Press Contacts:
Dan Klores Communications
Jo Flattery, 212.981.5228, johanna_flattery@dkcnews.com
Brian Moriarty, 212.981.5252, brian_moriarty@dkcnews.com

WNET.ORG
Donald Lee, 212.560.3005, LeeD@wnet.org

The Human Spark
Contributors

PROGRAM 1

Alison Brooks
Professor of Anthropology and International Affairs
George Washington University

Alison Brooks is a paleoanthropologist and Paleolithic archaeologist who has participated in extensive field research at Middle Stone Age sites in Africa, trying to answer when, where and why modern human beings originated. In 2002, along with colleague Sally McBrearty, she published an important paper in the *Journal of Human Evolution* called "The revolution that wasn't: A new interpretation of the origin of modern human behavior."

Brooks argued against the common idea that modern human behaviors arose suddenly and nearly simultaneously 40 or 50,000 years ago in Europe, thanks to some sudden cognitive advance. That's the timeframe when amazing art like the cave paintings at Lascaux were being created. But modern human fossils are found in Africa dating back more than 100,000 years ago. Brooks proposes that Eurocentric bias has prevented us from taking into account the ancient technologies that can be discovered sprinkled throughout the African archaeological record, dating back much further than the European discoveries. She argues for a more gradual evolution of modern human behavior in Africa that was then later exported to Europe as human beings migrated there.

Brooks welcomed ***The Human Spark*** to her dig sites in Olorgesaille, Kenya to see firsthand some of the amazing finds currently being unearthed there that seem to daily be adding more weight to her argument.

John Shea
Associate Professor of Anthropology
Stony Brook University

John Shea is a paleoanthropologist who researches the archaeology of human origins. He's interested in the beginnings of our *Homo sapiens* species as well as the extinction of our

cousins the Neanderthals. Shea investigates these questions through fieldwork in the Middle East and Africa.

Shea is also an accomplished practitioner of "primitive technologies," a skill set of particular interest during our filming visit for ***The Human Spark***. Shea demonstrated for us how our earliest ancestors created their stone tools – and he instructed Alan Alda in how to recreate these technologies by knapping stone.

Through this type of hands-on experimentation, Shea attempts to reconstruct early human behavior through better understanding the creation and use of the stone tools they left behind.

Randall White
Professor of Anthropology
New York University

Anthropologist Randall White is an expert on the Paleolithic sites our *Homo sapiens* ancestors left behind in France. In fact, he's been excavating there for decades. Alan Alda caught up with him at Abri Castanet, a rock shelter in the Dordogne region of France that was inhabited 33,000 years ago by early modern humans.

White is an expert on the art and personal ornaments that the first *Homo sapiens* created and wore. He argues that these adornments help explain one aspect of why our ancestors were able to out-compete the Neanderthals who were also living in Europe 40,000 years ago. White believes ornaments – like the ancient beads he showed Alan Alda – were a way early modern humans identified themselves as members of a group, part of a wide-ranging social network. This sociability is a focus of ***The Human Spark***, and something that Neanderthals – even with their big brains – seem to have lacked.

PROGRAM 2

Brian Hare
Assistant Professor of Evolutionary Anthropology
Duke University

Brian Hare is interested in the psychology of humans and our other primate cousins. What is the same about us, chimpanzees and bonobos, and what is different? By studying which behaviors are present or not in the different primate species, Hare hopes to understand more about when in the evolutionary journey our social problem-solving skills arose.

Much of Hare's early research focused on Theory of Mind: the study of whether someone (or some animal) can think about the thoughts of others. He has looked at dogs, silver foxes and of course chimps and bonobos. Hare's current interests focus on cooperation and social intelligence, working with animals in sanctuaries in Africa and zoos in the U.S. Are our social and emotional skills the human spark that sets us apart from the other great apes?

Daniel Povinelli
Professor and Director, Cognitive Evolution Group, Center for Child Studies
University of Louisiana at Lafayette

Daniel Povinelli compares the cognitive abilities of chimpanzees and human beings through rigorously controlled behavioral experiments designed to understand how members of each species understand themselves and the world around them.

Povinelli wrote the book *Folk Physics for Apes: The Chimpanzee's Theory of How the World Works*. He believes that chimps don't reason about unobservable things – a big difference from human beings who constantly think about abstract concepts like love, density, or the future. And Povinelli doesn't think that anyone has adequately demonstrated that chimps have Theory of Mind – the ability to think about another creature's thoughts. But discovering more and more differences in the way chimp minds work hasn't made Povinelli think less of our closest living relative; as he explains to Alan Alda in ***The Human Spark***, "If I think they're just watered down humans, well that's one thing. But if they're a different kind of mind, that's so close to us and yet still different, it seems they deserve even more respect."

Michael Tomasello
Director, Max Planck Institute for Evolutionary Anthropology

Michael Tomasello searches for the Human Spark by directly comparing the abilities of apes and human beings. His work suggests that a big point of divergence is our ability and inclination to cooperate. It's a talent that underlies our social systems – and one that other primates largely don't have.

Many of Tomasello's experiments involve putting young children and apes in the same situations (separately) and seeing how they behave. Tomasello and his colleagues have found that children are much better than chimps at understanding other people's intentions, comprehending nonverbal communication, and imitating a solution to a problem. These are all examples of social cognition skills – the kinds of skills human beings needed to evolve in order to live successfully in cultural groups.

PROGRAM 3

Randy Buckner
Professor of Psychology and of Neuroscience
Harvard University

Neuroscientist Randy Buckner spends a lot of time thinking about what your brain is doing when you're not doing much of anything at all. Scientists have found that in fMRI images, people's brains appear to be just as active during breaks, when they aren't consciously focusing on anything much, as they are when paying close attention to tasks set by

researchers. Buckner looks at the cortical structures that support these random musings and mind wanderings, areas that working together are now known as the 'default network.'

Buckner says that it's during these idle moments of daydreaming that we mull over the past and speculate about the future. This mental time-traveling is a talent that appears to be unique to human beings. And it seems to rely on the same structures that are involved in Theory of Mind, thinking about the thoughts of others. Are we zeroing in on the locus of the Human Spark?

Robin Dunbar
Professor of Evolutionary Anthropology
Director, Institute of Cognitive and Evolutionary Anthropology
University of Oxford

Anthropologist Robin Dunbar is interested in the evolution of sociality, which he studies in various species. He thinks that primates have big brains because of their social skills, not vice versa. It's our sociality that Dunbar points to as a major component of the Human Spark that sets us apart from other animals.

He also came up with a concept now known as "Dunbar's Number," which ties a species' brain size to the size of its social network. For humans, he says, our brain provides the cognitive power to keep track of relationships with about 150 other individuals. And unlike in baboon society, where social bonds are strengthened via reciprocal grooming, language helps us stay in touch.

Rebecca Saxe
Assistant Professor of Cognitive Neuroscience
Massachusetts Institute of Technology

Neuroscientist Rebecca Saxe studies the brain regions human beings use to think about other people's thoughts; the ability to infer and reason about the interior thoughts of other people is often called Theory of Mind.

Saxe demonstrated her work to Alan Alda when she used an fMRI machine to see which parts of his brain were active when he was thinking about someone else's thoughts. She's narrowed in on a small area of cortex called the right temporal-parietal junction which seems to only be active in those kinds of Theory of Mind situations – and this RTPJ is quite different in humans than it is in other species. Is this the physical structure where we can locate the Human Spark?