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Professional Misconduct

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Here is a topic that we need to pay serious attention to- Professional Misconduct! It is a pernicious problem that has also been much in the news lately. For instance, Nature has published a series of articles exposing plagiarism scandals involving Romania, Germany and elsewhere.

In an expose on Feb 6, 2013, the magazine reported that the Germany's science and education minister, Annette Schavan's doctoral degree was revoked by her alma mater the University of Dusseldorf, remarkably the erstwhile doctor Schavan's thesis was entitled 'People and conscience — studies on the conditions, necessity and requirements for formation of conscience today'! Also the minister of defense Karl-Theodoezu Guttenberg had lost his cabinet position when he was exposed to have plagiarized significant portions of his dissertation in law from the University of Bayreuth which revoked his doctorate. Another story described how a Romanian research minister EcaterinaAndronescu had to resign due to scientific misconduct, it was also reported that the Prime Minister Victor Ponta had plagiarized large parts of his 2003 law thesis [1].

Unfortunately politicians and elected officials have no monopoly on professional misconduct. The infamous case of Hwang Woo-suk might have been forgotten by now, but at his prime Hwang was an internationally recognized expert, a respected pioneer in the field of stem cell research, credited for success in creating human embryonic stem cells thru cloning andauthor of two ground breaking research articles published in the journal Science (2004 &2005). Sadly on May 12, 2006, Hwang was charged with embezzlement and bioethics law violations after it became clear that much of his results were faked and was removed from his professional office. In another case, the former director Gerald Lushington and associate director Mahesh Visvanathan of the Kansas University at Lawrence, Kansas, were censured for plagiarism [2-4].

In and around the 2000 time frame, this editor personally had some interactions with the erstwhile phenom Jan HendrikSchon at Bell labs at Murray Hills, NJ. Dr. Schon received initial adulations for a large number of articles in Science and Nature almost at a weekly basis, about the remarkable electronic abilities of his unique films of aluminum oxide that only he could grow with the deposition facility at his alma mater the University of Konstanz. Later it was determined that these results were fakes, he lost his position at Bell labs, the university began action on revoking Schon's doctoral degree which took full effect after a final state court ruling of September, 2011. By now several dozens of publications associated with his films have been retracted from Nature, Science, Physical review letters and other peer reviewed journals.

The senior author Arturo Casadevallof a well-publicized paper in PNAS (October 2012) notes" … research has become a winner-take-all game -- one with perverse incentives that entice scientists to cut corners and, in some instances, falsify data or commit other acts of misconduct…". After a new and comprehensive analysis this paper concluded that about two-thirds of all retractions arise from misconduct not error. Fortunately still a minute percentage are aberrant, but since 1975, there has been a thousand percent increase in the fraction of such publications. Curiously, it is a male researcher who is statistically more prone and the perpetrators range over the whole career spectrum from novice to senior researcher.

But please make no mistake, misconduct is not just a symptom of the "modern–age", the urge to be recognized, be the top dog, has been with us as long as there has been winners and losers.So let us indulge and take a historical perspective. Remember Sir Isaac? Yes, the name sake of the famous laws of motion, universal gravitation and the rest of the boring dense stuff in those big fat freshman physics text books, that very same Isaac Newton had to fudge his "books", in the Principia.

Indeed, having no other recourse for computing lunar mass (moon has no natural moons so Kepler's law was of no avail) Newton brilliantly figured that the tides provide an alternative calculation scheme. But at that time there were no extant technology to measure tidal forces to the required precision consequently, based on nautical oceanic observations Newton's lunar mass came out about 140% too big. For essentially a pencil and paper, oops I meant a quilt pen and paper estimate just + 40% is quite adequate. And at this point he could have pointed out that incidentally this estimate appears to be too high; because a heavy moon would put the axis of the planet earth's rotation off kilter that was enough to be astronomically noticeable. Really he could have just said, this is the best estimate obtainable with the data at hand but the logic is fine and moved on ahead from there. Alas, "this is the best" was not enough; instead, Isaac Newton chose to manipulate the numbers for the earth-moon barycenter leaving a dirty blot on his own opus magnum. Guess the genius of all geniuses thought no one will ever be smart enough to catch him, but we did [5,6].

You may ask but why it matters – in simple terms it matters because misconduct is of great enormity to the tax payer. On 28 February 2013, Allison Lerner the NSF's Inspector General reported to a congressional panel that "extrapolating across 45,000 proposals, the NSF receives annually suggests 1,300 proposals could contain plagiarism and 450 to 900 could contain problematic data" Why is this important? Because in the 2014 presidential budget $7.6 billion is requested for NSF alone, for medical research (NIH) it is $31 billion. Hencetaking the NSF numbers as is we find 2650/45000 is 5.9 %. Consequently, you dear reader the John Q public it is possible that if unchecked then about $450 million of your hard earned money could be funding questionable proposals.

What can you and I do? A very good question – what we can do is be aware of actions, behaviors and claims. Fortunately there are new resources that are becoming available as you for following retractions catching plagiarism and others, the NSF and other agencies have on-line reports listed below that you may find useful.

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