

A U N I F I E D F R A M E W O R K
O F M O D E R N H U M A N
E V O L U T I O N

THE SHAPE OF POSSIBILITIES
ECOTYPE LINEAGE

From Evolution to the Journey of the Mind:
The Lost Civilisation and the Fall of Human Cognition

The Past We Forgot,

EVOLUTIONARY INHERITANCE

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First edition, 2026 United Kingdom

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Series Information

Inner Horizon is the third volume in the **shape of possibilities** trilogy,

- **Book One** - *Chronological Depth Framework: Temporal Convergence*
- **Book Two** - *Inner Horizon Framework: Cognitive Resonance*
- **Book Three** - *Ecotype Lineage Framework: Evolutionary Inheritance*

*For those who sensed that the sacred and the scientific
were always pointing at the same thing,
from opposite directions.*

The first gulp from the glass of science will turn you into an atheist, but at the bottom of the glass God is waiting for you.

Werner Heisenberg

Do not try to use what you learn from Buddhism to be a Buddhist; use it to be a better whatever-you-already-are.

Dalai Lama XIV

The privilege of a lifetime is to become who you truly are.

Carl Jung

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PREFACE

This is the third and closing volume of a trilogy called *The Shape of Possibilities*.

The first volume, *Chronological Depth*, proposed a physics: a foundational asymmetry between a bounded ground state and an unbounded configuration space, developed with the same rigour the physical sciences demand of any new proposal. The second, *Inner Horizon*, turned that framework toward the mind. It described cognition as a process that resolves possibility into actuality through prediction, and it closed by tracing a chain from physics into biology, biology into cognition, and cognition into a specific distortion that a single mind can fall into and, with enough quiet, see through. This volume picks up that same chain at a different scale. It moves from one mind to the deep history of many minds: a coastal world before the Younger Dryas, the climate event that displaced it, and the long inland reconstruction of myth, architecture and what I am calling ancient science.

A word on what this book does and does not claim. The subject matter here, comparative mythology, the history of science, contemplative practice, several living religious traditions, invites a stronger claim than the evidence can carry, and early drafts of this material made exactly that claim. I do not argue that ancient contemplative and religious traditions were secretly conducting physics, or that their own vocabulary was simply a cruder version of concepts modern science has since perfected. Chapter Eleven explains at length why that particular move, the confident insistence that yin and qi are just particle-wave duality wearing older clothes, or that a ritual calendar is a modern astronomical model that only needed better words, collapses on contact with the ancient sources and with the relevant scholarship. It has a track record, spanning half a century of popular science writing, of embarrassing the very comparison it tries to make.

What I claim instead is smaller, and I think it holds up better. Specific ancient traditions, working in their own vocabulary and for their own purposes, produced intellectual and observational achievements that need no equivalence with modern physics to matter: a working zero, a working calendar, a working body of ecological and architectural knowledge. Where I go further than the evidence allows, into structural hypothesis or interpretive reconstruction, I try to say so plainly, chapter by chapter, using the terms set out in the note that follows this preface. A compelling story should never be doing work that only evidence is entitled to do.

This book stands on its own. It reads richer alongside its two companion volumes, but nothing that follows depends on having read them first. The short section that follows this preface exists for exactly that reason: a handful of terms from the two earlier volumes recur often enough here that they earn a plain-language account up front, rather than leaving a new reader to piece them together from passing references.

Kiran Indur

Foundations From the Earlier Volumes

A small number of terms and ideas from this trilogy's first two volumes recur throughout the chapters that follow. None of them need to be taken on faith, and none of them are required reading to follow the argument here. This section gives the plain-language version of each, and every chapter that uses one grounds it, separately, in real, external, peer-reviewed research, so the case made in this book stands on its own evidence even for a reader meeting these ideas for the first time.

Chronological Depth, the first volume, proposed a single foundational asymmetry underneath physical law: a bounded ground state, the lowest, most constrained configuration a physical system can occupy, giving rise to an unbounded configuration space, the far larger, far less constrained range of possibilities a system can move into from there. That proposal is this author's own developing theoretical framework, not an established physical theory, and this book is explicit about that distinction everywhere the framework is mentioned, most directly in Chapter Twenty-Five, which declines to treat it as equivalent to the real, established physics it sits alongside.

Inner Horizon, the second volume, turned that same framework toward the mind, describing cognition as a process that continuously predicts experience and resolves possibility into actuality moment by moment, an idea related to, but independently developed from, the real predictive-processing research in cognitive neuroscience this book cites directly in Chapter Seventeen. Inner Horizon organised its own account of cognition into a sequence of stages it called the Ladder. Four of its bands recur often enough here to name directly:

Cognitive Noise - attention and cognitive capacity diverted into random thought, compulsive prediction, and conditioned loops, rather than sustained integration.

Reactive Cognition - fast, threat-driven, low-deliberation processing: the band where cognitive noise dominates and stability collapses.

Adaptive Cognition - calmer, more stable, low-noise processing: the foundation later bands build on.

Performative Identity - a sense of self organised around external display and status signalling rather than a purely functional role, treated by Inner Horizon as an ancestral, evolutionarily grounded feature of the social self, not a flaw.

This book borrows these four names, and the general direction of Inner Horizon's own closing argument, deliberately, because they are useful shorthand for real patterns this book independently documents. But it does not ask a reader to accept Inner Horizon's own internal architecture to follow that documentation. Chapter Fifteen re-grounds Reactive and Adaptive Cognition in Selye, McEwen, and Metcalfe and Mischel's real stress and dual-process research; Chapter Seven re-grounds Performative Identity in Goffman, Snyder, and Zahavi's real work on impression management and costly signalling; Chapter Twenty-Four re-grounds Cognitive Noise in George Miller's and Killingsworth and Gilbert's real research on attention and working memory. Wherever this book uses one of these four terms, the real evidence behind it is named again, in place, so nothing here depends on trusting the earlier volume's own account.

One further note on vocabulary. This book also draws on real religious and philosophical terms from Sanskrit, Chinese, Hebrew, and Arabic, Rishi, loka, chakra, Dashavatara, Yuga, darśana, and others, each introduced in context where it first appears. A reader unfamiliar with any of them will also find a running, plain-language reference in the Glossary of Terms at the end of this book, under "Religious and Cultural Terms."

Introduction

Start with something that has probably happened to you, or to someone you trust. A moment of grief that arrives as a physical event before it arrives as a thought: a weight behind the sternum, the world going quiet, the body responding before the mind has finished registering what happened. Or a moment of awe, standing somewhere vast or holding something newly born, when the ordinary sense of being a separate, bounded self loosens its grip. Or a moment with no name at all, a dream carrying a logic you didn't put there, an instinct arriving ahead of any reasoning that could justify it, a sense of recognition attached to nothing you could point to.

None of this is rare. It is the ordinary furniture of a human life, and every culture that has ever existed has tried to do something with it: built practices to produce it reliably, built explanations for what it meant, built institutions to preserve whatever had been found. That fact deserves to be taken seriously. But a harder question than most books built around it are willing to ask follows close behind: how much of what those traditions concluded can actually be shown to be true, checkable against evidence a skeptic could examine for themselves? And how much is simply a compelling story that feels true because it is old and widely shared? My honest answer, worked out chapter by chapter, is that both categories are real. They are not the same size, and confusing them is the mistake I have tried hardest to avoid.

The preceding preface described a trilogy; this is its third and closing volume. Inner Horizon closed by tracing a chain from physics into biology, biology into cognition, and cognition into a specific distortion, performative identity, cognitive noise, that one mind can fall into and, with enough quiet, see its way back out of. That chain was traced at the scale of a single nervous system. Here it picks up at the only scale Inner Horizon left untouched: what the same distortion looks like when it belongs not to one mind but to a whole civilisation, encoded not in a person's habits but in a people's myths, monuments and institutions. The tools are the same. Only the unit of analysis has changed.

The Shape of Possibilities - one chain, traced across three books

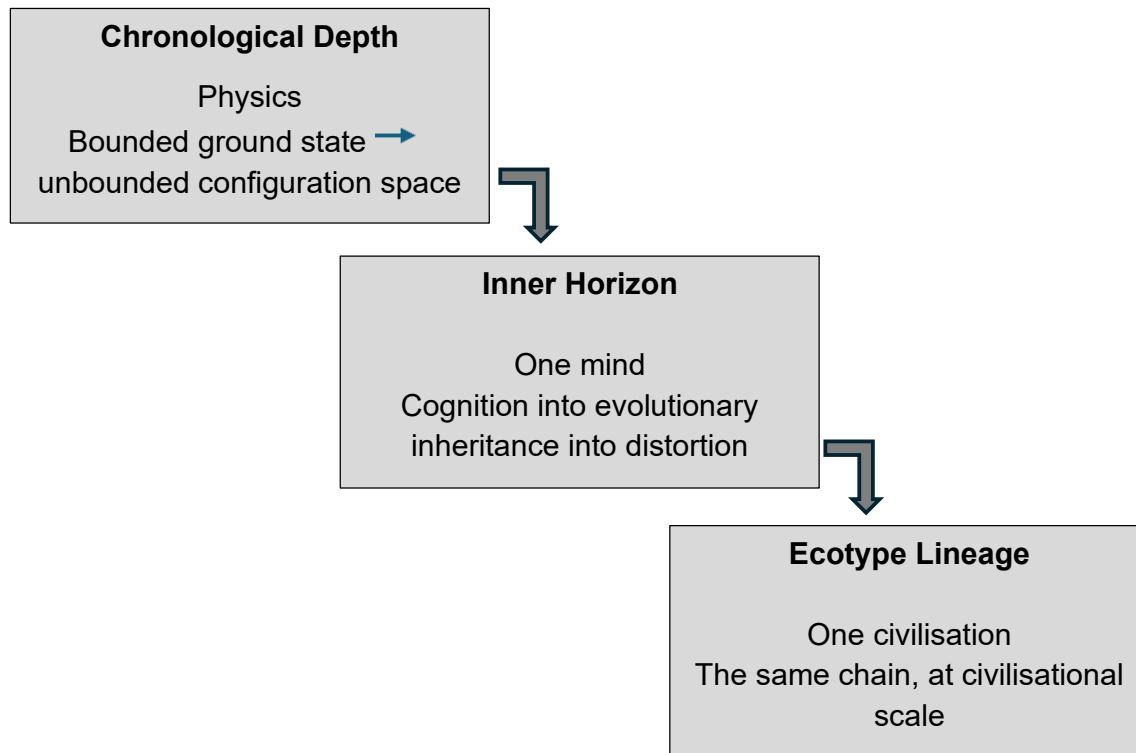


Figure 1. The same chain, traced across three books. This volume extends Inner Horizon's closing argument outward, from one mind to one civilisation.

Necessarily, too, the claims here run more ambitious than either companion volume's. The territory, sea-level science, population genetics, comparative mythology, the history of mathematics, contemplative practice, several living religious traditions, is wider than any one author can be expert in all at once, however careful. That breadth is exactly why I have tried, throughout, to keep three things separate: what is established, what is my own reasonable extension of the evidence, and what is simply a good story told for its narrative value. The note that follows sets out that method in full, and nothing here works without it.

Part One (Chapters One through Four) reconstructs the physical and ecological world of Ice-Age coastlines, and the golden-age memory I have attached to it. Part Two (Chapters Five through Eight) covers the Younger Dryas itself, corrected here against

a popular account that gets its chronology backwards, along with the displaced populations and inland societies that followed. Part Three (Chapters Nine through Fourteen) asks how that history might or might not have been remembered, monumental architecture, flood traditions worldwide, and my central and most carefully qualified claim, that ancient systematic knowledge was a real intellectual achievement in its own right rather than primitive science awaiting modern vindication. It also surveys the documented history of both discredited and genuinely vindicated extraordinary claims, so the evidentiary standard I apply to my own reconstruction gets shown working in both directions. Part Four (Chapters Fifteen through Nineteen) turns inward, to the cognitive architecture beneath my recurring vocabulary of clarity and noise, and to mythological material, lokas, chakras, avatars, read through that lens without losing sight of what each tradition actually says about itself. Part Five (Chapters Twenty through Twenty-Six) returns to this material from a more personal angle, carries it into the present digital age, confronts the temptation to unify all three books under one mechanism, and closes the trilogy.

A reader wanting the full accounting of what actually got established will find it in Chapter Twelve, and again, for the cognitive claims specifically, in Chapter Twenty-Six. Anyone checking a specific claim will find every named source in the Works Cited. What follows next is the method itself.

A Note on How This Book Makes Claims

What follows moves across a wide span of evidence, geology, archaeology, genetics, linguistics, comparative mythology, to argue something deliberately ambitious: that a real, ecologically distinct coastal world existed before the Younger Dryas, that its end left a mark on how later inland societies made sense of things, and that the systematic, symbolic knowledge of that older world was not erased so much as redescribed by minds who no longer had its original vocabulary.

That argument only carries the weight it wants to carry if every piece of it is labelled honestly. Three categories recur throughout.

Established: findings resting on published, replicated evidence, sea-level curves, radiocarbon-dated sites, genetic admixture studies. Stated plainly, with sources.

Structural hypothesis: my own reading of established facts. That coastal populations displaced by sea-level rise carried real ecological and cognitive stress inland, for instance. Argued rather than asserted, with competing explanations given genuine space.

Interpretive narrative: the more specific reconstructions that make the deep past vivid and legible, a named evacuation, a particular signal network, a precise line drawn from a Vedic epoch to a calendar system. Offered openly as narrative built on the structural hypothesis above, not as historical record, because the evidence to support that level of specificity simply does not exist.

Earlier drafts of this material blurred these three together, treating a compelling reading as a proven one. Pulling them apart makes for a smaller argument. It also makes for the only version of it that can be trusted.

How This Book Makes Claims

Every claim in this book is labelled by which of these three tiers it belongs to

narrower, more speculative

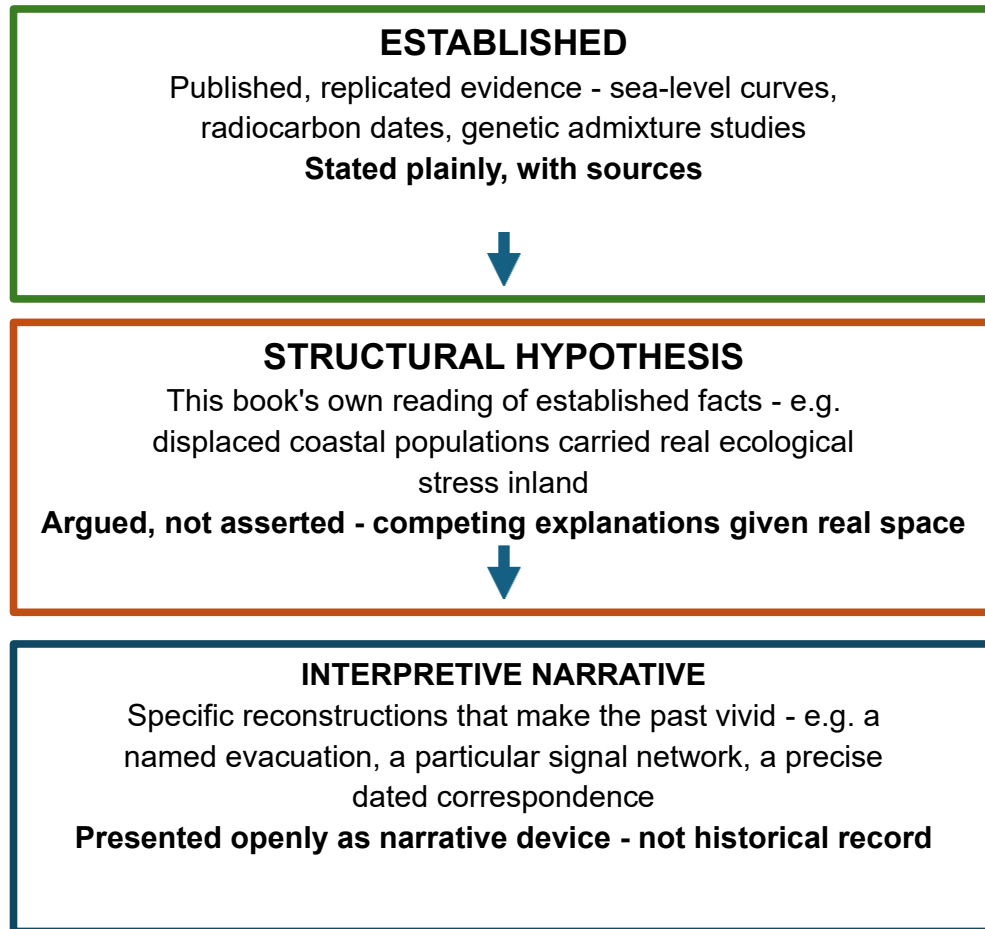


Figure 2. The three tiers every claim gets sorted into, narrowing from established fact to openly labelled narrative device.

PART ONE

The Coastal World

Ice-Age Geography, and the Golden-Age Memory Built On It

(Chapters One–Four)

EPILOGUE

Human civilisation is conventionally dated from the river valleys of the early Holocene: the Fertile Crescent, the Indus, the Nile. That is where the durable evidence survives, in mudbrick, irrigation channels, the first cuneiform tablets. But the world in which the human mind itself took shape lies earlier, and in the most literal sense, underwater. To understand what came before the river-valley civilisations, we need to reconstruct a planet whose most habitable ground no longer exists above the waterline.

1.1 The Last Glacial Maximum: A Different Coastline

The Last Glacial Maximum, or LGM, is the period of peak ice-sheet extent, conventionally dated to roughly 26,500 to 19,000 years before present, with maximum global ice volume around 21,000 to 20,000 years ago. It is one of the best-constrained periods in Quaternary geology. Global sea level during this window stood approximately 120 to 130 metres below its present level, the result of ocean water locked into continental ice sheets covering Scandinavia, northern North America, and much of the Southern Ocean margin. Multiple independent lines of evidence support this figure, including coral reef terraces, oxygen-isotope records from deep-sea sediment cores, and relative sea-level modelling, and it is not seriously contested in the geological literature (Lambeck et al., 2014, remains a standard reference synthesis).

It helps to be specific about how a figure this precise is actually derived, since the precision is part of why it can be trusted. Fossil coral reefs, particularly the raised terraces of Barbados studied in detail by Richard Fairbanks and, in later refinements, Edouard Bard and colleagues, grow at a fixed depth relative to sea level. Their skeletal calcium carbonate can be dated with high precision using uranium-thorium radiometric dating, which measures the known decay of uranium-234 into thorium-230 at a fixed rate. A coral terrace dated to a known age at a known depth below (or, where tectonic uplift has raised it, above) the modern shoreline gives a direct, physical fix on where sea level stood at that moment: not an inference from indirect proxies, but a measurement of an actual growth surface. Independently, the ratio of oxygen isotopes (^{18}O to ^{16}O) locked into the calcium carbonate shells of foraminifera in deep-sea sediment cores shifts predictably with global ice volume, because lighter ^{16}O evaporates preferentially into the atmosphere and is disproportionately locked into growing ice sheets, enriching the ocean's remaining water in ^{18}O . Two independent physical methods,

coral growth depth and marine isotope ratios, converge on the same sea-level curve, and that convergence is why this figure is treated as settled rather than provisional.

A fall of well over a hundred metres does not just narrow the beach. It exposes entire continental shelves: land that is shallow, often flat, and stood above water for tens of thousands of years before the post-glacial transgression drowned it again. The largest of these exposed shelves were real, named, mapped landmasses. The Sunda Shelf joined Sumatra, Java, and Borneo into a single subcontinent connected to mainland Southeast Asia. Sahul combined Australia and New Guinea into one landmass. The Beringian land bridge linked Siberia and Alaska. Doggerland, in the North Sea basin, connected Britain to continental Europe, and a large, low-relief basin now under the Persian Gulf stood exposed for most of the last glacial period. Each of these is independently documented through bathymetric surveys, submerged river-channel mapping, and, in Doggerland's case, actual dredged artefacts and faunal remains recovered by fishing trawlers. Among the finds is a well-preserved Neanderthal skull fragment and mammoth remains hauled up from the seabed of the southern North Sea, now held in Dutch and British museum collections as physical proof that dry, inhabited land once stood where trawlers now fish.

The LGM date range, the sea-level figure, and the existence of these named exposed shelves are not in dispute, established fact, not argument.



Figure 3. The exposed continental shelves and named landmasses of the Last Glacial Maximum, referenced throughout this book. This illustration rounds the sea-level fall to 140 metres for legibility; this book's own cited figure, drawn from Lambeck et al. (2014), is the more precise 120–130 metres below present given in §1.1 above, the same general picture, at a finer resolution than a single illustrative map can show.

1.2 Coastal Adaptation: A Real, if Contested, Hypothesis

That these shelves were habitable is not in question. They were temperate to subtropical, well-watered by rivers that now discharge onto the modern shelf edge, and ecologically productive. Whether they were also the primary engine of early human cognitive and behavioural development is a genuine, live hypothesis in paleoanthropology, not a fringe claim invented for this book. Curtis Marean's excavations at Pinnacle Point on South Africa's southern coast documented systematic shellfish exploitation, heat-treated stone tool production, and pigment use dating to roughly 164,000 years

ago, among the earliest secure evidence anywhere for behaviourally complex *Homo sapiens*, and explicitly coastal.

The Pinnacle Point evidence rewards a closer look, because its specificity is what makes it persuasive rather than merely suggestive. The site, specifically the PP13B cave, preserved dense shell middens showing systematic, repeated exploitation of brown mussel and other intertidal shellfish species: a resource that, unlike large-game hunting, requires no weapons technology, carries essentially no injury risk, and is available on a predictable tidal schedule a population could learn and plan around. Separately, and more strikingly, Kyle Brown and colleagues' 2009 study in *Science* documented that stone tools from the site show clear evidence of deliberate heat treatment. Silcrete stone was heated in buried hearths to a controlled temperature before being knapped into more easily worked, sharper blades, a genuinely sophisticated, multi-step pyrotechnological process requiring the maker to plan several steps ahead of the tool's actual production. Finding this technique at a site this old, alongside systematic shellfish use and worked ochre pigment, is what leads researchers in this area to treat southern African coastal sites as strong candidates for where key elements of behavioural modernity first cohered, rather than treating the coastal setting as incidental.

Jon Erlandson's "kelp highway hypothesis," proposed for the peopling of the Americas, argues that productive nearshore kelp-forest ecosystems along the Pacific Rim offered a continuous, resource-rich corridor for coastal migration well before interior routes were viable. Neither of these findings proves a single, continuous, cognitively unified "coastal civilisation" spanning multiple continents. That stronger claim is this book's structural hypothesis, not an established finding, and should be read as such. What they do establish is that coastal foraging was an early, sophisticated, and probably foundational human adaptation, and that treating the drowned continental shelves as culturally and archaeologically significant rather than empty fits with real, ongoing research. Most directly, the growing field of submerged prehistoric landscape archaeology has begun recovering worked stone tools, hearths, and even a submerged Mesolithic settlement off the coast of Israel (Atlit-Yam, c. 7,000 BCE) from what are now seabeds.

A different, and in some respects genuinely complicating, academic framework earns honest inclusion here, since the coastal-stability thesis above is not the only serious account of what drove early human cognitive development. The paleoanthropologist

Richard Potts has developed a named alternative, variability selection, arguing from sediment and pollen records, most directly his own fieldwork at the Olorgesailie Basin in Kenya, that the decisive evolutionary pressure on human cognition was not adaptation to any particular ancestral environment, coastal or otherwise, but adaptation to environmental inconsistency itself. Potts's drilled cores from Olorgesailie document repeated, large-scale shifts between wetter and drier conditions, with the most significant hominin tool-technology transitions in the same sediment layers clustering around the periods of most dramatic environmental instability rather than during long stretches of stability. A cognitive strategy finely tuned to any one habitat, coastal environments included, would have been a liability under such conditions, suggesting what instability plausibly selected for instead was general behavioural flexibility. The coastal-stability hypothesis and Potts's variability-selection framework are not simply compatible restatements of each other. They emphasise different, genuinely competing candidate pressures, ecological consistency against ecological unpredictability, on the same underlying evolutionary question, and neither is resolved here, or claimed to be, since which pressure mattered more, or whether both operated at different points across the long span of human cognitive evolution, remains genuinely open.

That coastal foraging was foundational to early human behavioural complexity is a real, evidence-supported position. That it produced one continuous, symbolically unified, cross-continental civilisation is this book's own extrapolation beyond what the evidence currently shows, a structural hypothesis, and a genuine unresolved tension worth naming directly rather than smoothing over. The emphasis on coastal ecological stability also sits in genuine tension with Richard Potts's evidence-based variability-selection framework, which proposes the opposite emphasis: adaptation to environmental instability itself. Both are serious positions in paleoanthropology, and neither is adjudicated here.

1.3 Continuous Corridor - Reading the Geography, Not Overreading It

The exposed shelves, chained together along the Ice-Age coastline, formed something close to a continuous corridor of low, flat, resource-dense terrain running from the Atlantic coast of Africa around the Indian Ocean rim to Sunda and onward toward Sahul. Coastal populations expanding along such a corridor would plausibly have moved laterally, following the shoreline, rather than radiating inland toward harsher, less predictable interior ecologies, for the simple reason that the coast offered a more stable and less effort-intensive food supply.

One specific geographic pinch-point along this proposed corridor is worth naming, because it is real, well studied, and gives the abstract idea of a "continuous coastal corridor" a concrete test case. The Bab-el-Mandeb strait, separating the Horn of Africa from the Arabian Peninsula at the southern mouth of the Red Sea, narrows to roughly twenty kilometres at its narrowest point today. At Last Glacial Maximum sea levels, with the strait's own shallow sill exposed further, the water gap separating Africa from Arabia would have been considerably narrower still. The real archaeological and genetic literature on the southern dispersal route treats it as one of the most geographically plausible crossing points for early coastal migration out of Africa, and this book returns to it with further supporting evidence in Chapter Three. None of this confirms a crossing at this specific point archaeologically; much of the relevant coastline on both sides is itself now underwater, for the same reasons Chapter Two describes at length. But it does mean the "continuous corridor" idea is not purely a convenient abstraction. It has at least one specific, geographically well-documented pinch-point where the general claim can be evaluated in concrete terms.

This book treats that lateral, coast-hugging expansion as a reasonable reading of the geography and of comparative ethnographic patterns among historically documented coastal foraging societies. It does not treat the resulting network as a single political or even necessarily linguistic unit. There is no artefactual, genetic, or linguistic evidence for a unified trans-continental coastal culture of this kind, and the book will not claim otherwise. What follows in this chapter and the next builds a deliberately visible interpretive layer on top of this established and structural-hypothesis foundation: a narrative reconstruction of what such a corridor-based world of small, related, coast-adapted populations might plausibly have looked like, offered explicitly as reconstruction rather than record.

1.4 An Ecology of Relative Abundance

Where they have been studied, temperate and subtropical coastal ecosystems are among the most calorically dense environments available to foragers without agriculture, well supported in the ethnographic record of historically documented coastal and estuarine foraging societies, from the Pacific Northwest to the Andaman Islands. Shellfish beds, in particular, are sessile, predictable, and exploitable by people of almost any age or physical capacity, which is part of why Pinnacle Point's shell middens are considered such significant early evidence. They represent a food source requiring comparatively low investment and low risk relative to large-game hunting.

This ethnographic pattern rests on a real, independently documented ecological fact, worth stating specifically rather than left as an inference from foraging behaviour alone. Estuaries and other productive coastal margins are, by direct ecological measurement, among the most biologically productive ecosystems on Earth per unit area, a finding established in foundational ecosystem ecology (associated with early comparative productivity surveys including Robert Whittaker's classic work cataloguing net primary productivity across biome types) and repeatedly confirmed since. Estuarine and coastal upwelling systems typically match or exceed the net primary productivity of tropical rainforest, historically treated as ecology's benchmark for biological richness, because the same nutrient-mixing processes that make coastal waters productive for phytoplankton cascade directly up the food chain into the shellfish, fish, and marine vegetation a coastal forager would actually exploit. This gives the ethnographic pattern a real ecological mechanism underneath it, rather than leaving "coastal ecosystems are unusually productive" as an empirical regularity without an explanation for why it holds.

A reasonable, though not directly provable, inference is that a population with more predictable access to food would have experienced less chronic ecological stress than one dependent on more variable interior resources. Whether that translated into the specific, sweeping claims this book's source material originally made, the effective absence of anxiety, hierarchy, or conflict, is a much larger claim than the ecological evidence can support on its own. Later chapters, from Twelve onward, treat that claim with the caution it requires rather than assert it here.

1.5 The Communication-Network Hypothesis: Labelled as Narrative

Among this book's more distinctive interpretive proposals is that the unusual flatness and shared elevation of a coastal corridor could, in principle, have supported long-distance line-of-sight signalling, using reflected light, fire, or smoke, in a way that inland, broken terrain could not. Historically documented signal-fire and beacon-relay systems, from ancient Chinese frontier watchtowers to the Aegean beacon chains described in Aeschylus, confirm that pre-industrial societies did build such networks at regional scale when the terrain and the organisational need supported it, which speaks to the physical plausibility of what flat coastal terrain permits.

There is, however, no direct archaeological evidence for a Palaeolithic coastal signalling network of the reach proposed here: no signal stations, no patterned mirror-stone caches, no linguistic reconstruction. That absence does not make the idea worthless as a structural device for imagining how a corridor-based population might have stayed in contact without dense settlement, but it must be presented as exactly that: an interpretive narrative device, clearly flagged, not a documented technology. The same standard applies to the treatment here of a shared "proto-Sanskrit" symbolic language spanning the corridor. Comparative historical linguistics cannot currently reconstruct any language ancestral to Sanskrit further back than roughly 6,000 to 4,000 years, and no linguist working in this field claims otherwise. Any deeper proto-language uniting a Pleistocene coastal world remains, again, narrative proposal rather than linguistic finding, presented under that label throughout.

The light-signal network and the trans-continental proto-language are structural devices for this book's reconstruction, not archaeological or linguistic findings, interpretive narrative, clearly flagged as such.

1.6 Ecotypes: A Real Biological Concept, Applied Carefully

"Ecotype" is a genuine and long-established concept in evolutionary biology, describing a genetically distinct population within a species that has adapted to a specific local environment without speciating. The classic textbook cases come from plant biology, particularly Turesson's early-twentieth-century work on Scandinavian grasses, and the term is also used to describe resident versus migratory ecotypes of Pacific salmon, or fish-eating versus mammal-eating ecotypes of orca. Applying the concept

to regional human physical variation, such as the well-documented relationships between UV exposure and skin pigmentation, or climate and body proportion (Bergmann's and Allen's rules, both empirically supported in human population data), is a legitimate and mainstream use of evolutionary theory.

Bergmann's and Allen's rules reward a concrete illustration, since the abstract statement of the rules can obscure how directly they show up in real, measured human populations. Bergmann's rule predicts that populations in colder climates will tend toward greater body mass relative to surface area, which reduces heat loss. Allen's rule predicts that populations in colder climates will tend toward shorter limbs relative to torso length, for the same thermoregulatory reason, since limbs are a major surface for heat loss. Traditional Inuit populations of the Arctic and traditional Maasai populations of East Africa are the textbook comparison anthropologists have used for decades to illustrate both rules simultaneously: the former showing the compact, heat-conserving body proportions the cold predicts, the latter showing the tall, linear, high-surface-area proportions that favour heat dissipation in a hot, arid climate. Neither pattern implies anything about cognitive or cultural difference. Both are unremarkable, well-documented thermoregulatory adaptations, exactly the kind of ecotype variation this book means by the term and nothing more.

This book uses "ecotype" in that narrow, biologically defensible sense: local, adaptive, non-hierarchical physical variation shaped by climate, diet, and regional ecology. It does not use ecotype as a stand-in for cognitive character, ancestral virtue, or civilisational purity. Later chapters revisit specific human population groups, including Dravidian-speaking populations of South Asia, and where they do, the discussion is confined to what population genetics and historical linguistics actually document: real, well-studied, and complex ancestral layering (see Reich et al., 2009, on Ancestral North Indian/Ancestral South Indian admixture), with no claim, implied or explicit, that any lineage retained or lost some prior state of cognitive clarity. That framing appeared in early source material for this book and has been removed rather than softened.

1.7 What the Coastal World Left Behind

By the time post-glacial warming began in earnest, roughly 19,000 years ago, a genuine and substantial body of behaviourally modern human activity had already accumulated along Ice-Age coastlines and elsewhere: pigment use, engraved abstract markings, marine resource exploitation, and, starting around 45,000 to 40,000 years ago on current dating and considerably earlier still per Chapter Twenty-One's discussion of Sulawesi, the widespread figurative cave and rock art that appears across Europe, Sulawesi, and beyond. What happened to the specifically coastal portion of that record when the shelves went under is a straightforward matter of physical fact: for the most part it is inaccessible, sitting under tens to well over a hundred metres of seawater and, in many places, marine sediment.

Submerged landscape archaeology is a real, active field working to recover what it can, and its findings are specific enough to be worth naming rather than gestured at. Atlit-Yam, off the coast of modern Israel and dated to roughly 7,000 BCE, is not merely "a submerged Mesolithic settlement" in the abstract. Excavations led by Ehud Galili recovered stone-built water wells, the remains of rectangular stone structures, a stone circle whose arrangement has been interpreted as a possible ritual or gathering site, and human skeletal remains showing evidence consistent with tuberculosis, among the earliest such evidence anywhere. Finding a settlement this developed, with built infrastructure, structured communal space, and evidence of endemic disease consistent with a settled rather than purely mobile population, sitting eleven metres underwater is a vivid, physical demonstration of exactly what this book means when it says the coastal archaeological record has been submerged rather than absent. It is also worth a caution: Atlit-Yam is a single, exceptionally well-preserved site, not a representative sample, and this book does not extrapolate from one site's specific richness to a claim about what every submerged coastal settlement worldwide once contained.

The physical world described here, a planet with sea levels over a hundred metres lower, continental shelves exposed as habitable land, and coastal foraging plausibly central to early human behavioural complexity, rests on solid, cited geological and archaeological ground. The specific civilisation this book goes on to describe, linear, symbolically unified, signalling across continents in light, is this book's own reconstruction, built on that ground but reaching well beyond it, and flagged as such at every step. Before that reconstruction is developed in full, the next chapter takes a closer, dedicated look at the actual evidentiary basis for it: the real discipline of submerged prehistoric archaeology, what it has already found, and why the coastal record remains thin rather than settled. Chapter Three then develops the reconstruction in full, before Chapter Five turns to the event that ended it, the abrupt climatic reversal known as the Younger Dryas.

CHAPTER TWO

Submerged Prehistory

The Real Discipline Behind This Book's Evidentiary Gap

Chapter One's coastal-adaptation hypothesis rests, repeatedly, on a specific honest admission: the relevant archaeological record is largely underwater, which is why direct evidence is thin rather than absent. That admission deserves its own dedicated treatment. "The evidence is underwater" is not a rhetorical shrug. It names a real, active, methodologically distinct field of archaeology, with its own history, its own real discoveries, and its own honest account of how much of the relevant seafloor remains unsurveyed. Understanding that field properly is the difference between the central evidentiary gap here being a genuine, addressable limitation of current research and being a convenient excuse, and the argument below, with real citations, is that it is the former.

2.1 Underwater Archaeology's Real Origins, and a Necessary Distinction

Underwater archaeology as a rigorous, professional discipline is comparatively young, with a real, datable founding moment. George Bass's excavation of a Late Bronze Age shipwreck off Cape Gelidonya, Turkey, beginning in 1960, is widely credited as the first shipwreck excavation conducted to the same stratigraphic and recording standards as a land excavation, establishing underwater archaeology as a scientific discipline rather than treasure-hunting with better equipment. Bass's subsequent excavation of the Uluburun wreck, beginning in 1982, a spectacularly well-preserved Late Bronze Age trading vessel carrying a cargo that documents real, extensive Mediterranean trade networks, remains one of the most thoroughly documented shipwreck excavations ever conducted.

Distinguishing this field, shipwreck and maritime archaeology, from the specific field the coastal reconstruction here actually depends on matters: submerged prehistoric landscape archaeology, sometimes simply called submerged prehistory, is a genuinely different undertaking. Rather than locating and excavating a single wrecked vessel, it identifies and surveys entire drowned land surfaces, complete with former river channels, forest floors, and settlement sites, now lying under the seabed. The methods, challenges, and current state of completeness are correspondingly different, and the evidentiary claims made throughout this book depend specifically on the state of this second field, not the first.

2.2 What Submerged Prehistory Has Actually Found

The field's real discoveries are worth naming specifically, because they show what is possible rather than leaving the claim abstract. Atlit-Yam, already discussed in Chapter One, remains one of the field's landmark sites. A further, arguably even more remarkable case is Bouldnor Cliff, off the Isle of Wight in southern England, excavated by a team led by the Maritime Archaeology Trust. This Mesolithic site, roughly 8,000 years old, is preserved on the seabed at a depth of around eleven metres, and has yielded worked wood showing evidence of sophisticated woodworking technique, including what has been interpreted as evidence for boat- or log-related construction. Such technical preservation is rarely available at equivalent dry-land Mesolithic sites, precisely because waterlogged, oxygen-poor submerged sediment preserves organic material that would have rotted away on land. Bouldnor Cliff produced a further, genuinely significant and still-debated finding: a 2015 study led by Robin Allaby, published in *Science Advances*, reported ancient DNA from the site's sediment matching einkorn wheat, a domesticated crop not otherwise known to have reached Britain until roughly two thousand years later, raising a real, unresolved question about whether it represents genuine early trans-Channel contact and exchange, or contamination of the sample. That specific finding is flagged here as exactly what it is: a real, published, peer-reviewed result that remains actively debated rather than settled, the standard applied throughout to comparably striking claims.

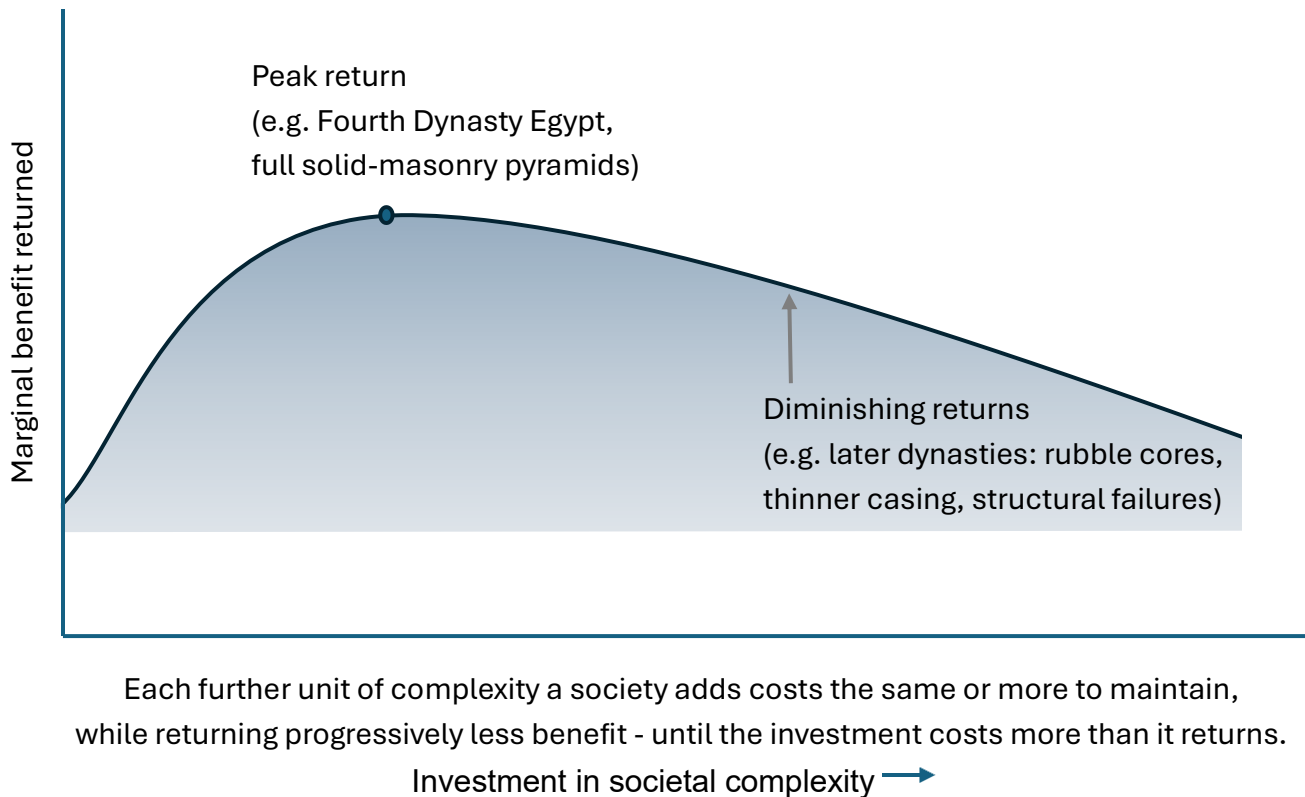
Beyond these individual sites, coordinated regional survey work is real and ongoing. SPLASHCOS (Submerged Prehistoric Archaeology and Landscapes of the Continental Shelf), a European Union-funded research network active from 2009 to 2013 and led by the archaeologist Geoff Bailey, brought together researchers from across Europe specifically to coordinate submerged prehistoric landscape research. It compiled the first systematic continent-wide database of known submerged prehistoric sites and identified priority areas for future survey. This kind of coordinated, funded, institutional research infrastructure is itself evidence that submerged prehistory is treated as a serious, mainstream archaeological priority, not a neglected fringe topic.

9.4 Civilisational Collapse: A Real Pattern and the Real Debate About It

Egyptian pyramid decline is not an isolated case, and widening the lens here to a real, established academic framework for societal collapse more broadly gives this book the chance to show what genuine comparative analysis looks like, and to name a specific overreach some material adjacent to this project's own drafting history has made from that same real framework.

Joseph Tainter's *The Collapse of Complex Societies* (1988) remains the standard reference in this field. Tainter's central argument is that societal complexity is a real, costly investment, administrative layers, specialised roles, infrastructure, military capacity, that societies adopt because it solves real problems, but that this investment is subject to diminishing marginal returns. Each additional unit of complexity yields less benefit than the last, while continuing to cost the same or more to maintain, until a society reaches a point where further problem-solving investment costs more than it returns. This is a real, well-cited, economically grounded theory, not a metaphor borrowed from physics or cognitive science.

Tainter's Diminishing Returns on Complexity (1988)



Each further unit of complexity a society adds costs the same or more to maintain, while returning progressively less benefit - until the investment costs more than it returns.

Figure 6. Tainter's real model of diminishing returns: each further unit of investment in societal complexity costs the same or more, while returning progressively less, the general shape behind every specific historical case this section discusses.

The historical cases this framework is tested against are real and independently well-documented. Old Kingdom Egypt's Fourth Dynasty pyramid-building peak gave way, across the Fifth and Sixth Dynasties, to smaller, cruder construction and eventual political fragmentation in the First Intermediate Period, coinciding with a documented Nile drought around 2200 BCE. The Akkadian Empire, the first documented multi-ethnic empire in Mesopotamia under Sargon, collapsed amid the 4.2-kiloyear event, a real, geologically dated aridification event significant enough that it now defines the boundary of the Meghalayan geological age, with widespread urban abandonment and a return to pastoralism in Mesopotamia's northern regions. The Indus Valley civilisation's sophisticated cities, Mohenjo-daro and Harappa, with urban sanitation systems

more advanced than contemporary Mesopotamia, underwent a slow, generations-long dispersal associated with documented shifts in monsoon patterns and river courses. The Late Bronze Age collapse around 1200 BCE brought down the interconnected Mycenaean palace economies within a few decades, taking Linear B literacy with it for roughly four centuries, the most complete case of technical and administrative knowledge loss in the archaeological record. The Classic Maya collapse involved a documented, multi-decade drought sequence, roughly 730 to 900 CE, coinciding with sequential city abandonment, widely cited as Tainter's own textbook case of diminishing returns. Each response to resource stress, more intensive agriculture, more warfare, more monument-building to shore up elite legitimacy, increased complexity costs while reducing the capacity to adapt further. The Western Roman Empire's long territorial and administrative contraction involved real, documented currency debasement, taxation burden, and military over-extension across centuries.

Tainter's framework itself is not beyond challenge, and that challenge is treated here as part of the honest picture rather than leaving Tainter's account as the final word. Guy Middleton's *Understanding Collapse: Ancient History and Modern Myths* (2017) offers a substantial, respected complication. Middleton argues that "collapse" narratives often overstate how total and sudden these transitions actually were, that transformation and regional continuity frequently coexisted with apparent collapse at the political centre, and that treating diminishing returns on complexity as one universal mechanism can obscure how genuinely different the specific causal mix was in each case, climate, trade-network fragility, military pressure, and internal political failure combined differently every time. Middleton's more cautious position is followed here: Tainter's framework is a real and useful lens, not a demonstrated single mechanism explaining every case identically.

This matters directly for material connected to this book's own drafting history. Earlier work adjacent to this project proposed that all such collapses share one identical underlying mechanism, described in the specific cognitive-architecture vocabulary ("ROM," "RAM," "collective field failure") developed in this trilogy's companion volume *Inner Horizon*, treating six independently caused historical collapses as expressions of one collective-cognition process. That claim is declined outright here, for the same reason comparable totalising claims have been declined throughout. It retrofits a specific, unproven psychological framework onto events that already have real, multi-causal, actively debated explanations (Tainter, and Middleton's complication of

Tainter), and the retrofit adds a vocabulary rather than any actual new explanatory content. The real, valuable insight, that societies investing further in complexity under stress can face genuinely diminishing returns, survives perfectly well in Tainter's own terms, and does not need, or benefit from, being redescribed as a claim about collective cognitive architecture that cannot be supported here.

Tainter's diminishing-returns framework (1988) and the six historical collapse cases it is tested against are real, well-documented, and independently explained by real climatic, economic, and administrative factors. Actively contested: how total, sudden, and single-mechanism these collapses actually were, per Middleton's 2017 complication of Tainter. Declined outright: the claim that all six collapses share one identical mechanism describable in this book's own cognitive-architecture vocabulary, a totalising retrofit not adopted here.

9.5 Real Archaeoastronomy, Offered Honestly

Two further sites deserve including here precisely because they don't need a trauma-archive narrative to be genuinely impressive. Nabta Playa, in Egypt's Nubian desert, includes a megalithic stone circle and associated alignments dated to roughly 4500 to 6000 BCE, studied extensively by J. McKim Malville and colleagues, whose 1998 analysis in *Nature* proposed specific solstice alignments in the stone circle's gates and separate megalith alignments toward bright stars including Sirius and stars in Orion's Belt around the same period, a real, peer-reviewed case of early astronomical observation encoded in monumental construction. It is worth adding, in the same spirit of honest calibration applied throughout, that archaeoastronomical alignment claims of this kind are subject to a real, well-known methodological caution within the field itself. With enough candidate stars and enough possible alignments to check, some apparent match will often be found by chance unless a study applies real statistical rigour to rule out coincidence, a point argued at length by the archaeoastronomer Clive Ruggles in his broader methodological writing on the discipline. The Nabta Playa alignments are treated here as a genuine, published, peer-reviewed proposal, not as a settled fact immune from the same kind of scrutiny applied to every other specific claim about ancient monuments in this book.

Stonehenge, in England, is even later, its major stone phases dated to roughly 2500 BCE, but is one of the best-attested cases of deliberate solstice alignment in the archaeological record, its Heel Stone axis aligning with summer solstice sunrise and winter solstice sunset, independent of any coastal-civilisation narrative. More recent archaeology has added real, substantive context beyond the alignment itself. Mike Parker Pearson's Stonehenge Riverside Project, a major, sustained excavation programme, documented seasonal pig-slaughter patterns at the nearby Durrington Walls settlement consistent with large midwinter gatherings, leading Parker Pearson's team to propose that Stonehenge functioned as part of a broader ceremonial landscape tied to ancestor commemoration and seasonal assembly, not merely as a solitary astronomical instrument. This is exactly the kind of picture that gets richer, not weaker, the more real archaeology is applied to it.

Both sites are offered here as exactly the kind of genuine ancient proto-science this book wants to take seriously: real people, working with the observational tools and conceptual vocabulary available to them, encoding careful, repeated astronomical observation into durable monumental form. Neither needs to be a memory vault for a drowned civilisation to matter.

Monumental construction requiring real organisational and observational sophistication predates agriculture at Göbekli Tepe, and real, independently attested combinatorial mathematics and archaeoastronomy exist across multiple ancient traditions in their own right. Civilisational collapse is a real, comparatively studied phenomenon with a genuine academic framework (Tainter) and a genuine complicating critique (Middleton), and does not require, or benefit from, redescription in this book's own unproven cognitive vocabulary. None of this chapter's material requires, and much of it chronologically cannot support, the specific trauma-driven memory-vault narrative the source material built around it. The next chapter surveys flood traditions worldwide, applying the same distinction this chapter has drawn between genuine comparative pattern and this book's own narrative overlay.

PART FOUR

The Cognitive Architecture Beneath the Myth *Reactive and Adaptive Cognition in the Traditions*

(Chapters Fifteen–Nineteen)

CHAPTER FIFTEEN

Adaptive and Reactive Cognition

What the Evidence Actually Supports

This chapter has been promised, and deferred, since Chapter Three. Several earlier chapters used "adaptive cognition" and "reactive cognition" as working terms while explicitly withholding the deeper claim behind them for treatment here. That deeper claim, as the source material presented it, was essentially historical and near-total: early coastal humans lived largely free of anxiety, depression, and cognitive fragmentation, and reactive cognition was substantially a product of civilisation. What follows states plainly why that historical claim cannot be supported, and offers, in its place, a narrower and better-evidenced psychological distinction usable for the remaining chapters.

15.1 Why the Historical Claim Cannot Be Tested, Let Alone Confirmed

No direct psychiatric or psychological data exists for any Pleistocene population, coastal or otherwise. There is no comparable living population of undisturbed Ice-Age foragers to study, and every historically documented hunter-gatherer society used as a comparison has itself been shaped by centuries of contact, displacement, disease, and, in many cases, direct historical trauma from colonisation, all of which confound any claim about a hypothetical undisturbed baseline. This is not a minor caveat. It means the source material's claim is not merely unsupported but, in its strongest form, close to unfalsifiable, and this book does not adopt it.

The confounding effect of colonisation specifically should be stated as a documented finding rather than a general caveat, since it is real, substantial, and directly relevant to why no "undisturbed baseline" population is actually available for comparison. Research on historical trauma among colonised Indigenous populations, a real, active field within psychology and psychiatry, associated with researchers including Maria Yellow Horse Brave Heart in the North American context, documents measurable, elevated rates of depression, substance dependence, and post-traumatic stress in populations with a documented history of forced displacement, cultural suppression, and intergenerational disruption, effects that can be transmitted across generations

through documented social and, in some research, epigenetic pathways. This means that any modern hunter-gatherer or small-scale society used as a comparison for a hypothetical undisturbed Pleistocene population is, in the overwhelming majority of real, documented cases, already carrying the measurable psychological signature of exactly this kind of disruption, making the comparison considerably less clean than the source material's confident claim assumed, and reinforcing why this book treats the question as untestable rather than as answerable in either direction.

15.2 What Cross-Cultural and Anthropological Research Actually Shows

Where real data exists, it complicates rather than confirms a "civilisation causes mental illness" narrative. The anthropologist Melvin Konner's extensive comparative work on hunter-gatherer societies and human development, synthesised across decades of fieldwork and cross-cultural review, beginning with his own doctoral fieldwork among the Ju/'hoansi (!Kung) San of the Kalahari, documents real interpersonal conflict, jealousy, grief, and, in several well-studied societies, real and sometimes high rates of interpersonal violence, alongside the genuinely distinctive features of small-group foraging life. The specific duality in Konner's own San research is worth saying concretely rather than leaving general. He documented extraordinarily high levels of physical contact and continuous carrying in San infant care, a genuinely distinctive attachment-relevant feature of that society's child-rearing, in the same body of research that also documents real, sometimes serious, interpersonal and intergroup conflict among adults in the same population. Both findings come from the same careful fieldwork. Neither cancels the other, and holding both together, genuine distinctive strengths alongside genuine distinctive difficulties, is closer to what the evidence actually supports than either a romanticised or a dismissive reading of foraging-society psychology. The honest picture from this research is not that foraging societies are free of psychological distress, but that the shape and expression of that distress differs from industrial societies in specific, documented ways, a considerably more modest and more interesting claim than blanket immunity from anxiety or depression.

Cross-cultural and anthropological research on hunter-gatherer societies (Konner and others) documents real conflict, grief, and distress alongside genuinely distinc-

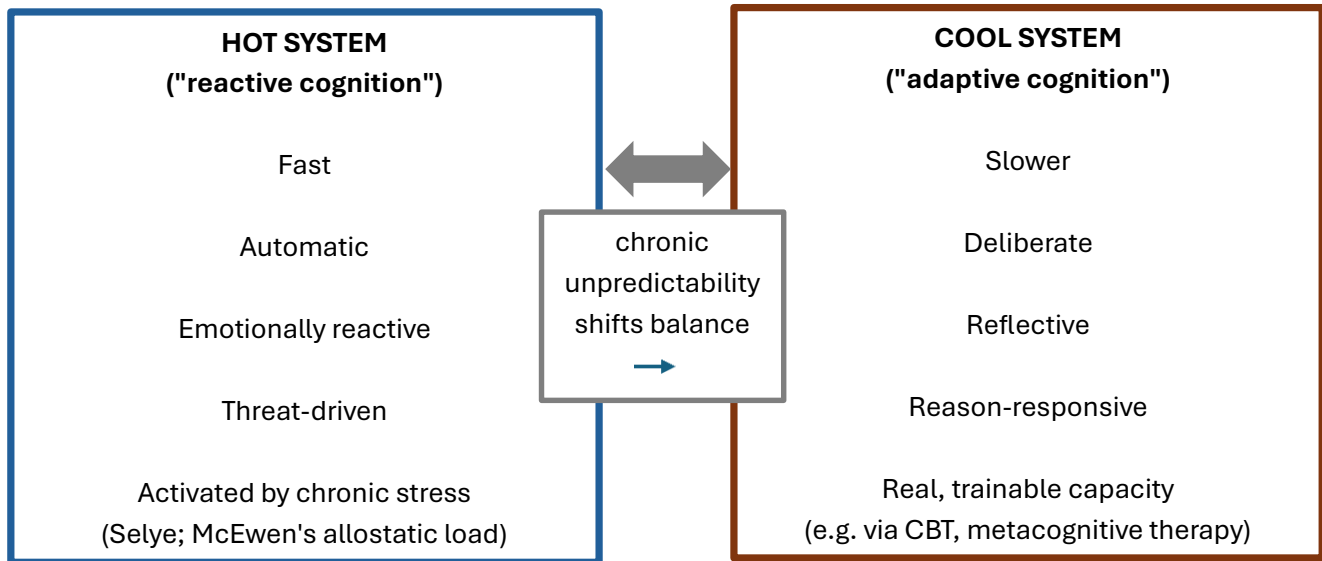
tive social structures; in Konner's own San fieldwork, both intensive infant-care attachment practices and real adult interpersonal conflict appear in the same population, established fact, correcting the source material's stronger claim. It does not support a claim of general immunity to psychological distress in any human population, past or present.

15.3 A Real Distinction This Book Can Actually Use

What does have strong, direct evidentiary support is a distinction in kind, not in historical population: the difference between threat-driven, physiologically activated processing and calmer, more reflective processing, present in every human nervous system regardless of era or environment. Hans Selye's foundational work on the General Adaptation Syndrome (1936 onward) and Bruce McEwen's later, more refined allostatic load framework together document, in extensive and replicated detail, how chronic or repeated activation of stress physiology produces measurable impairment in exactly the domains the source material attributes to "reactive cognition." McEwen's own research programme specified concrete, measurable physiological markers of this cumulative wear, rather than leaving "stress" as a vague catch-all. Chronically elevated cortisol, measurable reductions in hippocampal volume associated with impaired memory consolidation, and elevated resting blood pressure are among the specific, replicated markers of high allostatic load documented across human and animal studies. Separately, the psychologists Janet Metcalfe and Walter Mischel's "hot/cool systems" framework (1999) offers a well-supported cognitive model of exactly this distinction: a fast, emotionally reactive ("hot") system versus a slower, more deliberative ("cool") system, with chronic stress and threat reliably shifting behaviour toward the hot system's dominance.

Hot/Cool Systems - Metcalfe and Mischel (1999)

This book's "reactive" and "adaptive" cognition, grounded in real, replicated psychology



Present in every human nervous system, in every era - not a trait unique to any one historical population.

Figure 7. Metcalfe and Mischel's real dual-process model, which this book adopts as "reactive" and "adaptive" cognition, a distinction in kind, present in every human nervous system, not a trait unique to any one historical population.

This book adopts "reactive cognition" and "adaptive cognition" going forward for, respectively, hot-system-dominant and cool-system-dominant processing, real, well-evidenced modes present in every human being, activated and suppressed by real, measurable physiological and environmental factors, not as a label for a historical population or a lost golden-age trait. These are not terms this book coined. Both names, and the general direction of the distinction, come directly from this trilogy's second volume, *Inner Horizon*, which develops them as adjacent bands on its own "Ladder" model, Reactive Cognition as the band where cognitive noise dominates and recursive stability collapses, Adaptive Cognition as the stable, low-noise foundation the next band builds on. This book borrows the names and the direction deliberately, and grounds them here in independent, external, peer-reviewed research (Selye, McEwen, Metcalfe and Mischel) rather than in *Inner Horizon*'s own internal architecture, a second, separate evidentiary foundation for the same basic distinction, not a restatement of the first. Chronic ecological instability, social conflict, or unpredictability would plausibly shift a population toward more frequent hot-system activation on average,

a defensible, general extension of the McEwen and Selye research, but that is a claim about statistical tendency under stress, not a claim that any specific ancient population lived permanently in one state or the other.
