How to publish a paper in *Nature*

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Senior Editor, Physical Sciences
Nature

Summary

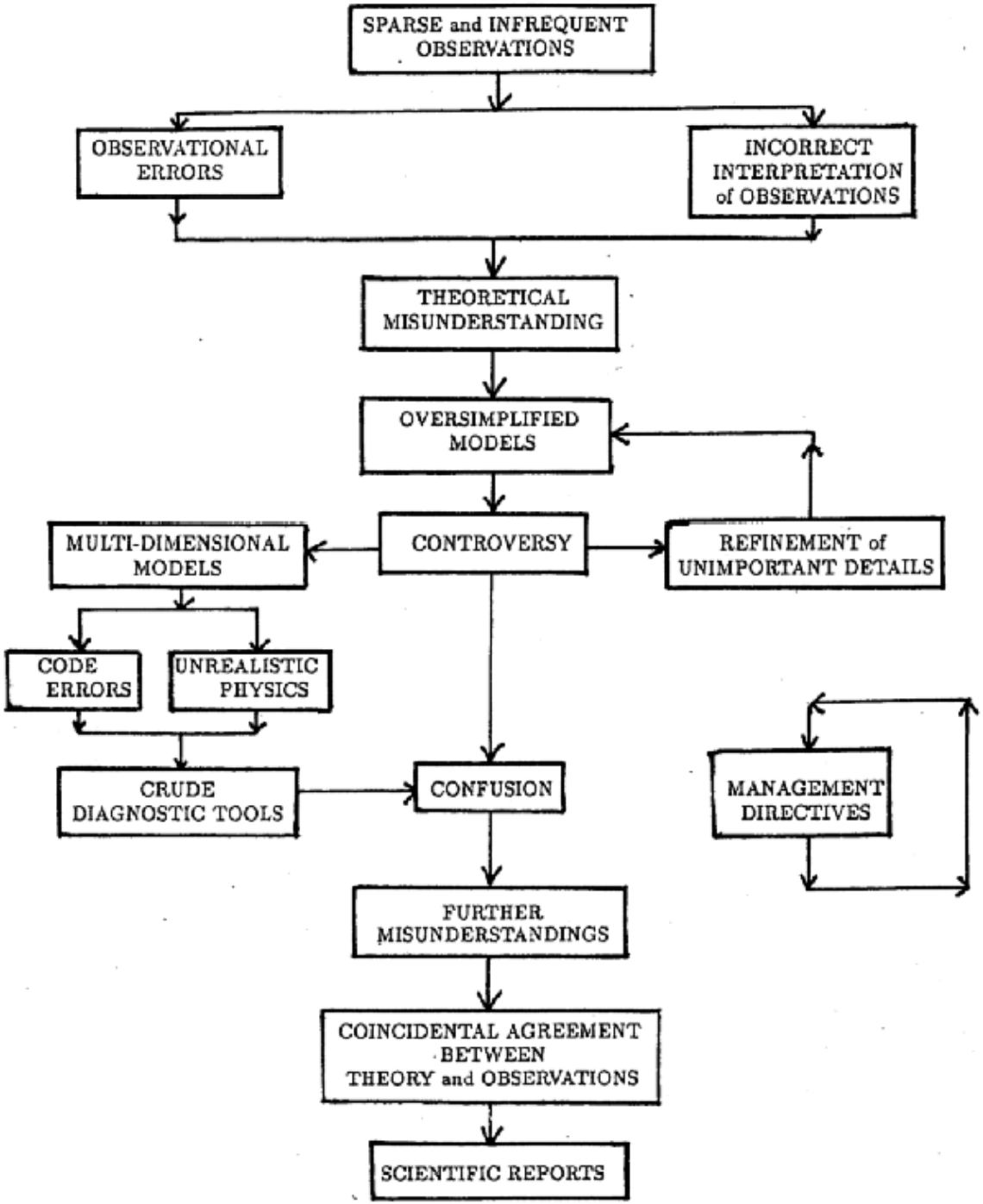
- Nature publishes ~7% of submissions
- we want only the best, most important work
- papers should be written clearly to explain why the work is important
- publicity for your science is good, but only after peer review

Nature is different from other scientific journals

- ~7% of submissions are published
- strictly independent of scientific societies
- no field of scientific enquiry is excluded
- every issue contains a broad range of topics

Why publish in *Nature*?

- papers are read by scientists outside your speciality
- work is recognized as important outside your specialty
- very rapid publication is possible
- wide publicity


SPARSE and INFREQUENT OBSERVATIONS
OBSERVATIONAL ERRORS
INCORRECT INTERPRETATION of OBSERVATIONS
THEORETICAL MISUNDERSTANDING
OVERSIMPLIFIED MODELS
MULTI-DIMENSIONAL MODELS
CONTROVERSY
REFINEMENT of UNIMPORTANT DETAILS
CODE ERRORS
UNREALISTIC PHYSICS
CRUDE DIAGNOSTIC TOOLS
CONFUSION
MANAGEMENT DIRECTIVES
FURTHER MISUNDERSTANDINGS
COINCIDENTAL AGREEMENT BETWEEN THEORY and OBSERVATIONS
SCIENTIFIC REPORTS

A *Nature* paper should

- report a fundamental new physical insight, or
- announce a startling, unexpected or difficult-to-understand discovery, or
- have striking conceptual novelty with specific predictions
- <u>be very important to your field</u>

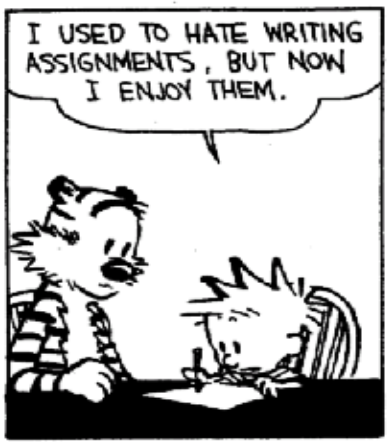
Most *Nature* papers are rejected without going to referees

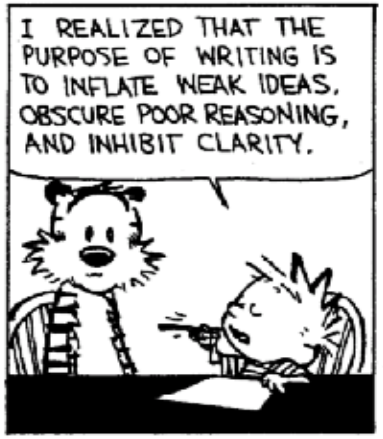
- Sometimes rejection is based upon advice from one or two experts in field
- sometimes based on the claims in the manuscript, and the author's description of how the field is advanced

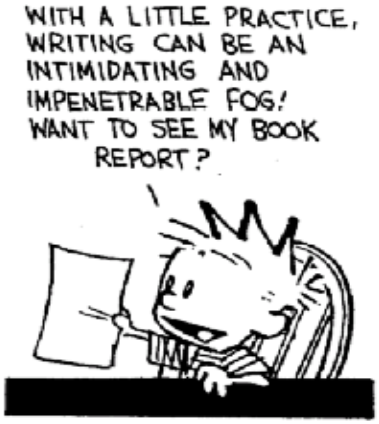
Nature papers must be comprehensible to a wide audience

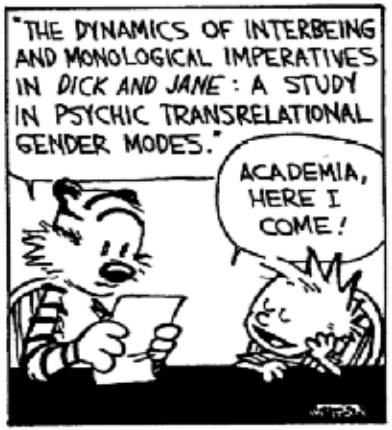
- first paragraph of a Letter should be no higher than the level of an introductory undergraduate class
- bulk of the paper at the level of a first-year graduate course in the field

If the paper is not comprehensible to people outside a narrow specialty, why bother publishing in *Nature*?


I USED TO HATE WRITING ASSIGNMENTS, BUT NOW I ENJOY THEM.


I REALIZED THAT THE PURPOSE OF WRITING IS TO INFLATE WEAK IDEAS, OBSCURE POOR REASONING, AND INHIBIT CLARITY.


WITH A LITTLE PRACTICE, WRITING CAN BE AN INTIMIDATING AND IMPENETRABLE FOG! WANT TO SEE MY BOOK REPORT?


"THE DYNAMICS OF INTERBEING AND MONOLOGICAL IMPERATIVES IN *DICK AND JANE*: A STUDY IN PSYCHIC TRANSRELATIONAL GENDER MODES."
ACADEMIA, HERE I COME!

Answer the following questions to write a good *Nature* paper

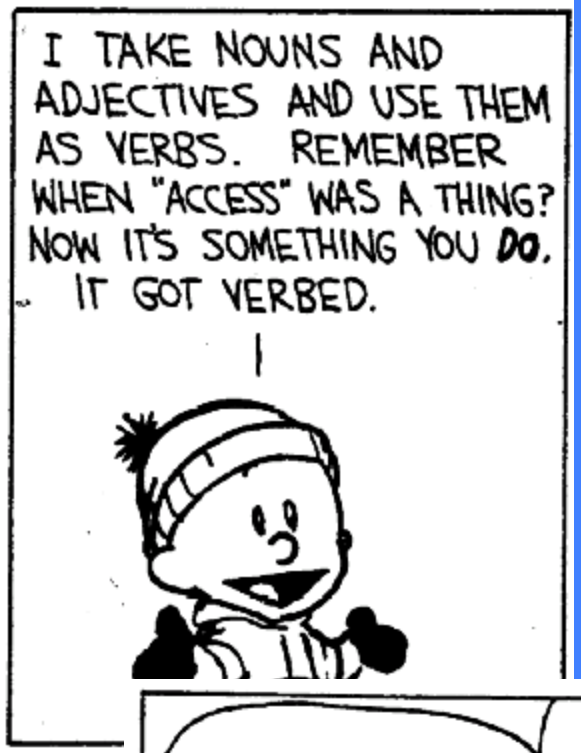
- Why is the topic interesting? What is the current state of the art?
- What big problems are there in the field or with the state of the art?
- What have you done?
- How does the work advance us towards a solution of one of the big problems?

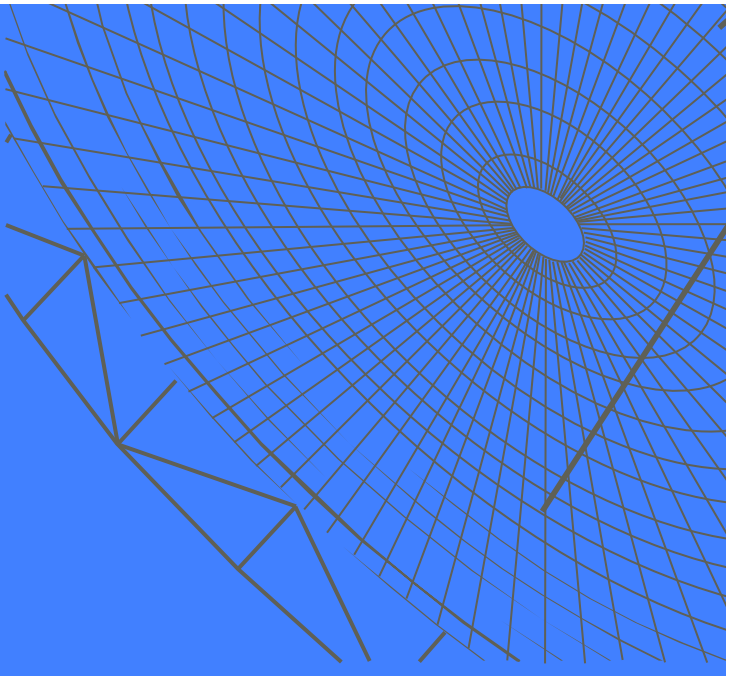
Avoid jargon and babbling

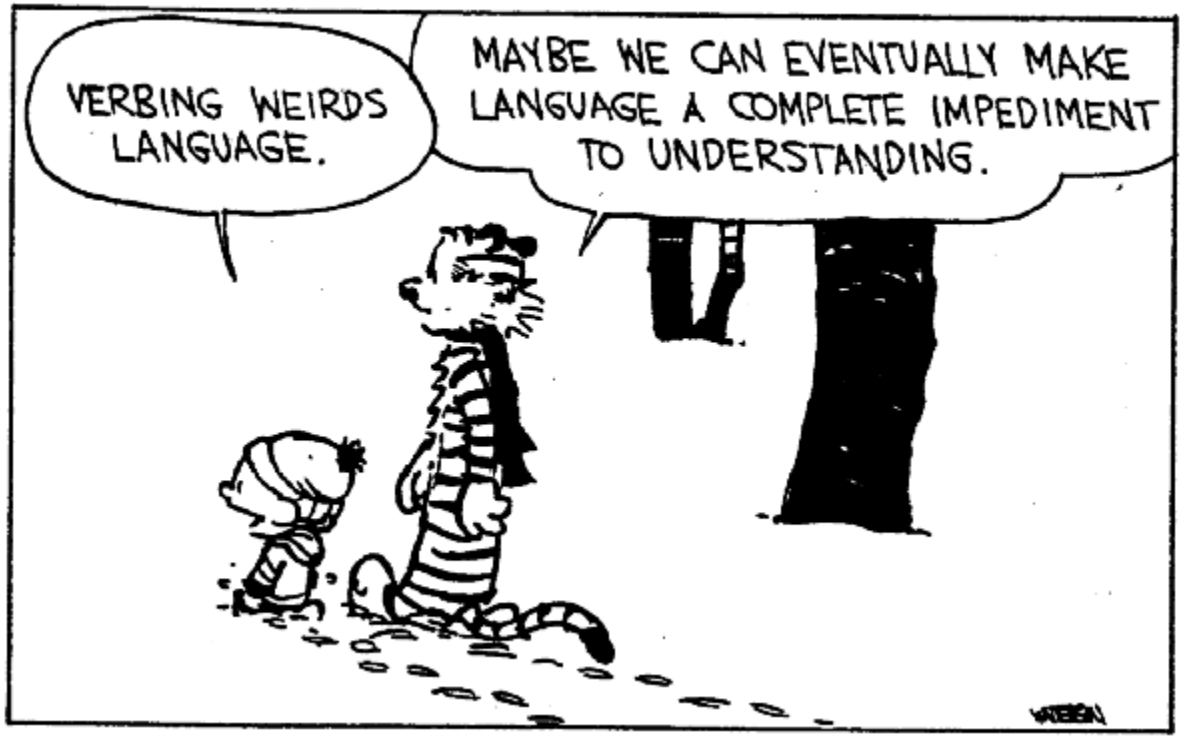
Rukeyser's frequent use of terms like "truth" and "meaning" gives these essays a pre-postmodern tone. Yet they remain remarkably relevant, perhaps because she does not define the content of truth or the meaning of meaning.

Priscilla Long, reviewing Muriel Rukeyser's *The life of Poetry* in *The Women's Review of Books*

I LIKE TO VERB WORDS.
WHAT?


I TAKE NOUNS AND ADJECTIVES AND USE THEM AS VERBS. REMEMBER WHEN "ACCESS" WAS A THING? NOW IT'S SOMETHING YOU DO. IT GOT VERBED.




VERBING WEIRDS LANGUAGE.
MAYBE WE CAN EVENTUALLY MAKE LANGUAGE A COMPLETE IMPEDIMENT TO UNDERSTANDING.

Publicity is important for you, for your field, and for science as a whole

- Other scientists should know why it is important to fund your field
- so too should the general public and government granting agencies
- provides inspiration for the next generation of scientists

Theory and *Nature*

- >30 yrs ago *Nature* used to publish 'wonky' theory papers
- We now publish mainly observational/experimental results
- theory papers in *Nature* are criticized as being 'lightweight'

Length limit said to constrain papers to being lightweight

- With the advent of online Supplementary Information – on which there is no effective limit – length is no longer an issue
- But theory referees tend to be ‘soft’, allowing authors to get away with weak arguments

Fred Hoyle once said that if a theorist is right more than five percent of the time, he isn't trying hard enough

If a paper is just putting forward an idea for discussion, why publish it in *Nature*?

- ArXiv is a better venue for such papers

What does *Nature* look for in a theory paper?

- Authors must be prepared to defend the position that their paper provides the right (or at least best available) explanation
- They should also make a prediction that could be used to refute the model within the next few years

Nature' s preprint server policy

- **Posting to ArXiv is allowed** as a communication between scientists
- If journalists contact you based on the web posting, simply ask them to contact you again a week before publication
- Journalists can write whatever they want based upon a posting
- See editorial: 4 Dec 1997; **390,** 427

Preprint servers can complicate our lives

- Legally, posting to a server is publication
- There is no enforceable embargo
- Science by press release is unethical: it undermines public confidence in scientists and science in general
- Journalists who publicize stories from a preprint server run a similar risk

Scientific fraud and misbehavior: It's in the news – is it really that prevalent?

YES!

A survey showed that ~30% of US biomedical scientists engage in some form of unethical behavior

Martinson, Anderson & de Vries 2005 Nature 435, 737.

Some scientific societies opposed a proposal by Office of Research Integrity to survey behavior and practices in science

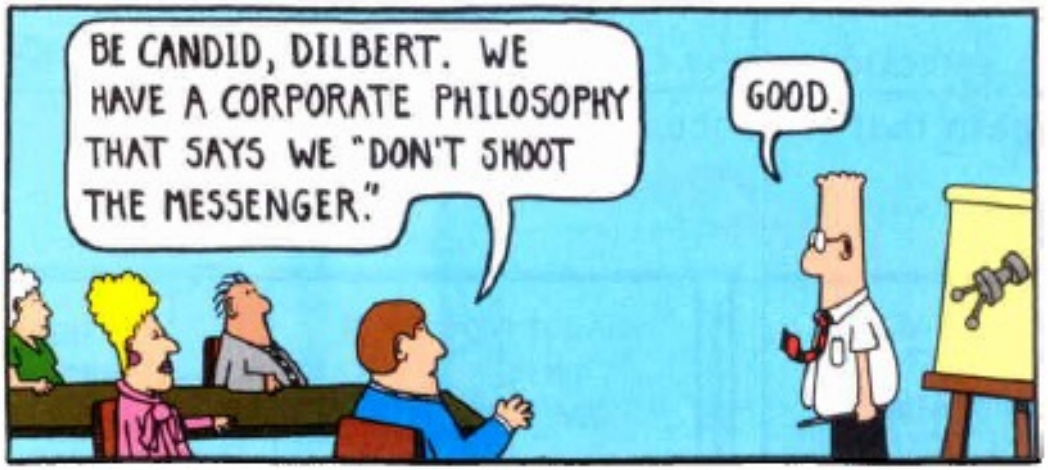
- Societies and institutions must better educate their members and employees about what constitutes unethical behavior
- Letting minor ethical lapses go unremarked can encourage further lapses

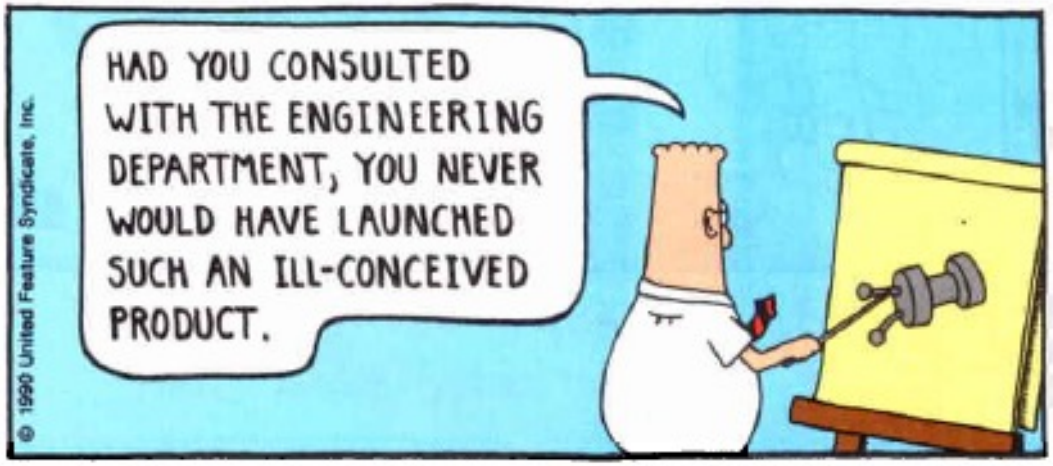
People in the physical sciences are delusional if they believe problems are restricted to biology

Remember Schoen!!

What can we do?

- Encourage transparency in all aspects of science
- Establish clear standards and lists of what not to do
- Talk about the problem


BE CANDID, DILBERT. WE HAVE A CORPORATE PHILOSOPHY THAT SAYS WE "DON'T SHOOT THE MESSENGER."
GOOD.


HAD YOU CONSULTED WITH THE ENGINEERING DEPARTMENT, YOU NEVER WOULD HAVE LAUNCHED SUCH AN ILL-CONCEIVED PRODUCT.
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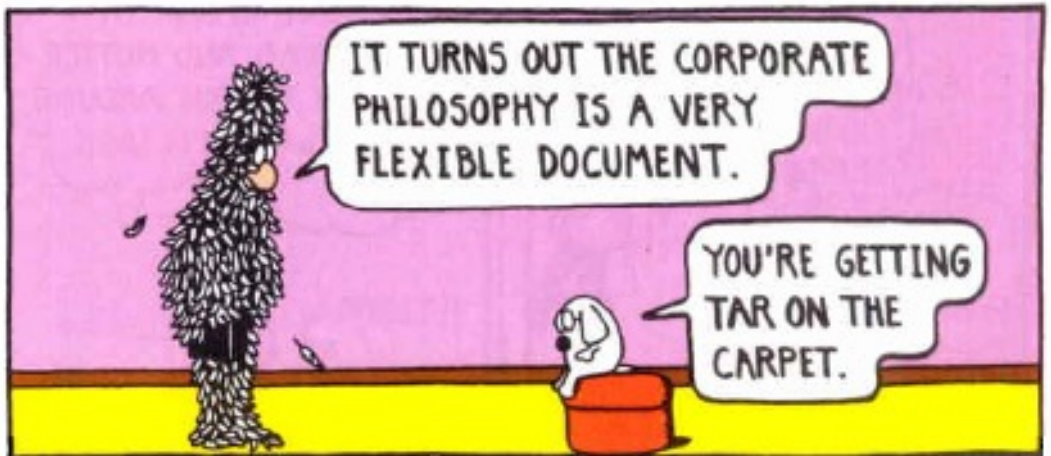
IT IS DOOMED TO FAIL. YOU WILL ALL BE HUMILIATED AND PROBABLY FIRED.
S.Adams

CAN'T I JUST WING HIM?!!
NO, EILEEN, THAT'S NOT OUR PHI-LOSOPHY.


IT TURNS OUT THE CORPORATE PHILOSOPHY IS A VERY FLEXIBLE DOCUMENT.
YOU'RE GETTING TAR ON THE CARPET.

Nature can help the community

- We can publish news items, commentaries and editorials that highlight issues of importance
- Contact us!

Points to remember

- Nature publishes ~7% of submissions
- we want only the best, most important work
- papers should be written clearly to explain why the work is important
- publicity for your science is good, but only after peer review

Contact *Nature* in advance of submission

- I can be reached at ‘l.sage@us.nature.com’ or +1 202 626 2511
- pre-submission inquiries via the web ‘www.nature.com’
- be prepared to answer questions about the significance of the results