Good Scientific Practice

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Outline

• Welcome, introduction, expectations

• Two infamous cases (Baltimore/imanishi-Kari, Hermann/Brach)

• DFG commission and recommendations

• Another spectacular case (Schön)

• 13 years of ombudsman experience: types of conflicts

• Problems with our system of science

• Discussion
Persons

Vertrauenspersonen:
  Peter H. Richter (FB 01), E. Weßlau (FB 06); R. Kienzler (FB 04), E. Schlutz (FB 12)

Kommission zur Aufklärung wissenschaftlichen Fehlverhaltens:
  Carmelita Görg (FB 01), U. Rust (FB 06), M. Stöckler (FB 09), G. Mohr (FB 09),
  2 Mitarbeiter: O. Huhn (FB 01), A. Wendt (FB 02)
  1 Studentin: S. Dahnken

DFG Ombudsman:
  Wolfgang Löwer (Jurist, Bonn), Brigitte Jockusch (Biologie, Braunschweig),
  Katharina Al-Shamery (Chemie, Oldenburg)

www.ombudsman-fuer-die-wissenschaft.de
David Baltimore (*1938) & Thereza Imanishi-Kari (*1943)

1968 David Baltimore MIT Professor
1975 Nobel prize in medicine for discovery of the reverse transcriptase
1986 Joint paper in Cell with Ass. Prof. T. Imanishi-Kari on genetics of antibodies.
   PhD student in I.-K.`s lab, Margot O'Toole, accuses I.-K. of data manipulation.
   D. B. defends the paper and I.-K., O'T. drops her accusation, but NIH and
   Representative John Dingell start an investigation with support of the US Secret
   Service. The Office of Scientific Integrity is founded and takes over.
1990 Baltimore President of Rockefeller University
   Baltimore is not personally accused, but retires from his presidency.
1994 The Office of Research Integrity (former OSI) upholds the accusation.
1996 The US Dept. of Health and Human Services (HHS) determines that no single
   accusation has been substantiated, rehabilitates Imanishi-Kari
1997 Baltimore President of Caltech (-2005), Imanishi-Kari Prof. at Tufts University
Friedhelm Herrmann (*1949) & Marion Brach (*1959)

1988 M. Brach becomes F. Hermann’s PhD student at Mainz Medical School
1990 joint work in Freiburg under R. Mertelsmann, coauthor of many publications
1992 C4-Prof at the Max Delbrück-Center in Berlin
   „Research duo in cancer research“
   large scale fabrication of data, theft of ideas as reviewer
1996 move to Ulm, crisis in their relationship, Brach assumes professorship in Lübeck
1997 investigations in Ulm, Berlin, Freiburg, Task Force of the DFG:
   falsification in 94 of some 400 publications
   Professorship applications with manipulated publication lists

Consequences: both loose their professorships, not their titles
   compromise agreement with DFG on repayment of research money (2005)
   Brach disappears to the United States
DFG appoints the commission „Professional Self Regulation in Science“.
DFG Proposals

The conduct of science rests on basic principles valid in all countries and in all scientific disciplines. The first among these is honesty towards oneself and towards others. Honesty is both an ethical principle and the basis for the rules, the details of which differ by discipline, of professional conduct in science, i.e. of good scientific practice.

Conveying the principle of honesty to students and to young scientists and scholars is one of the principal missions of universities. Safeguarding its observance in practice is one of the principal tasks of the self-government of science.

From the Introduction to 16 Recommendations, 1998
Recommendations 1-16

1-5: Responsibility of universities and research institutions:
   Professionality, adequate organization of decision processes and conflict resolution,
   special attention to young scientists’ and scholars’ education.

6: Originality and quality shall have precedence over quantity in performance evaluation

7: Primary data shall be stored for ten years in the institution of their origin

8: Definition of misconduct: fabrication and falsification of data, plagiarism, breach of confidence as reviewer or superior, …
   two step procedure of investigations; discretion; sanctions

11: Authors are always jointly responsible; no „honorary authorship“

12, 15: Reviewers must respect confidentiality and disclose conflicts of interest

16: DFG appoints an independent authority in the form of an Ombudsman

   www.ombudsman-fuer-die-wissenschaft.de
Jan Hendrik Schön (*1970)

1997 Doctorate in Konstanz (photovoltaics)
   joins Bertram Batlogg und Christian Kloc at Bell Labs in Murray Hill
2001 one publication every 8 days, 17 of which in Nature or Science:
   „groundbreaking results“
2002 Outstanding Young Investigator Award & other awards; the MPI for solid state
   research ponders his appointment as youngest director in Germany
   Scepticism in May: others cannot reproduce his experiments.
   Bell Labs appoint an investigation committee which discovers misconduct but
   exempts his coauthors of complicity.
   Schön is fired in September
2004 Uni Konstanz applies for deprivation of his doctoral degree because of
   dishonorable behavior. Schön appeals. Deprivation executed in 2009. Legal action
   at Freiburg court restores the degree in 2010. November 2010: Uni Konstanz
   appeals; decision September 2011: Schön loses his title, but appeal at the
   Bundesverwaltungsgericht Leipzig is pending.
10 years DFG Ombudsman (1999-2009)

- 349 requests, leveling off at some 50 per year
- about half of the cases needs serious attention
- 6 categories:
  45% authorship disputes, 30% research impediment, 13% plagiarism,
  6% falsification of data, 5% reviewer misconduct, 1% various
- Disciplines involved:
  60% life sciences (incl. medicine), 26% natural sciences,
  10% social sciences, 3% humanities
- Accuser:
  16% undergraduates, 50% scientists, 34% professors
- Accused:
  60% professors, 35% graduates, 5% undergraduates

www.ombudsman-fuer-die-wissenschaft.de/berichte.html
DFG Ombudsman Report 2011

- 48 requests, 20 new investigations
- about half of the cases needs serious attention
- 6 categories:
  9 authorship disputes, 5 research impediment, 5 plagiarism,
  1 falsification of data
- Disciplines involved in the investigated cases:
  13 life sciences (incl. medicine), 4 natural sciences,
  3 social sciences and humanities

Break of confidentiality is declared scientific misconduct

www.ombudsman-fuer-die-wissenschaft.de/berichte.html
Categories of misconduct

• Authorship disputes:  
  insufficient clarity of principles, transparency of decisions and discussion among contributors

• Plagiarism:  
  lacking awareness for improper copying or rules of correct citation

• Research impediment:  
  lack of responsible leadership and guidance, exploitation or even mobbing

• Data fabrication, falsification, or manipulation:  
  motivated by career award expectations, sometimes political inclinations as in issues of climate or atomic energy

• Reviews and application:  
  Conflicts of interest, problems of communication; wrong statements
Scientific Misconduct and the Myth of Self-Correction in Science

http://pps.sagepub.com/content/7/6/670

Detection of notorious cases of fraud:

1981 John Darsee Biomedicine (82) caught in act of falsifying
1987 Robert Slutsky Biomedicine (68) referee in promotion case
1997 Herrmann/Brach Biomedicine (94) whistleblower
2002 Jan H. Schön Physics (29) outside researcher
2004 Andrew Wakefield Biomedicine (1) journalist
2006 Woo Suk Hwang Biomedicine (2) whistleblower
2007 John Sudbø Biomedicine (16) outside researcher
2010 John Boldt Biomedicine (88) journal reader
2011 Diederick Stapel Social psychology (53) whistleblower
Problems with our system of science

- Basic values: Science as a social system is founded on the honesty of its members, and on transparency in their communication.
- Science as profession: Competition for careers and recognition is in conflict with the search for truth and selfcritical reflection.
- Competitive pressure and haste are a source of scantily confirmed results and thus compromise the reliability of science.
- The quantity (exponential growth) and quality (least publishable unit) of publications have assumed bizarre features. Peer review can no longer meet the expectations. Dishonesty of authors or reviewers may go unnoticed.
- Quantitative evaluation of performance (Science Citation Index, Impact factor, h-Index, number of first authorships) promotes opportunistic adaptation and belittles the role of independent judgement by reviewers.
- Inadequate guidance or even exploitation of young scientists by overburdened or overambitious superiors (notably in medical clinics).
Procedural rules for the ombudsman

• Function and responsibility:
neutral contact person without formal investigative power

• Principles:
confidentiality, fairness and transparency required from all participants

• Character of procedure:
non-public consultations, no further use of records taken

• Course of actions:
Deliberation with plaintiff about the next steps (whistleblowers need protection);
examination of allegations; seek response of person charged with misconduct;
individual or common deliberation; mediation attempt.
In case of serious suspicion of misconduct hand the case over to the appropriate
commission for further investigation

• Protection of confidentiality:
Statements of any party involved, including proposals of the ombudsman, must not
be used in the subsequent investigations
Links und Literatur

- DFG: [www.ombudsman-fuer-die-wissenschaft.de](http://www.ombudsman-fuer-die-wissenschaft.de)  
  dort: Personen, Verfahrensgrundsätze, Berichte, Curriculum

- Uni Bremen: [www.rechtsstelle.uni-bremen.de/3.%204.%20VerfO%20Ehrenkodex%2028.6.06%29.pdf](http://www.rechtsstelle.uni-bremen.de/3.%204.%20VerfO%20Ehrenkodex%2028.6.06%29.pdf)

- W. Stroebe et al.: [pps.sagepub.com/content/7/6/670](http://pps.sagepub.com/content/7/6/670)  
The myth of self-correction in science

- USA: Office of Research Integrity  
  [https://ori.hhs.gov/arprm/Login.php](https://ori.hhs.gov/arprm/Login.php)

  Responsible conduct of research

- B. Kegel, Ein tiefer Fall, mareverlag, Hamburg 2012

- C. Djerassi, Cantor’s Dilemma, Penguin Books 1991