

- [PURPOSE](#)
- [CHAIRS](#)
- [PARTICIPANTS](#)
 - [Mihaly Csikszentimihalyi](#)
 - [Francis Fukuyama](#)
 - [William D. Hamilton](#)
 - [John F. Haught](#)
 - [Allen Johnson](#)
 - [Robert Nozick](#)
 - [Jeremy Arac Sabloff](#)

 - [David Sloan Wilson](#)

PURPOSE



Scribes, their numbers decimated by the Black Death, commanded astronomically high prices, while paper was relatively cheap, when a goldsmith from Mainz, Germany developed a technique for printing using movable type. The invention, credited to Johann Gutenberg, revolutionized the spread of knowledge. Within twenty-five years of the

The pace of discovery and the movement of events at the dawn of the twenty-first century make it at once difficult and essential to occasionally find the time to take a long look at the big picture. Did we get where we are, after some three billion years of life on earth, by happenstance? Or is there evidence of purpose in the realms of animate matter and, indeed, of human history? Is purpose a deep biological or even cosmological fact or just a human invention — a reed of consolation in a pointless universe? On a Caribbean island far from the bustle of their day jobs in the United States and the United Kingdom, ten people — natural scientists, social scientists, a writer, a philosopher, and a theologian — gather to consider the subject of purpose in relation to biological evolution, cultural evolution, and human psychology — and to ponder the meaning of the apparent arrow of life moving toward greater and greater complexity. Questions to be explored include the probability of directionality in the realm of animate matter, specifically, the likelihood of the evolution of a human intelligence, that is, an intelligence particularly

production of the first book in 1457, the new technology had spread throughout Europe. Printing represented a great leap forward in imagination and was one of the most important events in the cultural history of the world.

evolution toward a universalistic morality — i.e., the conviction that all human beings deserve equal moral treatment — almost bound to occur given certain other trends in the unfolding world being shaped by the minds of men and women? A matter of equal import involves the possibility that natural selection may have favored purposive behavior. Is positive emotion tied to anti-entropic states? Is negative emotion intrinsic to zero-sum games? What are the emotional and health consequences of having purpose? Of lacking it? And finally, assuming there is a probabilistic directionality in biological and/or cultural evolution, what moral, spiritual, and/or theological inferences might be drawn? Does directionality constitute progress? Is it suggestive of higher purpose? Can seeing this directionality inspire personal spiritual progress independent of inferences drawn about higher purpose? Is scientific advance ultimately headed toward some "Point Omega" where human beings can aspire to omniscience and omnipotence? If so, is the process sacred? The probe for answers in the conversation in Nassau takes place under the aegis of the John Templeton Foundation.

suites to generating space probes and poems, and in the realm of technology, of art, and of social institutions. Was globalization itself nearly inexorable? Was the evolution of certain political values, such as liberal democracy, and



To Arab astronomers, who brought a sophisticated mixture of Greek and Indian science to the medieval West, we owe our system of numbers and the use of the decimal in calculations. With the fall of Toledo, all the treasures of the great Arab libraries in Spain became accessible to Christian Europe. The Arab astrolabe, invented in the ninth century and pictured here in the upper right, was used for the next seven centuries to show where the stars would be at any time in the year.

CHAIRS

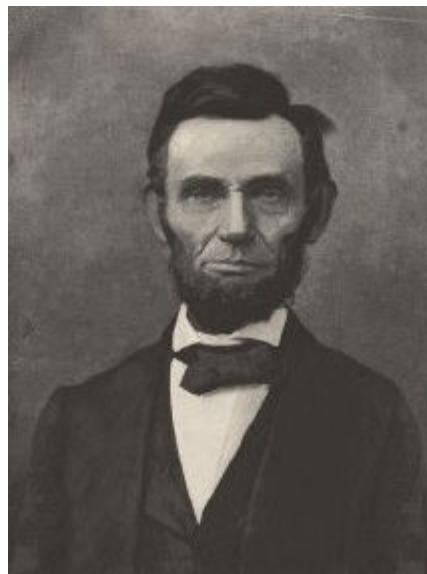


Columbus sailed to the New World in a ship with a lanteen rig and sternpost rudder. The lanteen permitted tacking through the varying offshore winds until the square sail could be hoisted, and the rudder gave masters the necessary longitudinal control over big ships. These innovations fostered trade and exploration by

Martin E. P. Seligman, the Robert A. Fox Leadership Professor of Psychology at the University of Pennsylvania, is a world-renowned authority on helping people live up to their potential. Early in his career, the fundamental contributions he made to understanding human helplessness by extrapolating from well-controlled animal experiments struck at the heart of behavioristic theories of learning. He went on to demonstrate that changing explanatory style — the way in which people explain bad events to themselves — could not only alleviate depression but often prevent it. His own research and that of others supported his bold hypothesis that optimism could be learned. But he also has looked carefully at the "deepest" aspects of human personality, which he finds almost always resistant to change and has termed, using Freud's word *die Seele*, "the soul." A 1964 *summa cum laude* graduate of Princeton University, where he majored in philosophy, Dr. Seligman earned his Ph.D. in

making transoceanic voyages possible in all weathers.

psychology at the University of Pennsylvania in 1967. He spent three years as an assistant professor at Cornell before returning to Penn in 1970. He was named a full professor in 1976, the year he won the Early Career Award of the American Psychological Association (APA) for distinguished scientific contributions. Over the past thirty years, he has received support for his research from the National Institute of Mental Health, the National Institute of Aging, the National Science Foundation, the Guggenheim Foundation, and the MacArthur Foundation. Named by the APA in 1992 as one of the top ten contemporary psychologists in the world, he was elected president of the APA four years later by the largest vote in the organization's recent history. Founding co-editor-in-chief of *Treatment*, the APA's electronic journal, Dr. Seligman has spent many years trying to build bridges between clinical and experimental psychologists. He also is one of the few academic psychologists to make his work accessible to the general public. Since 1984 he has served as chairman of the scientific advisory board of Foresight, Inc., a testing company that predicts success in various walks of life. His many honors include, in addition to a second APA Award for distinguished scientific contribution, the APA's William James Fellow Award, the Laurel Award of the American Association for Applied Psychology and Prevention, the Lifetime Achievement Award of the Society for Research in Psychopathology, the James McKeen Cattell Fellow Award of the American Psychology Association, and the Distinguished Scientific/Professional Contribution Award of the Pennsylvania Psychological Association. Currently Honorary Professor of Psychology at the University of Wales, Cardiff, Dr. Seligman, a member of both Phi Beta Kappa and Sigma Xi, holds honorary degrees from Uppsala University in Sweden and the Massachusetts College of Professional Psychology. He is a fellow of the American Association for the Advancement of Science, the APA, the Behavioral Research and Therapy Society, the Society of Behavioral Medicine, the American Psychological Society, and the Pennsylvania Psychological Association. The author of some 150 research papers, he also has written fifteen books, several of which have been translated into more than a dozen languages. His latest volume, *The Optimistic Child* (with Karen Reivich, Lisa Jaycox, and Jane Gillham), published in 1995 by Houghton Mifflin, presents a program for building lifelong resilience. It represents, as does much of his work, a return to the roots of psychology by complementing a professional focus on repairing damage with professional attention to ways of nurturing a sense of purpose, courage, honesty, altruism, and hope.



"Neither party expected for the war, the magnitude, or the duration, which it has already attained. Neither anticipated that the cause of the conflict might cease with, or even before, the conflict itself should cease. Each looked for an easier triumph, and a result less fundamental and astounding. Both read the same Bible, and pray to the same God; and each evokes His aid against the other. It may seem strange that men should dare to ask a just God's assistance in wringing their bread from the sweat of other men's faces; but let us judge not that we be judged. The prayers of both could not be answered; that of neither has been answered fully. The Almighty has His own purposes."

—Second Inaugural Address (March 4, 1865) Abraham Lincoln

In his latest book, award-winning author **Robert Wright** analyzes a force he calls the "non-zero sum dynamic." He believes it has shaped both human history and organic evolution. *Nonzero: The Logic of Human Destiny*, published last month by Pantheon Books, examines how homo sapiens have arrived at where we are today and what the journey tells us about where we are headed next. The new study

argues that both biological and cultural evolution evince directionality and suggests that this directionality is at least tentative evidence of higher purpose. In an earlier work, Mr. Wright sought to explain a range of human attitudes and emotions, from friendship to jealousy, in terms of the logic of Darwinian natural selection. *The Moral Animal: Evolutionary Psychology and Everyday Life* was named by the *New York Times Book Review* as one of eleven "Editor's Choice" books for 1994 and has been published in nine languages. The author, a 1979 *magna cum laude*, Phi Beta Kappa graduate of Princeton University, is a contributing editor of *Time*, *Slate*, and *The New Republic*. He began his journalistic career as a reporter for *The Daily Register* in Red Bank, New Jersey, then became an associate editor of *The Wilson Quarterly*, an associate editor then senior editor of *The Sciences*, editor of New Republic Books, an imprint of Basic Books, and, from 1989 to 1995, senior editor at *The New Republic*. He won the National Magazine Award for Essay and Criticism in 1985 and the New York Press Club Award for Feature Writing in 1996. Mr. Wright's first book, *Three Scientists and Their Gods* (1988), was a finalist for the National Book Critics Circle Award.

**The deep
Moans round with many voices. Come, my
friends,
'Tis not too late to seek a newer world.
Push off, and sitting well in order smite
The sounding furrows, for my purpose holds
To sail beyond the sunset, and the baths
Of all the western stars, until I die.
It may be that the gulfs will wash us down;
It may be we shall touch the Happy Isles,
And see the great Achilles, whom we knew.**

**—Ulysses
Alfred Lord Tennyson**

PARTICIPANTS

One of the world's leading authorities on the psychology of creativity, **Mihaly Csikszentmihalyi** is the C. S. and D. J. Davidson Professor of Psychology at the Peter F. Drucker Graduate School of Management at Claremont Graduate University and director of the school's Quality of Life Research Center. He is also emeritus professor of human development at the University of Chicago, where he chaired the department of psychology. His life's work has been to study what makes people truly happy. Drawing upon years of systematic research, he invented the concept of "flow" as a metaphorical description of the rare mental state associated with feelings of optimal satisfaction and fulfillment. His analysis of the internal and external conditions giving rise to "flow" show that it is almost always linked to circumstances of high challenge when personal skills are used to the utmost. The Hungarian-born social scientist, a graduate of the classical gymnasium, "Torquato Tasso," in Rome, completed his undergraduate studies at the University of Chicago and earned a Ph.D. in psychology there in 1965. After teaching in the department of sociology and anthropology at Lake Forest College, where he rose from instructor to associate professor, he returned to Chicago in 1970 and was appointed a full professor in 1982, a position he held until his retirement last year. He has been a visiting professor at the University of Waterloo in Ontario, Canada, the University of Illinois, the University of Milan, the University of Alberta, Escola Paulista de Medicina in São Paulo, Brazil, Duquesne University, the University of Maine, the University of Jyväskylä in Finland, and the British Psychological Society. His research has been supported by the United States Public Health Service, the J. Paul Getty Trust, the Sloan Foundation, the W. T. Grant Foundation, the Hewlett Foundation, and the Spencer Foundation. A former resident scholar at the Rockefeller Center at Bellagio, resident fellow at the Center for Advanced Studies in the Behavioral Sciences in Palo Alto, and senior Fulbright Fellow in Brazil and New Zealand, Dr. Csikszentmihalyi holds an honorary doctor of science degree from Lake Forest College. He is a fellow of the American Academy of Arts and Sciences, the American Psychological Society, the National Academy of Education, and the National Academy of Leisure Studies and a foreign member of the Hungarian Academy of Sciences. Serving on the editorial boards of numerous professional journals, he has been a consultant to business, government organizations, educational associations, and cultural institutions and given invited lectures throughout the world. In addition to the hugely influential *Flow: The Psychology of Optimal Experience* (1990), which was translated into fifteen languages, he is the author of thirteen other books and some 185 research articles. His latest volume, *Finding Flow: The Psychology of Engagement with Everyday Life*, was published in 1997 by Basic Books.

Francis Fukuyama is the Omar L. and Nancy Hirst Professor of Public Policy at the Institute of Public Policy at George Mason University and director of the Institute's International Commerce and Policy Program. A consultant to the RAND Corporation, he is widely known for his writing on issues relating to democratization and international political economy. In recent years, he has focused particularly on the role of culture in modern economic life. His earlier work provided a comprehensive analysis of Soviet foreign policy in developing nations. Dr. Fukuyama is a graduate of Cornell, where he majored in classics, and of Harvard, where he earned a Ph.D. in political science in 1981. He began his career as a member of RAND's political science department, served on the policy planning staff of the U. S. Department of State, and subsequently returned to RAND as a senior social scientist before joining the George Mason faculty in 1996. He also has directed various projects related to telecommunications, the new sciences, and the biological and information revolutions as a fellow of the Foreign Policy Institute of The Johns Hopkins University School for Advanced International Studies. The winner of the Medal of the Presidency of the Italian Republic and the Excellence 2000 Award United States Pan Asian-American Chamber of Commerce, he holds an honorary doctorate from Connecticut College. Dr. Fukuyama is a member of the advisory board of National Interest and of the editorial board of the *Journal of Democracy*. In addition to some sixty articles and book chapters, he is the author of ten monographs and books. *The End of History and the Last Man* (1992), an exploration of the evolution of political institutions in the direction of modern liberal democracy, has been published in twenty-three foreign languages and won the *Premio Capri* International Award for the Italian edition and a *Los Angeles Times* Book Critics Award. His most recent study, *The Great Disruption: Human Nature and the Reconstitution of Social Order*, was published last year by the Free Press. An analysis of the measurable breakdown of long-accepted norms of behavior, which Dr. Fukuyama links to the weakening of social bonds and common values, it goes on to posit a deeply innate human capacity to generate moral rules, which the author sees as the basis of a new stability.

One of the world's most respected evolutionary biologists, **William D. Hamilton** is the author of some sixty research papers that have permanently changed the landscape of ideas and interpretation surrounding a wide range of biological phenomena. He has made notable contributions to the evolutionary theory of senescence and, more generally, to the analysis of life-history evolution. His concept of the selfish herd provided a basis for understanding why unrelated animals would choose to live in groups, and a series of influential theoretical and empirical studies demonstrated how the co-evolution of hosts and parasites might change aspects of sexual reproduction and how cooperation could evolve among unrelated organisms. His findings have not only opened up new areas of inquiry but as pioneering applications of the "gene's-eye point of view," they have had a powerful impact on investigations of many problems in evolutionary genetics that go far beyond the boundaries of his own research interests. Trained in genetics at Cambridge University, where he studied at St. John's College, Dr. Hamilton received his Ph.D. in zoology from University College, London in 1968. The next year he spent nine months in Brazil with the Royal Society and Royal Geographic Society Xavantina-Cachimbo Expedition. He was a lecturer in zoology at Imperial College, London for thirteen years and subsequently Museum Professor of Evolutionary Biology in the Museum of Zoology and Biological Sciences at the University of Michigan for six years. In 1984, he was named Royal Society Research Professor at Oxford University, where he is also a professorial fellow at New College. Dr. Hamilton has been the Leverhulme Visiting Professor at the University of São Paulo and the Visiting Agassiz Professor at Harvard University. He served as the first president of Human Behaviour and Evolution Society. He is an associate editor of *Ethology and Sociobiology*, *Revista Brasileira de Genetica*, and of the Royal Society B publications and also serves on the editorial boards of *Insects Sociaux* and of *Ethology, Ecology, Evolution*. In addition to an honorary doctor of science degree from the University of Guelph, his many other awards include: the Scientific Medal of the Zoological Society of London (1978), the Newcomb Cleveland Prize of the American Association for the Advancement of Science (1982), the Darwin Medal of the Royal Society of London (1988), the Scientific Medal of the Linnean Society (1989), the Frink Medal of the Zoological Society of London (1991), the Distinguished Animal Behaviorist Award of the Animal Behaviour Society (1991), the Lecture and Prize of the Albert Wander Foundation and the University of Bern (1992), the Crafoord Prize and Medal of the Academy of Sciences (1993), the Kyoto Prize (1993), the Fyssen Prize (1996), Brazil's National Order of Merit (1998), and the Sewall Right Award of the American Society of Naturalists (1998). Elected a Fellow of the Royal Society in 1980, Dr. Hamilton is also an honorary foreign member of the American Academy of Arts and Sciences, a member of the Royal Society of Uppsala, a corresponding member of the Brazilian Academy of Sciences, a foreign member of the Academy of Finland, and a foreign member of the American Philosophical Society.

John F. Haught, a theologian well-known for his teaching and writing in the area of science and religion,

is the Landegger Distinguished Professor at Georgetown University, where he has been a member of the theology faculty for the past thirty years. A graduate of St. Mary's University, he earned his Ph.D. in theology at The Catholic University of America in 1970. Dr. Haught formerly served as chair of the Georgetown theology department and is the founding director of its Center for the Study of Science and Religion. The author of more than fifty articles and book chapters, he has published ten books, including *The Promise of Nature: Ecology and Cosmic Purpose* (1993) and *Science and Religion: From Conflict to Conservation* (1995). His latest volume, *God After Darwin: A Theology of Evolution* (Westview Press, 1999) defines purpose "as a much wider notion than design" and argues that the debate between evolutionists and creationists is fundamentally misdirected in that both sides persist in focusing upon an explanation of the design and order in living beings and the universe. Dr. Haught suggests that what is lacking in both these competing ideologies is an adequate discussion of novelty, a necessary component of evolution and a central theme in theological understanding of divine creativity. He argues that Darwin's vision of life, instead of being hostile to religion — as scientific skeptics and many believers have thought it to be — actually provides a fertile setting for mature reflection on ideas about God and the meaning of creation. Dr. Haught is the editor of a new book of essays, *Science and Religion in Quest of Cosmic Purpose*, which will be published by Georgetown University Press in the spring.

The anthropologist **Allen Johnson** is an expert on cultural and political ecology and widely respected for his work in the field of psychological anthropology and his studies of native South American and Latin American communities. A graduate of the University of California/Berkeley, he received a Ph.D. in anthropology from Stanford in 1968 and a second doctorate in psychoanalysis from the Southern California Psychoanalytic Institute in 1992. Dr. Johnson has conducted field work in Oaxaca, Mexico, Ceara, Brazil, and the Peruvian Amazon. After beginning his teaching career at Columbia University, he moved on to the University of California/Los Angeles in 1975. Promoted to full professor of anthropology in 1980, he was appointed professor of anthropology and psychiatry in 1988. Dr. Johnson directed a National Institute of Mental Health (NIMH) training program in social anthropology at Columbia and one in behavioral anthropology at UCLA. A former chair of UCLA's anthropology department, he is currently chair of the university's Latin American Studies Program. His research has been supported by grants from the National Science Foundation, Agricultural Development Council, and NIMH. Dr. Johnson has served as a member-at-large of the Executive Committee of Anthropology of the American Association for the Advancement of Science and as a member of the board of directors of the Society for Psychological Anthropology. In 1998, he delivered the Robert J. Stroller Foundation Memorial Lecture. The author of some three dozen research articles, he also has published seven books. His 1996 study (with Douglass Price-Williams), *Oedipus Ubiquitous: The Family Complex in World Folk Literature* (1996) won the Society for Psychological Anthropology's L. Bryce Boyer Prize for the outstanding publication in psychoanalytic anthropology. Later this year, Stanford University Press will bring out the second edition of *The Evolution of Human Societies*, a highly-praised book Dr. Johnson wrote in 1987 with Timothy Earle, as well as his latest monograph, *Families of the Forest: A Psychoecological Study of the Matsigenka of the Peruvian Amazon*.

Robert Nozick, the Pellegrino University Professor at Harvard University and past chair of the Harvard philosophy department, is a philosopher of remarkably varied interests. He has made notable contributions to both political philosophy and epistemology. His first and perhaps most influential book, *Anarchy, State and Utopia* (1974), is a powerful and witty statement of libertarianism. He presents an image of a fully voluntary society in which people cooperate only on terms that violate no one's natural rights. Dr. Nozick also has had a major impact on Western public discourse through his analysis of knowledge, with its accompanying response to skepticism, as well as through his account of personal identity and his work related to decision theory and the theory of rationality. Throughout his work, he emphasizes the role of evolution in the construction of human capacities and institutions. Dr. Nozick is a graduate of Columbia College, where he was elected to Phi Beta Kappa, and of Princeton University, where he received a Ph.D. in philosophy in 1963. He then studied at Oxford on a Fulbright Scholarship and returned to teach at Princeton for a year before joining the Harvard faculty as an assistant professor. He went on to The Rockefeller University as an associate professor in 1967, then returned to Harvard as a full professor in 1969. He was named Arthur Kingsley Porter Professor of Philosophy in 1985 and awarded his present chair in 1998. Dr. Nozick has held fellowships from the Guggenheim Foundation, the Rockefeller Foundation, the National Endowment for the Humanities, the Center for Advanced Study in the Behavioral Sciences, and the Van Leer Jerusalem Foundation. In 1983, he was awarded an honorary doctor of humane letters degree from Knox College, and in 1998, he received a presidential citation from the American Psychological Association. Cultural advisor to the United States Delegation to the UNESCO Conference on World Cultural Policy in 1982, he was Christensen Visiting Fellow at St. Catherine's

College, Oxford in the spring of 1997 and president of the Eastern Division of the American Philosophical Society in 1997-98. Dr. Nozick is a fellow of the American Academy of Arts and Sciences, a corresponding fellow of the British Academy, a senior fellow of the Society of Fellows of Harvard University, and a member of the Council of Scholars of the Library of Congress. For the past nine years, he has been general editor of *Readings in Philosophy*, a series of multi-volume sets of articles on philosophical subjects. His 1981 book, *Philosophical Explanations*, received the Ralph Waldo Emerson Prize of Phi Beta Kappa. He is also the author of *The Examined Life* (1989), *The Normative Theory of Individual Choice* (1990), *The Nature of Rationality* (1993), and *Socratic Puzzles* (1997). A revision of the six John Locke Lectures that he delivered at Oxford in 1997 will be published as *The Structure of the Objective World* by Harvard University Press next year.

Internationally known for his research and writings on ancient Maya civilization, **Jeremy Arac Sabloff** is The Williams Director of the University of Pennsylvania Museum of Archaeology and Anthropology and Penn's University Museum Term Professor of Anthropology. He also serves as curator of Mesoamerican archaeology at the Museum. Dr. Sabloff has done field research in both Mexico and Guatemala and, from 1983 to 1988, directed a National Science Foundation-funded project that examined the growth of urban settlement at the pre-Columbian Maya city of Sayil in the Yucatan. After undergraduate studies at Penn, where he was awarded his baccalaureate degree *magna cum laude* with honors in anthropology and elected to Phi Beta Kappa, he earned a Ph.D. in anthropology from Harvard in 1969 and began his teaching and curatorial career there as an assistant professor of anthropology and assistant curator of Middle American archaeology at the university's Peabody Museum. Promoted to associate professor and associate curator in 1974, he left two years later to become curator of anthropology at the Utah Museum of Natural History and associate professor of anthropology at the University of Utah. In 1978, he accepted a professorship of anthropology at the University of New Mexico, a position he held until being named University Professor of Anthropology at the University of Pittsburgh in 1986. He returned to Penn six years ago. Dr. Sabloff has been an overseas-visiting fellow at St. John's College, Cambridge, a visiting fellow in the department of archaeology at Cambridge University, and a senior fellow in pre-Columbian studies at Dumbarton Oaks in Washington. Currently chair of the Smithsonian Council of the Smithsonian Institution and president of the Louis J. Kolb Foundation, he is a past president of the Society for American Archaeology and a past chair of the Section on Anthropology of the American Association for the Advancement of Science (AAAS). He is a member of the National Academy of Sciences and the American Philosophical Society, as well as a fellow of the American Academy of Arts and Sciences, AAAS, Royal Anthropological Institute, and Society of Antiquaries of London. A former editor of *American Antiquity*, he serves on the editorial boards of the *Proceedings of the National Academy of Sciences*, *Latin American Antiquity*, the *Journal of Anthropological Research*, and *Archaeology Magazine*. In addition to writing some eighty scholarly articles and book chapters, Dr. Sabloff is the editor of eleven books and the author or co-author of twelve, including *Excavations at Seibal; Ceramics* (1975), *The Cities of Ancient Mexico* (1989 and 1997), and *The New Archaeology and the Ancient Maya* (1990). His *A History of American Archaeology* (with Gordon R. Willey), now in its third edition, has become a standard text in its field.

David Sloan Wilson has been described as one of the most creative theoreticians in evolutionary studies. His recent book (with Elliott Sober), *Unto Others: The Evolution and Psychology of Unselfish Behavior* (Harvard University Press, 1998), is a radical revision of the theory of altruism that rejects the idea that natural selection must operate directly only on individuals. Through a rigorous technical analysis of both biological and epistemological questions, he shows that species may evolve altruistic behavior provided that the frequency of altruistic types within groups has an effect on the contribution of the group as a whole to the next generation of the species. Dr. Wilson is a professor of biological sciences at the State University of New York/Binghamton. A *magna cum laude* graduate of the University of Rochester, he earned his Ph.D. in zoology at Michigan State University in 1975. He did further research at Harvard, the University of Washington, and the University of the Witwatersrand in South Africa before joining the staff of South Africa's National Research Institute for Mathematical Sciences as a senior research officer in 1976. He moved on the next year to the University of California/Davis and then back to Michigan State as assistant professor of zoology. Promoted to associate professor in 1982, he joined the Binghamton faculty six years later. Dr. Wilson is a former Guggenheim Fellow and also has received research support from the National Science Foundation, the United States Department of Energy, and the John Templeton Foundation. Currently serving on the editorial board of the Human Behavior and Evolution Society, he previously served as vice president of the American Society of Naturalists. In addition to *Unto Others*, he is the author of *The Natural Selection of Populations and Communities* (1980) and more than one hundred research articles published in philosophy, psychology, and anthropology as

well as biology and general science journals.

**Many things, having full reference
To one consent, may work contrarily;
As many arrows, loosed several ways,
Fly to one mark; as many ways meet in one town;
As many fresh streams meet in one salt sea;
As many lines close in the dial's center;
So may a thousand actions, once afoot,
End in one purpose, and be all well borne
Without defeat.**

**— King Henry V
William Shakespeare**



The fish found in Lake Victoria are known as cichlids but called furu, a name used by the East African people of the Mwanza Gulf. They are a related species that diversified during a relatively recent past, from a common ancestor. As the cichlids evolve, they develop a diversity of shapes, colors, and behavior patterns. To the delight of scientists, new species are literally appearing, changing, and disappearing before their very eyes. Cichlid radiations — the production of many species from a small number of ancestral species — are among the most spectacular in the world and can be observed at different stages of evolution as living organisms.

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[Top of Page](#)