

# Using the Internet to Crack Open the Scientific Process

By THOMAS LIN

For centuries, scientific research has been done in private, then submitted to journals to be reviewed by peers and published.

But to many scientists, the system seems hidebound, expensive and elitist. Peer review can take months, journal subscriptions can be prohibitively costly, and a handful of gatekeepers limit the flow of information.

It is an ideal system for sharing knowledge, said the quantum physicist Michael Nielsen, only “if you’re stuck with 17th-century technology.”

Dr. Nielsen and other advocates for “open science” say science can accomplish much more, much faster, in an environment of friction-free collaboration over the Internet. And, despite the skepticism of many scientists, their ideas are catching on.

Open-access archives and journals like arXiv and the Public Library of Science (PLoS) have sprung up in recent years. GalaxyZoo, a citizen-science site, has classified millions of

objects in space, discovering characteristics that have led to a raft of scientific papers. And a social networking site called ResearchGate — where scientists can answer one another’s questions, share papers and find collaborators — is rapidly gaining popularity.

Editors of traditional journals say open science sounds good, in theory. In practice, “the scientific community itself is quite conservative,” said Maxine Clarke, executive editor of the commercial journal Nature, who added that the traditional published paper is still viewed as “a unit to award grants or assess jobs and tenure.”

Dr. Nielsen, 38, who left a successful science career to write “Reinventing Discovery: The New Era of Networked Science,” agreed that scientists have been “very inhibited and slow to adopt a lot of online tools.” But he added that open science was coalescing into “a bit of a movement.”

Science is moving to a collaborative model, “because it works better

## Scientists share online, bypassing traditional peer reviews.

in the current ecosystem, in the Web-connected world,” said Bora Zivkovic, a chronobiology blogger who is a founder of the annual ScienceOnline conference.

ResearchGate, the Berlin-based social network for scientists, is the brainchild of Ijad Madisch, 31, a Harvard University-trained virologist and computer scientist. “I want to make science more open,” he said.

Started in 2008 with few features, it was reshaped with feedback from scientists. Its membership has mushroomed to more than 1.3 million. Dr. Madisch said, and it has attracted several million dollars in venture capital. The Web site is a sort of mash-up of

Facebook, Twitter and LinkedIn, with profile pages, comments, groups, job listings, and “like” and “follow” buttons, although only scientists are invited to pose and answer questions. It also offers a simple yet effective end run around restrictive journal access with its “self-archiving repository.” Since most journals allow scientists to link to their submitted papers on their own Web sites, Dr. Madisch encourages his users to do so on their ResearchGate profiles.

Greg Phelan, chairman of the chemistry department at the State University of New York, Cortland, used the site to find new collaborators, get expert advice and read journal articles not available through his small university.

Changing the status quo — opening data, papers, research ideas and partial solutions to anyone and everyone — is still far more idea than reality. As the established journals argue, they provide a critical service that does not come cheap.

“We have to cover the costs,” said Alan Leshner, executive publisher of the nonprofit journal Science.

Those costs hover around \$40 million a year, paying for more than 25 editors and writers, sales and production staff, and offices in North America, Europe and Asia, not to mention print and distribution expenses.

Peer-reviewed open-access journals, like Nature Communications and PLoS One, charge their authors publication fees — \$5,000 and \$1,350, respectively — to defray their more modest expenses.

Dr. Madisch acknowledged that he might never reach many of the established scientists for whom social networking can seem like a waste of time. But wait, he said, until younger scientists weaned on social media start running their own labs.

“If you said years ago, ‘One day you will be on Facebook sharing all your photos and personal information with people,’ they wouldn’t believe you,” he said. “We’re just at the beginning.”



TIMOTHY FADEK FOR THE NEW YORK TIMES

Ijad Madisch, standing, founded ResearchGate, a social network for scientists, based in Berlin.

The change is coming.” Dr. Leshner agrees that things are moving. “Will the model of science magazines be the same 10 years from now? I highly doubt it,” he said. “I believe in evolution.”



BRETT LOWELL/BIG UP PRODUCTIONS

While climbing in California, Tommy Caldwell continually posted updates on Facebook, which some say compromises the purity of the sport.

## On Ledge and Online: A Solitary Sport Turns Social

By ALEX LOWTHER

Last November the climber Tommy Caldwell lived on a portable ledge hung 365 meters up on the sheer face of El Capitan, the massive sweep of granite that stands sentinel over Yosemite Valley in eastern California, for more than two weeks.

One of the world’s best rock climbers, Mr. Caldwell slept on the ledge — which is actually a hanging nylon tent — cooked on it and went to the bathroom in a receptacle hanging below it. And at the top of this solitary, silent sport, he was being watched by thousands around the world. From Singapore: “Inspirational, Tommy! Well done!” From Poland: “Smiles from Krakow. Keep pressing!!!”

Mr. Caldwell, 33, updated his progress on Facebook using his iPhone, which he charged with portable solar panels.

The Dawn Wall, as Mr. Caldwell’s project is known, is the latest example of what has become an increasingly accepted practice in the climbing community: from-the-route social media. Observers enjoy it, sponsors encour-

### As climbers play to an online audience, a concern over safety.

age it and climbers get to share what is inherently a solitary pursuit.

But a vocal minority questions what happens to a sport whose ideals of purity are traditionally based on adventure, commitment, self-sufficiency and individual achievement when online interaction happens instantly. Katie Ives, the editor of Alpinist magazine, worries that “instead of actually having the experience be the important part, it’s the representation of the experience that becomes the important part — something is lost.”

David Roberts, a writer and climber, said from-the-route media “introduces a fatal self-consciousness” to a climb. It removes the “blissful sense of being alone out there.”

Mr. Caldwell said the climb felt different from others. “It felt like there were a lot of people watching our progress, like a football game,” he said. “Usually when I climb it’s just me and my partner. It’s a very solitary thing.”

By the late 1990s, satellite linkups and the Internet had reduced the interval between an event and coverage of it to virtually nothing. In 1999, on an expedition that made the first ascent of the northwest face of Pakistan’s Great Trango Tower, an unseen line was crossed. A highly visible, remote objective matched with a reported sponsorship budget of \$50,000, a full camera crew and daily Web updates from the climbers drew the ire of the wider climbing community.

Mark Synnott, one of three climbers on the expedition, said he came away from the experience conflicted. “It was a necessary evil,” he said of all the media. Without the computers and cameras there would not have been an expedition, and without the expedition there would have been no new cutting edge route on the tower.

But Zack Smith, a world-class alpinist, said he had rejected the trappings of professional climbing, sponsorship and documentation of his climbs. “I want to make decisions from my heart, my gut, my brain,” he said. He invoked Kodak courage, the idea that people tend to push harder when being filmed or photographed. “Climbing mountains is a dangerous pursuit,” he said. “When you mix in the potential desire to impress people, that’s a very dangerous thing.”

Before an injury forced him off the wall, Kevin Jorgeson, 27, was Mr. Caldwell’s partner on the route. He began posting updates via Twitter in 2010. Last year, facing a large snowstorm, Mr. Caldwell and Mr. Jorgeson posed a question on a message board, to see if their hanging camp might be susceptible to falling ice after the storm cleared. People with experience on the wall responded that their camp was unprotected and would be showered with dangerous chunks of ice.

The climbers retreated the next day.

## The Rewards and Risks Of Sharing Passwords

By MATT RICHTEL

In the digital era it has become fashionable for young people to express their affection by sharing their passwords to e-mail, Facebook and other accounts. Boyfriends and girlfriends sometimes even create identical passwords, and let each other read their private e-mails and texts.

They say they know such digital entanglements are risky, because a souring relationship can lead to people using online secrets against each other. But that, they say, is part of what makes the symbolism of the shared password so powerful.

“It’s a sign of trust,” Tiffany Carandang, a high school senior in San Francisco, said of the decision she and her boyfriend made to share passwords for e-mail and Facebook. “I have nothing to hide from him, and he has nothing to hide from me.”

“That is so cute,” said Cherry Ng, 16, listening to her friend’s comments. “They really trust each other.”

Ms. Carandang, 17, said, “I know he’d never do anything to hurt my reputation.”

Changing a password is simple, but students, counselors and parents say that damage is often done before a password is changed, or that the online sharing can be the reason a relationship falters.

The stories of fallout include a spurned boyfriend who tries to humiliate his ex-girlfriend by spreading her e-mail secrets; tensions between couples over scouring each other’s private messages for clues of disloyalty or infidelity; or grabbing a cellphone from a former best friend, unlocking it with a password and sending threatening texts to someone else.

Rosalind Wiseman, who studies how teenagers use technology, said the sharing of passwords, and the pressure to do so, was somewhat similar to sex.

Sharing passwords, she noted, feels forbidden because it is generally discouraged by adults and involves vulnerability.

“The response is the same: if we’re in a relationship, you have to give me anything,” Ms. Wiseman said.

In a 2011 telephone survey, the Pew Internet and American Life Project found that 30 percent of teenagers who were regularly online had shared a password. The survey, of 770 teenagers ages 12 to 17, found that girls were almost twice as likely as boys to share. And in more than two

dozen interviews, parents, students and counselors said that the practice had become widespread.

In a recent column on the tech-news Web site Gizmodo, Sam Biddle offered advice to couples and friends on how to avoid missteps.

“I’ve known plenty of couples who have shared passwords, and not a single one has not regretted it,” he said in an interview.

Students say there are reasons beyond a show of trust to swap online keys. For instance, several college students said they shared Facebook passwords to force themselves to study for finals. A student would give her password to a friend to change it — and not disclose the new one — thereby temporarily locking out the account holder and taking away a big distraction to studying.

Alexandra Radford, 20, a junior at San Francisco State University, said one friend wanted to know the new password before exams ended, but Ms. Radford held firm.

“Once finals were over, I gave it

### Young lovers say they have nothing to hide on the Internet.

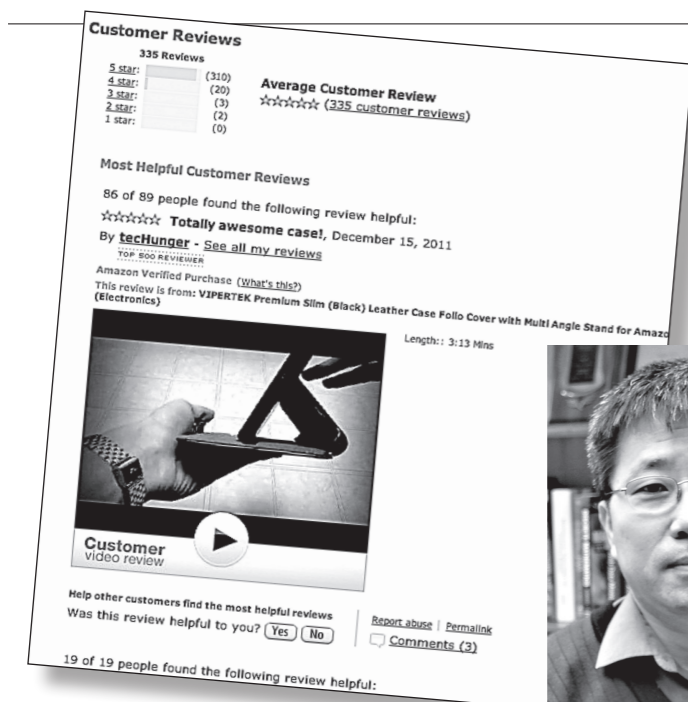
to her,” she said. But Ms. Radford is more sheepish about the passwords she had shared in high school with her boyfriend.

“We did it so I could check his messages because I didn’t trust him, which is not healthy,” she conceded.

Counselors typically advise against the practice, and parents often preach the wisdom of password privacy. Winifred Lender, a child psychologist in Santa Barbara, had her three sons sign “digital contracts” that outline terms for how much media they will consume, how they will behave online and that they will not share passwords.

Patti Cole, 48, a child psychologist, said she thinks young people are sometimes drawn to such behavior as they might be toward sex, in part because parents and others warn them against doing so.

“What worries me is we haven’t done a very good job at stopping kids from having sex,” she said. “So I’m not real confident about how much we can change this behavior.”



Bing Liu, a computer science professor, is trying to unmask fake product reviews.



JOHN GRESS FOR THE NEW YORK TIMES

## For \$2 a Star, an Online Retailer Ensures Five-Star Reviews

By DAVID STREITFELD

In the brutal world of online commerce, where a competing product is just a click away, retailers need all the help they can get to close a sale.

Some exalt themselves by anonymously posting their own laudatory reviews. Now there is an even simpler approach: offering a refund to customers in exchange for a write-up.

By the time VIP Deals ended its rebate on Amazon.com in late December for its Viperlek leather case for the Kindle Fire, hundreds of reviewers had proclaimed the case a marvel worth five stars.

Fake reviews are drawing the attention of regulators. “Advertising disguised as editorial is an old problem, but it’s now presenting itself in different ways,” said Mary K. Engle, the Federal Trade Commission’s associate director for advertising practices. “We’re very concerned.”

Researchers like Bing Liu, a computer science professor at the University of Illinois at Chicago, are also taking notice, trying to devise mathematical models to systematically unmask the bogus endorsements. “More people are depending on reviews for what to buy and where to go, so the incentives for faking are getting bigger,” said Mr. Liu. “It’s a very cheap way of marketing.”

By late January, 310 out of 335 reviews of VIP Deals’ Viperlek brand premium slim black leather case folio cover were five stars. VIP Deals, which specializes in leather tablet cases and stun guns, denied it was quietly offering the deals. But three customers said in interviews that the offer was straightforward: the VIP page was selling a cover for under \$10 plus shipping (the official list price was \$59.99). When the package arrived it included an invitation “to

### Regulators take aim at fake product endorsements.

write a product review for the Amazon community.”

“In return for writing the review, we will refund your order so you will have received the product for free,” it said.

Anne Marie Logan, a Georgia pharmacist, was suspicious. “I was like, ‘Is this for real?’” she said. “But they credited my account. You think it’s unethical?”

The merchant did not respond to further requests for comment.

Under F.T.C. rules, when there is a connection between a merchant and someone promoting its product that

affects the endorsement’s credibility, it must be fully disclosed. In one case, Legacy Learning Systems, which sells music instructional tapes, paid \$250,000 last March to settle charges that it had hired affiliates to recommend the videos on Web sites.

Amazon, sent a copy of the VIP letter by The New York Times, said its guidelines prohibited compensation for customer reviews. A few days later, it deleted all the reviews for the case, then it took down the product page. A spokeswoman declined to say exactly what happened to VIP’s products, like the Viperlek VTS-880 mini stun gun, which all also disappeared after receiving nearly all five-star reviews.

“I bought one for my wife and decided to let her try it on me,” one man wrote in his review.

“We gave it a full charge and let me just say WOW! Boy do I regret that decision.”