



Science Friday Transcript

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Talk of the Nation

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Peering Into The Dark Side Of Scientific Discovery

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Background

What leads a scientist to lie, cheat and falsify findings? In his book, “Prize Fight: The Race and the Rivalry to be the First in Science”, radiologist Morton Meyers digs up dirt on some major scientific discoveries. He discusses the bitter battles over recognition and reward that often take place behind closed doors.

Transcript

This is SCIENCE FRIDAY. I'm Ira Flatow. Now picture this: You're one of the many graduate students working round the clock in a university lab on a series of seemingly dead-end experiments, until one day, you strike gold. It turns out, you've discovered the cure to a mysterious disease which will save the lives of millions around the world.

Then, of course, comes the recognition and reward for your discovery. You've been listed as first author on a study published in a major medical journal, and there are rumors that the discovery could win the Nobel Prize.

A few months later, you find that your mentor, the principal investigator in the lab, is getting all of the credit for the discovery. He wins the Lasker Award, and you don't get so much as a nod. Should you stake a claim to the prize?

My next guest says this kind of scenario has actually played out several times in history, more than scientists would like to admit. And sometimes it even results in a bit of fisticuffs.

Dr. Morton Meyers is author of "Prize Fight: The Race and the Rivalry to be the First in Science." He's also distinguished professor of radiology and medicine in the School of Medicine at State University of New York at Stony Brook, and he's here in our New York studio. Welcome to SCIENCE FRIDAY.

MORTON MEYERS: Thank you.

FLATOW: Why did you write this book? Doesn't one of the case studies in the book involve a former colleague of yours?

MEYERS: Yes, exactly. That was really my introduction to the whole basic issue of how credit is determined for a scientific advance. When I was chair of radiology at the medical school several years ago, I gave a conjoined appointment to a professor of chemistry who was involved in a process that, eventually, he figured out how to derive the ability to image through what had been a chemical technique for 30 or 40 years.

That was bitterly contested by another senior researcher, as, as it happens, at a downstate medical center, another SUNY agency. And that bitterness lasted for 30 years.

FLATOW: Wow.

MEYERS: But that put me into the position of understanding all the nuances of the competitiveness, the rivalry, the resorting to some subterfuge and perhaps even deception that underlie the human dramas that can be related to something of such significance as a major medical, scientific breakthrough.

FLATOW: And you phrase it very well in your book. You say: The scientist is generally viewed as detached, objective, dispassionate. And then you write: Nothing could be further from the truth. Why is that? I mean, do we expect them to be supermen, superwomen?

MEYERS: I think that's often the general perception of scientists. They're considered noble researchers trying to - in Einstein's elegant phrase - lift the corner of the veil as to how nature operates. And many of us receive announcements of the advances as if it's delivered from Mount Olympus, as the Ten Commandments or something of that nature, with such authority.

But one can come very quickly to understand that behind all this, scientists are as human - if not perhaps more human - than you and me, that they are subject to pride and jealousy and considerable ambition. So what motivates them is, of course the joy, of discovery, of creating something anew that could be of lasting benefit to humanity.

But associated with that is an equally powerful motivation to be recognized, to get credit for their accomplishment, and it's over that lust for recognition shared by many of us in terms of an achievement that leads to often bitter conflicts and disputes, and even what's referred euphemistically as scientific misconduct.

FLATOW: Has it always - has the credit been always that way? Or is not more into I want to make money from my - that's where the recognition will come, in the money I can make starting a startup company, a spinoff, something like that.

MEYERS: Exactly, sure. In the 19th century, science was, in itself, not so much a profession, but pursued by gentlemen of independent means - for example, Charles Darwin. But with - especially after World War II, and as wars often do create new stimuli for the advancements of science, it took on a different coloration in this country, beginning, I think, especially in the 1970s.

Whether at that time perhaps it was part of the reaction and the complicities involved with things such as the Vietnam War, the revelation of less than integrity by the Catholic Church, some journalistic fraud that brought to its knees for the time such institutions as the New York Post - or the New York Times or the Washington Post, scientists, too, increasingly bent the rules in order to achieve the endpoint of such ambition, namely fame, celebrity and money.

FLATOW: Some cases of outright fraud.

MEYERS: Exactly, unfortunately. Yes.

FLATOW: What would be the most famous case of that? I'm reminded of a case recently, I mean, in the last 40 years, of painting the back of a laboratory rat with a magic marker, right.

MEYERS: Exactly. I think that was the first, especially here in New York City, where a young researcher working for a very well-known senior researcher and a prestigious medical institution here in New York yielded to the pressures of showing positive results.

And when he was called up by this researcher to present his findings, on the way up to the 11th-floor offices, in the elevator, he took out his black felt-tip pen and discolored the white fur of the laboratory mice he was going to present to his senior mentor.

That was readily discovered and brought embarrassment to the senior researcher - not only the junior associate, but to the institution itself, of course - so that painting the mouse has, in fact, become a phrase to generically apply to fraudulent cases.

FLATOW: We're talking with Dr. Morton Meyers, author of "Prize Fight: The Race and the Rivalry to be the First in Science." An interesting title, "Prize Fight," because it does sometimes come down to getting punched out, doesn't it? There's a case in your book of...

MEYERS: There's an infamous case where, in the 1920s, the pursuit of the chemical messenger for the pancreas that regulates sugar metabolism - ultimately known as insulin - resulted in fisticuffs between the people involved. The research was undertaken by an untutored - in terms of research - family physician who had an insight as to how to bring this about.

He was given some support by the department chairman at the time in Toronto. But with the aid of a very talented younger associated, he ultimately - under very difficult physical conditions - finally elaborated the hormone. But the administrator of the department, the chairman, began to marginalize the physician, the researcher, and to take credit upon himself. And that led to a series of blows that have become legendary now in the history of modern science.

FLATOW: And sometimes the rivalry over recognition requires the intervention of high-level governments. And I'm thinking of the scandal over who discovered the HIV - the AIDS virus, who got credit for that.

MEYERS: Exactly. That required the intervention of, at the time, President Ronald Reagan and the prime minister of France, Jacques Chirac, because researchers in Paris at the Pasteur Institute were in a stunning rivalry with Robert Gallo at the National Cancer Institute as to identify the virus that was the cause of AIDS.

And that simmered for many years, with leaks to the press and expressed antagonisms and rather overt bitterness, so that because of national honor, as well as the royalties that such identification would accrue to each nation, it was finally resolved with a handshake between Reagan and Chirac to share the royalties and share the honor.

The honor, eventually, by the Nobel Prize, the recognition was given to the Frenchman, Luc Montagnier, who won the Nobel Prize finally in 2010.

FLATOW: I was wondering why you didn't go into greater detail about the Watson, Crick, Rosalind Franklin controversy over the discovery of DNA in your book. It seemed to me to be one of the most famous.

MEYERS: Yes, exactly. In fact, in following any popular books that detail scientific advances over the last hundred years, it was the double-helix by Watson that exposed to the public for the first time all the shenanigans and the lust for recognition and the devious methods that can be used by researchers behind the scenes.

It was an explosive proclamation of the human element motivating much of research. My book maybe feebly carries on that idea in terms of revealing the passions and the stratagems that are used by researchers again for the prize, going after the prize.

FLATOW: Is the prize the prize? That is the prize?

MEYERS: Often it is. Often it's the Nobel Prize. But that's the coin of the realm, but there are scores of different prizes that are awarded to researchers, each of which has a different level of respect and acceptance and money. But to be recognized for one's credit is a universal need. We all share that. We don't want our accomplishment to be either subverted or appropriated by somebody else.

And I took an informal poll on people - friends, family and so forth - and it's surprising how often people exclaim: Oh, yes. I had an idea that was taken over by my teacher, by my employer, by my boss or something. And this leaves a deep scar that can last for years and years.

Let's see if we can get a call in or two from here. Let's go to Victor in Woodbridge, Virginia. Hi, Victor.

VICTOR: Hi, Dr. Meyers. The question is: What do you do with discredited scientists - for example, from NIH - and then other respected institutions pick them up? What's your opinion on that?

MEYERS: Where do they go? What do they do? Yeah.

Well, Victor, this raises, of course, the basic question of what would be the institutional policy for that, and it varies from institution to institution. But following the explosion of cases of scientific misconduct from the 1970s, up until yesterday, various institutions have established a form of a code of ethics or institutional review.

The problems with it, though, are the disparate nature of that kind of response. Certainly, some consistency would be recommended. Due process has to be preserved, of course. And the senior researcher, in these instances, often tries to preserve his own sovereignty and concern for the institution that may delay any investigation.

FLATOW: On the other side, there are very famous cases where someone who thinks they deserve the credit and never got the credit spend the rest of their lives, almost, trying to get the credit they think they deserve. Aren't there some cases, many cases like that?

MEYERS: Yes, I think there are. And that really reflects some of the flaws in the bedrock of peer review for the scientific enterprise. Peer review often overlooks

some major advances, and this does not lead to recognition of those cases. The first major one probably occurred in the 19th century, and that's represented by Dmitri Mendeleev, who of course established the periodic table of elements, which is recognized as the major contribution to pattern recognition in all of science.

He - any recognition of his work lingered for decades. He was finally proposed for the Nobel Prize in 1905, virtually at the beginning of the Nobel Prizes, and again in the following year. But it was never awarded to him.

Lise Meitner, who was instrumental in defining nuclear fission, was overlooked. Oswald Avery at the Rockefeller Institute, working on pneumococcal bacteria, came to realize that the hereditary material is not proteins, but rather nucleic acids. He as overlooked, and to most people, that's recognized as the greatest oversight by the Nobel Committee.

But resistant - but to express - for a scientific researcher to express his or her displeasure over not being considered for an award only rarely comes to public awareness. And an example of that is represented by the case of MRI, where following the recognition by the Nobel Committee of Paul Lauterbur for how to figure out how to image through that process winning the Nobel Prize in 2003 was promptly advertised by Raymond Damadian, his rival, bitter rival for 30 years, took out a series of full-page advertisements in the New York Times, the Washington Post, London newspapers, Swedish newspapers, all with declamations against the Nobel Prize, asking for a re-evaluation and so forth.

That kind of public protest is not kindly taken, unfortunately, by the scientific community, and he's branded as an outlier unworthy of the prize because of his behavior. But I think that's terrible unfair. The Nobel Prize should be given not for personality, but for true contributions. And that case was further aggravated by the fact that the Nobel Prize got awarded to three people, but they gave it to Lauterbur and justifiably to an English researcher, Sir Peter Mansfield, and left the third slot open, further inflaming Raymond Damadian as an example.

FLATOW: That's interesting. And there are people - there are many times patents that come out of these discoveries. And one way that people fight back is to fight the patent, that they go to court for decades, say, I'm the rightful owner of this patent.

MEYERS: Well, as an example, Damadian, of course, had an initial patent for an imaging machine very similar to the idea of MRI, but his concept was not to image, but rather to derive chemical information from a magnet that would surround the individual and radio waves - the same basic physical process.

And that patent was finally confirmed in a lawsuit against some of the major vendors over - with a lawsuit brought by Damadian for infringement of his

intellectual property, and it was brought up, in fact, to the federal appellate court immediately below the Supreme Court level and once again confirmed.

And that was the basis, by the way, of Damadian finally winning a total of perhaps \$250 million from the major vendors who were propagating, selling MRI machines, and so forth.

FLATOW: Of course, all you have sometimes, if it's very basic research, and I'm thinking now that the Higgs boson has been discovered, it's going to be a fight for - maybe not a fight, much of a fight for the Nobel Prize for the Higgs, because there's no product that's going to come out of discovery of the Higgs boson. It's going to be pure recognition, or the money from the prize.

MEYERS: Well, I think a problem there is patent laws can't cover one's intellectual property for a natural product.

FLATOW: But I'm saying that that's going to be his prize. You know, you either get from the Nobel Prize, or just the recognition is going to be - that's the prize. As you say in the book, that's a lot of it.

MEYERS: Exactly. Higgs was - walked into the auditorium there in Geneva two days ago at the time of the announcement, and everybody rose to their feet and applauded him. I mean, that comes to us rarely.

FLATOW: Do you think he's going to get - from your research, I think he's obviously going to be in line for a prize someday. How long does it take, do you think?

MEYERS: It varies, of course. I mean, there are some prizes that are given within three years of the contribution. Others may take 80 years. Technology has to catch up. The appreciation of the general field has to develop until it's realized that, hey, that was a major achievement, even if it was several years before.

FLATOW: All right, I want to thank you very much. This is a great read. It's called "Prize Fight," "Prize Fight: The Race and the Rivalry to be the First in Science." Morton Meyers, Dr. Meyers who is - works at - is a distinguished professor of radiology and medicine at the School of Medicine at State University of New York at Stony Brook. Thank you for taking time to be with us today.