

ONLINE

# Using the Internet to 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. Galaxy Zoo, a citizen-science site, has classified millions of objects in space, discovering characteristics that have led to a raft of scientific papers. On the collaborative blog MathOverflow, mathematicians earn reputation points for contributing to solutions. 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

## Scientists share their research online, bypassing peer review.

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.”

Science is moving to a collaborative model, “because it works better 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,” Dr. Madisch 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.

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.”

Scientists populate their ResearchGate profiles with their real names, professional details and publications — data that the site uses to suggest connections with other members.

Greg Phelan, chairman of the chemistry department at the State University of New York, Cortland, used the site to find new collaborators, get expert ad-

vice and read journal articles not available through his small university.

Changing the status quo — opening data, papers, research ideas and 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



TIMOTHY FADEK FOR THE NEW YORK TIMES

Ijad Madisch, standing, founded ResearchGate, a social network where scientists can share ideas.

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. 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.”

# Product Reviews on Web Draw Regulators’ Attention

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 Vipertek 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,

lio 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 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 Vipertek 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.”

## Universal praise for a leather e-reader cover raises questions.

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’ Vipertek brand premium slim black leather case fo-



BRETT LOWELL/BIG UP PRODUCTIONS

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

# On Ledge, Online: 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 carried 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 encourage 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.”

On his climb on El Capitan, Mr. Caldwell battled fatigue and the impending winter on what would be considered the hardest big wall free climb in the world (free as in free of aid; he used a rope and protection in case of falls, but

jective 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.

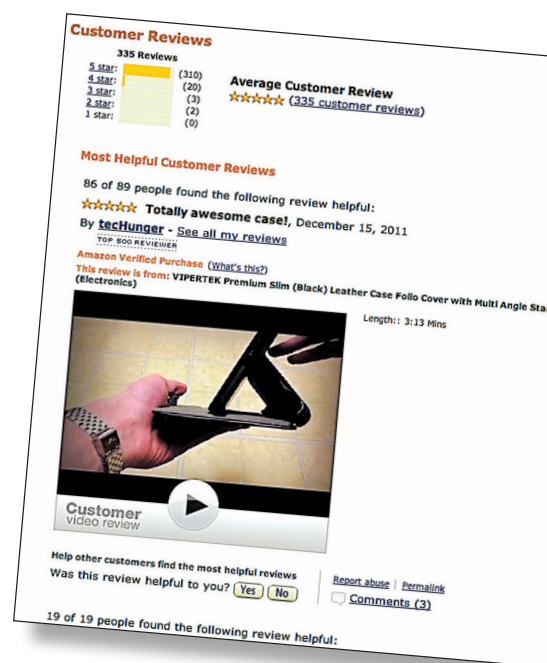
The climbers retreated the next day.

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

only his hands and feet to go up).

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 ob-



JOHN CRESS FOR THE NEW YORK TIMES

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