

MIND & LIFE INSTITUTE

MIND AND LIFE XXVII

Craving, Desire, and Addiction

DHARAMSALA, HIMACHAL PRADESH, INDIA

OCTOBER 28-NOVEMBER 1, 2013



OVERVIEW



The mission of the Mind & Life Institute is to alleviate suffering and to promote human flourishing. We seek to achieve these broad goals in specific ways, especially by bringing together scientists, contemplatives, and scholars in order to deepen our insights into the causes of suffering and the means by which we can support human life at its most holistic.

Desire is a natural part of life that provides the motivating force for our achievements. Our highest aspirations are animated by desire. Yet, when desire becomes obsession or craving, we cross over into the territory of suffering. What before was an aid to accomplishment can devolve into a source of personal anguish and social violence. Behavioral and substance addictions are the expression of desires that have become obsessions. The harmful patterns of addiction take a profound toll on both the individual and society. Addiction to alcohol, tobacco, and illicit drugs, for example, is estimated to cost the United States \$600 billion per year.

The Mind & Life Institute has chosen to focus its attention on craving, desire, and addiction, as these are among the most pressing causes of human suffering. By bringing contemplative practitioners and scholars from Buddhist and Christian traditions together with a broad array of scientific researchers in the fields of desire and addiction, we hope new understandings will arise that may ultimately lead to improved treatment of the root causes of craving and its many manifestations. We have assembled a remarkable group of Dialogue participants who will bring first-person perspectives to the table, along with research into the experiential, neural, and sociological underpinnings of craving, desire, and addiction. These contributions will be complemented by ideas and input from contemplative traditions focused on desire and craving and the means by which obsessions can be met and transformed.

Human potential is boundless, yet we often falter, unintentionally causing suffering to ourselves and others, because of our uncontrolled or misguided desires. Through an interdisciplinary and cross-cultural dialogue with His Holiness the Dalai Lama and other prominent Tibetan Buddhist scholars, we hope to further the flourishing of human potential and mitigate suffering by discovering better ways to transform or temper the intense desires that challenge each of us.



PARTICIPANTS

TENZIN GYATSO

His Holiness the 14th Dalai Lama

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Professor Emeritus of Physics
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President
Mind & Life Institute

PROGRAM



DAY ONE

MONDAY, OCTOBER 28, 2013

The Problem of Craving and Addiction

The program begins with introductory remarks by Mind and Life President Arthur Zajonc, as well as His Holiness the Dalai Lama. Moderators Richard Davidson and Diana Chapman Walsh will then speak on the broad topic of the impact of craving and addiction, setting it in context in various societies across the globe. In the afternoon, the program's first official presentation will focus on a unique first-person account of the experience of craving, desire, and addiction by neuroscientist and former addict Marc Lewis. In his talk, he will draw upon his own subjective experience of these phenomena in relation to what is known about the neuroscience of reward and addiction, and make connections to psychological and Buddhist views of the cycle of desire and craving.

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The Role of Craving in the Cycle of Addictive Behavior

MARC LEWIS

I begin by describing a typical episode of pursuing and taking drugs based on my own experience of addiction during my 20s. This vignette demonstrates how thoughts about drugs and feelings of craving grow together in a person's mind, until he or she finally gives in. Then comes the loss and despair, and the cycle repeats itself. According to psychological theory, the attraction to the cycle of craving and the use of drugs increases over months and years. According to neuroscience, brain events follow a similar cycle, from perceptual triggers to the activation of motivational, cognitive, and behavioral systems, though structural changes in the brain emerge over longer periods. The universality and momentum of the addiction cycle stem largely from the action of dopamine, a neurochemical that narrows attention to immediate rewards and intensifies the desire to attain them. Focused desire—or craving—is also a key element in Buddhist models of suffering. Buddhist views map onto the neuropsychology of addiction surprisingly well: Craving and grasping lead to action, loss, and despair in a cycle that recurs time and time again. As drug use increasingly affects the brain, it becomes very difficult for addicts to look beyond the immediate goal and see the larger picture of their lives. To get out of this trap, addicts have to learn to trust in themselves rather than in drugs or alcohol. My presentation ends by considering the usefulness of making contact with a "higher self" that enables self-forgiveness and compassion, and weakens the intense attraction of immediate goals.



PROGRAM

DAY TWO

TUESDAY, OCTOBER 29, 2013

Cognitive and Buddhist Theory

Cognitive neuroscientist Kent Berridge will begin the day with an exploration of the neural circuitry underlying the experience of wanting, and a description of how this can be studied scientifically. He will then contrast both the brain pathways and the subjective experience of wanting with those of the hedonic experience of pleasure, or liking. Addiction can be viewed as an extreme sensitization of the wanting system that can become decoupled from the experience of pleasure. Thupten Jinpa will then explore Buddhist philosophy around craving and grasping, highlighting links to both scientific conceptualizations as well as the direct experience that is so central in addiction. He will also address how these views might have implications for treatment.

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Brain Generators of Intense Wanting and Liking

KENT BERRIDGE

Brain mechanisms for intensely “wanting” something are different from the mechanisms for “liking” that same thing. “Wanting” generators, robust and large mechanisms that include many brain structures, are easily stimulated into highly reactive states. In stimulated brain states, encountering cues related to the temptation (or vividly imagining it) triggers intense pulses of craving. In addicts, the brain “wanting” generators may become further stimulated through neural sensitization by drugs (or by natural causes). Sensitization can produce intense wanting even for something that is not “liked.” By contrast, brain “liking” mechanisms that generate intense pleasures are smaller, fewer, fragile, and easily disrupted. This is one reason why intense pleasures are far less frequent or lasting than intense desires. The independence of brain “wanting” mechanisms allows causation of intense desires that can become quite irrational. An interesting feature of “wanting” mechanisms is that they can generate intense desire even for things that cannot be expected to be pleasant or things that have always been unpleasant in the past. This capacity to “want” what is known to be unpleasant evolved for adaptive natural appetites, but it has been co-opted by maladaptive addictive drugs. Finally, there is surprising overlap in the brain between mechanisms that generate intense mesolimbic “wants” and mechanisms that generate some types of fear. That is, the same brain circuit can have different modes that generate desire and dread, and can even produce both emotions at the same moment.

Psychology of Desire, Craving, and Action: A Buddhist Perspective

THUPTEN JINPA

The early Buddhist sutras—scriptures attributed to the Buddha—speak of how attachment or craving constitute a primary source of our suffering, and how true freedom from suffering emerges through letting go of attachment or craving. Underlying these statements is an important psychological insight that draws an intimate connection between our perceptions of the world and the experience they give rise to on the one hand, and the arising of craving and how this leads us to act in a particular way on the other. This understanding is characteristically formulated in the early texts as the following: “Conditioned by contact there is feeling (experience); conditioned by feeling there is craving; conditioned by craving there is grasping; conditioned by grasping there is becoming.” In my presentation, I will briefly outline a standard Buddhist account of the causal and dynamic interconnections between the key elements that are part of the psychology of craving as formulated in the above quotation, namely: contact, experience, craving, grasping, and action. From the Buddhist psychology point of view, I shall argue how desire, craving, and addiction may be understood in terms of a spectrum rather than as categorically distinct states. Finally, I will identify specific insights we might draw from this classical Buddhist understanding of the psychology of craving and bring them to bear upon two topics: our current scientific understanding of the pathology of addiction, and the possible development of non-pharmaceutical interventions for its treatment.





PROGRAM

DAY THREE

WEDNESDAY, OCTOBER 30, 2013

Biological and Cultural Views

Much has been learned about addiction by examining its causes and effects at both individual and societal levels. In the morning session, Nora Volkow, director of the National Institute on Drug Abuse, will cover a broad scientific account of the neural underpinnings of craving and addiction, exploring how the brain systems that create the experience of motivation, reward, and craving are affected by drugs that are frequently abused and often lead to addiction. Anthropologist Vibeke Asmusen Frank will then offer a view of addiction that places the individual in a complex sociocultural context, and explore the implications of this view in regard to the conceptualization and treatment of addiction.

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The Role of Dopamine in the Addicted Human Brain

NORA VOLKOW

Chemicals that activate the reward system are reinforcing to a wide variety of species from reptiles to humans. Their physiological activation of brain reward systems is believed to be the starting point for the neurobiological changes that launch the addiction trajectory. Research on addiction has started to uncover the sequence of events and long-lasting sequelae that can result from the persistent abuse of addictive substances. These studies have shown how repeated drug use can target key molecules (both common and specific for various drug types) and brain circuits, and eventually disrupt the higher order processes that underlie emotions, cognition, and behavior, and enable an individual to exert self-control. Specifically, preclinical and clinical brain imaging studies have shown that addiction is characterized by an expanding cycle of dysfunction in the brain. The impairment appears to start in the more evolutionarily primitive areas that process reward, but then moves on to other brain regions that are responsible for more complex cognitive functions. Thus, in addition to reward, addicted individuals can experience severe disruptions in learning (memory, conditioning, habituation), executive function (impulse inhibition, decision making, delayed gratification, judgment), cognitive awareness (interoception), and emotional response (mood and stress reactivity). The combined, cumulative impact of addiction on all these circuits results in poor decision making in addicted individuals despite awareness of negative consequences, and the inability to delay gratification despite future losses. Scientific advances in this area are informing strategies for medication development to help buffer the brain dysfunction associated with chronic drug exposure and addiction.

Beyond the Individual: The Role of Society and Culture in Addiction

VIBEKE ASMUSSEN FRANK

Research on addiction or problematic substance use has been dominated by a biomedical model focused on choices individuals make and problems that ensue, including damage to the brain and body, health, and well-being. However, it is also crucial to consider the contexts that may shape and constrain individual choices. Scientists in this sociocultural tradition attend to the reasons people use mood-altering substances, the meanings and practices they and others around them attach to the substances, and the dynamics between individual agency and larger social and cultural contexts. Methodologically, anthropologists primarily use qualitative assessments, while other sociocultural scientists draw on combinations of qualitative and quantitative data. This presentation offers two instances in which this broader social and cultural perspective raises questions about assumptions underlying mainstream biomedical research on addiction. First, when we look at ways out of problematic substance use, we find that people with serious alcohol and drug abuse problems often cure themselves, without formal treatment. At the same time, developments and expansions within the treatment sector have not significantly changed the efficacy of organized treatment programs. Second, when we examine how societies regulate substances in order to decrease harm, we discover that some of these attempts at social control actually cause harm. I will examine prohibition of alcohol and criminalization of drugs as two examples. Overall, focusing on individuals in context rather than in isolation points to interpersonal relations as crucial factors that help explain phenomena like addiction and problematic substance use, which have a very powerful social and cultural overlay.





PROGRAM

DAY FIVE

FRIDAY, NOVEMBER 1, 2013

Into the World

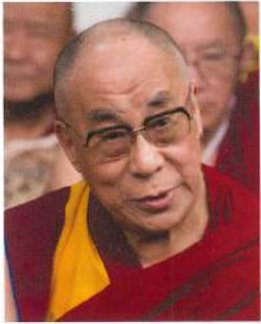
Ideas have impact to the extent that they lead to action. A final thread of this narrative arc is formed by the engaged work of clinical science. Psychologist Sarah Bowen will address new approaches to the treatment of addiction that incorporate elements of contemplative practice. Finally, in the last session we will strive to weave together the threads from all the presenters, with the aim of creating a more holistic and accurate view of the complex issues around craving and desire. How can these insights be used to address the continued temptations surrounding us all, as well as those who struggle with the most destructive forms of attachment? Synthesizing this dialogue, we hope that scientists, clinicians, theorists, and individuals can find new ways forward to alleviate the suffering that stems from the experience of craving.

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Application of Contemplative Practices in Treatment of Addiction **SARAH BOWEN**

As an approach to treatment for addiction, Mindfulness-Based Relapse Prevention (MBRP) integrates cognitive-behavioral and mindfulness practices to reduce risk and severity of relapse to harmful, addictive cycles of behavior. Clients learn to observe seemingly “automatic” cognitive and behavioral patterns, strengthen the ability to experience triggering events without reactivity, and practice skillful and compassionate responses that ultimately serve their highest good. Training begins with observation practice and establishing awareness of body sensations as a foundation, and progresses to awareness of thought and emotion. Through “formal” and “informal” practice, clients then learn to recognize triggers and subsequent physical, cognitive, or emotional reactions, and increase their ability to stay present with previously aversive or triggering experiences. Particular focus is given to the nature of craving and its physical, cognitive, and affective constituents. Clients explore the often wholesome needs underlying craving, such as desire for relief or fulfillment. They learn, through observation, that this “false refuge” may bring temporary relief, but it ultimately causes further suffering. Final sessions focus on kindness and forgiveness practices, and bring attention to the broader perspective of clients’ lives by observing factors that support or hinder their practice and recovery. The balance between acceptance and action is explored. MBRP research has primarily involved adults, many of whom were court-mandated to treatment and also have financial, housing, legal, and medical challenges. Outcomes suggest MBRP, relative to standard treatments, may be helpful in shifting reactions to challenging emotional experiences (e.g., craving) and may decrease the likelihood and severity of relapse one year following treatment. Future directions of study include adaptation to adolescent and incarcerated populations, dissemination and implementation, and further exploration of the multiple processes underlying behavioral change.

PARTICIPANT BIOS



Tenzin Gyatso, the 14th Dalai Lama, is the leader of Tibetan Buddhism and a spiritual leader revered worldwide. He was born on July 6, 1935, in a small village called Taktser in northeastern Tibet. Born to a peasant family, he was recognized at the age of two, in accordance with Tibetan tradition, as the reincarnation of his predecessor, the 13th Dalai Lama. The Dalai Lamas are manifestations of the Buddha of Compassion who choose to reincarnate for the purpose of serving human beings. Winner of the Nobel Prize for Peace in 1989, His

Holiness the Dalai Lama is universally respected as a spokesman for the compassionate and peaceful resolution of human conflict. He has traveled extensively, speaking on subjects including universal responsibility, love, compassion, and kindness. Less well known is his intense personal interest in the sciences; he has said that if he were not a monk, he would have liked to be an engineer. As a youth in Lhasa, he was often called upon to fix broken machinery in the Potala Palace, be it a clock or a car. He has a vigorous interest in learning the newest developments in science, and brings to bear both a voice for the humanistic implications of the findings and a high degree of intuitive methodological sophistication. His Holiness is the honorary chairman of the Mind & Life Institute, and he has been central to the development of this organization for more than 25 years.



Kent Berridge, PhD, is the James Olds collegiate professor of psychology and neuroscience at the University of Michigan. His research focuses on answering questions such as: How is pleasure generated in the brain? How do wanting and liking interact? What causes addiction? Does fear share anything with desire? Can an emotion ever be unconscious? He serves on editorial boards for several scientific journals, and co-edited the book *Pleasures of the Brain*. Among other honors, Berridge has been a Guggenheim

fellow and a Fulbright senior scholar.



PARTICIPANT BIOS



Sarah Bowen, PhD, is an acting assistant professor in the department of psychiatry and behavioral sciences at the University of Washington in Seattle. Her research and clinical work have focused primarily on the integration of meditation practice and mindfulness-based approaches for addictive behaviors into traditional Western cognitive therapy. The primary focus of her personal, clinical, and research practices has been the exploration of processes underlying behavior change, and the adaptation of treatments and practices

in the effort to reach a wide and diverse patient and client population. In addition to authoring numerous journal articles and book chapters on these topics, she is the lead author of *Mindfulness-Based Relapse Prevention for Addictive Behaviors: A Clinician's Guide*. She has been practicing in the Theravada tradition for more than 10 years, and has facilitated mindfulness-based relapse prevention groups in private practice, veterans' medical centers, county treatment agencies, and prisons. She offers professional trainings to researchers and clinicians in the United States and internationally, and has a particular interest in adapting and disseminating mindfulness-based treatment for dual-diagnosis and underserved populations.



Diana Chapman Walsh, PhD, currently serves on the governing boards of the Massachusetts Institute of Technology, the Broad Institute of Harvard and MIT, the Kaiser Family Foundation, the Institute for Healthcare Improvement, the Mind & Life Institute, and on various national advisory boards. She was a director of the State Street Corporation (1999–2007) and a trustee of Amherst College (1998–2010). Her term as president of Wellesley College (1993–2007) was marked by educational innovation, including a revision of the curriculum

and expanded programs in global education, the humanities, internships and service learning, interdisciplinary teaching and learning, and religious and spiritual life. President Walsh evolved a distinctive style of reflective leadership rooted in a network of resilient partnerships and anchored in the belief that trustworthy leadership starts from within.



Richard J. Davidson, PhD, is the founder and chairman of the Center for Investigating Healthy Minds at the Waisman Center, and the director of the Laboratory for Affective Neuroscience and the Waisman Laboratory for Brain Imaging and Behavior, both at the University of Wisconsin–Madison. He was educated at New York University and Harvard University, where he received his bachelor's of arts and PhD degrees, respectively, in psychology. Over the course of his research career, he has focused on the relationship between brain

and emotion. He is currently the William James professor and Vilas research professor of psychology and psychiatry at the University of Wisconsin. He is co-author or editor of 13 books, including *Visions of Compassion: Western Scientists and Tibetan Buddhists Examine Human Nature*, *The Handbook of Affective Science*, and *The Emotional Life of Your Brain*. Davidson has published more than 300 chapters and journal articles, and is the recipient of numerous prestigious awards for his work, including the Research Scientist Award from the National Institute of Mental Health, the Distinguished Scientific Contribution Award from the American Psychological Association, and election to the American Academy of Arts and Sciences. He has served on the board of directors for the Mind & Life Institute since 1992. In 2006, *Time* named him one of the 100 most influential people in the world, and he received the first Mani Bhaumik Award from UCLA for advances in the understanding of the role of the brain and the conscious mind in healing.



Wendy Farley, PhD, is a professor in the department of religion at Emory University. Her teaching and research interests include women theologians, religious dialogue, classical texts, contemporary ethical issues, and contemplative practices. Her books consider the problem of evil by focusing on suffering rather than sin, and abandoning the forensic model of God in favor of one that emphasizes compassion as a dominant metaphor for the divine. Her other works take up the relationships between ethical and philosophical issues in religion,

and draw attention to contemplative practices, folk traditions, and inter-religious dialogue to reflect on suffering and transformation. Her research interests also address the meaning of Christian faith and tradition for women, queers, and others that the church has had difficulty recognizing as part of its community.

PARTICIPANT BIOS



Vibeke Asmussen Frank, PhD, is an anthropologist, the director of the Centre for Alcohol and Drug Research at Aarhus University in Denmark, and associate professor in social science alcohol and drug research. The focus of her research has been on the interplay between individuals and sociocultural contexts, with a special interest in substance user perspectives. More specifically, her research explores substance use behaviors and their meanings in subcultural, institutional, and political contexts. Her research includes a focus on consumption and problematic use of substances, and is mainly based on qualitative research. She has been involved in the management and conduction of a wide range of national and international research projects. Current projects focus on prison-based drug treatment, domestic cannabis cultivation, and implementation of policies in welfare institutions, including both control and welfare policies. She has written extensively within the field of social science alcohol and drug research, and has edited several books. Her articles have appeared in scholarly books and journals, including *Addiction*, *Social Science and Medicine*, and *International Journal of Drug Policy*.

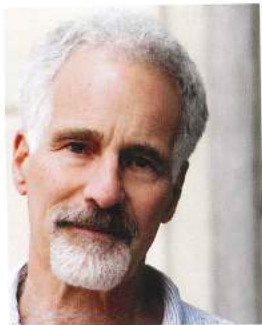


Roshi Joan Halifax, PhD, is a Buddhist teacher, Zen priest, anthropologist, and pioneer in the field of end-of-life care. Founder, abbot, and head teacher of Upaya Institute and Zen Center in Santa Fe, New Mexico, she received her PhD in medical anthropology in 1973 while teaching at the University of Miami Medical School. She has been awarded a National Science Foundation fellowship in visual anthropology and an honorary research fellowship in medical ethnobotany at Harvard University, and was named a distinguished visiting scholar at the Library of Congress. From 1972–1975, she worked with psychiatrist Stanislav Grof at the Maryland Psychiatric Research Center with dying cancer patients. She has continued to work with dying people and their families, and she teaches healthcare professionals and family caregivers about the psychosocial, ethical, and spiritual aspects of caring for the dying. She is director of the Project on Being with Dying, and founder and director of the Upaya Prison Project, which has developed programs on meditation for prisoners. She studied with Zen teacher Seung Sahn, received the Lamp Transmission from Thich Nhat Hanh, and was given Inka by Roshi Bernie Glassman. A founding teacher of the Zen Peacemaker Order, her work and practice for more than four decades has focused on applied Buddhism. Her books include *The Human Encounter with Death* (with Stanislav Grof), *The Fruitful Darkness*, *Simplicity in the Complex: A Buddhist Life in America*, *Being with Dying: Cultivating Compassion and Wisdom in the Presence of Death*, and *Being with Dying: Compassionate End-of-Life Care* (professional training guide). She is a Lindisfarne fellow and codirector of the association, and a Mind & Life Institute board member.



Thupten Jinpa, PhD, was trained as a monk at the Shartse College of Ganden Monastic University, South India, where he received the Geshe Lharam degree. In addition, Jinpa holds a bachelor's honors degree in philosophy and a PhD in religious studies, both from Cambridge University. He taught at Ganden monastery and worked as a research fellow in Eastern religions at Girton College, Cambridge University. Jinpa has been the principal English translator to His Holiness the Dalai Lama since 1985 and has translated and edited numer-

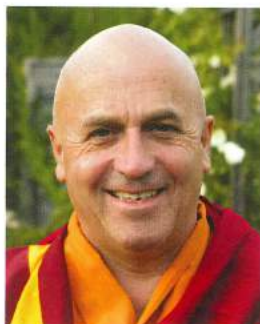
ous books by the Dalai Lama, including the *New York Times* best-sellers *Ethics for the New Millennium* and *The Art of Happiness*, as well as *Beyond Religion, Universe in a Single Atom*, and *Transforming the Mind*. His own publications include, in addition to numerous Tibetan works, *Essential Mind Training; Wisdom of the Kadam Masters; Self, Reality, and Reason in Tibetan Philosophy: Tsongkhapa's Quest for the Middle View*; as well as translations of major Tibetan works featured in The Library of Tibetan Classics series. He is the main author of Compassion Cultivation Training (CCT), an eight-week formal program developed at the Center for Compassion and Altruism Research and Education (CCARE) at Stanford University. Jinpa is an adjunct professor on the faculty of religious studies at McGill University, Montreal; the founder and president of the Institute of Tibetan Classics, Montreal; and the general series editor of The Library of Tibetan Classics series. He has been a core member of the Mind & Life Institute from its inception, and chairman of its board since January of 2012. Jinpa lives in Montreal and is married with two daughters.



Marc Lewis, PhD, is a developmental neuroscientist and professor of developmental psychology, recently at the University of Toronto (where he taught and conducted research from 1989–2010), and presently at Radboud University in the Netherlands. He is the author or co-author of more than 50 journal publications in psychology and neuroscience. He experimented with a large variety of drugs in his youth, and eventually became addicted to opiates. His addiction cost him several close relationships and led him into a life of crime. He got

arrested and convicted for theft, and was kicked out of graduate school as a result. At the age of 30, he quit drugs for good, then re-entered grad school and received his PhD five years later. In 2006, his research led him back to addiction—this time as a neuroscientist studying the brain changes that amplify craving and weaken self-control. His recent book, *Memoirs of an Addicted Brain*, blends his life story with a user-friendly account of how drugs affect the brain and how addiction seriously alters neural chemistry and structure.

PARTICIPANT BIOS



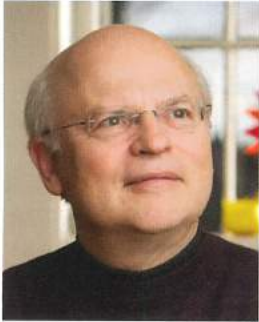
Matthieu Ricard, PhD, is a Buddhist monk at Schechen Monastery in Kathmandu, Nepal. Born in France in 1946, he received a PhD in cellular genetics at the Institut Pasteur under Nobel Laureate Francois Jacob. As a hobby, he wrote *Animal Migrations* (1969). He first traveled to the Himalayas in 1967 and has lived there since 1972, studying with Kangyur Rinpoche and Dilgo Khyentse Rinpoche, two of the most eminent Tibetan teachers of our times. Since 1989, he has served as the French interpreter for His Holiness the Dalai Lama.

He is the author of *The Monk and the Philosopher* (with his father, the French thinker Jean-Francois Revel); *The Quantum and the Lotus* (with the astrophysicist Trinh Xuan Thuan); *Happiness, A Guide to Developing Life's Most Important Skill*; and *Why Meditate?* He has translated several books from Tibetan into English and French, including *The Life of Shabkar* and *The Heart of Compassion*. As a photographer, Matthieu has published several albums, including *The Spirit of Tibet*, *Buddhist Himalayas*, *Tibet*, *Motionless Journey*, and *Bhutan*. He devotes all of the proceeds from his books and much of his time to 120 humanitarian projects in Tibet, Nepal, and India—and to the preservation of the Tibetan cultural heritage—through his charitable association, Karuna-Shechen. Ricard has been deeply involved in the work of the Mind & Life Institute for many years, and currently serves on the Mind and Life research advisory council.



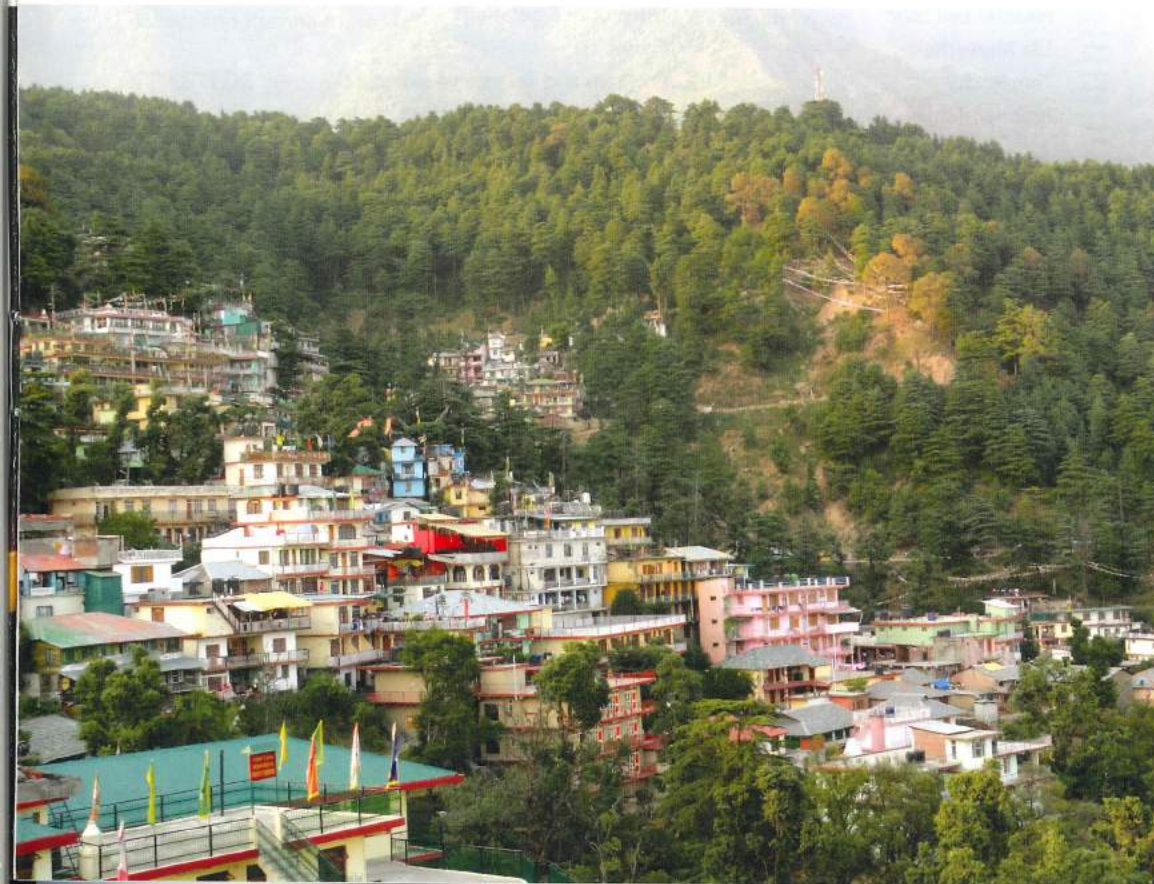
Nora Volkow, MD, is the director of the National Institute on Drug Abuse at the National Institutes of Health, one of the world's foremost medical research centers. She pioneered the use of brain imaging to investigate the effects of drugs in the human brain and has demonstrated that drug addiction is a brain disease. She has published more than 600 scientific articles and edited three books. She has received multiple awards, including membership in the Institute of Medicine; selection as one of *Time's* "Top 100 People Who Shape Our

World"; inclusion as "One of the 20 People to Watch" by *Newsweek*; and selection as "Innovator of the Year" by *US News & World Report*.



Arthur Zajonc, PhD, was professor of physics at Amherst College from 1978–2012, when he became president of the Mind & Life Institute. His research has included studies in electron-atom physics; parity violation in atoms; quantum optics; the experimental foundations of quantum physics; and the relationship between science, the humanities, and the contemplative traditions. He has written extensively on Goethe's science work and is author of the book *Catching the Light*, co-author of *The Quantum Challenge*, and co-editor of *Goethe's Way of*

Science. In 1997, he served as scientific coordinator for the Mind and Life Dialogue published as *The New Physics and Cosmology: Dialogues with the Dalai Lama*. He organized the 2002 dialogue with the Dalai Lama, "The Nature of Matter, The Nature of Life," and acted as moderator at MIT for the "Investigating the Mind" Mind and Life Dialogue in 2003, the proceedings of which were published under the title *The Dalai Lama at MIT*. While directing the Center for Contemplative Mind in Society, Zajonc fostered the use of contemplative practice in college and university classrooms, and he continues to speak around the world on the importance of contemplative pedagogy. Out of this work and his long-standing meditative practice, Zajonc has most recently authored *Meditation as Contemplative Inquiry: When Knowing Becomes Love*. He has also been general secretary of the Anthroposophical Society in America, a cofounder of the Kira Institute, president of the Lindisfarne Association, and a senior program director at the Fetzer Institute.





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MIND AND LIFE DIALOGUES

Past Dialogues between the Dalai Lama and leading scientists show the range of topics that the Mind & Life Institute has explored.

- Mind and Life I Dialogues between Buddhism and the Cognitive Sciences, 1987
- Mind and Life II Dialogues between Buddhism and the Neurosciences, 1989
- Mind and Life III Dialogues between Buddhism and the Sciences: Emotions and Health, 1990
- Mind and Life IV Dialogues between Buddhism and the Sciences: Sleeping, Dreaming, and Dying, 1992
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- Mind and Life IX Dialogues between Buddhism and the Sciences: Transformations of Mind, Brain, and Emotion, 2001
- Mind and Life X Dialogues between Buddhism and the Sciences: The Nature of Matter, The Nature of Life, 2002
- Mind and Life XI Investigating the Mind: Exchanges between Buddhism and the Biobehavioral Sciences on How the Mind Works, 2003
- Mind and Life XII Dialogues between Buddhism and the Sciences: Neuroplasticity - The Neuronal Substrates of Learning and Transformation, 2004
- Mind and Life XIII Investigating the Mind: The Science and Clinical Applications of Meditation, 2005
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- Mind and Life XV Investigating the Mind: Mindfulness, Compassion, and the Treatment of Depression, 2007
- Mind and Life XVI Investigating the Mind-Body Connection: The Science and Clinical Applications of Meditation, 2008
- Mind and Life XVII Latest Findings in Contemplative Neuroscience, 2008
- Mind and Life XVIII Attention, Memory, and Mind: A Synergy of Psychological, Neuroscientific, and Contemplative Perspectives, 2009
- Mind and Life XIX Educating World Citizens for the 21st Century: Educators, Scientists, and Contemplatives Dialogue on Cultivating a Healthy Mind, Brain, and Heart, 2009
- Mind and Life XX Altruism and Compassion in Economic Systems: A Dialogue at the Interface of Economics, Neuroscience, and Contemplative Sciences, 2010
- Mind and Life XXI Mental Training: Impact on Neuronal, Cognitive, and Emotional Plasticity, 2010
- Mind and Life XXII Contemplative Science: The Scientific Study of the Effect of Contemplative Practice on Human Biology and Behaviour, 2010
- Mind and Life XXIII Dialogues between Buddhism and the Sciences: Ecology, Ethics, and Interdependence, 2011
- Mind and Life XXIV Dialogues between Buddhism and the Sciences: Latest Findings in Contemplative Neuroscience, 2012
- Mind and Life XXV Contemplative Practice and Health: Laboratory Findings and Real World Challenges, 2012
- Mind and Life XXVI Mind, Brain, and Matter: Critical Conversations Between Buddhist Thought and Science, 2013





MIND AND LIFE XXVII: CRAVING, DESIRE, AND ADDICTION

Monday, October 28 - Friday, November 1, 2013

	Monday, October 28 Day One	Tuesday, October 29 Day Two	Wednesday, October 30 Day Three	Thursday, October 31 Day Four	Friday, November 1 Day Five
MORNING SESSION 9:00 - 11:30	<i>The Problem of Addiction</i>	<i>Cognitive and Buddhist Theory</i>	<i>Biological and Cultural Views</i>	<i>Contemplative Perspectives</i>	<i>Into the World</i>
	Introduction	Wanting and Liking	The Addicted Brain	Buddhist Perspective	Applications
	Richard Davidson and Diana Chapman Walsh	Kent Berridge	Nora Volkow	Matthieu Ricard	Sarah Bowen
		Moderator: Richard Davidson	Moderator: Richard Davidson	Moderator: Roshi Joan Halifax	Moderator: Richard Davidson
11:30 - 13:00	LUNCH				
AFTERNOON SESSION 13:00 - 15:00	Experience of Addiction	Craving, Grasping, and Action	Role of Society and Culture	Christian Perspective	Final Discussion
	Marc Lewis	Thupten Jinpa	Vibeke Asmussen Frank	Wendy Farley	All Presenters
	Moderator: Roshi Joan Halifax	Moderator: Roshi Joan Halifax	Moderator: Diana Chapman Walsh	Moderator: Diana Chapman Walsh	Moderator: Diana Chapman Walsh