

Talking Moai?

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EXISTENTIAL QUESTIONS

Van Tilburg (1998) eloquently expressed our current understanding of the *moai* as “an icon exemplifying the fundamental Polynesian concern with genealogy, generation, status and respect. It served as a cultural motivator and modifier of group behavior.” This covers the functions comprehensively—but fails to tell us how the *moai* accomplished all of these things.

I suggest that the *moai* were never memorial statues in the Western bronze-equestrian sense, but on the contrary, served a very practical purpose. They were functional advisors. The concern with genealogy, generation, status, and respect all follow from the fact that every *moai* was not merely a representation of a deceased person of high status, but was demonstrably inhabited by him. “The dead chief becomes a living god”, as in many other early cultures. *Moai* did not “utter oracles”, as tradition claims—if by oracles one denotes Delphic ambiguities—but rather offered explicit advice on tribal concerns in the form of matter-of-fact instructions, delivered in a manner strange to modern minds. The questioner heard his chief give him an authoritative answer, in an internal mode which is almost impossible to disobey.

The dependence upon *moai* for advice was, I suggest, a major contributor to the collapse of the easy life of high Rapanui culture. First, however, we take a familiarizing detour through Jaynesian theory.

A TEST OF THE JAYNESIAN HYPOTHESIS

The above interpretation of *moai* obviously depends upon Julian Jaynes' (1976) interpretation of oracular statues in earlier civilizations, and thus on his seminal ideas about the changing organization of the human brain over the millennia. Rapa Nui is made to order as a test case of Jaynes' bicameral hypothesis, since he used nearly all other protohistorical cultures (Table 1) in its development, and it seems a perfect example of the process he describes.

A METAPHOR FOR THE BICAMERAL MIND

It is impossible here to do justice to Jaynes' ideas: if you are not familiar with them, they can be found in his recently reprinted *The Origin of Consciousness in the Breakdown of the Bicameral Mind*. Still, we can perhaps lay enough foundation to let one decide whether to undertake this venture. A computer metaphor may make Jaynes' ideas more accessible. If we think of the neural connections of the brain as its hardware, and stored memories and learned skills as its software, then its *firmware* is the operating system (OS) that constrains interactions between software and hardware. In computers, the OS can be upgraded incrementally with software patches, or it can be replaced bodily with a new version. A replacement seems to have occurred at least once to the human brain.

Table 1. Bicameral Cultures Discussed by Jaynes.

Culture	Dates	Evidence
Near East		
Eynan	-9000	mummies
Jerico	-7000	statues
Hacilar	-7000	skulls
Çatal Hüyük	-6000	statues
Eridu	-5500	statues
Tel Amsar	-3000	statues
Alaca Hüyük	-3000	grave goods
Ur	-2800	grave goods, statues
Mari	-2700	—
Hattusas	-2100	—
Lagash	-2100	statues
Ashar	-2000	grave goods
Kish	-1000	pyramids, statues, grave goods
China		
Yang-Shao	-2000	grave goods
Shang	-1200	grave goods
Mesoamerican		
Olmec, La Venta	-800 -200	grave goods, pyramids
Teotihuacan	+100 +600	pyramids
Maya	+200 +900	talking idols
Aztec	+1200 +1500	pyramids
Andes		
Kotosh	? -1800	statues
Chavin	-1200 -400	statues
Paracas	-400 +400	mummies
Mochicas	+400 +1000	pyramids
Tiahuanaco	+1000 +1300	statues
Chimu	+1300 +1400	pyramids
Inca	+1400 +1532	Mummies, statues, grave goods

Jaynes suggested that the original firmware of the brain used an accident of evolution. The first OS took advantage of the division of the cerebrum into hemispheres, lateralizing 'personality' and awareness into one hemisphere, and something very different in the others—hence bicameral, describing a brain with two rooms specializing in different functions.

Jaynes suggests that not until the beginning of historical time was the bicameral OS revised to meet new demands. The revision was driven by specific events as described below to yield our familiar modality. We believe that what we now have is the proper way to organize a brain—but it is not the only way. Think of Linux, MacOS, OpenStep, and BeOS: all can run in the same hardware while differing in complexity, sophistication, convenience, and elegance. The devotees of an OS tend to be parochial about what they deem proper as we are about our brains' current organization.

How is it possible to change the OS of a brain? The key is plasticity. The initial brain cells are unspecialized and can develop into either neurons or support cells. Each neuron extends connections to as many as 10,000 others. There are some 200 neurotransmitters, each producing different results on different neurons. Plasticity persists at least until puberty, when most (but not all) brains seem to be reorganized from a learning mode to a fast-response mode, by eliminating many minor synapses and strengthening the remainder. The society a child grows up in shapes the firmware of its brain, literally constructing the brain's OS in an entirely unconscious process. How is all of this managed? We have only the barest clue—but enough examples to know that many things work. Cortical surface area correlates with animal intelligence, so we believe that highly convoluted brains are essential to humanity—yet there are apparently normal people with brains as smooth as an apple.

THE INITIAL BICAMERAL OS

In the original bicameral modality, portions of the right hemisphere learned the unstated rules of society in the same manner that children's brains learn to walk and talk, by observation, experiment, and synthesis—an automatic and unconscious process. Related areas in the left hemisphere specialized in personality. Societal rules were communicated as needed over pathways in the anterior commissure which were no longer needed by protohumans for olfactory signals.

"The gods were side effects of language evolution, ... in no sense figments of anyone's imagination ... they were man's volition. They occupied his ... right hemisphere, and from stores of admonitory and perceptive experience, transmitted this experience into articulated speech which then 'told' the man [in the left hemisphere] what to do." (Jaynes 1976:202). "What do I do now?", one "muses. The answer is heard as the voice of a god, and obedience is automatic, giving us the phrase "I hear and obey."

It is only the degree of compartmentalization that seems startling, yet it is akin to the known phenomenon of multiple personalities. Once upon a time we vocalized our dilemma and heard the One True Answer as defined by our society. I, at least, make my conscious decisions during sub-vocalized debates with myself—which is almost what we did in bicameral days. Clearly

my brain is still capable of acting like two or more people, one persona talking the role of questioner, and other perhaps the persona of a specific trusted advisor. Freud was so impressed by this ability that he abstracted a committee of ego, id, and super-ego, but there is no evidence that his particular division is universal. From the familiar caricature in which a person's shoulders are occupied by homunculi dressed as angel (on the right) and devil (on the left), some people's decision making can still be modeled as debate with theological advocates. During the debate we formulate arguments as logical conversational sentences, but in a modified process which reaches as far as the motor neurons to the vocal cords. We do not actually produce speech, although we can feel twinges in our lips, and our facial expression changes with the flow of the debate. (Apparently strenuous activity in dreams results in similar minuscule muscle twitches, as though there were a general switch that blocked only the final synapses.) Most of us no longer hear explicit answers, but must formulate them consciously in one of the other voices, and consciously weight our various answers. But some people still hear instructions as though they came from outside.

For example, the very sane Socrates described this latter approach. He did not agonize over ethical decisions as most of us must today; he described a personal daemon who warned him audibly when he was about to make an ethical mistake, so that he always knew the right thing without worrying about it. Schizophrenics and mediums are among those who did not get their firmware upgraded properly, and still hear voices today. Such people become problems not because they hear voices, but only when their voices have failed to internalize the rules of society correctly and issue instructions which are antisocial and destructive. The many whose instructions are acceptable, or whose advice is innocuous, pass unnoticed.

THE WEAK JAYNESIAN HYPOTHESIS

Jaynes held that the bicameral mind was preconscious, and he ingeniously explains how to operate a society as complex as Sumer without conscious thought. This philosophical stance we may call the Strong Jaynesian Hypothesis. Many critics feel that Jaynes places the transition to self-awareness too late in evolution, since gorillas, chimpanzees, and bonobos all appear to think of themselves as individuals, and it seems clear that Jaynes never lived with a Siamese cat. The conquest of the Incas by a few Spanish thugs may demand the Strong Jaynesian Hypothesis, but all we need to 'explain' moai is the belief that they were guides to proper behavior (whatever the state of the believer's consciousness).

Belief in moai may have been driven by unconscious needs (the usual motivation for belief in the implausible) with the resulting ability to hear their voices, while the rest of the psyche was conscious in the accepted sense. This is the Weak Jaynesian Hypothesis, and we cite the Rapanui's fear of ghosts and easy conversion to deep Catholicism (Métraux 1940:49; McCall 1994:107) as indications of persistent unconscious needs.

OPERATING IN THE UNCONSCIOUS MODE

Conscious minds are no wiser than bicameral minds. Historians of the 22nd century—if any—are likely to look at us with

the same incomprehension that we view bicameral people. "Those people knew they were overpopulating the Earth, eliminating biodiversity, and raising global temperatures to catastrophic levels! Why didn't they stop?" In contrast, unconscious citizens who submitted to a common god showed uniformly good behavior. "Within each bicameral state ... the people were more peaceful and friendly than in any civilization since... —as in a colony of ants." (Jaynes 1976:205). Here, perhaps, lies the origin of the universal nostalgia for a lost Golden Age.

Unconscious behavior seems rare and pathological today only because we are unconscious of it. Most conscious behavior is in actuality accompanied by a large unconscious component. How much attention does one pay to driving a car? To the coordination required for walking or skiing? How much thought does a pianist give his fingers when he is playing? Consider pedestrians: two people walking down a hallway come to an intersection where they will part. Do they thoughtfully move aside to a low-traffic eddy to finish their conversation? Or do they halt in the middle of the intersection, unconscious of causing the maximum possible disturbance to traffic flow? In a functioning bicameral society, such incidents would not occur: a god would order them to stand aside.

HALLUCINATIONS ARE NOT ALL BAD

There is no great mystery about hallucinations. Sixty percent of the brain is white matter, or connectors between the specialized processor in grey matter. Many connections are bidirectional and a megabit wide— 10^6 streams of simultaneous information. The visual system has some 14 identified layers of processing, with several processors in each layer and something like 400 sets of inter-connections, plus less well mapped pathways to other systems, including speech, memory, motor areas, and other sensory systems. The brain makes such use of these connections as it will: each individual is wired a little differently, and the results are sometimes surprising. The bottom line is that any brain that can dream, can hallucinate. Lyall Watson (1976:52) reports that auditory-to-visual synesthesia is a way of life in the 60-house village on the remote Indonesian island of Nus Tarian, where a 12 year old gave him consistent colors for hundreds of sounds when tested over a period of months. She had 'multicolored hearing' and seemed astonished that he had to ask about the colors, which were self-evident to all the school children. She described her dancing in terms of movement through colored structure so convincingly that Watson was compelled to consider himself a 'sensory cripple.'

Hallucinations are typically induced by stress, and Jaynes suggests that this was the bicameral trigger. Put a bicameral person in a situation calling for a difficult decision and the physiological stress induced a hallucination that provided the requisite instructions.

There is also a gentler sort of hallucination that might make the process more plausible. Mine are rare (I think) and worth recording only to alert others to instances that they may not be aware of. On TV, Jane Fonda once snapped a dusty tarp in preparation for covering a pack saddle (a familiar scene in my childhood), and I smelled the tang of a horse corral; another time a scene of building demolition produced a cloud of dust

rolling at me, and I smelled powered concrete. In other words, I hallucinated accurately that which I expected, an event which would have passed unnoticed had I been viewing a real event.

The evolutionary advantage of this apparent sensory confusion is simple look-ahead, in which the operating system increased efficiency by prefetching the code it will need next. Chemical sensors are slow, and one wants to give them time to get organized. The corner of the eye detects motion; the brain alerts the olfactory system, presensitizing the saber tooth cat-detecting sensors. Why? Because those who hallucinated the scent of a saber tooth who wasn't there survived, but those who failed to prepare their nose to detect one who *was* there were lunch.

Look-ahead is still useful in the absence of saber teeth. Switching channels on a TV that speaks American and several varieties each of British and European, I am very conscious of time lags while the brain identifies the language, hunts down a translator, and runs the program. If I know ahead of time what the language is going to be, the translation may be 'instantaneous'. Anticipated German (for which I have a mediocre translator at best) is understood faster than unanticipated British dialect.

AUDITORY 'HALLUCINATIONS'

"Auditory hallucinations exist ... because this is the most efficient method of getting complicated cortical processing from one side of the brain to the other" (Jaynes 1976:105). Auditory hallucinations occur in all cultures, in people of all degrees of mental health, and to people of all degrees of intelligence and skepticism. A neural pathway between the auditory and speech centers is required to associate the unrelated codings of the spoken word and the heard word; apparently it can be used for other purposes also.

Children learning new tasks narratize them, 'taking to themselves' while they learn (Diaz and Beck 1992, Beck 1994). Research scientists—eternal children always pushing back the border of learning—often talk to our computers, lab equipment, and ourselves, garnering odd looks from people whose last learning experience was in childhood. It is as though the part of the brain, which is thinking out the procedure, is impatient with its control of the fingers, and finds that it can expedite results by vocalizing because ears pass instructions to fingers faster.

Although I do not expect equipment to talk back, I can believe that there was a time when a technician could ask the flint he was knapping, "Alright, now what do I do with you?" And hear, "Hit behind the little knob. Use the flat-pointed antler, placed in *this* direction, and strike with the hammerstone, about *so hard*" with twinges to the motor muscles to define direction and strength of blow. This is what his instructor had said—or perhaps he had said it to himself the day it first worked.

ORACULAR STATUES

On his way to punish the Israelites for a catalog of sin, "The king of Babylon," says Ezekiel 21:21, "he consulted with images." To Jaynes, oracular statues are a step between bicamerality and consciousness. He adduces many larger-than-life

statues with exaggerated eyes, whose vocal communications are documented. Such statues arise naturally when a dead ruler's hallucinated voice continues to be heard by courtiers: The dead king becomes a living god. There seem to be a cultural progression in which the actual body parts of the king are steadily decreased: first he is mummified, later his skull is built into a statue, and finally he is replaced by a statue. Pyramids seem places for the god to stand and survey his domain, while also forming a visual focus for the gods' subjects.

From bicameral cultures the world over comes the explanation that people really die only long after their apparent death. During the long interval between—which may cover the lifetimes of their grandchildren—their hallucinated voices are still hard by the living. It follows that during this period, the “dead” still need food, amenities, servants, and all the paraphernalia that we find in grave goods.

Because bicameral gods are jealous gods, each succeeding civilization tended to destroy its predecessor's religious artifacts, which does not make the task of the archeo-psychologist easy. Naturally, more is known about more literate or more recent cultures.

The bicameral cultures in Table 1 share common traits with Rapa Nui: “large central worshipping places, treatment of the dead as though they were still alive, and the presence of idols” (Jaynes 1976:194). This in no way implies communication or influence between cultures that share these traits. The common connection is the original organization of the human brain.

The Rapanui were not the only people listening to 4-meter stone statues in the middle of the 16th century, for Fray Diego de Landa, Bishop of Yucatán, said of the Maya in 1566, “the unhappy dupes believe their idols speak to them” (Thomson 1972). Monolithic statues in the Andes were ancestor figures (Va[l/r]carcél¹ 1935), and it is safe to assume that they spoke to their descendants. It is important to realize that oracular advice is not “subjective” as we understand the term today, but “objective” in the sense that in a working bicameral society, everyone will hear the same instructions.

Etruscan vases depict petitioners seeking advice from oracular heads. A 1326 CE bull of Pope John XXII forbids the practice of listening to “demons” imprisoned in statues. Until the Reformation, statues of saints regularly performed miracles.



Ahu Ko te Riku's statue, at Tahai. Photo credit: Ann Ross, 1983.

Statues of the Blessed Virgin Mary still speak to deeply religious Catholic girls in convents.

In Madagascar, half-way around the world at the western extremity of the Southeast Asian marine diaspora,² the *razana*, or mummy-wrapped ancestors, who also speak to their descendants. Even today they are taken out of their tombs at family gatherings, rewrapped in new silk *lambas*, and consulted about family matters.

EYES

The eye index (eye-height/face-height) is c. 10% in people, but everywhere larger in speaking statues. Although some moai have an eye index approaching 30%, the average is 17%, comparable to talking idols from Mesopotamia. Jaynes suggests that the exaggeration is related to our tendency, observable even in newborns, to watch eyes when we listen to someone (rather than watching the mouth).

Since no European saw moai with eyes inserted, and since moai at the quarry and in transit do not even have eye sockets, eyes were apparently installed only on special occasions, with socketing and installation being formal rituals. If it were believed that moai could not speak without eyes, then they would not speak without eyes.

It is unfortunate that no one ever asked a Rapanui informant about eyes and their keepers. The eyes must have been the control of the most powerful descendant of the moai in question. Was this the patriarch of a family holding a single set of eyes, the priest of the ahu holding eyes for all its moai, or a tribal chieftain distinct from a priest?

MOAI AS ORACLES

To summarize, the following features of moai support a Jaynesian interpretation:

- * Moai are dead authority figures;
- * Their eyes were apparently inserted to switch them on;
- * They could be recycled as building material after they stopped speaking (when no one living had known the individual?);
- * Size was important, as though they were getting harder to hear (a typical response to unanswerable questions in other bicameral cultures);
- * There are hints that ritual invocation, including ceremonial fires, was (increasingly?) important—a response found in other cultures as voices became harder to hear;
- * The more moai a group had, the better—but they could not be created arbitrarily, since they needed someone to speak through them;
- * Overthrowing a moai seems a more-than-symbolic attack on its people, depriving them of a valuable resource;
- * There are indications that the eyes were broken in a separate operation after the moai were overthrown, on the belt-and-suspenders principal.

VOCAL OBJECTS IN RAPA NUI CULTURE

A bicameral person is not limited to hearing a single voice, because different types of instructions can be associated

with different instructors. Those who knew the persons who spoke through different moai would have heard their original voices. Nor were the moai the only source of vocal instructions in Rapa Nui culture. *Aku-aku* were apparently externalizations of voices that gave personal (as opposed to tribal) advice (Heyerdahl 1958). In this, they seem to be the exact counterparts of the *ili* of Mesopotamia, the *ka* of Egypt, the personal daemon of Socrates, and the “guardian angel” and “disembodied guru” of two of my friends—both grandparents, college graduates, professionals, and reticent about their advisors. Both have read drafts of this paper and are happy to believe that other people hallucinate voices.

Rongo is a Polynesian deity associated with sound: speaking, hearing, singing, and even thunder. *Rongorongo* is glossed by Fuentes (1960) as “chant and the chorus of chanters responsible for performance of recitations”, thus an auditory experience rather than a visual one. I suggest that *rongorongo* boards were never read as we read, but were heard, exactly like the moai, the difference being that their genealogical message (Fischer 1998) never varied. They spoke to their users in the same way that cuneiform tablets must have originally have spoken. Hammurabi’s messages to his viceroys were never addressed to the recipients, but always to the tablet itself. Thousands of tablets, over a 40-year reign, all written in the same hand (presumably Hammurabi’s own), begin with a standard formula: “Unto so-and-so, say: Thus says Hammurabi...” (Jaynes 1976:247). The recipient evidently did not read the message as we do, but heard it spoken.

FAILURE OF THE ORIGINAL OS

There are two characteristic ways for a bicameral culture to collapse. Firstly, if bicameral cultures with different rules come in contact, there will be confusion as hallucinated voices offer different instructions. Paradox abounds. Secondly, the slow increase of complexity in society—despite strenuous efforts by conservatives—leads to instabilities as subcultures develop their own new gods. With n gods, there are $c. n^2/2$ interactions to be sorted out.

These two effects are sufficient to explain many phenomena in the Middle East and Mesoamerica, but neither contact nor complexity seems to apply to Rapa Nui, which is doubtless why it retained a bicameral culture long after busier cultures.

The characteristic failure mode—as judged by fragmentary comments from many cultures in the early Middle East—is for the oracles to go silent when they can no longer give definitive answers.

Late statues of Greek gods and cult heroes (Athena, Aesculapius) were chryselephantine (gold and ivory, the most precious materials available) to induce the gods to occupy them and speak. In Sumeria (3rd millennium BCE, where the bicameral mind first began to break down), a ritual of mouth washing and mouth opening became necessary before the statues would speak. The final touch was for the statue’s voice to be provided by a priest through a speaking tube. This was probably not an attempt to gull the worshippers, but a last-ditch effort to maintain the only system of advice that they knew.

The Collapse of Rapanui Society

Rapa Nui’s alternate name, Te Pito te Henua—often translated “the navel of the world”—may also mean The End of the World. This is a precise description: because of its isolation, Rapa Nui was one of the last habitable spots on earth to be settled. Similarly, its bicameral breakdown seems to have occurred after 1500, as late as anywhere on earth. It is hard to avoid the suggestion that it was overpopulation and resource exhaustion that provided the trigger. Climatic variability might have contributed to the Rapanui’s troubles, but it was unlikely to prove fatal.

There is a neo-romantic urge to postulate harmony between small-scale societies and their environment, making it seem implausible to some workers that the Rapanui, utterly dependent upon their small ecobase, could willfully destroy it (Hunter-Anderson 1998)—but see Lewis (1992:Ch.2) for examples of such destruction and a critique of this view. Martin (1967) has shown that 200 genera of large animals disappear from the fossil record simultaneously with the wave of human expansion into new territory, suggesting that contemporary species extinctions are only the continuation of along history of wiping out our environmental support.

Rapa Nui’s would not be the first crisis triggered by overpopulation. The Sumerian *Atrahasis* describes how mankind became so numerous, and so noisy, that the gods had to take steps to thin them out, with plagues, famine, and the prototype of the Genesis flood. The explanation is repeated in Gen. 6:1 which introduces the Biblical flood with: “When men began to multiply on the face of the Earth....”

Under such conditions the smartest Rapanui would begin to see that the advice of the moai was irrelevant to conditions around them. But how could this be? This is as great an individual and societal crisis as has ever been recorded in history or imagined in literature. Doubt in the voices is contagious under modern conditions. Weingaertner (1971) ran a nicely controlled experiment with schizophrenics that showed that while auditory hallucinations are not under conscious control in any sense, they are very susceptible to group suggestion.

We can only guess at the soul searching by exceptional Rapanui—if any—who recognized the environmental problem, however dimly, and the arguments that might have raged within formerly coherent families and tribal groups. These alone might have torn Rapanui society apart unless—as behavioral reports by Métraux (1940) and Bahn and Flenley (1992:218) suggest—the Rapanui had no ability to look ahead and no awareness of the consequences of destroying their environmental support system. There was little in Rapanui life during the good centuries to teach forethought. Tropical Africans and Malagasy often have similar limitations (I have no personal knowledge of related behavior in the Neotropics), suggesting that the ability to look ahead, in this sense, may not have been necessary and so never developed, except among farmers of seasonal crops. Some rice-growing cultures achieved institutional forethought (e.g., Bali (Lansing 1991) but not all: the differences are not understood.

Ancestral advice, not surprisingly, tends to lag behind the real world by a generation or two, which is no help to people

with new problems. The internalized rules of society are conservative; they are acquired in childhood and go silent rather than change. One might hypothesize that it was not the inability of the Rapanui to see what was happening to their forest ecobase that allowed them to destroy it. Perhaps the only way they could imagine to solve their problem was to create more moai to ask, possibly before their neighbors succeeded in doing the same thing. There may have been something in their efforts of Tom Sawyer's hurry to get the fence painted before the bucket ran dry.

DID MOAI CONTRIBUTE TO COLLAPSE?

Given the warlike nature of most Polynesian societies, the long apparently peaceful development of the Rapanui might be surprising, unless, as sketched above for unconscious behavior, an early "ant-like" consensus prevailed. Initially, moai may have contributed to stability by extending these "uninteresting times". But as in any population that reproduces without regard for its environment, this apparent stability held within it the seeds of its own destruction, and in the long run the moai may have exacerbated the problems they once solved.

Moai carving appears to have continued for a century past the climax of Rapanui society (c. A. D. 1550?), extending well into the decline, and long after they had lost the ability to transport them, as there are 250 standing around Rano Raraku without eyes. If the above analysis is correct, these were not only blind but mute. If the point of building and moving a *moai* was to listen to its advice, why would a society expend so much effort on dumb moai? This may be the greatest weakness of the Jaynesian interpretation.

The Huri Moai (toppling of the statues) seems to have begun around A. D. 1660 (Métraux 1940:87), and my model of Rapanui culture shows the greatest social stress almost exactly bounded by the 17th century (MacIntyre 1999). Why this century of patient effort? Why the sudden change of attitude?

A tentative, if consistent, scenario might be that the moai themselves lacked any idea of how to deal with changing times. A *modus vivendi* that had worked smoothly for a millennium—with time, energy, and resources for cultural activities—had suddenly led to catastrophe. In my model, the Rapanui population did not slowly grow past the carrying capacity of their environment. Rather, they brought the carrying capacity down upon themselves precipitously, well inside a single generation.

Perhaps the moai's best answer to this inexplicable emergency was to ask for help, instructing their listeners to provide bodies for yet more advisors.³ Their clients and descendants tried to oblige for a century, but there was no way to move the moai to ahu (to complete the necessary ritual for activation?). The rope shrubs failed to regenerate (was *hau hau* [Triumphetta] the first Rapanui plant to go commercially extinct?). Roller are not essential to move moai (MacIntyre 1999), but rope most certainly is, and no moai could be transported to an ahu without rope. (Another part of the problem would have been the lack of rope for fishnets). Did this unanswerable dilemma finally lead to group disillusionment with moai? Was the first toppled moai overturned by its own desperate and betrayed children, whom it had first failed and then, going silent, ignored?

E. O. Wilson (1975) argues that religion is adaptive and subject to evolutionary selection, like any other human trait. Is Rapa Nui a rare case of a society collapsing from an inappropriate belief structure? ⁴

FOOTNOTES

¹ Va[l/r]carcé's name is variously spelled in the literature.

² Madagascar is not normally included when thinking about the problem of Polynesian settlement, but it was reached 18 times by people who spoke a language closely related to Bornean. (It was never reached by Africans). The earliest arrivals were approximately contemporary with the first Rapa Nui settlers, and Hagelberg (1998) has shown that they share the same mitochondrial DNA.

³ This would not be the first group of self-serving advisers. Has your financial counselor ever pointed out that the market moves at random? That interest is generally equal to inflation plus taxes? That William Sharp's Nobel Prize was for showing that the market itself is the most efficient (profitable) portfolio?

⁴ For the sake of political correctness, we overlook the 800 years of Dark Ages initiated by Justinian's closing of The Academy in AD 529 because it had the temerity to contradict Christian dogma.

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A self-professed high school drop-out, Ferren MacIntyre has a Ph.D. in Physical Chemistry from MIT. He taught at Scripps, University of California at Santa Barbara, University of Melbourne, and the Graduate School of Oceanography, Rhode Island. He is now retired at the National University of Ireland, Galway, where he is working on 3-4 books and numerous papers, mainly on green theology, human ecology, and environmental philosophy.

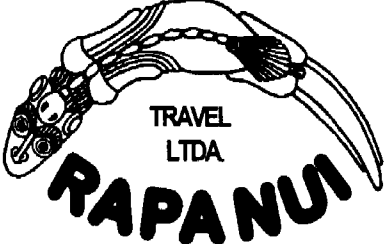
He notes: "My first Rapa Nui paper (given at Albuquerque) was oceanographic, where I have some cachet; the 2nd was a demographic model where I at least have much unpublished experience. The others are more speculative, and I apologize for writing about a place I've never seen—not that this has stopped anyone else—but I'm working on that, and in the meantime I thought I had some ideas to throw in the pot."

MacIntyre can be reached via email at <ferren.macintyre@nuigalway.ie>

Moai Sightings

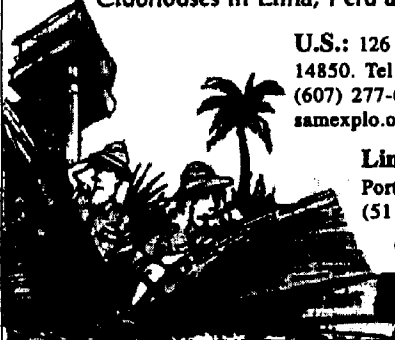
Eagle-eyed Rapanuiphile Barbara Nickless spotted some little *moai* carved from shiny white polished stone at Wyoming Dinosaur Center in Thermopolis, of all places.

And then she found a large moai hanging on a wall above a pair of pianos in the Rum Bay nightspot in Colorado Springs. The five foot tall statue was surrounded by waterfalls and mai tai cocktails.



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Two moai (one can be seen on the upper level, just left of center) were spotted in The Sandwich Island Restaurant in Shiphol Airport, Amsterdam, by Dr Eva Weiler of Sweden. They gaze down on the crowded waiting room and, at this time, were joined by merry Santas and other Christmas decorations.