SCIEPublish

Perspective

Randomization, Ritual, and Cultural Evolution: Revisiting Omar Khayyam Moore's "Divination: A New Perspective"

Ze Hong *

Department of Sociology, University of Macau, Macau 999078, China

* Corresponding author. E-mail: zehong@um.edu.mo (Z.H.)

Received: 14 November 2025; Revised: 2 December 2025; Accepted: 5 December 2025; Available online: 12 December 2025

ABSTRACT: In 1957, Omar Khayyam Moore proposed a novel hypothesis that Naskapi divination (scapulimancy) functioned as a randomization device to improve hunting success. This paper traces the intellectual history of Moore's argument, reviewing both the initial support it received and the significant critiques that have rendered its original formulation empirically and theoretically untenable. While Moore's specific claims about caribou hunting and group-level benefits are likely flawed, I argue that the enduring value of his work lies in the profound question it raised: how can functionally adaptive cultural practices emerge without conscious design? By re-examining Moore's hypothesis through the lens of contemporary cultural evolutionary theory, in this paper, I show how his core insight has been revitalized. Modern frameworks, particularly those developed by Joseph Henrich, provide a robust mechanism—biased social learning—to explain the evolution of "design without a designer". This perspective demonstrates that causally opaque and seemingly irrational practices can be culturally transmitted and refined because they generate adaptive outcomes, an insight that has inspired and been supported by a wave of recent psychological, experimental, and historical research. Ultimately, Moore's contribution is reframed not as a failed functionalist explanation, but as a prescient, foundational query that anticipated a central research program in the modern study of human behavior and culture.

Keywords: Ritual; Divination; Cultural evolution; Cognition

1. Introduction

In 1957, Omar Khayyam Moore, a Yale sociologist writing at a time when sociology and anthropology still shared many research concerns and when anthropologists were deeply interested in the logical structure of culturally organized behavior [1], published a short but ambitious paper in *American Anthropologist* entitled "Divination: A New Perspective" [2]. Trained in problem-solving research [3], Moore advanced a hypothesis that departed sharply from the prevailing view. At the time, most scientific analyses of ritual assumed that magical practices were ineffective in achieving their manifest goals and persisted instead because of their "positive latent functions", such as promoting social cohesion or group stability [4]. Moore acknowledged the plausibility of this framework but argued that it overlooked another possibility: some rituals might be directly efficacious in achieving the ends envisioned by their practitioners. Examining scapulimancy among the Naskapi hunters of Labrador, he proposed that divination could plausibly enhance hunting outcomes by introducing randomness into decision-making, thereby discouraging hunters from repeatedly exploiting the same locations and distributing hunting pressure more evenly across the landscape.

Moore's proposal generated considerable controversy at the time, though it was largely ignored in subsequent decades, as the post-modern turn in anthropology brought growing resistance to materialist and evolutionary approaches [5]. Only with the rise of cultural evolutionary theory in the 1980s and 1990s, led by [6,7], and more recently [8], has Moore's insight found a framework that highlights its continuing relevance.

In the present paper, I have two related aims. The first is to synthesize existing responses to Moore's argument and situate them in their intellectual context. The second is to reassess the significance of his analysis in light of contemporary cultural evolutionary theory, showing how it anticipated later discussions on the adaptive logic of cultural practices that otherwise appear puzzling. I should make it clear that I believe Moore's argument, as he originally

https://doi.org/10.70322/natanthropol.2025.10022

formulated it, is probably wrong, although some of the criticisms it received were overstated. More importantly, I argue that the enduring contribution of Moore's paper lies in its illustration of a productive way to make sense of seemingly inefficient or ineffective human actions. By situating Moore's interpretation alongside subsequent theoretical developments, I will show how his work, though flawed in some of its specifics, points to a more general insight: that cultural practices may persist because they provide adaptive solutions in ways that may be opaque to practitioners themselves. In the sections that follow, I examine Moore's argument in detail, review the responses it generated within anthropology and beyond, and consider how it fruitfully contributed to contemporary cultural evolutionary theory.

2. Moore's Hypothesis: Scapulimancy as Randomization

Moore's central claim was that some magical practices might be "directly efficacious as techniques for attaining the ends envisaged by their practitioners". His primary example was scapulimancy among the Naskapi hunters of Labrador, described in detail by [9]. In this practice, cracks produced on heated caribou shoulder blades were interpreted to determine where hunters should search for game. Because hunters could not control the formation of the cracks, scapulimancy disrupted the habitual tendency to return to locations of prior success. Moore reasoned that this unpredictability had two principal advantages: First, it reduced sustained pressure on particular bands of caribou, making the animals less likely to alter their behavior in response to human predation. Second, by distributing hunting efforts more widely and less predictably across the landscape, it lowered the risk of local depletion, thereby enhancing long-term ecological success. As he put it,

> …if shoulder-blade augury has any worth as a viable part of the life-sustaining hunt, then it is because it is in essence a very crude way of randomizing human behavior under conditions where avoiding fixed patterns of activity may be an advantage. ([2], p. 72)

For Moore, scapulimancy thus functioned as a crude randomization device. He emphasized that humans are poor at generating genuinely random sequences without external aids, citing [10], and that rituals like scapulimancy could culturally institutionalize unpredictability in decision-making. Moore acknowledged that providing an empirical test for his hypothesis would be difficult, but he argued that this difficulty meant it remained, in his words, "an open question" rather than one to be dismissed outright—a point worth noting given that some later critics would contend that his hypothesis was unfalsifiable [11]. Moore further noted that similar divinatory practices appeared in many cultures, from Azande poison oracles to early Chinese scapula cracking, suggesting a broader pattern in which rituals that appeared irrational might in fact play a role in guiding adaptive behavior under conditions of uncertainty.

3. Early Responses to Moore (1957)

Early reactions to Moore's article were mixed. On the one hand, scholars in materialist and ecological anthropology frequently cited his work as evidence that cultural practices could serve adaptive functions [12–15]. Moore's analysis was also taken up in broader theoretical discussions: [16], for example, used it to illustrate how seemingly irrational practices might "carry" scientific or practical knowledge, even if such adaptive wisdom was rarely explicit in the beliefs that accompanied them. Moore's case has even appeared in game theory textbooks, such as [17], as an early example of a "mixed strategy" being played out in the wild. Much of this literature cited Moore approvingly without probing deeply into the plausibility of his argument. As ref. [18] complained, Moore's hypothesis "seems to have been not only uncritically accepted, but widely cited as an example of a ritual that directly aids its practitioners in coping with the physical environment" ([18], p. 95).

On the other hand, Moore's argument has also faced significant criticism. Scholars have raised doubts about three key issues: (1) whether scapulimancy could in fact produce the degree of randomness Moore envisioned; (2) whether his hypothesis could serve as a general explanation for ritual practices, particularly divination; and (3) whether it could yield the adaptive benefits he proposed. I discuss these criticisms in turn.

The first common criticism is that Moore's analysis, based almost entirely on [9] ethnography, overestimated the objectivity of scapulimancy. Both refs. [11,18] argued that the outcomes were not truly random, since the diviner's interpretations allowed for considerable flexibility. Although hunters could not control the physical formation of the cracks, diviners retained interpretive discretion in assigning meaning to them. To me, this criticism seems overstated. There appears to be little incentive for diviners to manipulate their readings of hunting directions; when hunters did possess practical knowledge about the likely location of game, they would presumably act on it rather than rely solely on divinatory signs [19].

The second criticism concerns the scope of Moore's hypothesis as a general explanation for ritual, and especially for divination. Ref. [20] noted that divination often thrived precisely in the absence of objectively verifiable procedures, as in cases of inspired divination. Ref. [21] argued that it is implausible for a phenomenon as widespread as scapulimancy to be explained as a response to a single set of ecological conditions. Elsewhere, ref. [22] suggested that scapulimancy should be understood less as an adaptive strategy and more as a means of engaging with spiritually significant events. On this view, the rite served to bridge the phenomenological and ideological worlds: it was performed when a spiritually important hunt was about to occur, reaffirming the hunter's relationship with the spiritual realm. This is a valid point, but to be fair to Moore (1957) [2], he took care not to overstate his claims. Moore consistently qualified his language and explicitly noted that his argument was "compatible with the viewpoint that numerous latent functions may sustain magical rituals. However, it conceivably could serve as a prophylaxis against the overelaboration of these functions; in any case, it could serve as a supplementary explanation of the phenomena" (Moore 1957, p. 69) [2]. In other words, Moore never advanced a universal claim and readily acknowledged that his hypothesis could stand alongside, rather than replace, alternative explanations.

The third criticism strikes me as the most serious, and the main reason I believe Moore's original argument is ultimately flawed. This is the criticism that scapulimancy, even if functioning as a randomization device, did not have the ecological effects Moore envisioned. From the standpoint of individual hunting success, the regularity of caribou feeding habits offered hunters exploitable patterns, making random choices suboptimal for maximizing returns [11]. As such, game theory does not work for human-caribou interaction because caribou lack the capacity for anticipatory response and "will take minimal or no evasive action, no matter what regularities hunters may display in their hunting activities" (Ref. [18] suggested that a better explanation for the use of scapulimancy is that it absolves the leader from responsibility in case the hunt should fail; in other words, "the leader has much to gain if the hunt succeeds and nothing to lose in the event of failure") (Slaughter 1981, p. 196) [18]. From a group-level conservation perspective, scapulimancy was not practiced frequently but rather invoked in times of "extreme uncertainty" when caribou were scarce [19], making it unlikely to have had a significant long-term ecological impact. Ethnographic evidence further indicates that a meager caribou population was often not a signal for restraint but instead a trigger for intensified hunting efforts. Since divination is admittedly associated with periods of scarcity, its use correlates more with overhunting than with conservation [23,24]. Viewed from a broader evolutionary perspective, ref. [25] (p. 184) described Moore's interpretation as "an interesting speculation" but ultimately "suspect from several angles, most conclusively by the fact that hunting failure often meant death, and it is doubtful that in this environment randomizing hunting practices are culturally viable". Later empirical evidence supports this skepticism: for example, ref. [26] found that hunters typically did not refrain from pursuing opportunistically encountered prey in already depleted areas.

The credibility of this line of criticism lies in the fact that many of Moore's critics grounded their arguments in primary ethnographic evidence and in the literature on caribou ethology. Ref. [18], for example, cited field biologist [27] report, which suggested that caribou often ranged near settlements for protracted periods of time despite the fact that they were subject to extraordinarily intensive hunting pressures. By contrast, Moore's case relied entirely on [9] description and was largely speculative. While it is true that evolutionary game dynamics can generate sophisticated mixed strategies [28], this must be empirically demonstrated rather than assumed. Moreover, Moore's analysis appears to conflate individual-level success with group-level benefits, despite the inherent tradeoff between maximizing short-term returns for individual hunters and ensuring long-term sustainability for the group. As ref. [11] observed, the two functions Moore proposed seem, in fact, contradictory. This conflation is understandable given the intellectual context in which Moore was writing, when evolutionary explanations were often framed in terms of species-level advantage [29]. Only with [30] seminal work on kin selection, followed by George Williams's *Adaptation and Natural Selection*, did evolutionary thinking shift decisively from species- and group-level adaptationist reasoning toward individual- and gene-level processes.

In light of these powerful critiques, Moore's hypothesis, as he originally formulated it, appears difficult to defend. It rests on questionable ecological assumptions and a model of group-level adaptation that has since been largely abandoned. And yet, to dismiss the paper as merely a flawed functionalist speculation would be to overlook its most significant contribution. Moore's central insight—that cultural practices can generate sophisticated, adaptive solutions to recurring problems without conscious understanding from their practitioners would become a central question for the new science of cultural evolution that followed.

4. Design without a Designer: Divination-as-Randomization and Adaptive Cultural Evolution

In retrospect, Moore's hypothesis anticipated later developments in fields like materialistic anthropological [31–33], optimal foraging theory [34], and evolutionary game theory [35]—a field Moore himself gestured toward with his explicit mention of [36]. Yet, as materialist approaches in anthropology declined in prominence during the 1980s and 1990s, Moore's hypothesis was sidelined mainly by mainstream socio-cultural anthropology. It was subsequently taken up by a new generation of scholars interested in applying evolutionary principles to culture, who recognized its pioneering insight [37–39].

Perhaps the most influential discussion of Moore's example appears in Joseph Henrich's *The Secret of Our Success* (2016) [8], where he cites Moore (1957) [2] and suggests that Naskapi divination rituals "may have provided a crude randomizing device that helped hunters avoid their own decision-making biases" (p. 133). Unlike earlier treatments, Henrich situates the Naskapi case within a much broader theoretical framework concerning the evolution of adaptive culture and the reciprocal shaping of human psychology and cumulative cultural products. Readers of Moore's original paper may be left wondering how such an ingenious solution could have emerged, given that Moore only speculated vaguely that "through a long process of creative trial and error, some societies have arrived at some approximate solutions for recurring problems" (Moore 1957, p. 73) [2]. In contrast, Henrich offers a fully developed cultural evolutionary account: practices like divination may have initially emerged by random events or innovation, but as they lead to greater hunting success for their practitioners, whom others would selectively imitate due to powerful transmission biases, such as a tendency to copy successful or prestigious individuals.

This cultural evolutionary account leads to a further, crucial insight that directly addresses the nature of culturally transmitted beliefs and practices. The Naskapi case is just one of many examples Henrich uses to advance the broader thesis that culturally transmitted repertoires are often adaptive in ways that are opaque to their practitioners—that our cultures are, in his words, often "MUCH smarter than us" (emphasis original). A key part of this argument is that many such practices are causally opaque, and their persistence may even depend on a lack of understanding or factually incorrect beliefs. As Henrich explains:

> …not only do people often not understand what their cultural practices are doing, but sometimes it may even be important that they don't understand what their practices are doing or how they work. If people came to understand that bird augury or bone divination didn't actually predict the future, the practice would probably be dropped or people would increasingly ignore ritual findings in favor of their own intuitions ([8], p. 134).

This perspective thus resolves the tension between a practice's manifest irrationality and its latent adaptive function. The very beliefs that seem scientifically wrong (e.g., that a shoulder blade can predict the future) are precisely what motivate adherence to behaviors that may nonetheless deliver adaptive benefits. This has inspired subsequent theoretical [40] and experimental work [41], suggesting that causal understanding is often unnecessary for the cultural transmission or cumulative improvement of complex practices.

The widespread influence of Henrich's book, cited over 3000 times as of 2025 according to Google Scholar, reflects the growing prominence of cultural evolutionary approaches and has reinvigorated scholarly interest in the adaptive functions of cultural practices. A growing body of empirical research now investigates how practices such as food taboos [42], rituals [43], collective religious ceremonies [44], and even superstitious behaviors [45] may serve adaptive functions in specific ecological and social contexts. On the psychological front, experimental studies have shown that humans are especially prone to faithfully copying seemingly irrelevant or arbitrary actions when learning from others—a phenomenon known as "over-imitation" [46]. This tendency is particularly pronounced in ritual contexts, suggesting a deep-seated psychological readiness to acquire and perform socially sanctioned conventions [47].

Building on this foundation, a further line of inquiry applies these cultural evolutionary principles to historical cases where apparent design seems to exceed the explicit understanding of its creators. A recent analysis of games of chance in premodern China offers one such application [48]. This work explores how the odds in these games might have developed a consistent, moderate house advantage long before the dissemination of probability theory. The paper argues that rather than being the product of conscious calculation, these "designed" odds could have emerged from an evolutionary process within a competitive market, where the practices of more profitable gambling houses were likely to be imitated. Such a process of variation and selective retention offers a plausible mechanism for how adaptively structured odds could arise without requiring explicit probabilistic understanding. This historical case study, therefore, provides a relevant example of Henrich's thesis, suggesting how functionally effective systems (in this case, monetary profit) might emerge from social learning while remaining causally opaque to the individuals involved.

Taken together, these diverse lines of research—from psychological studies of imitation to historical analyses of economic behavior—point toward a shared insight. In many cases, functionally adaptive systems, whether aimed at diversifying hunting strategies or promoting long-term profitability, seem to emerge not through deliberate design or explicit causal reasoning, but through the gradual accumulation of behaviors shaped by selective social learning. This process exemplifies what has been described as "design without a designer", offering a plausible mechanism for the kind of "creative trial and error" that Moore originally proposed. Rather than requiring foresight or centralized planning, such outcomes can arise as culture itself evolves, generating adaptive solutions that may exceed the understanding of the individuals who participate in them.

5. What Now? Foresight, Functionalism, and the Mechanisms of Cultural Evolution

The reconsideration of Moore's hypothesis raises a broader issue that continues to animate debates in cultural evolution: to what extent do cultural practices arise through foresight and intentional design, as opposed to being the by-products of selective retention in cumulative cultural processes? Modern cultural evolutionary theory is often characterized by its emphasis on the latter. Models of biased social learning, for example, suggest that adaptive repertoires can accumulate even when individuals lack causal understanding of their practices, because prestige bias, conformity, and payoff-based imitation reliably spread behaviors that appear to succeed [7,8,49]. On this account, Moore's "design without a designer" insight captures the essence of cultural evolution: adaptive practices need not have been deliberately invented to be effective.

At the same time, humans obviously possess substantive foresight in reasoning and decision-making. We are capable of prospective reasoning, institutional design, and conscious planning [50], and some scholars argue that these capacities play a crucial role in cultural change [51]. Niche construction theory [52], rational-choice models of institutional design [53], and work in cognitive science [54] all highlight contexts in which intentional reasoning contributes to cumulative improvements. Even within cultural evolution, there is recognition that foresight and functionalist reasoning may accelerate or guide processes that otherwise appear blind. For instance, technological innovations often reflect a combination of subjective judgments about efficacy and the downstream filtering of practices through social transmission [55,56].

What emerges, then, is not a clean dichotomy between foresight and emergence, but a complex interplay. Practices may originate in intentional attempts to solve problems, but their persistence and refinement often depend on evolutionary dynamics that exceed any individual's understanding. Conversely, traditions that emerge through cumulative cultural processes may later be rationalized and systematized by actors who reinterpret them through functionalist or even scientific frameworks—for instance, contemporary research in traditional Chinese medicine frequently attempts to demonstrate that transmitted wisdom has a biomedical basis [57]. The relationship is recursive: foresight feeds into evolutionary dynamics, which in turn shape the raw materials available for further foresight.

This debate has unfolded in discernible "academic cycles". Mid-twentieth-century functionalism emphasized the adaptive contributions of cultural practices, often attributing to societies a kind of collective rationality [4,15]. The post-modern and interpretive turn pushed back, rejecting functionalist reasoning in favor of symbolic and phenomenological interpretations [5,58]. With the rise of cultural evolution, functionalist arguments re-entered anthropology but under a new banner: adaptation explained by selection-like processes rather than conscious design [7,8]. Today, however, there is a growing body of work that takes intentionality and instrumental reasoning seriously within cultural evolution [55,56,59]. In a sense, the trajectory of these debates resembles a pendulum, with prevailing paradigms giving way to their former critiques. As mainstream consensus shifts, minority positions are often framed as challenges to orthodoxy. Yet once these challenges gain traction and become dominant, the previously marginalized view becomes the new orthodoxy, prompting a renewed counter-movement. The cycle thus reflects not only empirical disagreements but also shifting intellectual fashions and the rhetorical positioning of scholars in relation to the prevailing paradigm.

From the vantage point of Moore's original question, this oscillation underscores the enduring difficulty of specifying the mechanisms by which culture adapts. Importantly, while foresight and cumulative evolution clearly coexist, it is often difficult to pinpoint the relative contribution of each in the case of particular cultural practices. Recent theoretical proposals, such as the "bifocal stance theory" [60], suggest that humans may flexibly toggle between instrumental and ritualistic orientations, depending on context, which complicates any simple partition between foresight and emergence. The task for contemporary research is not merely to acknowledge this duality but to explain how and when each process dominates. Rather than treating foresight and cultural evolution as parallel explanatory options, we must develop models that specify their interaction and relative weight across domains. Moore's 1957 [2]

hypothesis, therefore, remains relevant not just for the tension it exposed but because it points to a central theoretical imperative: the future of cultural evolution as a field depends on clarifying how purposeful reasoning and emergent evolutionary dynamics combine to produce the cultural forms we observe.

6. Conclusions

The intellectual journey of Moore's 1957 [2] hypothesis highlights how scientific ideas depend on the development of surrounding theory. His proposal linking an irrational ritual to an adaptive outcome was prescient, yet it remained a curiosity until cultural evolutionary theory could explain the mechanism of "design without a designer". This modern framework supplied the missing logic, showing how beneficial practices can be culturally transmitted even when their purpose is opaque to individuals. Assessed from this perspective, Moore's primary contribution was not the specific answer he offered, but the generative question he posed. He pioneered a functional approach to culture that prefigured a research program whose insights continue to expand today.

Statement of the Use of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this manuscript, the author used Gemini 2.5pro to improve readability and language. After using this tool/service, the author reviewed and edited the content as needed and take full responsibility for the content of the published article.

Ethics Statement

Not applicable.

Informed Consent Statement

Not applicable.

Data Availability Statement

Not applicable.

Funding

This research received no external funding.

Declaration of Competing Interest

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

References

1. Wallace AFC. Culture and Cognition: Cultural anthropologists are now investigating the logical structure of culturally organized behavior. *Science* **1962**, *135*, 351–357. doi:10.1126/science.135.3501.351.
2. Moore OK. Divination—A New Perspective. *Am. Anthropol.* **1957**, *59*, 69–74. doi:10.1525/aa.1957.59.1.02a00060.
3. Johnson DK. The O. K. Moore typewriter procedure. *Lit. Res. Instr.* **1966**, *5*, 87–91. doi:10.1080/19388076609556927.
4. Radcliffe-Brown AR. *Structure and Function*; Cohen and West: London, UK, 1952.
5. Gardner K, Lewis D. *Anthropology, Development and the Post-Modern Challenge*; Pluto Press: London, UK, 1996.
6. Cavalli-Sforza LL, Feldman MW. *Cultural Transmission and Evolution: A Quantitative Approach*; Princeton University Press: Princeton, NJ, USA, 1981.
7. Boyd R, Richerson PJ. *Culture and the Evolutionary Process*; University of Chicago Press: Chicago, IL, USA, 1985.
8. Henrich J. *The Secret of Our Success: How Culture Is Driving Human Evolution, Domesticating Our Species, and Making Us Smarter*; Princeton University Press: Princeton, NJ, USA, 2016.
9. Speck FG. *Naskapi: The Savage Hunters of the Labrador Peninsula*; University of Oklahoma Press: Norman, OK, USA, 1935.
10. Yule G, Kendall MG. *An Introduction to the Theory of Statistics*; Charles Griffin & Co., Ltd.: New York, NY, USA, 1948.
11. Vollweiler LG, Sanchez AB. Divination: "Adaptive" from Whose Perspective? *Ethnology* **1983**, *22*, 193–209. doi:10.2307/3773462.
12. Margolis M. Historical perspectives on frontier agriculture as an adaptive strategy. *Am. Ethnol.* **1977**, *4*, 42–64.

doi:10.1525/ae.1977.4.1.02a00030.
13. Slobodkin L. The peculiar evolutionary strategy of man. In *Epistemology, Methodology, and the Social Sciences*; Springer: Dordrecht, The Netherlands, 1978; pp. 227–248.
14. Ridington R. Technology, world view, and adaptive strategy in a northern hunting society. *Can. Rev. Sociol./Rev. Can. De Sociol.* **2008**, *19*, 469–481. doi:10.1111/j.1755-618X.1982.tb00875.x.
15. Harris M. *Culture, Man, and Nature: An Introduction to General Anthropology*; Thomas Y. Crowell: New York, NY, USA, 1971.
16. Campbell DT. A tribal model of the social system vehicle carrying scientific knowledge. *Knowledge* **1979**, *1*, 181–201. doi:10.1177/107554707900100202.
17. Straffin PD. *Game Theory and Strategy*; Mathematical Association of America: Washington, DC, USA, 1993; Volume 36.
18. Slaughter DC. The shoulder-blade path revisited: A belated response to Omar Khayyam Moore. *Arct. Anthropol.* **1981**, *18*, 95–103.
19. Henriksen G. *Hunters in the Barrens: The Naskapi on the Edge of the White Man's World*; Berghahn Books: New York, NY, USA, 1973.
20. Park GK. Divination and its social contexts. *J. R. Anthropol. Inst. Great Br. Irel.* **1963**, *93*, 195–209. doi:10.2307/2844242.
21. Tanner A. *Bringing Home Animals*; Saint Martin's Press: New York, NY, USA, 1979.
22. Tanner A. Divination and Decisions: Multiple Explanations for Algonkian Scapulimancy. In *Yearbook of Symbolic Anthropology*; Schwimmer E, Ed.; C. Hurst and Co.: London, UK, 1978; pp. 59–101.
23. Burch ES, Jr. The caribou/wild reindeer as a human resource. *Am. Antiq.* **1972**, *37*, 339–368. doi:10.2307/278435.
24. Lent P. The Caribou of Northwestern Alaska. In *Environment of the Cape Thompson Region, Alaska*; Wilimovsky N, Wolfe JN, Eds.; United States Atomic Energy Commission, Division of Technical Information: Oak Ridge, TN, USA, 1966; pp. 481–517.
25. Fitzhugh WW. *Environmental Archeology and Cultural Systems in Hamilton Inlet, Labrador: A Survey of the Central Labrador Coast from 3000 B.C. to the Present*; Smithsonian Institution Press: Washington, DC, USA, 1972.
26. Alvard MS. Conservation by native peoples: Prey choice in a depleted habitat. *Hum. Nat.* **1994**, *5*, 127–154. doi:10.1007/BF02692158.
27. Kelsall JP. *The Caribou*; Canadian Wildlife Service: Sackville, NB, Canada, 1968.
28. Maynard Smith J. Evolution and the Theory of Games. In *Did Darwin Get It Right? Essays on Games, Sex and Evolution*; Springer: Boston, MA, USA, 1982; pp. 202–215.
29. Wynne-Edwards VC. *Animal Dispersion in Relation to Social Behaviour*; Hafner Publishing Company: New York, NY, USA, 1962.
30. Hamilton WD. The genetical evolution of social behaviour. II. *J. Theor. Biol.* **1964**, *7*, 17–52. doi:10.1016/0022-5193(64)90039-6.
31. Vayda AP. On the Anthropological Study of Economies. *J. Econ. Issues* **2016**, *1*, 86–90. doi:10.1080/00213624.1967.11502741.
32. Rappaport RA. *Pigs for the Ancestors: Ritual in the Ecology of a New Guinea People*; Yale University Press: New Haven, CT, USA, 1968.
33. Harris M, Bose NK, Klass M, Mencher JP, Oberg K, Opler MK, et al. The Cultural Ecology of India's Sacred Cattle. *Curr. Anthropol.* **1966**, *7*, 51–66. doi:10.1086/200662.
34. MacArthur RH, Pianka ER. On optimal use of a patchy environment. *Am. Nat.* **1966**, *100*, 603–609. doi:10.1086/282454.
35. Maynard Smith J, Price GR. The logic of animal conflict. *Nature* **1973**, *246*, 15–18. doi:10.1038/246015a0.
36. von Neumann J, Morgenstein O. *Theory of Games and Economic Behavior*; Princeton University Press: Princeton, NJ, USA, 1947.
37. Carneiro RL. The role of natural selection in the evolution of culture. *Cult. Dyn.* **1992**, *5*, 113–140. doi:10.1177/092137409200500201.
38. Steadman LB, Palmer CT. *The Supernatural and Natural Selection: The Evolution of Religion*; Paradigm Publishers: Boulder, CO, USA, 2008.
39. Linquist S. *The Evolution of Culture: Volume IV*; Routledge: Abingdon, UK, 2017.
40. Hong Z, Henrich J. Evolving payoff currencies through the construction of causal theories. *Am. Anthropol.* **2023**, *126*, 71–82. doi:10.1111/aman.13926.
41. Derex M, Bonnefon J-F, Boyd R, Mesoudi A. Causal understanding is not necessary for the improvement of culturally evolving technology. *Nat. Hum. Behav.* **2019**, *3*, 446–452. doi:10.1038/s41562-019-0567-9.
42. Henrich J, Henrich N. The evolution of cultural adaptations: Fijian food taboos protect against dangerous marine toxins. *Proc. R. Soc. B Biol. Sci.* **2010**, *277*, 3715–3724. doi:10.1098/rspb.2010.1191.
43. Lang M, Krátký J, Xygalatas D. The role of ritual behaviour in anxiety reduction: An investigation of Marathi religious practices in Mauritius. *Philos. Trans. R. Soc. B* **2020**, *375*, 20190431. doi:10.1098/rstb.2019.0431.
44. Whitehouse H, Jong J, Buhrmester MD, Gómez Á, Bastian B, Kavanagh CM, et al. The evolution of extreme cooperation via

shared dysphoric experiences. *Sci. Rep.* **2017**, *7*, 44292. doi:10.1038/srep44292.
45. Damisch L, Stoberock B, Mussweiler T. Keep your fingers crossed! How superstition improves performance. *Psychol. Sci.* **2010**, *21*, 1014–1020. doi:10.1177/0956797610372631.
46. Lyons DE, Young AG, Keil FC. The hidden structure of overimitation. *Proc. Natl. Acad. Sci. USA* **2007**, *104*, 19751–19756. doi:10.1073/pnas.0704452104.
47. Watson-Jones RE, Legare CH. The social functions of group rituals. *Curr. Dir. Psychol. Sci.* **2016**, *25*, 42–46. doi:10.1177/0963721415618486.
48. Hong Z. The Cultural Evolution of Games of Chance. *Hum. Nat.* **2024**, *35*, 89–113. doi:10.1007/s12110-024-09471-9.
49. Hong Z. Combining Conformist and Payoff Bias in Cultural Evolution. *Hum. Nat.* **2022**, *33*, 463–484. doi:10.1007/s12110-022-09435-x.
50. Suddendorf T. Foresight and evolution of the human mind. *Science* **2006**, *312*, 1006–1007. doi:10.1126/science.1129217.
51. Mesoudi A. Foresight in cultural evolution. *Biol. Philos.* **2007**, *23*, 243–255. doi:10.1007/s10539-007-9097-3.
52. Spisak BR, O'Brien MJ, Nicholson N, van Vugt M. Niche construction and the evolution of leadership. *Acad. Manag. Rev.* **2015**, *40*, 291–306. doi:10.5465/amr.2013.0157.
53. North DC. *Institutions, Institutional Change and Economic Performance*; Cambridge University Press: Cambridge, UK, 1990.
54. Osiurak F, Reynaud E. The elephant in the room: What matters cognitively in cumulative technological culture. *Behav. Brain Sci.* **2020**, *43*, e156. doi:10.1017/S0140525X20000291.
55. Singh M. Subjective selection and the evolution of complex culture. *Evol. Anthropol. Issues News Rev.* **2022**, *31*, 266–280. doi:10.1002/evan.21948.
56. Hong Z. The cognitive origin and cultural evolution of taboos in human societies. *J. R. Anthropol. Inst.* **2024**, *30*, 724–742. doi:10.1111/1467-9655.14098.
57. Normile D. The new face of traditional Chinese medicine. *Science* **2003**, *299*, 188–190. doi:10.1126/science.299.5604.188.
58. Geertz C. *The Interpretation of Cultures*; Basic Books: New York, NY, USA, 1973; Volume 5019.
59. Hong Z, Henrich J. Instrumentality, empiricism, and rationality in Nuosu divination. *Relig. Brain Behav.* **2024**, 1–19. doi:10.1080/2153599X.2024.2363761.
60. Jagiello R, Heyes C, Whitehouse H. Tradition and invention: The bifocal stance theory of cultural evolution. *Behav. Brain Sci.* **2022**, *45*, e249. doi:10.1017/S0140525X22000383.