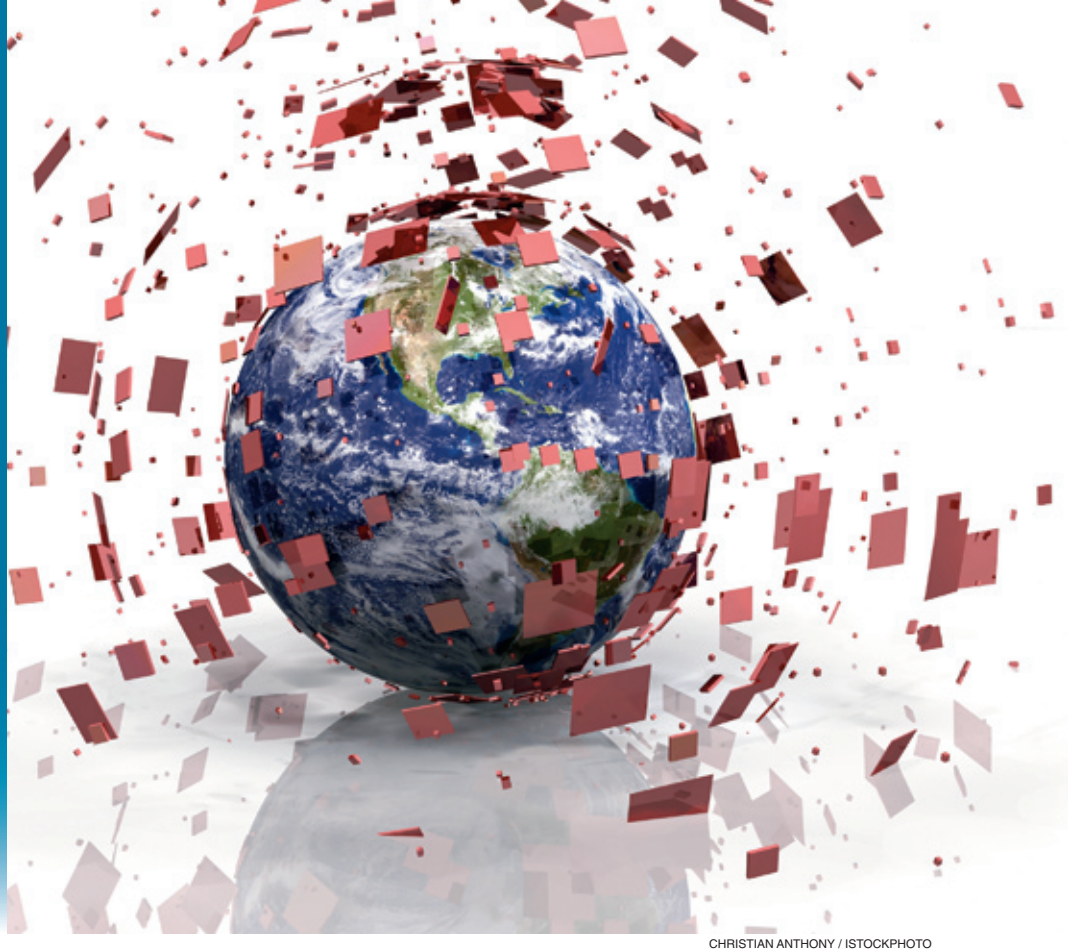
2020 Visionaries

Networks and Human Impulses

Two Internet experts, a psychologist, and an anthropologist explore our multiplying connections.



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The Network and Its Contents

What is a social network? A few years ago, the social network would have referred to our immediate acquaintances, the people we lived with and worked beside, perhaps individuals we identified as similar to us in age, income, politics, or consumption habits. They may simply have been classmates, just as Facebook was originally designed to cater to the student body at Harvard University. (A new film directed by Aaron Sorkin provocatively chronicling the rise of Facebook is called *The Social Network*.)

Take a look at the average Facebook page today and you'll find millions of networks overlapping one another in a grand circuit. Personal and intimate postings from daily life—details of a child's first steps, a disappointing day at work, a spousal argument—mingle freely with bits of political activism, amateur journalism, small acts of civic engagement. Our every human relationship, from the way we interact with one another at the most personal level to the way we relate to institutions, are interwoven into a single fabric that we now wear in public. Our social network is everyone with whom we interact; and that, increasingly, is *everyone*.

The question becomes, how do we make the most of these new connections in order to become better citizens, better life partners, and better people? We attempt to provide some insight in this final installment of the 2020 Visionaries series.

In true futurist fashion, we've tried to cast our net wide. We begin with a broad discussion about the new relationship between individuals and institutions.

First, New York University telecommunications professor and best-selling author **Clay Shirky** says that the greatest challenge of the Interconnected Age is also its greatest asset: cognitive surplus. We have more creativity, more data, more art, more content than any publisher, editor, or news producer could ever use effectively. The onus is on each of us to participate and make something useful with the new tools at our disposal.

Following, we present our account of a remarkable conversation. In one corner, **Cory Doctorow,** best-selling science-fiction writer, creator of the popular technology blog Boing Boing, and one of the world's most vocal advocates for network freedom, liberal copyright policies, and open-source creative collaboration. His conversational partner? The network, in person: 60 people with whom Doctorow spoke over the course of two days of touring the mid-Atlantic region. The discussion ranged from science-fiction scenarios to the future of e-readers to the Google versus Viacom copyright fight and what it means for the future (hint: a lot). Here are the highlights of that discussion.

—Patrick Tucker, senior editor, THE FUTURIST

Tapping the Cognitive Surplus

By Clay Shirky

The sudden bounty of accessible creativity, insight, and knowledge is a public treasure, says a network guru.

LIA BULAONG

Clay Shirky, author of *Here Comes Everybody* and *Cognitive Surplus.*

Imagine treating the free time of the world's educated citizenry as a kind of cognitive surplus. How big would that surplus be? To figure it out, we need a unit of measurement, so let's start with Wikipedia. Suppose we consider the total amount of time people have spent on it as a kind of unit—every edit made to every article, every argument about those edits, for every language in which Wikipedia exists. That would represent something like 100 million hours of human thought.

One hundred million hours of cumulative thought is obviously a lot. A television producer once asked me about people who volunteer to edit Wikipedia, "Where do they find the time?" The people posing this question don't understand how tiny that entire project is relative to the aggregate free time we all possess. How much is all that time spent on Wikipedia compared with the amount of time we spend watching television? Americans watch roughly 200 billion hours of TV every year. That represents about 2,000 Wikipedia projects' worth of time annually. Even tiny subsets of this time are enormous: We spend roughly a hundred million hours every weekend just watching commercials.

The good news about our current, remarkable age is that we can now treat free time as a general social asset that can be harnessed for large communally created projects, rather than as a set of individual minutes to be wiled away one person at a time.

Wikipedia is one well-known example; here's another you may not have heard of, a service called Ushahidi (Swahili for "witness") developed to help Kenyan citizens track outbursts of ethnic violence. The originator, human rights activist Ory Okolloh, imagined a service that would automatically aggregate citizen reporting of attacks with the added value of locating the reported attacks on a map in near-real time. She floated the idea on her blog, attracting the attention of programmers Erik Hersman and David Kobia, who helped Ushahidi .com go live.

Several months later, Harvard's Kennedy School of Government compared the site's data to that of the mainstream media and concluded that Ushahidi had been better than the big media at reporting acts of violence as they started, better at reporting acts of nonfatal violence (which are often a precursor to deaths), and better at reporting over a wide geographical area, including rural districts.

You don't need fancy computers to harness cognitive surplus; simple phones can be all that's required. But one of the most important lessons is this: Once you've figured out how to tap the surplus in a way that people care about, others can replicate your techniques, over and over, around the world.

The question we now face—all of us who have access to new models of sharing—is what we'll do with those opportunities. The question will be answered more decisively by the opportunities we provide for one another and by the culture of the groups we form than by any particular technology. The trick for creating new social media is to use those lessons as ways to improve the odds for successful harnessing of cognitive surplus.

Our media environment (that is to say, our connective tissue) has shifted. In a historical eyeblink, we have gone from a world with two different models of media—public broadcasts by professionals and private conversations between pairs of people—to a world where public and private media blend together, where professional and amateur production blur, and where voluntary public participation has moved from nonexistent to fundamental.

This was a big deal even when digital networks were used by only an elite group of affluent citizens, but it's becoming a much bigger deal as the connected population has spread globally and crossed into the billions. The world's people, and the connections among us, provide the raw material for cognitive surplus. The technology will continue to improve, and the population will continue to grow, but change in the direction of more participation has already happened.

What matters most now is our imaginations. The opportunity before us, individually and collectively, is enormous; what we do with it will be determined largely by how well we are able to imagine and reward public creativity, participation, and sharing.

About the Author
Clay Shirky teaches at the Interactive Telecommunications Program at New York University. He is the author of *Here Comes Everybody: The Power of Organizing Without Organizations.* His writings have appeared in *The New York Times*, the *Wall Street Journal*, the *Times of London*, *Harvard Business Review*, *Business 2.0*, and *Wired*.

Cory Doctorow Meets the Public

Sixty people interview one of today's hottest science-fiction authors and most dedicated open Internet advocates.

Cory Doctorow is the author of various science-fiction novels, including *Makers* and *Little Brother,* which he makes available for free from his Web site. He's one of the editors of the technology blog Boing Boing. In addition, he's a current fellow and former European Affairs Coordinator for the Electronic Frontier Foundation and a fierce advocate for the liberalization of copyright laws to allow for free sharing of all digital media. On June 27–28, he visited Red Emma's bookstore in Baltimore, Maryland, and then appeared at CopyNight DC, a regular event in Washington, to discuss his work with more than 60 participants. Highlights from those exchanges are presented here.

Audience: How do you come up with your science-fiction ideas?

Cory Doctorow: Pick something that's difficult, complicated, and expensive for people to do, then imagine that thing becoming easy, simple, and inexpensive, and write about it. That's what's happening today. Anything that requires more than one person and lots of coordination has become easier because of networks, which take the coordination cost associated with these very complicated tasks and make them low. The change is profound, because any task that one person can't do alone, whether it's making an airplane or a skyscraper, is literally superhuman. But the superhuman is becoming easier. You could write a damn good science-fiction story about free skyscrapers.

Audience: On the subject of exponential price depreciation, what can we do to ameliorate the socially and economically disruptive effects of a hypothetical breakthrough in nanofabrication? Those negative effects would be massive unemployment, institutions becoming obsolete, and millions of people having no idea what to do about government or commerce.

Doctorow: How can we ameliorate the social upheaval that arises from a postindustrial revolution based on nanofabrication? Iron-fisted totalitarian dictatorship? Workers' paradise? I don't know.

Audience: In your novel *Makers,* you talk about people who take electronic gadget waste (referred to as e-waste) and turn it into something new. Where do you see this happening in real life?

Doctorow: A large part of the e-waste problem is that we design devices that are meant to be used for a year but take a hundred thousand years to degrade. I wonder if we won't someday design some devices to gracefully degrade back into the part stream, back into materials faster. Bruce Sterling wrote a manifesto about this for MIT Press called *Shaping Things*. He proposed that, with the right regulatory framework and technology, it might be possible to start readdressing design decisions so that things gracefully decompose back into components that can be reused in next-generation devices.

Audience: In *For the Win* and in *Little Brother,* you discuss small, technologically savvy networks sparking revolutions among a larger, much less sophisticated group, like enslaved factory workers who were waiting for a catalyst to overthrow their oppressors. Do you really believe that a few thousand well-connected individuals can trigger revolution?

Doctorow: My themes in those books aren't small groups of people using technology to liberate larger groups, but rather that information rapidly diffuses through small groups, and then larger groups of people use it to help themselves. This is characteristic of all technological diffusion.

Audience: Does that go both ways?

Doctorow: Technology is good at disrupting the status quo because technology gives an advantage to people who want to undermine something that's stable. Imagine a scenario in the Middle Ages where someone had just invented earth-moving technology and you manage security for a city. You want to defend your city with earth-moving technology. I want to break into your city with earth-moving technology. You need a perfect wall; I need to find one imperfection. Your task

PATRICK H. LAUKE

Cory Doctorow, science-fiction author and an editor for the technology blog Boing Boing.

is exponentially harder than my task.

When you look at Orwell in *1984*, he comes across as a technophobe. What he was seeing was a small piece in the arc of technology, where tech had realized an old totalitarian dream, where there had been states previously who wanted to assert control over private lives of the people who lived in them but they couldn't make that a reality until technology gave them an assist. According to Orwell, this is what technology does: It allows authoritarians to assert authority. But not long after he wrote that, technology became a tool to undermine the state.

Today, we're living in another one of those inflection points. We went from technology as a liberating force during my adolescence—it gave young people access to tools, ideas, communities, that even the most powerful and rich couldn't have dreamt of before—to an age where everybody's kid gets an iPhone with an application that tracks them like they're a felon. Every library is mandated to put spyware on their computers, and students who are caught using proxies or another tool that might enhance their privacy are thrown out of school. Educators are scanning students' Facebook pages. I'm hoping for another swing of the pendulum.

Audience: What did you think of the recent Viacom versus Google verdict?

Doctorow: Here's the background: Recently, Viacom sued Google, owner of YouTube, for a billion dollars, claiming that YouTube has a duty to police all the material it hosted before the material went live. Viacom also argued that YouTube should not be allowed to have any privacy settings for its users. Right now, if you want to post a video of your newborn taking a bath and you just want to share it with family, you can show the video privately. You can select a privacy setting. Viacom argued that there should be no private videos, because Viacom had no way to police these videos to see if copyrighted material was being shared. By extension, they were arguing that no one should have any privacy settings, because if it's illegal for YouTube it should be illegal for everyone.

If Viacom had won, they could have changed established law. There's a copyright law called the Digital Media Copyright Act (DMCA) published in 1998. DMCA exempts people who host content from liability if that content infringes on copyright if they take it down expeditiously. If you have a Web server and one of your users posts something that infringes on copyright, you aren't liable provided that when you receive a notice that the material is infringing you take the material down. This is what YouTube does with all of the material that its users post. It's a ton of material; 29 hours of video per minute is uploaded to YouTube. The DMCA allows all the user-generated material on Web sites to exist. It's why Blogger, Twitter, and Wordpress exist. There aren't enough lawyer hours between now and the heat death of the universe to review all this material before it's posted online. In other mediums where similar protections don't exist, like cable television, very small amounts of user-generated material are shared.

Over the course of the court proceedings, it turned out that, even as Viacom was suing YouTube, it was still uploading videos to YouTube because they needed to have them there as part of their media strategy. Various Viacom divisions were paying as many as 25 marketing companies to put Viacom videos on YouTube under false fronts because no one officially connected to Viacom could put the videos on YouTube. The firms were even "roughing up" the videos to give them a "pirate chic." At any big media company, beneath the top layer of corporate leadership, beneath the people who file lawsuits for things like copyright infringement, you have a layer of people who understand the realpolitik. These are the actual content producers. They say to themselves, "I have a new TV show. I have to get a certain number of viewers or it will be canceled, and I can't do it unless I have my video on YouTube." The real question is, how do you empower those people? We need to start a secret society for clued-in entertainment executives to help each other across companies.

What the court held in the case was that you don't

have to preemptively police all material before it gets onto the Internet. Viacom said it would appeal. It was a foregone conclusion that they would. One day, your university will change its Internet-use policy based on this case. Your Internet service provider will change its policy based on this. It affects everyone, even people who use the Internet for reasons besides uploading entertainment content.

This case speaks directly to how we will share information collectively in the future. It's the basis also of all of tomorrow's political organizing. The more constricted that becomes, the harder it becomes to resist bad laws.

Audience: Last year in Spain, the government deactivated 3 million phone numbers. The owners of the phones had to go to a store and show ID to register their phones to get service again. A few weeks ago, Senator Charles F. Schumer (Democrat–New York) proposed mandatory registration of cell phones in the United States because the Times Square bomber used a prepaid phone. How do we resist this in the context of the May 11 threat of terrorists using prepaid phones?

Doctorow: This is another example of politicians shouting terrorism as a way to get anything passed. If the Times Square bomber didn't have access to an anonymous phone, there's no reason to think he wouldn't have just bought a phone using his ID. What he was worried about was blowing up Times Square, not whether or not he would get caught afterward. All of the 9/11 bombers used a real ID when they got on their planes. Being identified after you committed your suicide atrocity is not a downside. These people record videos with their information before they act. Our current approach to antiterrorism seems to take as its premise that al-Qaeda was trying to end aviation by making flying inconvenient.

I don't follow your premise, though, that we can do meaningful broadband things with phones that are anonymous but that we'll lose that capability once Chuck Schumer's crazy law comes in.

The primary barrier to doing meaningful broadband things with wireless mobile devices is the terrible carriers. When you're using an Ethernet, you have a universe of electromagnetic spectrum between a small bit of insulation. Burners [inexpensive phones purchasable with anonymous, limited-service plans] will never be able to provide that. Maybe cognitive radio can figure out how to solve these bottlenecks, but we're not going to get 3G or 4G.

Audience: You talk about the threat to democracy in terms of how the copyright fight leads to individuals being taken off the Net. What other trends in society do you see that might affect liberty at a much greater level? What do you think of this notion that, if speech is money, then restrictions we place on money should apply to speech?

Doctorow: I concentrate on issues related to network freedom because one day I woke up and realized that no one will ever be able to campaign on any of those issues without a free and open network. Our capacity to make any sort of positive change on any of this stuff, to elect a lawmaker who passes a law that the Supreme Court will interpret differently, is built around our capacity to use the network to organize with one another.

My role, as I see it, is to try and keep the network open for people who have other issues that they care about.

Audience: Mere blocks from here [in D.C.] is the Jack Valenti building of the Motion Picture Association of America. Should we start picketing there or keep walking until we get to Congress or the White House? How do we find hundreds of thousands of people to picket with us?

Doctorow: The point of my talk tonight is this: We need to make the fight for individual rights online bigger than entertainment copyright and questions of who gets to make movies or mashups, or who gets to decide how much it costs to load a thousand songs onto your iPod. We need to make this about freedom of speech, freedom of the press, due process, the right to education, and all of the fundamentals that are at the heart of the Internet. Next year, and the year after that, the Internet will absorb and encompass even more realms of our daily lives. We'll also be even better at copying stuff. If you want to get people interested in this, stop talking about cultural freedom—movie copyright, music copyright—and just start talking about freedom.

I'm working on a novel right now called *Pirate Cinema;* it's a neo-Dickensian piece set in London. It's about kids who cost their parents their Internet access as a result of them downloading mashup movies. They cost their parents everything. They survive on handouts. Their moms are on benefits and can't log in to get the benefits because their Internet has been taken away. To spare their families the shame of living with downloaders, the kids move to London, start a gang called the Jammer Dodgers, and take it upon themselves to destroy the entertainment industry before the entertainment industry destroys society. They cut movies that they've pirated into new movies. They screen them in cemeteries and vaulted Victorian sewers; they go up to the people lining up to see movie premieres in Leicester Square and they hand out the DVD of that very film on offer with an insert advertising the free showing of the same movie down the street.

I was stranded in Los Angeles for four days because of the volcanic ash cloud; I took the time to meet with my film agent, and I told him about this idea. He asked, "What else have you got?"

—Patrick Tucker reported on these events.

Coming Changes in Our Concept of Self

Next we'll look at our deepest impulses toward moral action, love, and fidelity. Two of the world's foremost experts on this subject will assess how these central aspects of our humanity could evolve over the next 10 years.

Stanford University psychology professor **Philip Zimbardo** describes his most recent endeavor, The Heroic Imagination Project, an exploration of the psychology of heroism. Zimbardo is uniquely qualified to speak on the strange ways that people can play off one another when they're suddenly thrust into new networks and asked to take on new roles.

In 1971, Zimbardo gathered together 24 Stanford undergraduates to perform a mock prison experiment in the basement of the university's psychology building. Participants were randomly assigned the role of guard or prisoner. The experiment was stopped after only six days when the students assigned to be guards began abusing their classmates. In his new research, he looks at "what pushes some people to become perpetrators of evil, while others act heroically on behalf of those in need?"

Finally, **Helen Fisher,** Rutgers University anthropologist and author of *Why We Love: The Nature and Chemistry of Romantic Love* (Henry Holt 2004), examines the institution of marriage and discusses how our understanding of love and fidelity will change in the next two decades. The amount of new data we are gathering about the chemical and biological roots of romantic partnership will challenge our traditional assumptions about these most important connections in our social web, presenting new obstacles and creating new opportunities in the decades ahead. *—PMT*

We Need a Hero

By Philip Zimbardo

A leading psychologist and originator of the Stanford Prison Experiment is applying his understanding of evil to the promotion of good.

What is a hero? I argue that a hero is someone who possesses and displays certain heroic attributes such as integrity, compassion, and moral courage, heightened by an understanding of the power of situational forces,

PHILIP ZIMBARDO

Philip Zimbardo, founder of Heroic Imagination Project.

an enhanced social awareness, and an abiding commitment to social action.

Heroism is a social concept, and—like any social concept—it can be explained, taught, and modeled through education and practice. I believe that heroism is common, a universal attribute of human nature and not exclusive to a few special individuals. The heroic act is extraordinary, the heroic actor is an ordinary person—until he or she becomes a heroic special individual. We may all be called upon to act heroically at some time, when opportunity arises. We would do well, as a society and as a civilization, to conceive of heroism as something within the range of possibilities for every person.

But these days rarely do we hear about ordinary men and women who have, by circumstance or fate, done something extraordinary for a greater cause or sacrificed on behalf of fellow human beings. Today's generation, perhaps more than any preceding one, has grown up without a distinct vision of what constitutes heroism, or, worse, has grown up with a flawed vision of the hero as sports figure, rock star, gang leader, or fantastic *super* hero.

This is why, in 2010, I formed the Heroic Imagination Project, or HIP, which seeks to encourage and empower individuals to develop the personal attributes that lead them to take heroic action during crucial moments in their lives, on behalf of others, for a moral cause, and without expectation of gain.

HIP is committed to realizing this goal in three ways. First we will conduct and support new research that will expand society's understanding of heroic behavior. Next we will create new educational programs in schools and on the Web that coach and mentor people in how to resist negative social influences, while also inspiring them to become wise and effective heroes.

Then we will create public engagement programs that involve people everywhere to take our heroic pledge and to sign on to one of our many emerging programs.

Research on Heroism

One of the most fundamental and unique aspects of our mission is its focus on encouraging new empirical research on the nature and dynamics of heroism. There is a dearth of information on this idea, at least partly due to the changing definition of heroism over the last 30 years, and the earlier focus in psychology on the dark side of human nature. To build this new body of research, we are partnering with major universities and will sponsor promising doctoral candidates who devote their research to questions around this issue of heroic behavior.

Research into the component attributes of heroism (ethical behavior, leadership, courage) and their practical application (defiance of unjust authority, whistle blowing, facing physical danger) can have far-reaching benefits for society. We need to better understand the neurological and psychological basis of such phenomena as action versus passivity at the decisive moment. The components of our research initiative include Web-based surveys of self-selected individuals, analysis of a program of senior volunteers, and laboratory studies of the personal, social, and neurological roots of heroic behaviors.

Implementation of Our Findings

Everyday heroism is the highest form of civic virtue. It transforms the personal virtue of compassion into meaningful social action. To that end, we will work to instill in all people, particularly in young people, the self-confidence and the ability to readily perform deeds that improve the lives of other individuals and society as a whole. We believe it begins by adopting, and internalizing, the mind-set of a heroic imagination—*I can do that, I can be a hero when the opportunity arises.*

We are now developing specific program modules for scholastic, corporate, and military audiences. Our initial program is being launched in middle and high schools and provides young people with tools to encourage heroic self-identification. The aim is to fortify their moral framework and coach them to act beyond their comfort zone—but wisely so. Our corporate heroic leadership programs and accountability/integrity programs are currently in design and will roll out soon.

We are also launching a comprehensive Web site that will celebrate the community of everyday heroes, while taking our mission and our programs to the general public.

Why Heroism

This exploration into heroism was spurred by recent research that shows how otherwise exemplary individuals can be easily persuaded, when their social framework is skewed or altered, to perform acts that go against conscience, and behave in ways they would ordinarily find despicable. My Stanford Prison Experiment (1971) reflected such an outcome, and my findings have been frequently validated since, including the recent actions of American military police guards at Abu Ghraib prison in Iraq in 2004.

Not long ago, I testified during the trial of one of the U.S. guards accused of mistreating prisoners in that incident. My message was this: It's imperative for our society to acknowledge how situational forces can corrupt even good people into becoming perpetrators of evil. It is essential that all of us learn to recognize the situational and systemic determinants of antisocial behaviors. What's more, I argue, we must actively seek to change this paradigm by encouraging and empowering individuals to make the difficult but moral decision—the decisive heroic choice—when faced with challenging circumstances.

By redefining these ideas for contemporary audiences, we can popularize and energize the concept of everyday heroism around the world. In doing so, HIP hopes to be the catalyst for individuals to transform their passivity and reluctance to come to the aid of those in need into the positive social action heroism. Ideally, HIP will become a social movement that sows the seeds of heroism everywhere.

About the Author

Philip Zimbardo is professor emeritus of psychology at Stanford University and author of *The Lucifer Effect: Understanding How Good People Turn Evil* (Random House, 2007) and *The Time Paradox: The New Psychology of Time That Will Change Your Life* (Simon and Schuster, 2009) among hundreds of other books, chapters, and articles. For more information on the Heroic Imagination Project visit www.heroicimagination.org.

The New Monogamy: Forward to the Past

By Helen Fisher

An author and anthropologist looks at the future of love.

Marriage has changed more in the past 100 years than it has in the past 10,000, and it could change more

HELEN FISHER

Helen Fisher, chief scientific advisor for Chemistry.com.

in the next 20 years than in the last 100. We are rapidly shedding traditions that emerged with the Agricultural Revolution and returning to patterns of sex, romance, and attachment that evolved on the grasslands of Africa millions of years ago.

Let's look at virginity at marriage, arranged marriages, the concept that men should be the sole family breadwinners, the credo that a woman's place is in the home, the double standard for adultery, and the concepts of "honor thy husband" and "til death do us part." These beliefs are vanishing. Instead, children are expressing their sexuality. "Hooking up" (the new term for a one-night stand) is becoming commonplace, along with living together, bearing children out of wedlock, women-headed households, interracial marriages, homosexual weddings, commuter marriages between individuals who live apart, childless marriages, betrothals between older women and younger men, and small families.

Our concept of infidelity is changing. Some married couples agree to have brief sexual encounters when they travel separately; others sustain long-term adulterous relationships with the approval of a spouse. Even our concept of divorce is shifting. Divorce used to be considered a sign of failure; today it is often deemed the first step toward true happiness.

These trends aren't new. Anthropologists have many clues to life among our forebears; the dead do speak. A million years ago, children were most likely experimenting with sex and love by age six. Teens lived together, in relationships known as "trial marriages." Men and women chose their partners for themselves. Many were unfaithful—a propensity common in all 42 extant cultures I have examined. When our forebears found themselves in an unhappy partnership, these ancients walked out. A million years ago, anthropologists suspect, most men and women had two or three long-term partners across their lifetimes. All these primordial habits are returning.

But the most profound trend forward to the past is the rise of what sociologists call the companionate, symmetrical, or peer marriage: marriage between equals. Women in much of the world are regaining the economic power they enjoyed for millennia. Ancestral women left camp almost daily to gather fruits, nuts, and vegetables, returning with 60% to 80% of the evening meal. In the hunting and gathering societies of our past, women worked outside the home; the double-income family was the rule, and women were just as economically, sexually, and socially powerful as men. Today, we are returning to this lifeway, leaving in the "dustbin of history" the traditional, male-headed, patriarchal family—the bastion of agrarian society.

This massive change will challenge many of our social traditions, institutions, and policies in the next 20 years. Perhaps we will see wedding licenses with an expiration date. Companies may have to reconsider how they distribute pension benefits. Words like marriage, family, adultery, and divorce are likely to take on a variety of meanings. We may invent some new kinship terms. Who pays for dinner will shift. Matriliny may become common as more children trace their descent through their mother.

All sorts of industries are already booming as spin-offs of our tendencies to marry later, then divorce and remarry. Among these are Internet dating services, marital mediators, artists who airbrush faces out of family albums, divorce support groups, couples therapists, and self-improvement books. As behavioral geneticists begin to pinpoint the biology of such seemingly amorphous traits as curiosity, cautiousness, political orientation, and religiosity, the rich may soon create designer babies.

For every trend there is a countertrend, of course. Religious traditions are impeding the rise of women in some societies. In countries where there are far more men than women, due to female infanticide, women are likely to become coveted—and cloistered. The aging world population may cling to outmoded social values, and population surges and declines will affect our attitudes toward family life.

Adding to this mix will be everything we are learning about the biology of relationships. We now know that kissing a long-term partner reduces cortisol, the stress

hormone. Certain genes in the vasopressin system predispose men to make less-stable partnerships. My colleagues and I have discovered that the feeling of romantic love is associated with the brain's dopamine system—the system for wanting. Moreover, we have found that romantic rejection activates brain regions associated with profound addiction. Scientists even know some of the payoffs of "hooking up." Casual sex can trigger the brain systems for romantic love and/or feelings of deep attachment. In a study led by anthropologist Justin Garcia, some 50% of men and women reported that they initiated a hook up in order to trigger a longer partnership; indeed, almost a third of them succeeded.

What will we do with all these data? One forward-thinking company has begun to bottle what our forebears would have called "love magic." They sell Liquid Trust, a perfume that contains oxytocin, the natural brain chemical that, when sniffed, triggers feelings of trust and attachment.

We are living in a sea of social and technological currents that are likely to reshape our family lives. But much will remain the same. To bond is human. The drives to fall in love and form an attachment to a mate are deeply embedded in the human brain. Indeed, in a study I just completed on 2,171 individuals (1,198 men, 973 women) at the Internet dating site Chemistry.com, 84% of participants said they wanted to marry at some point. They will. Today, 84% of Americans wed by age 40—albeit making different kinds of marriages. Moreover, with the expansion of the roles of both women and men, with the new medical aids to sex and romance (such as Viagra and estrogen replacement), with our longer life spans, and with the growing social acceptance of alternative ways to bond, I believe we now have the time and tools to make more-fulfilling partnerships than at any time in human evolution. The time to love is now. ❑

About the Author
Helen Fisher is a research professor in biological anthroplogy at Rutgers University and chief scientific advisor of Chemistry.com. Her most recent book is *Why We Love: The Nature and Chemistry of Love* (Henry Holt, 2010).

Call for Nominations

Edward Cornish Award: Futurist of the Year

The World Future Society has created a special award to recognize outstanding achievement in contemporary futures work.

The Edward Cornish Award: Futurist of the Year recognizes an individual (or organization) whose work in the past year advanced the development or application of futures methodologies or effectively promoted the importance of foresight.

Named for the Society's founding president, the first Edward Cornish Award: Futurist of the Year was presented in 2010 to Theodore J. Gordon, senior fellow of the Millennium Project, during the Society's annual meeting in Boston.

Nominations are now open for the second annual award. The nominations will be reviewed by the WFS Board of Directors, and the winner will be honored during the 2011 meeting in Vancouver, BC, Canada.

There is no fee for nominators or nominees to enter this award program. There is no monetary award for the winner.

For nomination guidelines and submission form, please visit www.wfs.org/content/edward-cornish-award-futurist-year.

The deadline for nominations is Monday, January 3, 2011.