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Pioneering Body of Work on Science of Play Spotlights in Specially-Themed Issue of *American Journal of Play*

ROCHESTER, New York—The scientific study of play is reshaping the landscape for understanding play—its evolutionary origins and how playful behavior affects us—but not without controversy. The current issue of the *American Journal of Play* illuminates and puts into perspective the pioneering, paradigm-shifting work of Jaak Panksepp (renowned for his research on animal emotions and the discovery of “laughter” in rats) along with the scientific work of a number of his students and colleagues. This specially-themed issue on the science of play provides, in one place, a new overview of these efforts.

For some years, Panksepp has been challenging the fundamental assumptions about play by behavioral psychologists, who disregard activities of the mind. In contrast to the behaviorists, Panksepp, a neuroscientist, has been clarifying both the anatomy and chemistry of the brain and, in essence, providing a map of emotional life, with play at the center. As he has proceeded with his groundbreaking work, a growing number of scholars (many of them represented in this issue) have been supporting his findings and expanding upon them.

The articles in this issue of the *American Journal of Play* are based chiefly on research conducted on the brains of rats, which share ancient neural structures with humans. Included are an in-depth interview with Panksepp and a reprint of his seminal article, coauthored with Jeffrey Burgdorf, “Laughing Rats? Playful Tickling Arouses High-Frequency Ultrasonic Chirping in Young Rodents,” the first publication to summarize the full set of groundbreaking experiments that changed the way many researchers and scholars consider animal feelings, human nature, and the field of play.

Among the highlights in this issue:

“Science of the Brain as a Gateway to Understanding Play,” an Interview with Jaak Panksepp. In this sweeping retrospective interview, Panksepp notes with satisfaction that there is a growing hunger for solid scientific approaches to the study of human emotions. This was not always so. In fact, Panksepp, who coined the term “affective neuroscience,” encountered stiff resistance from mainstream behavioral psychologists who dismissed the idea that emotions could be meaningfully discussed at all. To his critics, his ascribing emotions like joy or chagrin to animals seemed even more outrageous. In the interview, Panksepp explains how “the behaviorists chose to ignore the possibility that in the brain emotional circuits induced feeling states that guided behavior” and how his willingness to investigate the connection between mind and body raised opposition to his research.

For Panksepp, PLAY, (which he capitalizes in his work) is a “primary process” of the brain arising from its most ancient structures and key to understanding the ancient social-emotional system we carry around in our heads today. Seventy-five million years separates humans and rats from their nearest common ancestor; yet, Panksepp and his students discovered that (like humans) lab rats will “laugh” and giggle when they are tickled. That they laugh at a pitch too high for humans to hear is just part of the surprising

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story of discovery that Panksepp tells in this interview. In careful experiments Panksepp also observed that rats will play with special fervor if they have been deprived of the company of their fellows for a time. To go without PLAY engenders a feeling akin to thirst or hunger, but separation distress is a hunger for a social experience that Panksepp describes as a “psychic pain” arising in “social disenfranchisement.”

If play is frivolous, studying play is not. Panksepp found profound explanations of why play thrived and how human societies evolved. “Without play,” he explains, “it would have been difficult to build in all the needed social dynamics that complex animals such as mammals need to thrive within the complex worlds into which they are born.” It may be hard to swallow the idea that our most complex interactions depend upon some of our brain’s most primitive features—“many would prefer to envision our playfulness as reflecting higher mind function rather than lower, more ancient ones,” Panksepp observes. But “the sooner we shift our perspectives, the sooner we are likely to build cultural institutions that support our joyful *lower* nature, so important for mental health.”

“Play and Adversity: How the Brain Makes Fun,” by Louk J. M. J. Vanderschuren, professor at Utrecht University in the Netherlands. The author answers a key question: “How does play reward us?” For Vanderschuren, whose research into the neurobiology of social behavior is on the frontier of neuroscience, the answer requires understanding the neurochemistry of pleasure and tracing the circuitry in brain regions that shape emotional experiences.

“How the Playful Mammalian Brain Withstands Threats and Anxieties” by Stephen M. Siviy, chair of the Department of Psychology at Gettysburg College. Siviy investigates the “raucous social play” that nearly all mammals share and the social relationships and neurochemical mechanisms that have allowed the brain to stay playful in a dangerous world. His findings point to fruitful research into anxiety disorder, particularly in children.

“The Function of Play in the Development of the Social Brain,” by Sergio M. Pellis, Vivien C. Pellis, and Heather C. Bell. The authors investigate the way play helps to develop what they call the “social brain”—our ability to understand and decode the complex signals of dense human situations. “Play fighting” among rats is the centerpiece of their study, in which they have found that rats, like humans, play avidly when juveniles but that rats kept from playing as juveniles grow into socially awkward adults unable to mate successfully. They conclude that play offers important advantages to the brains of developing rats.

“The Comparative Reach of Play and Brain: Perspective, Evidence, and Implications,” by Gordon Burghardt. Though most research on animal play deals with mammals—particularly rodents, carnivores, and primates—Burghardt notes that studies have recorded play of different types in a wide range of other animals, both vertebrate and even invertebrate, who differ greatly in their ecology, behavior, and nervous systems. He concludes that an understanding of the evolutionary and comparative diversity of play may have implications for integrating play into education and other attempts to solve ills in society.

To view the most current issue’s table of contents, visit: www.americanjournalofplay.org

Jaak Panksepp is distinguished Research Professor Emeritus of Psychology at Bowling Green State University, Baily Endowed Chair of Animal Well-Being Science at Washington State University’s College of Veterinary Medicine, and head of Affective Neuroscience Research at the Falk Center for Molecular Therapeutics at Northwestern University. He is editor of the *Textbook of Biological Psychiatry* and author of *Affective Neuroscience: The Foundations of Human and Animal Emotions*. In addition, he has written more than 300 articles in the fields of psychology and affective neuroscience.

About the American Journal of Play (a publication of Strong National Museum of Play in Rochester, New York): Peer-reviewed and written in a clear, straightforward style, the *American Journal of Play* is the first interdisciplinary journal dedicated solely to the study of play. Providing thought-provoking content from some of the most prominent national researchers and writers in the field, each issue is filled with articles, essays interviews, and book reviews that explore the critical role of play in learning and human development. To view the most current issue’s table of contents, visit: www.americanjournalofplay.org