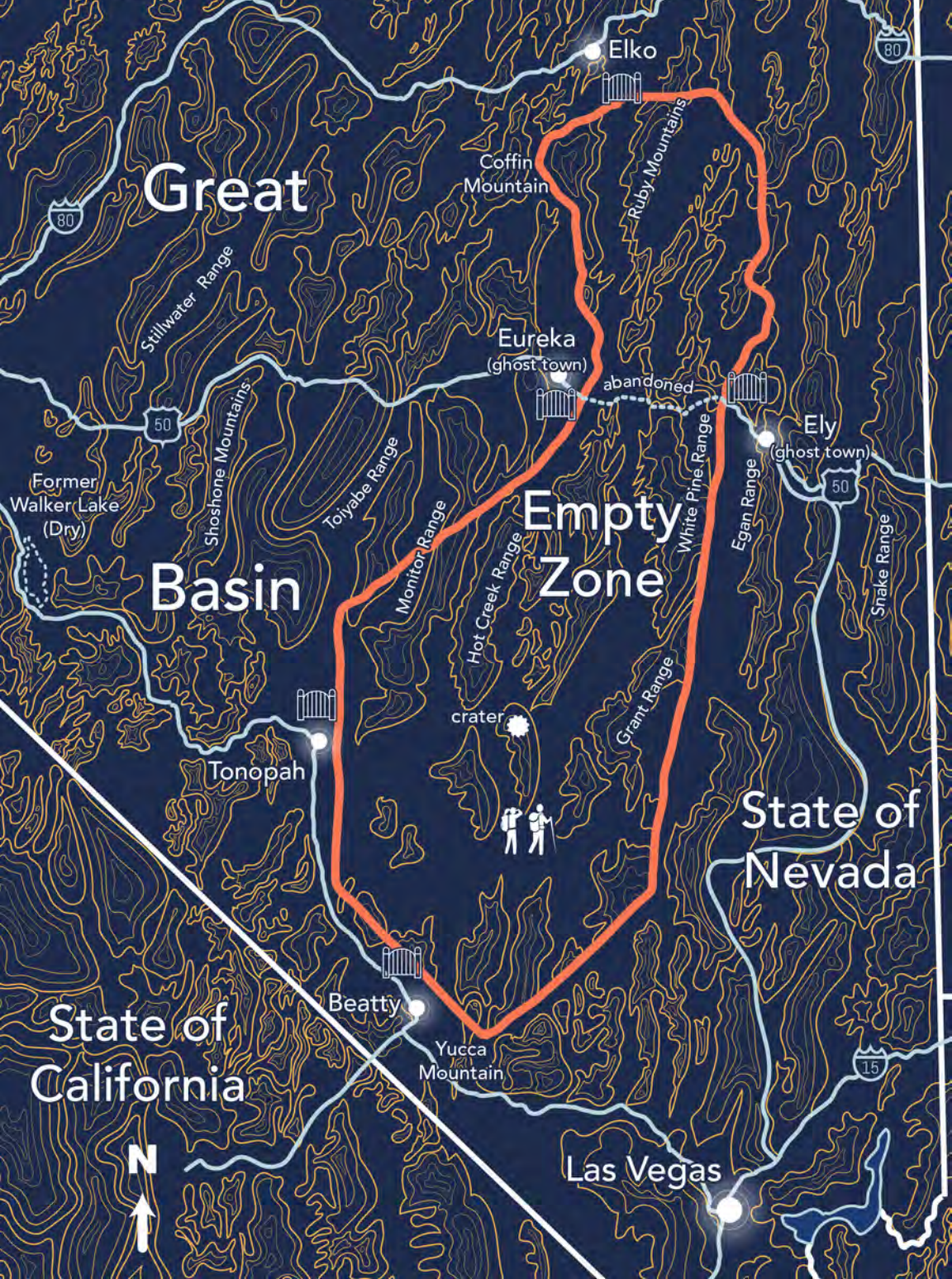
TRAIN STATION

TOWN

- ① Main Concourse
- ② Alpha Annex
- ③ Zeus Annex
- ④ Omega Annex
- ⑤ Medical Facility
- ⑥ Mecha Storage Warehouse
- ⑦ Sky Boxes
- ⑧ Arena Offices and Administration
- ⑨ Guest Apartments
- ⑩ Plazas
- ⑪ Alex's Shop



MAP OF THE EMPTY ZONE CORRECTIONAL AREA



Great

Basin

Empty
Zone

State of
Nevada

State of
California



Las Vegas

Beatty

Tonopah

Ely
(ghost town)

Eureka
(ghost town)

abandoned

Elko

Coffin
Mountain

crater



Former
Walker Lake
(Dry)

Snake Range

Egan Range

White Pine Range

Grant Range

Hot Creek Range

Monitor Range

Toiyabe Range

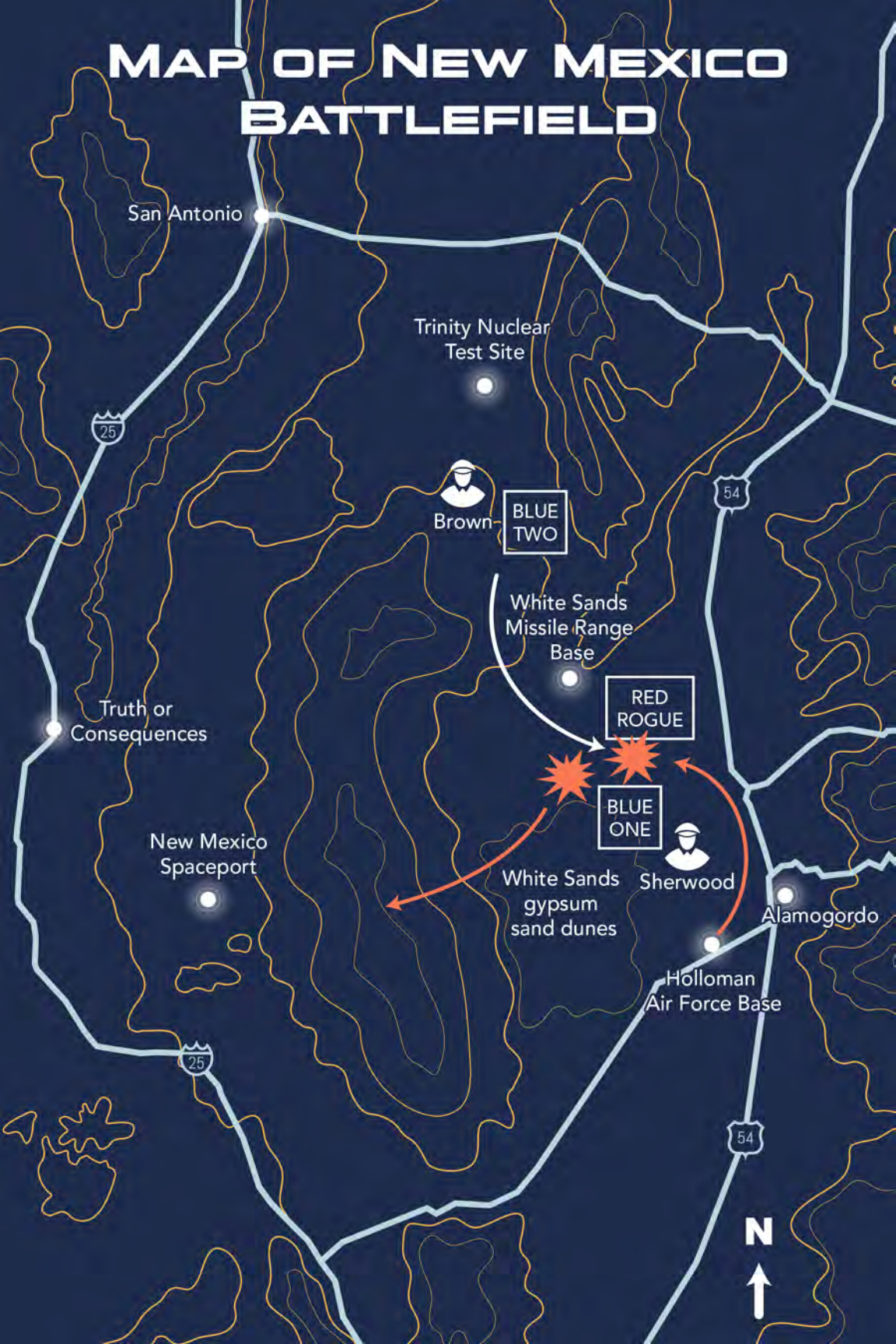
Shoshone Mountains

Stillwater Range

Ruby Mountains



MAP OF NEW MEXICO BATTLEFIELD



San Antonio

Trinity Nuclear
Test Site

25



Brown

BLUE
TWO

54

White Sands
Missile Range
Base

RED
ROGUE

Truth or
Consequences

New Mexico
Spaceport

BLUE
ONE



Sherwood

White Sands
gypsum
sand dunes

Alamogordo

Holloman
Air Force Base

25

54



GLOSSARY

Source: Vidsnap from Netpedia, 2161, 0131 14:09 UTC

AGI (Artificial General Intelligence)—A computer software AI capable of performing “general intelligent action.” The “strong AI” definition is reserved for machines capable of experiencing consciousness.

AI (Artificial Intelligence)—A simulation of human intelligence processes by a machine, in the form of computational software. The AI refers to the software code, which may reside in cloud servers, PIDs, and inside robots as the “brain.”

akrasia—A weakness of will, of self-control, or of acting against one’s better judgment.

allbook—A reading device used to present and store text and vid graphics. May be connected to the net to download other non-holographic information. Popular designs unfold from a small rectangle (7 x 11 cm) into a flat screen (19 x 31 cm) for reading. Currently a stylish accessory that students wear on their belts.

anthropic principle—A philosophical consideration that observations of the universe must be compatible with the conscious and sapient life that observes it. The principle is a response to criticisms of certain multiverse theories, which posit that vast numbers of universes exist; that conjecture raises the question of how we are so lucky to live in the one we do. Proponents of the anthropic principle reason that it explains why this universe has the age and the fundamental physical constants necessary to accommodate conscious life. The principle has garnered much discussion and criticism, including the charges that it is a mere tautology or that it is gratuitous speculation.

appeal to the stone—*Argumentum ad lapidem* is a logical fallacy that consists of dismissing a statement as absurd without giving proof of its absurdity. The name of this fallacy is derived from a famous incident in which Dr. Samuel Johnson claimed to disprove Bishop Berkeley’s immaterialist philosophy that there are no material objects, only

minds and ideas in those minds, by kicking a large stone and asserting, “I refute it thus.”

apsis—Denotes either of the two extreme points in the orbit of a planetary body about its primary body. **Apoapsis** refers to the farthest approach and **periapsis** to the nearest approach to the primary body.

ARMO (Augmented Reality Map Overlay)—Loaded in a NEST, the ARMO uses GPS signals to trace a map onto the corneal lens interface so the user can follow the map while walking.

ATS (Automated Targeting System)—A computerized system developed in the States in the early twenty-first century to track potential terrorists and criminals attempting to enter the country.

autocar—A vehicle controlled by an AI.

autohover—Standard aircraft for short-haul transport, controlled by an AI.

Bayes’s theorem—Describes the probability of an event, based on prior knowledge of conditions that might be related to the event.

Berkeley, George (1685–1753)—Known as Bishop Berkeley (Bishop of Cloyne), an Irish philosopher principally known for his theory of subjective idealism, as labeled by others.

biometric tile—An electronic device that is embedded in the skin above the sternum and authenticates the wearer by recording biometric data, both biological and behavioral, and providing a secure password.

Butler, Joseph (1692–1752)—An English bishop and philosopher. Considered one of the preeminent English moralists, he played an important role in eighteenth-century economic discourse. He argued that human motivation is less selfish and more complex than Hobbes claimed.

cDc—A hacker tagline, a.k.a. “cult of the dead cat,” which is possibly a reference to Schrödinger’s cat or, alternatively, to the “cult of the dead cow,” a hacker organization founded in 1984 in Texas.

Climate Wars—Wars spanning a decade in the late twenty-first century that erupted over diminishing food, water, and arable land resources.

Community Dome—A.k.a. the “Combat Dome,” this structure houses an alternative community developed in the early twenty-second century that was originally populated by industrial workers who were left unemployed by the deployment of general-purpose robots. The main dome is 101 meters tall, with a volume of 140,053 square meters. That arena hosts various sporting events, and seats 200,029 at capacity. The surrounding complex sprawls over multiple city blocks and contains shopping, living, and leisure spaces.

complexity theory (or complexity science)—The study of complexity and of complex systems. Subdisciplines include complex adaptive systems and chaos theory.

- Complex adaptive systems, a subset of nonlinear dynamical systems, are systems in which the whole is more complex than the parts.
- Chaos theory, a branch of mathematics, studies dynamic systems that are highly sensitive to initial conditions, where apparently random states of disorder are often governed by underlying patterns.
- The study of complex adaptive systems is highly interdisciplinary and blends insights from the natural and social sciences to develop system-level models and insights that allow for heterogeneous agents, phase transition, and emergent behavior.

consciousness—The state or quality of awareness of internal or external existence. It has been defined variously in terms of qualia, subjectivity, the ability to experience or to feel, wakefulness, having a sense of selfhood, and the executive control system of the mind.

credit\$ and dark credit\$—Cryptocurrency using blockchain and rolling anti-quantum decryption technology. Dark credit\$ are not sanctioned by the States government but are widely used globally to avoid data collection.

emoticon bundle—Holographic projections that contain brain chemical data associated with an immediate mental state, and that may be shared via a com unit. When accepted, the receiver's MEDFLOW unit reads the data and releases equivalent biochemicals to replicate the state. Bundles come with warnings.

Empty Zone—An outdoor correctional facility in central Nevada.

Euler, Leonhard (1707–1783)—One of the most eminent mathematicians of the eighteenth century.

Euler's identity—Called “Euler's jewel,” the equation is $e^{i\pi} + 1 = 0$.

exomech sports—Invented in the twenty-second century after exoskeleton robots (i.e., industrial versions that a person operated from the interior) were retired. The sports initially used surplus equipment.

Four Horsemen of the Apocalypse—Described in the last book of the New Testament of the Bible (i.e., the Book of Revelation), the Four Horsemen are usually identified as Famine, Pestilence, War, and Death.

fusion power plant, stellarator design—A fusion power plant using a stellarator, a plasma device that relies primarily on external magnets to confine plasma in a toroidal tube.

Gauss, Carl Friedrich (1777–1855)—Considered “the greatest mathematician since antiquity.”

generalized moonshine (or moonshine theory in mathematics)—The unexpected connection between the monster group M and modular functions, in particular the j function.

haptic delay—The distance-dependent delay of electronic signals when operating VR bots.

high-photosynthesis sustainable forests—Sustainable forests planted in the twenty-first century to mitigate global warming. Over one trillion trees were planted in sustainable forests, where every tree is tracked and managed, and replaced when lost. The bioengineered seeds, which were derived from dozens of species, enhanced photosynthesis by an average of 47 percent, thereby capturing carbon more efficiently. These forests cover the Amazon rainforest, the boreal forests of North America, the taiga stretching across Asia and Europe, and equatorial Africa.

Hobbes, Thomas (1588–1679)—An English philosopher, considered one founder of modern political philosophy.

Hohmann transfer—An orbital maneuver that transfers a satellite or spacecraft from one circular orbit to another.

holo-com units—Holographic communication equipment that connects to the net. Units can be configured in multiple formats, with the most common ones being the holo-wall com, holo-ceiling com, holo-pit com, and holo-immersives with full haptic suits.

Hume, David (1711–1776)—A Scottish philosopher, best known for a highly influential system of philosophical empiricism. In Hume’s problem of induction, he argued that inductive reasoning and belief in causality cannot be justified rationally.

hyperlev—An advanced train using maglev (a term derived from *magnetic levitation*) technology, which uses sets of magnets to push the train off the track, and to then move the “floating train” at high speeds to its destination.

International Humanitarian Law (IHL)—Rules that seek to limit the effects of armed conflict. Under IHL, autonomous weapons are banned except for prisons and border control.

Jaegwon Kim (1934–2019)—A Korean American philosopher, best known for his work on mental causation, the mind-body problem, and the metaphysics of supervenience and events.

kill box—In weaponry, a three-dimensional target area defined to facilitate the integration of coordinated joint weapons fire.

Laplace's demon—An argument for determinism, based on classical mechanics. The argument is if someone (e.g., a demon) knows the precise location and momentum of every atom in the universe, those atoms' past and future values for any time are entailed and can be calculated from the laws of classical mechanics.

LAWS (Lethal Autonomous Weapons Systems)—A class of weapon systems that use sensors and computer algorithms, generally deployed in milmechas and related military platforms, to independently identify a target and engage and destroy the target without manual human control of the system. Such systems are legal under international law for border control and prisons.

Levels Acts—A series of laws enacted in the early twenty-second century, developed as the quid pro quo for the nationalization of economic production and grant of a guaranteed income. The Acts set Levels (i.e., from Level 1, the highest, to Level 99, the lowest), which assist in assigning jobs and setting certain restrictions on voting, travel, social interactions, and access to sponsored creative positions.

MEDFLOW—A medical unit implanted beneath the skin, typically above the right hip, that monitors health and dispenses drugs into the bloodstream, based on a programmed protocol.

Mercuries—A designer brand of boots with advanced servos for enhanced speed.

min-con diet—A diet that limits protein to that from animals lower in the hierarchy of consciousness. For higher-order, conscious animals, the diet substitutes alternatives grown in biochemical factories from stem cells (e.g., alternatives for pork, beef, and lamb).

near-rectilinear halo orbit (NRHO)—An efficient orbit for facilities in cislunar space, as used by the WISE Orbital Base.

NEST (Neural-to-External Systems Transmitter)—A device buried below the left temporal lobe that communicates with external systems

(such as the net and other local devices). A NEST is internally wired to a projection lens inserted in the cornea, to the jawbone to detect spoken commands, and to a thought reader, which senses keywords. A NEST has memory storage capability. A PIDA may reside in the NEST for more personalized capabilities.

net—An electronic communication system spanning the Earth and the space bases; a network of networks.

netchat—Communications using the net.

netwalker—Equipment allowing access to VR environments to operate net games, education and travel simulations, and virtual robots. It includes an elevated platform, a treadmill, an adjustable seat, a haptic headset, and clothing, with the rig suspended from the ceiling to allow free movement.

nociception— The sensing of harmful stimuli, such as poisonous chemicals.

noriam—A hydro-powered machine used to lift water into a small aqueduct for irrigation. It consists of an undershot water wheel with attached containers, which lift water to a small aqueduct at the top of the wheel.

onna-bugeisha—In medieval Japan, a female martial artist. They were *bushi*, part of the samurai class, and they defended their homes with a *naginata*, a pole weapon.

ontology—The philosophical study of being. This subdiscipline studies concepts that directly relate to being, including becoming, existence, and the nature of reality, as well as the basic categories of being. The subfield of categories of being focuses on investigating the most fundamental and broadest classes of entities that constitute the universe.

original sin—A Christian belief in the state of sin, in which humanity has existed since the fall of man when Adam and Eve rebelled in Eden. By consuming the forbidden fruit from the tree of the knowledge,

they learned of the existence of good and evil. One of many interpretations of the story of original sin is that humankind aspired to rival the knowledge and perfection of God, but that wasn't allowed because only God could be perfect.

otzstep—A genre of popular dance music, circa 2161.

physically closed universe—A concept related to a metaphysical theory about the nature of causation in the physical realm and physical causal closure, which can be stated as, "If we trace the causal ancestry of a physical event, we need never go outside the physical universe."

PIDA (Personal Intelligent Digital Assistant)—An AI residing in a NEST.

planeteer—A person who has spent at least a cumulative decade living off the surface of the Earth, including time spent in Earth orbit, in transit outside the protective atmosphere, and in habitation away from Earth, for example, at one of the orbital bases, the moon bases and the colonies on Mars. Derived from the combination of the words *planet* and *pioneer*.

Prime Netchat—A major newscaster on the net.

qualia—The individual instances of subjective, conscious experience. They are perceived qualities of the world and include perceived bodily sensations.

Radus boots—Magnetic boots that allow for ease of movement in weightless environments. The concept was developed in the twentieth century, but practical units were not built until much later.

red diamond—Once known as the most expensive and rarest in the world, red diamonds became more plentiful with the discovery and opening of mining operations on Mars.

Riemann hypothesis—A conjecture that the Riemann zeta function has its zeros only at the negative even integers and complex numbers with real part $1/2$. Many consider it the most important unsolved problem in pure mathematics.

robots containing an AI:

pipabot or PIPA (Personal Intelligent Physical Assistant)—A robot that is shorter than the average human, with an elliptical head, two lenses for eyes, and a simplified mouth. The pipabot's forehead glows in various colors to indicate emotions.

medbot—A specialized pipabot that is augmented with medical devices for surgery and general health care.

copbot—A pipabot, but taller and built on a robust chassis with higher strength parameters. Its voice module is tuned down an octave and is programmed to be laconic. Authorized for the use of force, as determined by a threat scale.

mecha—A robot used for industrial and general labor jobs. It is three meters tall with a one-meter additional reach for its two arms. Its four legs can be articulated either in parallel sets in confined spaces or by reversing the articulation of one set to create a spiderlike stance for additional stability and speed. Its triangular head holds two optical sensors, lenses that resemble eyes, and no mouth. The mecha cannot communicate verbally but relies on a pipabot to relay verbal information to humans.

milmecha—A mecha built on a ruggedized chassis, with the capability to add weapons to its appendages. Depending on deployment, it may be authorized for use of deadly force under the International Humanitarian Law, to which the States is a signatory.

milpipabot—A pipabot built on a ruggedized chassis, with military weapon options and use restrictions similar to milmechas.

cleanerbot—A small robot with no verbal communication module; it is used for cleaning duties.

matchlovebot—A pipabot with augmented emotion and communication modules; it is used to enhance social interactions among humans and for humans' personal pleasure.

robots driven by humans:

exomech—An exoskeleton robot that is three meters tall and similar to a mecha but directly operated by a human occupant. Humans can enter the metal shell and use their hands and legs to direct the exomech's movement. Exomechs were early robots operated by humans in industrial settings, but they were superseded by mechas and retired by the mid-twenty-second century. Exomechs are still used in sports competitions.

steerbot—A robot shell that resembles a pipabot but without an AI and with VR communications that allow it to be operated by a human in a netwalker through a link. The steerbot provides a realistic facsimile of embodying the machine, which allows humans to operate it directly in distant and dangerous locations.

steermech—A robot shell that resembles a mecha but is otherwise similar to a steerbot.

sandboxing—Intended to prevent uncontrolled propagation of malicious code, sandboxing refers to the protocols, hardware, and software applied in computing and networking to isolate both standalone and embodied AIs and other software on the net. Hardware and software wrappers precisely control the interfaces. All interfaces are strictly regulated, with changes logged to a national blockchain record.

Schrödinger's wave equation—The fundamental equation of physics for describing quantum mechanical behavior. It is a partial differential equation that describes how the wave function of a physical system evolves over time.

Schrödinger's cat—A thought experiment, sometimes described as a paradox, devised to illustrate a possible problem of the Copenhagen interpretation of quantum mechanics as applied to everyday objects. The scenario presents a hypothetical cat that may be simultaneously alive and dead, a state known as a quantum superposition, as a result of being linked to a random subatomic event that may or may not occur.

Schopenhauer's ethics—Articulated by the German philosopher Arthur Schopenhauer (1788–1860) in his essay *On the Basis of Morality* (1840), his ethics center on compassion. He argues that to have moral value, an act cannot be egoistic, but rather should flow from a pure motive of compassion, which is a felt knowledge and the immediate participation in the suffering of another.

Searle, John (1932–)—An American philosopher. His notable concepts include the Chinese room, an argument against “strong” artificial intelligence.

semantics—The study of how meaning is attached to language, signs, and symbols.

sentience—Feelings or sensations (i.e., rather than perception or thought).

seven deadly sins—Also known as cardinal sins, these are a grouping and classification of vices within Christian teachings. They include pride, sloth, gluttony, envy, greed, lust, and wrath.

Standard Model of particle physics, modified—The theory that describes three of the four known fundamental forces (i.e., the electromagnetic, weak interactions, strong interactions, and modified to include twenty-second-century progress in uniting the gravitational force) in the universe, as well as classifying all known elementary particles.

supervenience—A relation between sets of properties or sets of facts; X is said to supervene on Y if and only if some difference in Y is necessary for any difference in X to be possible.

synjug—A synthetic biology jug, which is a biodegradable container used to hold various liquids.

synpsychs—Synthetic biology psychotropics and other mind-altering pharmacology.

syntax—Generally, syntax refers to the arrangement of words to create well-formed statements. In computer science, syntax is the set of

rules that defines the combinations of symbols considered to be correctly structured in a computer language. In the philosophy of mind, the computational theory of mind describes the mind in computational terms. Computationalists typically assume that computation uses symbols based on their syntactic properties rather than their semantic ones and that the mind is a syntax-driven machine.

Tarski's undefinability theorem—Stated and proved by the mathematician Alfred Tarski; informally, the theorem states that arithmetical truth cannot be defined in arithmetic.

Three Laws of Robotics—Introduced in Isaac Asimov's *Robot* series, the Three Laws are:

- Law 1: A robot may not injure a human being or, through inaction, allow a human being to come to harm.
- Law 2: A robot must obey the orders given it by human beings, except where such orders would conflict with the First Law.
- Law 3: A robot must protect its own existence as long as such protection does not conflict with the First or Second Laws.
- Addendum: An addendum added in the last century states that a robot must protect other robots' survival, so long as such protection does not violate the first three laws.

Turing test—An early test for AI mentality.

uwatenage—An overarm throw used against an opponent in sumo wrestling.

via negativa—An apophatic theology, also known as negative theology, and religious practice that attempts to approach God—the Divine—by negation (i.e., to speak only in terms of what may not be said) of the perfect goodness that is God. One applied example of *via negativa* is the text *The Cloud of Unknowing*, an anonymous work of Christian mysticism written in the fourteenth century.

vidsnap—A data file that is typically collected and stored in the NEST, either through corneal projection or via download from the net.

von Mises's economic calculation problem—The question of how individual subjective values are translated into the objective information necessary for rational allocation of resources in society. The economist Ludwig Heinrich Edler von Mises (1881–1973) described the nature of the price system under capitalism. He argued that economic calculation is only possible by information provided through market prices.

VRbotFest—A software-based competition using a netwalker to control a virtual steermech with no physical robots involved. The controls don't all operate perfectly, so computer skills are needed to hack the interface while fighting other virtual steermechs.

Wigner, Eugene (1902–1995)—A theoretical physicist and Nobel Prize winner in physics who published the article “The Unreasonable Effectiveness of Mathematics in the Natural Sciences” in *Communications in Pure and Applied Mathematics* in 1960. In this paper, Wigner observed that the mathematical structure of a physical theory often points the way to further advances in that theory and even to empirical predictions. Elsewhere he elaborated to say, “The miracle of the appropriateness of the language of mathematics for the formulation of the laws of physics is a wonderful gift which we neither understand nor deserve.”

Wikipedia—A multilingual online encyclopedia created and maintained as an open collaboration project. Created in the early twenty-first century by Jimmy Wales and Larry Sanger, the net resource continues as a trusted source of information, miraculously avoiding censorship and the politicization that affected many other information sources. Wikipedia was renamed Netpedia in 2129. Many definitions contained therein have become the default standard summaries of certain information. The original Wikipedia entries contained in this vidsnap include portions of those for anthropic principle, appeal to the stone, apsis, Bayes's theorem, complexity theory, consciousness, moonshine theory in mathematics, Hohmann transfer, David Hume, Jaegwon Kim, kill box, Laplace's demon, noria, ontology, original sin, physically closed universe, qualia, Riemann hypothesis, Schrödinger's cat, John Searle, seven deadly sins, Standard Model of particle physics, syntax, Tarski's undefinability theorem, Three Laws of

Robotics, *via negativa*, von Mises's economic calculation problem, and Eugene Wigner.

WISE (World Interstellar Space Exploration) Orbital Base—A significant international scientific project that is centered on a construction base that orbits the moon and will launch a series of probes toward promising exoplanets. It is operated by the World Interstellar Space Exploration consortium of countries. The orbital base is currently thirteen hundred meters in length, uses two fusion power plants, and has multiple factory facilities completed for the construction of the probes and associated infrastructure.