Ethics and Social Responsibility

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Lillian Virginia Mountweazel

- Fountain designer turned photographer;
- Photographed postboxes;
- Died at age of 31 in an explosion during an assignment for *Combustibles* magazine;
- Featured in 1975 edition of the *New Columbian Encyclopaedia*;

Lillian Virginia Mountweazel

- Fountain designer turned photographer;
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- Died at age of 31 in an explosion during an assignment for *Combustibles* magazine;
- Featured in 1975 edition of the *New Columbian Encyclopaedia*;
- She never existed;
- Neither did the ‘steinlaus’ (*Psychyrembel Klinisches Wörtenbuch*);
- Nor the composer Esrum Hellerup (1980 edition of the *New Grove Dictionary of Music*);
- Also nihilartikels and honeytokens.

Bell Labs Acknowledge Research Misconduct

- 80 papers in prestigious journals in 2 years.
- 8 Papers withdrawn by Science October 31, 2002.
- 7 Papers withdrawn by Nature March 5, 2003.
- Made up or altered data at least 16 times.

REPORT OF THE INVESTIGATION COMMITTEE ON THE POSSIBILITY OF SCIENTIFIC MISCONDUCT IN THE WORK OF HENDRIK SCHÖN AND COAUTHORS

September 2002

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Appendix E: Elaborated Final List of Allegations

Bell Labs Acknowledge Research Misconduct

VI. Data Substitution: Space-charge limited I-V

Allegation

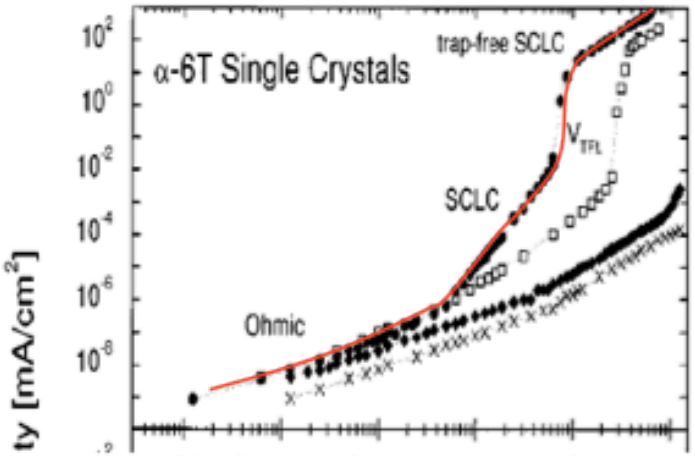


Figure 20. Current density versus voltage illustrating space-charge-limited current, from "Rodlike" Paper (I), Fig. 2.

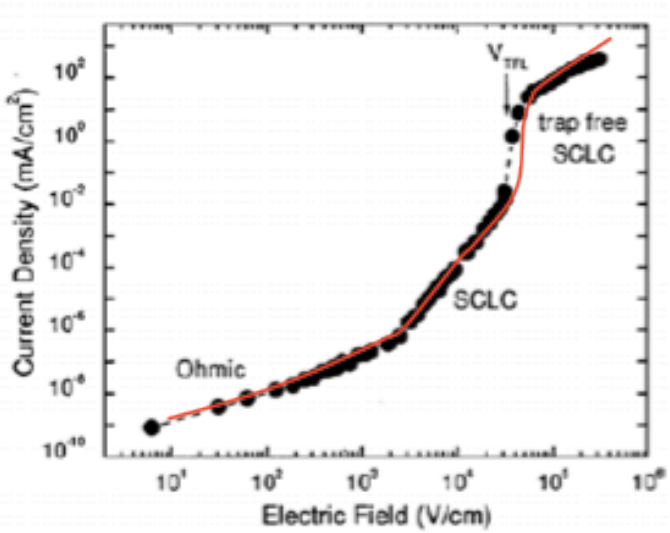
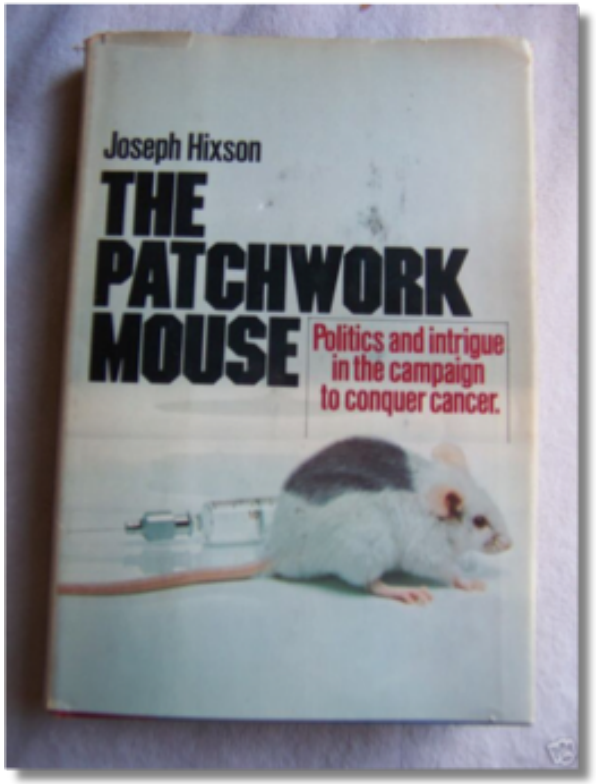


Figure 21. I-V characteristic for space-charge-limited current, from "HolePentacene" Paper (IX), Fig. 2.

Very similar current-voltage ("I-V") data in a space-charge-limited current measurement appeared in two papers, represented as different materials:

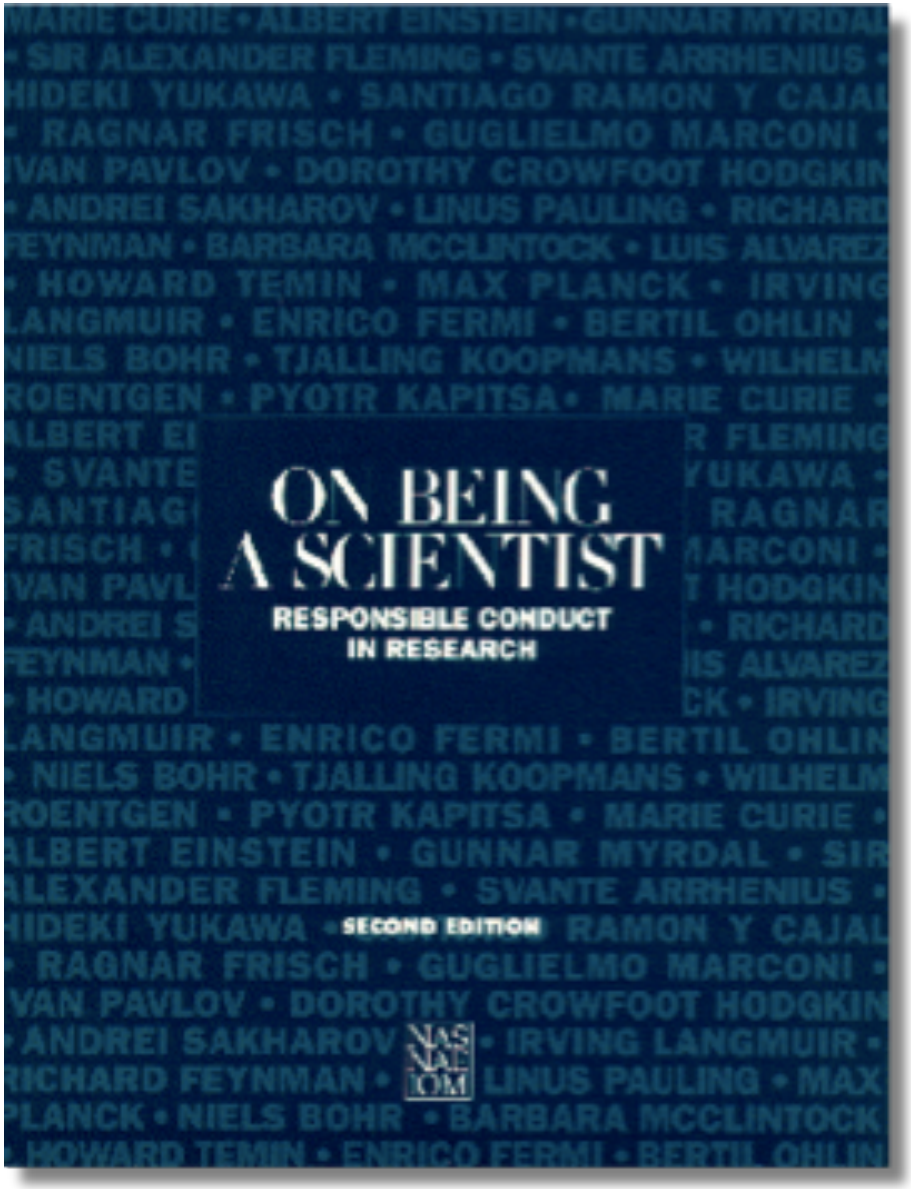
William Summerlin

- An immunologist at the Sloane-Kettering Institute in New York
- In 1974 he used a black felt tip pen to colour patches of transplanted skin in white mice…



Summerlin WT, Broutbar C, Foanes RB, Payne R, Stutman O, Hayflick L, Good RA.
Acceptance of phenotypically differing cultured skin in man and mice.
Transplant Proc. 1973 Mar;5(1):707-10.

On Being A Scientist: Responsible Conduct In Research

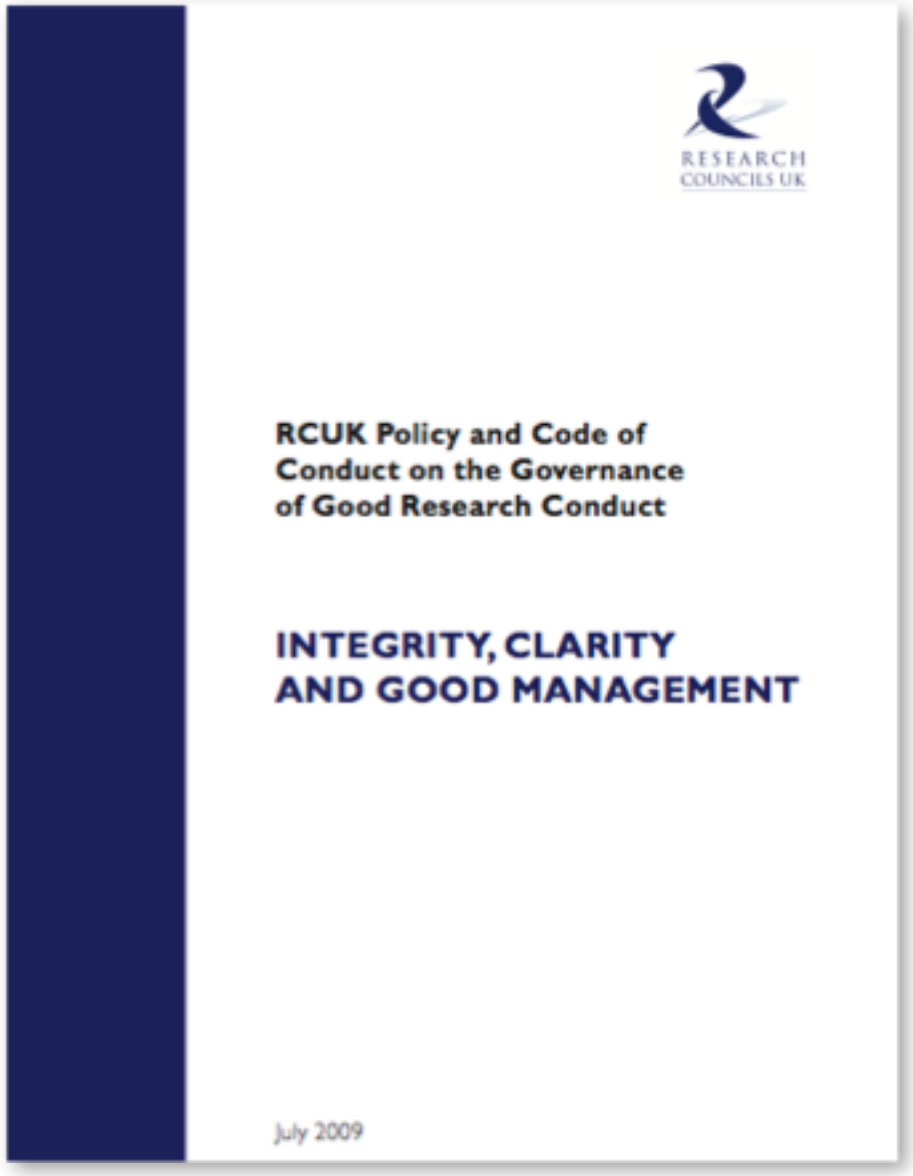


- Committee on Science, Engineering and Public Policy. National Academy of Sciences, National Academy of Engineering, Institute of Medicine

  National Academy Press
  Washington, D.C. 1995

- https://www.nap.edu/read/4917/chapter/1

Integrity, Clarity and Good Management



- *'…Behaviour by a researcher, intentional or not, that falls short of good ethical and scientific standards'.*

- **Royal College of Physicians of Edinburgh 1999**

Unacceptable Research Conduct

Fabrication

- This includes the creation of false data or other aspects of research, including documentation and participant consent.

Falsification

- This includes the inappropriate manipulation and/or selection of data, imagery and/or consents.

Plagiarism

- This includes the general misappropriation or use of others' ideas, intellectual property or work (written or otherwise), without acknowledgement or permission.

Unacceptable Research Conduct

Misrepresentation, including:

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Misrepresentation, including:

- misrepresentation of data, e.g. suppression of relevant findings or presenting a flawed interpretation of data;
- undisclosed duplication of publication, including undisclosed duplicate submission of manuscripts;
- misrepresentation of interests, including failure to declare material interests;
- misrepresentation of qualifications and/or experience;
- misrepresentation of involvement, such as inappropriate claims to authorship and/or attribution of work where there has been no significant contribution, or the denial of authorship where an author has made a significant contribution.

Unacceptable Research Conduct

Mismanagement or **inadequate preservation** of data and/or primary materials, including failure to:

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Mismanagement or **inadequate preservation** of data and/or primary materials, including failure to:

- keep clear and accurate records of the research procedures followed and the results obtained, including interim results;
- hold records securely in paper or electronic form;
- make relevant primary data and research evidence accessible to others for reasonable periods after the completion of the research (10 years/20 years);
- manage data according to the research funder's data policy and all relevant legislation;
- wherever possible, deposit data permanently within a national collection.

Unacceptable Research Conduct

Breach of duty of care, including:

Unacceptable Research Conduct

Breach of duty of care, including:

- breach of confidentiality;
- placing any of those involved in research in danger, without their prior consent, and without appropriate safeguards (includes reputational danger);
- not taking all reasonable care to ensure that appropriate informed consent is obtained properly, explicitly and transparently;
- not observing legal and reasonable ethical requirements or obligations of care;
- improper conduct in peer review of research proposals or results (including manuscripts submitted for publication).

European Code of Conduct for Research Integrity

http://www.allea.org/wp-content/uploads/2017/03/ALLEA-European-Code-of-Conduct-for-Research-Integrity-2017-1.pdf

1. Data

- All primary and secondary data should be stored in secure and accessible form, documented and archived for a substantial period.
- It should be placed at the disposal of colleagues.
- The freedom of researchers to work with and talk to others should be guaranteed.

2. Procedures

- All research should be designed and conducted in ways that avoid negligence, haste, carelessness and inattention.
- Researchers should try to fulfil the promises made when they applied for funding.
- They should minimise impact on the environment and use resources efficiently.
- Clients or sponsors should be made aware of the legal and ethical obligations of the researcher, and of the importance of publication.
- Where legitimately required, researchers should respect the confidentiality of data.
- Researchers should properly account for grants or funding received.

3. Responsibility

- All research subjects – human, animal or non-living – should be handled with respect and care.
- The health, safety or welfare of a community or collaborators should not be compromised.
- Researchers should be sensitive to their research subjects.
- Protocols that govern research into human subjects must not be violated.
- Animals should be used in research only after alternative approaches have proved inadequate.
- The expected benefits of such research must outweigh the harm or distress inflicted on an animal.

4. Publication

- Results should be published in an open, transparent and accurate manner, at the earliest possible time, unless intellectual property considerations justify delay.
- All authors, unless otherwise specified, should be fully responsible for the content of publication. Guest authorship and ghost authorship are not acceptable. The criteria for establishing the sequence of authors should be agreed by all, ideally at the start of the project. Contributions by collaborators and assistants should be acknowledged, with their permission.
- All authors should declare any conflict of interest.
- Intellectual contributions of others should be acknowledged and correctly cited. Honesty and accuracy should be maintained in communication with the public and the popular media. Financial and other support for research should be acknowledged.

5. Editorial responsibility

- An editor or reviewer with a potential conflict of interest should withdraw from involvement with a given publication or disclose the conflict to the readership.
- Reviewers should provide accurate, objective, substantiated and justifiable assessments, and maintain confidentiality.
- Reviewers should not, without permission, make use of material in submitted manuscripts.
- Reviewers who consider applications for funding, or applications by individuals for appointment or promotion or other recognition, should observe the same guidelines.

Vancouver Protocol

Recommendations for the Conduct, Reporting, Editing, and Publication of Scholarly Work in Medical Journals (updated December 2016)

https://www.etikkom.no/en/ethical-guidelines-for-research/medical-and-health-research/the-vancouver-protocol/

Misconduct Special - Breeding cheats

A fertile breeding ground for research misconduct is created by:

1. Pressing grant deadlines;
2. Fear of application rejection;
3. Over-worked lab head;
4. Gang of competitive post-docs;
5. Shoddy record keeping;
6. Cynical scientist who feels ‘owed glory.’

Nature 445, 242-243

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Nature 445, 242-243

The lame in the path outstrip the swift who wander from it.

Francis Bacon

Danger Factors in Scientific Misconduct

1. The scientist is under career pressure;
2. The perpetrator always thinks he/she knows the right answer;
3. The work is usually in a field where reproducibility is not expected to be very precise.

David Goodstein,
Vice-Provost and Professor of Physics and Applied Physics CIT

Read before you cite!

- Abstract. We report a method of estimating what percentage of people who cited a paper had actually read it. The method is based upon a stochastic modeling of the citation process that explains empirical studies of misprint distributions in citations (which we show follows a Zipf law).
- ***Our estimate is only about 20% of citers read the original.***

- **M.V. Simkin and V.P. Roychowdhury Complex Systems 14 (2003) 269-274**

Fraud-busting program hunts for doctored pictures.

- “The editors of scientific journals could catch fraudulent images by using computer tools similar to those being developed for law enforcement and photojournalism, say computer scientists…”

- **Nature 439, 520-521 Special Report - Forensic software traces tweaks to images. Helen Pearson**

Micro-ethics and Macro-ethics

Micro-ethics:

- Can I trust my fellow researcher?

Macro-ethics:

- Use, and potential misuse and abuse of research findings, by
  - Employers;
  - commercial private sector entities;
  - government agencies (including the military);
  - healthcare workers;
  - the media;
  - other members of the public;
  - …. etc..

Ernst and Young Survey 2017

Human Instinct

Machine Logic

Which do you trust most in the fight against fraud and corruption?

- http://www.ey.com/Publication/vwLUAssets/EY_-_EMEIA_Fraud_Survey_2017/$FILE/ey-emeia-fraud-survey-2017.pdf

Executive summary

Today's businesses are operating in an uncertain economic environment. Popular discontent with globalization, political instability and slower growth in emerging markets is placing pressure on companies as they seek alternative ways to meet ambitious revenue targets.

Restoring confidence through enforcement

Bribery and corruption remains a challenge and business conduct is under greater scrutiny from both regulators and the public than ever before. The majority of our respondents support the strong stance taken by regulators, particularly respondents in emerging markets.

77%

of respondents are supportive of new initiatives to hold individual executives to account for misconduct

63%
Africa

52%
India

of respondents believe that regulation has a positive impact on ethical behavior

Are your employees making ethical choices?

The results of our survey indicate that unethical behavior and high levels of mistrust among colleagues are key characteristics of today's workforce, particularly among executives, but also among younger generations.

1 in 3

board directors and senior managers could justify offering cash payments to win or retain business

1 in 4

of Generation Y (25-34 year olds) respondents could justify offering cash payments to win or retain business

Generation Y are the future leaders of our businesses. Unless action is taken now to set high ethical standards and address conduct at all levels of organizations, unethical conduct could increase in the future.

Leading By Example

Research conduct is affected by:

1. Environment
   "…should be inherently consistent with minimizing scientific misconduct"
2. Ethics training
   "… for all postgraduate students … at all research universities - alongside stricter rules on record-keeping, and arrangements for protecting whistleblowers, where this is missing at the national level"
3. Example
   " …It is here in the laboratory - not in the law courts or the offices of a university administrator - that the trajectory of research conduct for the twenty-first century is being set"

Nature Editorial, Nature 445, 229 (18 January 2007)

Social Responsibility

Engineers, in the fulfillment of their professional duties shall hold paramount the safety, health and welfare of the public.

(the Paramountcy Principle, NSPE 2003).

- Benefits and privileges of a professional role come with responsibilities.
- Not just because research is funded (directly or indirectly) by the public.
- But research is carried out in the name of society as an expression and reflection of the society's needs, interests, priorities and expected impacts.

- Researchers have a responsibility to oppose the misuse of their work.

Research ethics are all about responsibility

Acting with courage:

- In the power structures of which you are a part;
- In the context and society in which you work.

Knowing the difference between:

- What you have a right to do;
- What is right to do.

Wise Words

The essence of scientific responsibility is the inner drive, the inner necessity to get to the bottom of things; to be discontented until one has done so; to express one's reservations fully and honestly; and to be prepared to admit error."

Of all the traits which qualify a scientist for citizenship in the republic of science, I would put a sense of responsibility as a scientist at the very top. A scientist can be brilliant, imaginative, clever with his hands, profound, broad, narrow - but he is not much as a scientist unless he is responsible.

- Alvin Weinberg *The Obligations of Citizenship in the Republic of Science, Minerva*, 16:1-3, 1978.

Codes of Conduct

- Code of Ethics for Researchers of the Czech Academy of Sciences;
- The Concordat to Support Research Integrity;
- Codex Rules and Guidelines for Research;
- The European Code of Conduct for Research Integrity;
- The Nuremberg Code;
- Committee on Publication Ethics (COPE) Guidelines on Good Publication Practice;
- Declaration of Helsinki;
- On Being A Scientist, Responsible Conduct In Research;
- …etc..

Rules or Principles?

The problem is rules is that they are there to be broken.

Know the difference between:

- What you have a right to do;
- What is right to do.

Your Task

Work in your tables.

Write up to 5 principles of ethics to guide you in your future career (one sentence each).