



## How I almost committed scientific fraud

By Barry Drees

Ever since I was a doctoral student in molecular biology at the University of California, San Francisco, I have been interested in the reporting of scientific fraud and subsequent discussions in the popular press among non-scientists. I remember the spectacular cases of John Darsee and the even more notorious David Baltimore/Imanishi-Kari which carried on for years, cost a Nobel Prize winning biochemist his position as head of Rockefeller University, involved the FBI forensic laboratory, and ended up being dismissed completely [1]. The press clearly loves these stories, partly because they reveal that although scientists insist that they are mere objective investigators of natural phenomenon, underneath they are human beings like everybody else, with similar desires, vanities and temptations. But the part of all of this that always struck me as amazingly ill-informed was the wonderment on the part of scientists and non-scientists alike as to why anyone would do such a thing. I can understand that someone who has never worked under the intense ‘publish-or-perish’ pressures of the modern academic world—made all the more competitive when the commercial world enters the scene as the pharmaceutical industry has recently—might wonder, but have senior scientists really forgotten what it was like to be a struggling young scientist, battling for recognition and funding? Perhaps a book or television series (‘Desperate Postdocs’ or ‘Science and the City’) based on the politics and passions of the modern gene-tech laboratory is needed to inform non-scientists and jog the memories of tenured professors back to reality. With this thought in mind, I offer a short story from my truncated scientific career to illustrate the environment which I believe can easily lead one to scientific fraud.

Many more people study science than can ever hope to find academic jobs. The competition to distinguish oneself to secure one of the few available positions in academia is fierce. Indeed, the hierarchy of a university laboratory seems designed to make this situation even worse. PhD students are in a state resembling slavery. There are no grades or other tangible ways to measure achievement while working towards a PhD. Candidates are utterly dependent on the good graces of their advisors. At the same time, the advisors’ career advancement, their ability to attract funding, and status all depend on the work of laboratory technicians, postdoctoral scholars, and PhD students. The technicians and postdoctoral scholars are protected to some degree: the technicians by labor law as employees of the university, and the postdocs because they have some independence through already having their doc-

toral degrees and frequently their own funding. PhD students, on the other hand, are pretty much helpless in the face of abuse from their advisors. It is hard to escape to someone else as other potential PhD advisors are hesitant to be seen to be poaching students from their colleagues. To progress in a scientific career and secure a good postdoctoral position, students need to not only obtain a PhD, but also to get positive recommendations from their advisor. As advisors’ career advancement is dependent to some degree on the students in their laboratories, the pressure for advisors to drive their students can be intense. What exasperates this is that scientists are mostly chosen for their scientific brilliance and not for their interpersonal skills or management ability.

All this can lead to an almost unbearable pressure to produce results. There is no doubt that science, particularly genetic engineering, is an awful lot of hard work. If you want to succeed, there is no alternative to spending a great deal of time in the laboratory doing very repetitive work, like running gels and sorting cells. PhD advisors can easily think that the true key to success is to work in the laboratory day and night. Thus a macho ethic frequently develops among the people in the laboratory, who compete to spend the most time in the laboratory and 18-hour days, 7-days a week can become the norm. My advisor had the particularly irritating habit of suggesting experiments and wanting to see the results by the next day. This ruined any chance you might have wanted to discover what a real life was like. Standing up for yourself and simply refusing to do it right away seemed far too dangerous, given how dependent you were on impressing the advisor that you had the qualities to be a great scientist. What seemed like just great enthusiasm for science began over time to seem like the pathological behaviour of a micromanaging control freak. I got really fed up with the situation and the spirit of rebellion began to fester. Many times I had to cancel a social activity in order to run another experiment that my advisor had just dreamed up.

Eventually I found myself saying that I would do the experiment and then after he left would just go out anyway. The next day, when he asked what the results were, it was easy to say, “Oh it worked like we thought” and figure that you could run the experiment later in the week. I tried this a few times, but of course, eventually the experiment did not work. Now I had to either admit that I had lied and had not done the experiment when requested or I had to produce results that showed that I had . . . or appeared to have done. Someone doing the research usually knows exactly how the data need to look, which makes the temptation to

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fake it 'just this once' awfully hard to resist. This is especially the case when admitting that you had lied is an excellent way to destroy your chances of a favourable recommendation and thus a good start to an independent research career. Like any kind of dishonesty however, just this once, if successful, quickly becomes a habit and feeds on itself. It can eventually lead to career destroying patterns of scientific fraud. As the title of this article suggests and as you may suspect, I teetered on the brink and peered into the void, but drew back and took my lumps. I admitted that I had lied about doing the experiment. It took me a few more years, but eventually I realized that I just wasn't cut out for a research career and became a medical writer instead.

It is strange to read about the 'scientific pursuit of truth and knowledge' that the press seems to have swallowed whole from scientists, followed by the amazement that scientists could commit fraud. I believe that the single-minded pursuit of research careers, forgetting that we are all human beings with very human failings, is one of the main causes for researchers to take that fateful step to committing fraud.

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**Reference**

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## Reflecting on honesty: Honesty is not the best policy

It is the only policy. It is the only way to conduct business in the long-term. Of course, all of us could get away with telling lies in the short term but it is no way to live. Perhaps it is my Calvinist upbringing as a Scot.

When I started out running my own business almost fifteen years ago, I was desperate to win new clients and I tried to tell people what I thought they wanted to hear. However, this was not always terribly successful and I realized it was better to tell people the unvarnished truth then help them deal with it if there was a problem. This was much more successful.

Only now, as I approach the end of my career, do I really know what kind of job suits me best. I started off as a forensic scientist before it became very sexy, then went into drug research, clinical pharmacology and, finally, became a medical writer and translator. As a young man I was interested in both science and languages and reasoned that it would be better to adopt science as a career and pursue languages as a hobby. If I had to do it again, I would abandon science and take up languages full-time. My ideal job would be a sort of "facilitator" at meetings and congresses, going about talking to the French in French, the Germans in German, and also saying a few words to the Russians, Spanish and Poles.

Which brings me on to the challenge of dealing with people from different countries. Here, too, truth is the key. A few years ago I was involved in a major project from a big American company which included presentations in different languages in a number of European countries. The structure of the presentation was fairly complex, to be completely honest it was horrendously complex, and I told the clients so. They did not believe me and told me it had gone very well in Texas a few months before. I gently pointed out to them that Texas was not Frankfurt or Milan but they ignored my advice. So, the complex presentation was made and there were huge problems and a lot of the audience simply walked out before the end because of the difficult concepts involved or, at least, the difficult way

they were presented. To be fair, the clients came up to me and admitted they had been wrong and we then went on to develop a simpler but just as effective presentation.

So, right from the start, it is important to tell clients about differences they may encounter when dealing with people from other cultures. I have always had a good relationship with people from Southern Europe, the Middle East and the Far East because I know quite a lot about their cultures and I respect them. However, one thing I have learned from the Japanese is how to avoid saying "No". This is often seen as crude and impolite. It is much better to say "Yes, but...". You are not lying by saying "Yes", you are simply softening the blow.

I once worked for an Italian company as a medical writer and I enjoyed it very much. My colleagues were very friendly, talented and very hard-working. However, the company sent me on a management course run by a major Italian business school. This was against my wishes because I believe that nature has either made you a good manager or not. Surprisingly, I quite enjoyed the course but found the macho management ethos very amusing and slightly worrying. You know the sort of thing: if you cannot win the way you want then win anyway you can. I simply do not believe that gung-ho tactics work in the 21st century.

So, what advice can I give people out there starting a career? Well, the most important thing is to tell the truth. It may not be easy on occasions but it will be best in the long run. And one other thing. Keep your sense of humour! An honest person with a sense of humour is almost priceless.

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