

# A 'Robin Hood' Declares War on Lucrative U.S. Patents

A 30-year-old former corporate lawyer says that the U.S. patent system leaves the public with the short end of the stick

“Did Pfizer get punked by a nonprofit?” That’s what patent lawyer and blogger Stephen Albainy-Jenei asked in June after the U.S. Patent and Trademark Office (PTO) ruled that a Pfizer patent for Lipitor, the \$12-billion-a-year cholesterol drug, might be invalid.

The decision was the latest in a string of successful initial rulings for Dan Ravicher, a 30-year-old attorney and crusader against those patents that he says are bad for the public welfare. He’s also used PTO procedures to shoot holes in patents held by Microsoft and Columbia University. Part vigilante, part gadfly, Ravicher has quickly earned a reputation for being part of a new breed of patent attorneys, and one worth watching.

“The system has been created in a way that makes it difficult to see how it impacts people,” Ravicher says. He believes patent busting could result in cheaper and better consumer products by removing barriers to innovation by the public, which he feels is left out of the equation. He hopes his efforts will inspire others to challenge the system by drawing attention to bad patents.

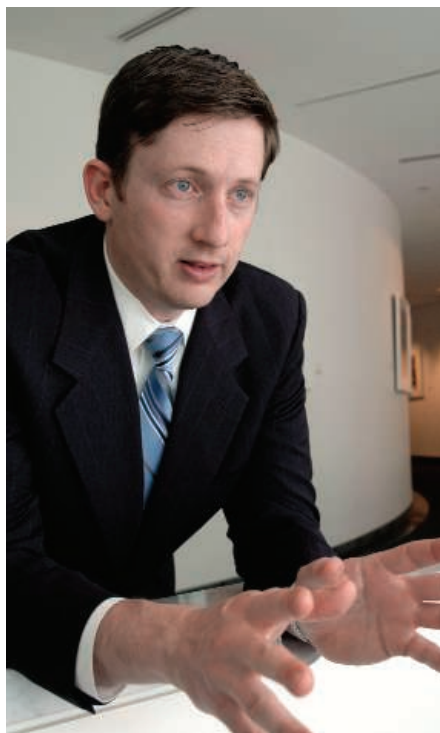
Ravicher works through the Public Patent Foundation (PubPat), a nonprofit organization he created 2 years ago. Its actions have already received the attention of intellectual-property insiders. Hal Wegner of Milwaukee, Wisconsin-based Foley and Lardner calls him a “Robin Hood” for the patent world’s have-nots. “What he’s doing is important,” says healthcare analyst Les Funtleyder of Miller Tabak, a New York brokerage firm. “Nobody’s really kept an eye on what pharma’s doing from a patent perspective.”

His corporate opponents won’t comment on their plucky new adversary. But critics say the current patent system serves the U.S. economy well by rewarding innovation. They also warn that Ravicher’s efforts could backfire by making it harder for makers of low-cost generic drugs to get their products to market.

Ravicher didn’t start out planning to be a burr in the side of corporate America. After graduating from the University of South Florida with a degree in materials science and then the University of Virginia School of Law, Ravicher became a New York patent attorney whose clients included the drug giant Johnson & Johnson. But as he watched small IT companies wage expensive battles against what seemed to him bad patents, he became

convinced that the current system “more often than not treated the less-represented unfairly.” By living frugally off his six-figure income and winning a small foundation grant, he managed to put together \$90,000 to start the foundation. He’s still on a tight budget: Only by persuading his landlord to reduce the rent were he and his girlfriend able to hang on to their Manhattan apartment.

As the foundation’s executive director and only full-time employee, Ravicher supervises a handful of volunteer scientists, occasional grad students, and legal interns as they search for potential flaws in big-name patents. He targets them because he believes they “are causing the most harm.” For example, he says, Pfizer’s patent on Lipitor, in force until 2017,



precludes other companies from developing “a safer, less side-effect-causing Lipitor.” Spurious software patents, he adds, reduce competition and drive up prices.

Ravicher’s tool of choice is PTO’s reexamination request system. He claims three recent successes—“three for three [attempts],” crow’s PubPat director Eben Moglen of Columbia Law School—support his argu-

ment that PTO issues extremely lucrative patents based on ideas already in the public domain. His Columbia challenge involved a 2002 patent for the gene-inserting process called cotransformation used in making drugs. The university’s fourth such patent, the technology has netted the school hundreds of millions of dollars.

Ravicher argued that all subsequent claims were identical to the school’s 1980 patent. In that patent, he wrote, Columbia had described a process for “generating ... DNA molecules” that was identical to a claim in the 2002 request for a way of “producing the proteinaceous material.” Both would result in replicated DNA and translated proteins, he notes. (Facing lawsuits, Columbia later agreed not to assert the patent.)

In 2003, Microsoft sought to license a file-storage system called FAT, crucial to the operation of Windows. Months later, Ravicher filed a reexamination request on

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—Dan Ravicher

the company’s 1996 patent, pointing to two prior software patents that he said rendered the patent obvious. Neither one had been mentioned in paperwork by the examiner who granted Microsoft’s patent. (The company says its patents’ file system goes beyond its predecessors; after PTO issued its initial approval, attorneys hailed Ravicher’s move in the trade press.)

Last year, Pfizer used its 1999 patent (one of five involving Lipitor) to sue a series of Web sites selling a generic version, atorvastatin, made in Canada. Ravicher argued that the 1999 patent—for the crystalline form of the drug—was obvious in light of two previous Pfizer patents. PTO agreed, arguing that both were in fact crystalline atorvastatin, challenging Pfizer to show otherwise. Last week, Pfizer told PTO the previous forms of the molecule were amorphous, not crystalline, despite having used the word “recrystallized” to describe the process.

The stakes are high: If successful with final rulings, Ravicher’s moves could cost Microsoft millions in licensing revenue and bolster a campaign against Columbia’s blockbuster patents. Investors expect generics to defeat the Lipitor patent before its 2017 expiration, says pharmaceutical analyst Jon LeCroy of Natexis Bleichroeder in New York. But Ravicher wants to speed up their progress.

PubPat's method has been taken up by the Electronic Frontier Foundation in San Francisco, California, and the Washington, D.C.-based Patients Not Profits is using similar tactics to scrutinize drug and software patents. But not everybody agrees with Ravicher's approach. Skeptics note that lawsuits, although more costly, are much more effective than reexaminations, in which patentees may argue back and forth with examiners and challengers are

excluded. For its part, PTO resents the implication that it doesn't represent the public's interest. And attorney Steven Lee of Kenyon & Kenyon in New York City says reexamination requests such as Ravicher's can "screw it up" for other patent challengers, including makers of generic drugs, if the government reaffirms the validity of the patent. Ravicher has a simple answer to that last charge: Bad patents pollute the system, he says, and generics merely seek duopolies.

Ravicher knows he's fighting an uphill battle. But he says that events such as the 2001 anthrax letter attacks, which spawned a debate over whether the government should break Bayer's patent on Cipro to prepare for bioterrorism, illustrate the flaws of the system. "The more technology becomes a part of life, the more likely the patent system's failings are going to affect daily life," he says.

—ELI KINTISCH

## Meeting Earth System Processes 2

# Major Shifts in Climate and Life May Rest on Feats of Clay

When scientists look at the climates of the past, hydrology gets short shrift. What the atmosphere was actually made of—how much carbon dioxide, how much methane, how much oxygen—is the subject of heated debate. How much rain fell out of it is not. But perhaps it should be. Various researchers here explored the possibility that past hydrology matters a great deal because rain makes clays, and clays can play a crucial role in the carbon cycle. Clays, according to Martin Kennedy of the University of California, Riverside, represent "the most intimate relation of the mineralogical and the biological [parts of the earth system]"—and one he thinks has been badly overlooked.

Take the Paleocene-Eocene Thermal Maximum, a sudden climate shift 55 million years ago that has recently become a hot topic (*Science*, 28 February 1997, p. 1267). Billions of tons of carbon, probably in the form of methane, were somehow released into the atmosphere in a geological instant, raising the global temperature by as much as 8°C and radically reshaping the carbon cycle in the oceans. The total amount of carbon that poured into the atmosphere seems to have been similar to that which would be released if humanity burns its way through all the currently accessible fossil fuels.

Gabriel Bowen of the University of Utah in Salt Lake City has been looking at where all that carbon ended up. Although various measurements suggested that plants on land, encouraged by a climate that was suddenly not just warmer but also a lot wetter, had mopped up the lion's share of the stuff, there

was no evidence that the carbon was permanently stored on the continents. Instead, Bowen is exploring the idea that carbon bearing the isotopic signature of land plants ended up in fine particles stuck to clay minerals buried in sediments on the continental shelves. The increased rainfall was creating more clays than usual. Those clays not only



**Clear as mud?** Clays washed from land into offshore waters could have altered the carbon cycle, with huge impacts on atmosphere and climate.

helped carbon move from the continents to the seas, but they also protected the carbon when it got there, by shielding it from the predations of organisms.

Kennedy, a former petroleum geologist, thinks clays also had a crucial effect on a much earlier chapter in Earth's history: the rise of oxygen shortly before the first animals emerged some 600 million years ago. Some researchers think that such a change in the composition of the atmosphere helped make complex life possible (*Science*, 17 June, p. 1730).

CALGARY, ALBERTA—From 8 to 11 August, an interdisciplinary meeting organized by the Geological Society of America and the Geological Association of Canada covered topics from life's origins to the future climate.

Clays, Kennedy argued in one talk, tend to form much more easily in soils where living organisms are around to help break down rock minerals. So before life reached the continents, the rate of clay production would have been far lower, and with it the capacity for clay-assisted carbon burial in shallow seas. After lichens colonized the land, the rate at

which clays were formed by the rain and washed into the sea would have risen, boosting the burial of organic carbon offshore. Normally, creatures living in the ocean would have combined that carbon with oxygen from photosynthetic organisms, turning it into CO<sub>2</sub>. With more carbon buried out of harm's way, Kennedy argues, excess oxygen was free to escape into the atmosphere. Kennedy acknowledges that there is only very limited evidence for lichen at the time, and land plants didn't arise until millions of years later. But he says a variety of circumstantial evidence suggests that the continents were getting more weathered around then.

Kennedy and Bowen are plowing new furrows in their field. Although soil scientists take for granted the key role clay plays in carbon burial today, most geologists studying the fossil record have yet to apply that lesson to the past. "We have only just realized that we have to think about [the role of clays]," says Thomas Wagner, who presented a paper on swings in the carbon cycle that caused the oceans to lose their oxygen during the Cretaceous period. Wagner has just left the University of Bremen, Germany, to join a soil science group at the University of Newcastle-upon-Tyne, U.K., hoping to adapt methods

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