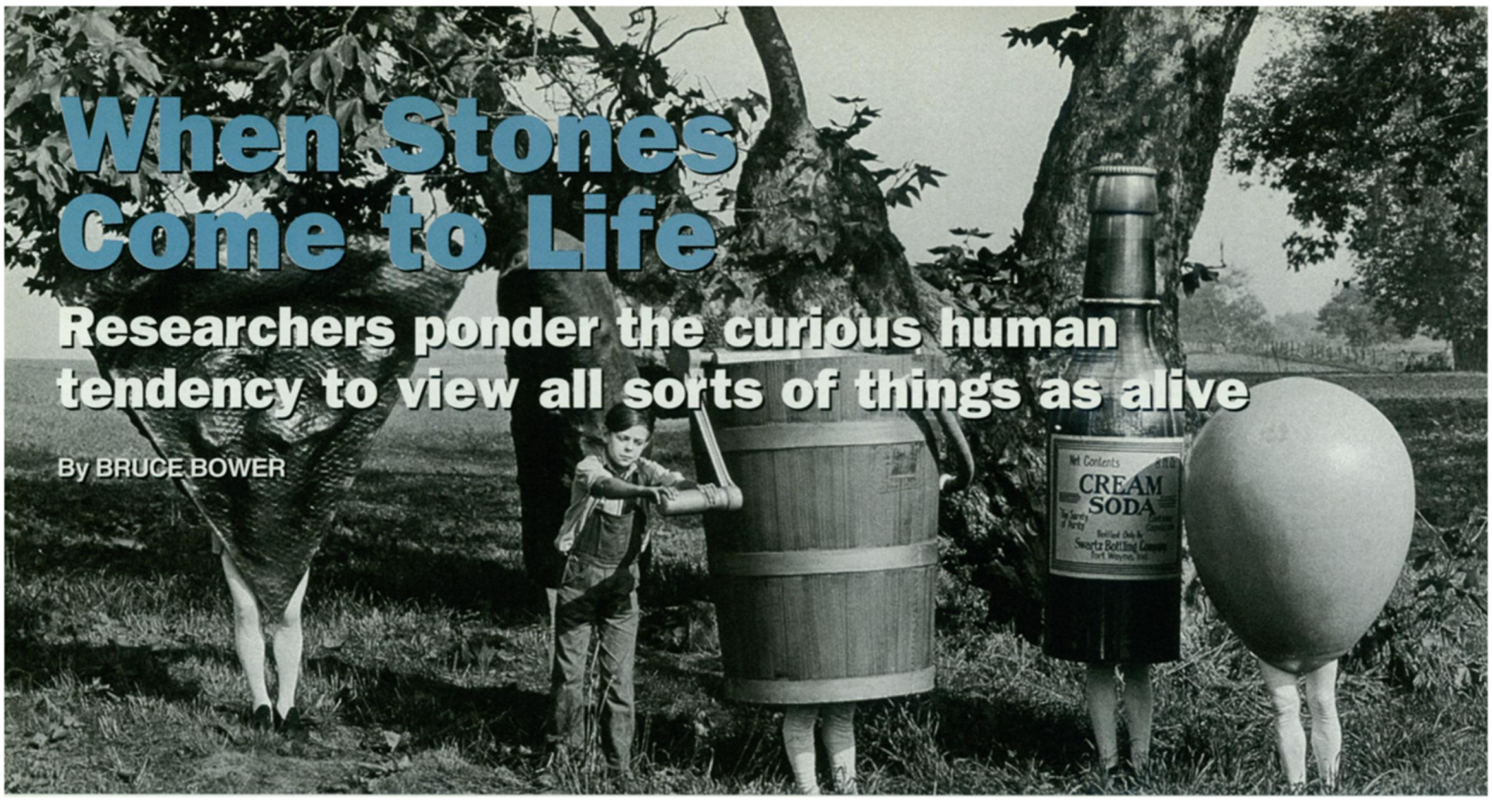

When Stones Come to Life

Researchers ponder the curious human tendency to view all sorts of things as alive

By BRUCE BOWER

While conducting fieldwork in eastern Canada more than 60 years ago among a hunting and trapping group called the Ojibwa, an anthropologist asked an old man if all the stones strewn about the landscape were alive. "He reflected a long while," the questioner reported, "and then replied, 'No, but some are.'"

"This qualified answer made a lasting impression on me," the late A. Irving Hallowell recounted in a 1960 essay on Ojibwa beliefs.

The Ojibwa people, Hallowell noted, said that they communicated with many animals, objects, and events in their local environment. Bears, eagles, trees, hills, the sun, and thunder, to cite a few examples, served as social partners or spiritual guides under certain circumstances.

Thoroughly modern folks may say that only human beings rank as "persons," but the Ojibwa sense of person covers a much broader range, including "animal person" and "wind person," Hallowell said. That expansion of personhood, a belief that anthropologists call animism, made sense in the context of the Ojibwa's daily experiences within and practical knowledge about their surroundings, he concluded.

Few of Hallowell's contemporaries embraced his assessment of animism as a reasonable way of thinking. Yet nearly 40 years later, his Ojibwa observations have inspired some investigators to portray animism as a useful and universal human tendency. In hunter-gatherer societies, according to this view, keen attunement to the subtleties of trees, stones, heavenly bodies, and other facets of the world becomes a kind of conversation with these entities; it amounts to socializing with them as beings in their own right.

"For an Ojibwa hunter in the woods, what makes a tree alive are its distinctive movements as they are registered in experience—the swaying of its boughs in the wind, the audible fluttering of its leaves, the orientation of branches to the sun," says Tim Ingold of the University of Manchester in England.

"Habitual movements of the sun in the heavens, of trees in the wind, of animals and humans as they go about their everyday tasks take place as part of a total life process of continuous birth, through which the world itself is forever coming into being," Ingold maintains. "In short, living beings do not move upon the world but move along with it."

Despite Western canons of thought that rigidly divide animate and inanimate, human and nonhuman, and natural and social, people in modern societies tend to hold animistic convictions with no less fervor than members of tribal and nonliterate societies, some scientists now claim.

Consider the ease with which people see life forms in the smudgy blots of a Rorschach inkblot test and name and talk to cars, computers, and other valued possessions. Think of the many writers and poets who avidly animate the natural world and humanmade objects in literary descriptions. Even scientists find it difficult not to assume that nonhuman animals, natural phenomena, and theoretical entities operate on the basis of intentions and beliefs.

British anthropologist Edward B. Tylor launched the scholarly concept of animism in the first volume of *Primitive Culture*, a highly influential work published in 1871. The "primitive" mind mistakenly attributes life to all things, even inanimate ones, just as children model the whole world on themselves, Tylor contended. Modern religion evolved out of the animistic beliefs of ancient people, he proposed.

Tylor also argued that in the primitive view, a "ghost-soul" animates each individual's body and survives the body's death. He labeled this belief a delusion that had resurfaced in his era's fashion for holding spiritualistic séances.

Tylor's ideas greatly influenced later investigators. They have often described as "childlike" the many people living in nonindustrialized settings who embrace animistic beliefs.

His reach certainly extended to Swiss psychologist Jean Piaget, who in the 1930s asserted that because children fail to distinguish between their own minds and the world, they treat virtually any object as alive and conscious. Animism diminishes as children develop adult ways of thinking, Piaget held.

Yet around that same time, Margaret Mead noted that animism flourished among adults, not children, in a South Pacific tribe she had lived with. If, for example, a canoe floated away from where it was moored, adults in the tribe attributed the loss to a vengeful canoe spirit. Kids, however, had to learn about such animistic beliefs from their elders, Mead suggested.

Stewart E. Guthrie, an anthropologist

at Fordham University in New York City, attempted to clear up the confusion about animism's roots in his 1993 book *Faces In The Clouds* (Oxford University Press). Animism represents a necessary error committed by all creatures that must quickly discern the living from the lifeless in order to survive, Guthrie theorizes. No hard-and-fast criteria exist for identifying live creatures. Moreover, both prey and predators in natural environments are often hard to see and may have evolved elaborate forms of camouflage.

According to Guthrie, a simple perceptual strategy operates in this situation: When in doubt about whether something is alive, assume that it is.

People, including those in modern Western societies, attribute life to all sorts of inanimate objects as a result of this perceptual stance, in Guthrie's view. The related tendency to anthropomorphize, or assign human characteristics to nonhuman things or events, often accompanies animism, he adds.

Away from the heat of the chase, people would eventually have a chance to ponder what is human and what is not, another anthropologist argues. Guthrie fails to explain why so many people embrace animistic beliefs after presumably having had time to realize the error of their ways, contends Nurit Bird-David of the University of Haifa in Israel. Guthrie seems to imply that the Ojibwa, for instance, cannot learn enough from their experience to reject perceptual illusions that at first entice them into granting personhood to select trees and stones, she says.

In Bird-David's alternative approach, practical experience breeds animistic assumptions because human thinking skills have evolved primarily as aids to social interaction. Regular engagement with any entity, resulting in a growing knowledge of its tendencies and quirks, entails accepting it into fellowship, she suggests. That entity, even if it's the wind or a tree, appears to reveal a sense of self through what becomes—for the human participant, at any rate—an ongoing conversation.

In the February CURRENT ANTHROPOLOGY, Bird-David applied this view to the Nayaka hunter-gatherers of southern India. She conducted fieldwork there from 1978 to 1979 and again in 1989.

The Nayaka define a person as "one whom we share with." Rather than thinking of separate individuals bounded by their skin and acting on the basis of private thoughts, as a Westerner would, a Nayaka villager thinks of another in regard to how that person relates to others. Those who regularly share with the Nayaka—including Bird-David during her fieldwork—are referred to as kin.

The Nayaka designate various features of their environment as devaru, a word that roughly translates as "superperson" or "person with extra powers." For instance, growing familiarity with the opportunities afforded by a local hill—its food resources, lookout points, and so on—inspire the Nayaka to speak of the "hill devaru" that shares with them and ranks as a relative.

At gatherings every year or two, Nayaka from different villages participate in devaru performances. Designated individuals enter trance states and portray various devaru. For 2 days, these devaru-in-human-form carry on a running conversation with Nayaka participants at the event. Talk often involves bargaining for favors and offerings, nagging and teasing each other, and complaining about or apologizing for past lack of support.

These performances boost awareness of the devaru's existence among the Nayaka and drive home the need for villagers to nurture ties to devaru in their everyday affairs, Bird-David proposes.

Animism in modern societies similarly arises through a process of attaining familiarity with specific aspects of one's surroundings, she adds. In the high-tech world, however, it may be mechanical and electronic entities that are treated as at least potentially conscious. The distance from a chess-playing computer to a silicon comrade, for example, seems particularly short.

Ingold agrees that as people forge close relations with features of their environment, animism flourishes. A close analysis of Hallowell's writings on the Ojibwa, who still live in Canada, supports this view, Ingold says.

For the Ojibwa, the self or person exists as a function of one's actions, not as an internal mental unit, he asserts. No physical barrier separates mind from world; humans act within their environment rather than operating in a society that exists apart from nature. In fact, Hallowell could identify no Ojibwa word for the concept of nature.

The Ojibwa hold that a ubiquitous spiritual essence generates powers of thought and speech. This spirit can migrate from a human's body into nonhuman forms, such as bears or the wind. Powerful people, according to the Ojibwa, manage to harness spiritual forces so that they can change their physical form and carry out special activities.

Encounters with persons of all kinds take place while dreaming as well as while awake. Hallowell noted that the Ojibwa experience dreams as active forays into the world, not as slumber-induced hallucinations. Dreaming offers a chance for one's self to roam through space and time, take on various guises in the animal and physical world, and encounter mythological figures.

In their daily activities, the Ojibwa, as described by Hallowell, sought out signa-

tures of particular modes of life, Ingold suggests. For instance, thunder speaks through the quality of its rumbling peals—to attentive and empathetic listeners, at least—just as the sounds of talking, singing, clapping, and drumming speak of a human presence in distinctive ways.

So it seems reasonable, Ingold says, to entertain the possibility that the old Ojibwa man who spoke to Hallowell truly perceived some rocks as live participants in the activities of his comrades.

Bird-David and Ingold's proposed makeover of animism from childish illusion into grown-up conversation with the environment strikes Gísli Pálsson, an anthropologist at the University of Iceland in Reykjavik, as a promising development. Because the concept of nature has become increasingly isolated from human society in the Western world, researchers have developed an unfortunate tendency to ignore widespread animistic beliefs or relegate them to an outdated category of "primitive" thought, Pálsson argues.

A keener scientific appreciation of animistic thinking demands more than an emphasis on intimate relationships to one's environment holds anthropologist Scott Atran of the University of Michigan in Ann Arbor. In all cultures, he asserts, people accept animistic assumptions on authority or as a matter of faith rather than constructing them out of "common-sense knowledge." In Atran's view, scientists need to identify the mental mechanism that allows individuals who accept animistic beliefs to override a universal tendency to categorize plants and animals in highly structured ways (SN: 11/16/96, p. 308).

Resuscitated respectability for animism also raises questions about a currently popular theory, comments psychologist Angeline S. Lillard of the University of Virginia in Charlottesville. It states that children everywhere come to assume that only people have intentions, beliefs, and other mental states that impel them to act (SN: 7/17/93, p. 40). Many North American and European scientists now theorize that by around age 5, children avidly try to discern others' thoughts and feelings.

Many non-Western cultures, on the other hand, regard this mind-reading process as unimportant, Lillard reported in the January 1998 PSYCHOLOGICAL BULLETIN. For example, some of these groups give little regard to inner emotions and thoughts. They instead view spirits, particular situations, and other people as central causes of individual actions. They often attribute life and magical powers to rocks, trees, and other entities, as well as to natural phenomena and dead ancestors, Lillard suggests.

There can be differences in outlook even within a country. Preliminary findings, discussed by Lillard in the April CURRENT DIRECTIONS IN PSYCHOLOGICAL SCIENCE, suggest that rural 7-year-olds in the United States—but not their urban counterparts—explain others' behavior mainly with references to characteristics of situations rather than internal intentions and beliefs.

Even among grown-ups who believe that their own mental processes guide their actions, those engaged in practical tasks readily perceive life in surprising places. One striking instance concerns the men who battled massive forest fires in the western United States in 1989. They described the flaming mass to interviewers as "devious," "cunning," and "lying in wait." When winds died down at night, firefighters referred to the fire as "resting up."

Perhaps one of the seasoned firefighters, if asked by an anthropologist such as Hallowell whether all fires are alive, would respond, "No, but some are." □

Behavior

Sounds like dyslexia

Scientists have tentatively linked the reading disability known as dyslexia to a bevy of brain disturbances. A team of neuroscientists now adds to this collection a disruption of the brain region that mediates perception of brief, rapidly presented sounds.

Lifelong reading problems may often stem, at least in part, from glitches in an area of the brain's sound system thought to be crucial for identifying speech sounds, contend Srikantan Nagarajan of the University of California, San Francisco (UCSF) and his coworkers.

"We believe that adult dyslexics are not delivering normal forms of representation of the separate sounds in words to brain regions involved in speech perception and reading," says study coauthor Michael M. Merzenich, also of UCSF.

The new study, published in the May 25 PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES, compared seven people who have severe reading difficulties typical of dyslexia with seven competent readers. All were between 18 and 42 years old and had average scores on intelligence tests.

Only the poor readers scored low on a test of the ability to discriminate between pairs of briefly heard sounds. Each acoustic duo consisted of any of four combinations of high- and low-frequency tones (high-high, high-low, low-high, low-low). After presentation of a sound pair, volunteers signaled which combination they had heard by pressing buttons strapped to their thighs. A computer stored their responses.

During these trials, sensors placed over the scalp measured magnetic fluctuations generated by the electrical activity of large numbers of neurons. The UCSF team focused on activity in the brain's primary auditory cortex, which sorts out sounds that can serve as components of words.

Competent readers readily identified the sound sequences. Poor readers did report hearing each pair of sounds, and they could often tell when the two sounds differed. They usually erred, however, in selecting the correct sequence.

Moreover, individual tones evoked weak and disorganized responses in the primary auditory tissue of poor readers, in contrast to strong, clear responses in competent readers.

Other recent studies have implicated brain disturbances affecting language comprehension and visual perception in dyslexia (SN: 3/7/98, p. 150). —*B.B.*

Feeling better with fish oil

Preliminary evidence suggests that a nutritional supplement, omega-3 fatty acids from fish oils, helps stabilize the volatile moods of people suffering from manic depression, also known as bipolar disorder.

Omega-3 fatty acids may share biochemical actions with lithium and valproate, say psychiatrist Andrew L. Stoll of McLean Hospital in Belmont, Mass., and his colleagues. Those medications are commonly used, with varying success, to treat manic-depressive patients.

The researchers recruited 30 patients receiving drugs for manic depression. Over 4 months, 14 of the volunteers also received high daily doses of omega-3 fatty acids in capsules containing fish-oil concentrate. The rest took olive-oil placebos.

Initially, all patients showed mild symptoms of mania or depression. Eleven of those receiving omega-3 fatty acids improved or maintained their emotional condition during the study, compared with 6 of the 16 patients taking placebos, the scientists report in the May ARCHIVES OF GENERAL PSYCHIATRY.

More intensive studies of the effects of omega-3 fatty acids on manic depression are needed, comment psychiatrist Joseph R. Calabrese of Case Western Reserve University School of Medicine in Cleveland and his colleagues in a commentary accompanying the study. —*B.B.*