After-Dinner Talk at BAMC 2K: 27/04/00

This is the approximate text. The sections with sidebars were prepared, but not delivered (as a result of the previous talk overrunning).

Before I start let me depart from tradition and say that I welcome heckling, will give way to interruptions, and will take questions at the end — that way we can get the slander allegations over and done with this evening rather than employing m'learned friends.

About a year ago *Bill Dold* … whoops, sorry, … *Professor John Dold* rang to ask me whether I was willing to give this speech. He gave me a week to decide, and 'advised' on secrecy (I don't think he actually swore me to it). Now while *Willy Dold* may be known for his incisive organisation (not-with-standing running the BAMC in the middle of term) — or at least Cambridge's term … I always did know we worked harder than most — and for his tightly argued negotiating skills (of which more later), this does raise a question mark over his judge of character … yes he asked me to keep my mouth shut … and no doubt he admires John Ockendon's diplomatic skills.

I have no idea why he wanted the after-dinner speaker to be a secret, but I hope it's news to 50% of you!

Now before accepting, I did my homework. I discovered that Ken Livingstone's fee for an after dinner speech is £2,000, that for the late Willie Rushton was £5,000, John Major's going rate is £25,000, while Maggie has been known to pick up $\frac{1}{4}$ million (but that might have been dollars rather than pounds). So what was I worth? What could the BAMC and the lavishly funded UMIST afford? Well, on the basis that after dinner fees seem to be inversely proportional to the ability and charisma of the speaker, and after a hard-nosed negotiation with the *Professor formally known as Bill*, we agreed on expenses … for which I am very grateful since the executive jet was very convenient and comfortable.

Indeed, such jets have amenities which I would have never have guessed. For instance, while I was practising this speech on the flight up and I heard a little voice saying 'good, very good'. I looked around, and there's no-one there. So I continued. Another little voice: 'amazing … they're really going to like that'. Again I looked around. No-one there. So I continue with my practise, and next I hear 'excellent, 24/24, of international standing, 5*'. This time I ring for the stewardess, ask whether everyone one hears little voices on executive jets. … Apparently it was just the complimentary peanuts.

Of course one of the problems for me of giving this speech is that since I am not a Professor, nor an old chum of the Chairman, nor an MP or Lord (which seems to cover all but one of the previous speakers), there will be many of you who, having never left your formica towers, will not know who I am … so I thought that I had better quickly run through my CV (or maybe my anti-CV).

- 81-82. Fellow of Fitzwilliam College. Fell out with Master. Resigned.
- 83-85. Lecturer at UCL. Did not see eye-to-eye with Head of Section. Resigned.
- 85-90. Lecturer at Imperial. Fell out with Rector. Resigned.
- 90-98. Fellow of Selwyn College. Disagreement with Senior Tutor. Resigned.

You will note that there is a certain consistency here — moreover this even extends to jobs that I did not get. Last year I applied for a Chair at Bristol. First I did my homework and noted a common theme ... Prof John Hogan, Prof Jon Keating, Prof John King, Prof Jon Chapman, Prof John Hinch, Prof John Toland, Prof John Willis, Prof John Blake, Prof John Ball, Prof John Buckmaster, Prof John Dold (that explains it Bill), Prof John Ockendon (no, no, that's the exception that proves the rule) — so first thing I did was to global edit Stephen J. Cowley to S. John Cowley. But even that didn't do it — and the interview did not go well, especially when I asked whether, since the new University Secretary was the ex-CEO of *Kwik-Save*, Bristol would be adopting a policy for degrees of *Pile 'em high, and sell 'em cheap.*[1] However, true to form there was a resignation ... that of the Vice Chancellor a few weeks later.

How long have I got *Billy* — or shall I resign now?

GKB & DGC

Given recent events I thought that a few very brief words about George Batchelor and David Crighton might be appropriate.

Because of the war George Batchelor started his Ph.D., if not his first degree, relatively late ... he arrived in Cambridge in 1945 at the age of 25. He was a lecturer at 28, published *The Theory of Homogeneous Turbulence* at 33, founded JFM at 36, was elected FRS at 37, and founded DAMTP at 39. Eventually Cambridge caught up with him and promoted him to Reader at 39, and Professor at 45 (when he also, indirectly, founded the Institute of Astronomy by having a contretemps with Fred Hoyle who left DAMTP in a huff). He published *An Introduction to Fluid Dynamics* when 47, and founded a school of microhydrodynamics at about the same period. As a number of the obituaries have said, he was a man of *high and exacting standards*.

What stands out from that litany is how much George did at an early age — could a similarly talented person be so successful now with idiocies like the RAE, TQA and ILT[2] to worry about.

My personal memories of George are limited, but two spring to mind. First, he asked questions in seminars. These were not always deep questions (although often they were), but they nearly always clarified the talk. I fear that in these days of slick presentations we are becoming too passive, and are possibly letting speakers get away with it. So those of you talking in E1 tomorrow morning beware.

Second, I remember George advising that if a paper was to going to have your name on it, you had better understand it, and it was inadvisable to trust either your collaborator or to luck. With the increasing number of cases of professional misconduct being reported in science, if not yet apparently in mathematics, that is probably still sound advice to us all.

As to David Crighton ... a lot has been said already so I will not repeat it. As with George he started his Ph.D. a little later than many (having spent two years teaching 'teddy' boys at Woolwich Polytechnic after graduating), yet he had a Chair by 32. He was a polymath, with an apparently infinite supply of time, and a real determination. He would sometimes fight for causes that were almost certain to be lost, and win. His efforts concerning school mathematics being but one example.

As many of you know he was heavily involved with the fund-raising for the new mathematics buildings in Cambridge. At one point I observed that, since there is a Disney Professor of Archaeology at Cambridge, why didn't we approach the Disney Corporation for funds. However,

[1] Now what's truly worrying is that David Abrahams even thought that I might have tried this gag in interview.
[2] Institute of Learning and Teaching.

David thought that, while it might be ok to have a Betty and Gordon Moore Library, or the Faulkes Institute for Geometry, the Micky Mouse Department of Applied Mathematics and Theoretical Physics or the Minnie Mouse Department of Pure Mathematics and Mathematical Sciences was a step too far. Of course Cambridge is not averse to silly names since there is the Margaret Thatcher Professorship of Enterprise Studies.

EPSRC

Two years ago at the BAMC I helped organise a discussion of feedback from EPSRC's 'Technical Opportunities Panel' (academics) and 'Users Panel' (industry). For instance these panels had commented that

- 'the relationship between mathematics and application areas still needs strengthening';
- 'the challenge [is] to focus the applied mathematics programme into new areas';
- 'applied mathematics and statistics should pay greater attention to user needs in both industry and other academic disciplines'
- and 'the mathematics programme was well placed to influence these areas if dissemination of research outputs could be improved'.

As a part answer to the above, the following statistics were unearthed (although they are now a little out-of-date) which may be worth disseminating to a wider audience.

- In 1995/96 only 55% of university mathematics research income came from research councils (the figures for Physics and Chemical Engineering were 79% and 67% respectively).
- In 1995/96 the 55% from research councils split approximately 20% from EPSRC Mathematics, 10% from the rest of EPSRC and 25% from the other research councils. Let me repeat that, EPSRC mathematics was only funding 20% of University mathematics research — this seemed to make a *prime facie* case that there was good connectivity.
- In 1995/96 EPSRC funded more than twice as many postdoc man-months per active research worker in physics as in mathematics, i.e. the old chestnut that Physics has more EPSRC money because of its experiments was not true on a like-for-like assessment.
- Although the mathematics programme spent relatively more than any other programme on research studentships (over half the programme in 1995/96), there were relatively only 0.34 research studentships per active research worker, whereas in physics and chemistry the respective figures were 0.64 and 1.3.

I interpret those figures to conclude the mathematics programme was being truly screwed.

The good news is that there is now some evidence that some of the arguments might be being won. For instance:

- The 1999 EPSRC funding allocations included an 'unprecedented' 24% increase in the grants allocation, that's 17.5% in real terms.
- Last month in one of those glossy magazines that EPSRC like wasting good research money on, I read that Prof. Bob Boucher, VC of this University and the only academic member of the EPSRC Users Panel, thought that

> 'There is a great deal of research that passes on to other academics to further advance science and engineering. Mathematics is a good example of that.'

- Finally, last November, the Chief Executive of EPSRC Richard Brook commented on the 'Users Perceptions' (I presume industry, etc.) of the standard of the eight EPSRC programmes.
  - Physics and Chemistry were 'good',
  - IT was 'troublesome' (so much for Silicon Fen and Glen),
  - the rest (e.g. materials, engineering) were 'somewhere between good and troublesome',
  - with the exception of mathematics which was of 'international standing'!

Now, while it may be the case that everything is not rosy, next time someone tells you that mathematicians are not good at 'connectivity', or 'applications', or whatever, don't roll over and die (as some advocated in the light of the original criticisms). We may not be perfect and there are undoubted areas where we can improve (particularly myself), but as a community we are good, and the hard facts are out there to support us. No 'spin' is necessary.

Jack Straw

For some reason my next heading is Jack Straw — possibly most well-known as the after-dinner speaker at the 1988 Imperial BAMC (no doubt invited by an inspired Secretary), and who is supposedly 'tough on crime, and tough on the causes of crime' — although at present he seems to be keener on being tough on those who cannot defend themselves.

Anyway now that we've got to crime, I'd like to appeal for help as regards an incident that occured in Cambridge on Thursday October 28 last year at 5.15 in the Senate House with the ceremonial candlestick. In particular I am told that those of you from Birmingham and Bath might be able to help me out here, … since it concerns a 'missing point'! … A similar theft was reported in Oxford a couple months later, but in that case I am assured that the theft was illusory since the two points never existed in the first place.

So as you might gather my next objective, … or is it an aim, … is to talk about the TQA.

But first a quandary. Suppose that you are in a room with Saddam Hussain, Slobodan Milosevic and the head of the QAA, and that you have a gun with two rounds in it. What do you do?

Answer. Shoot the head of the QAA twice in order to make sure that you do the job properly.

A variation on the previous quandary. Suppose that you are in a room with Saddam Hussain, Slobodan Milosevic and the head of the RAE applied panel, and that you have a gun with two rounds in it. What do you do?

Well this is a harder one, and so I took specialist advice from my Manchester friends. The answer … Peter are you sure this is what you want me to say … it's not too late to change your mind … you shoot Saddam Hussain and Slobodan Milosevic (and if you believe that you'll believe anything).

Of course the TQA has been raked over extensively in the past, and an after dinner speech is not the place to cover old material again. However, now that most of the results are in (with the exception of such hotbeds of wildcat strikes as **B**CL and **B**arwick, as they have recently changed their names to), may be it's time for a couple of reflections.

First, the stories I hear of other inspections suggests that some of us have had it *far easier* than others. The variability in experience and, possibly more importantly, attitude of the assessors discredits the whole process. For instance, if my own institution had had the *panel from hell* then we could easily have obtained 2 or 3 fewer points. I do not believe the view, expressed by one of those who scored 24, that the variablity is ± 1 — it's larger than that.

Second, while we all know that the TQA points are not meant to be added up they will be, and indeed have been — if not by us then by The Times, The Guardian, etc. However, it is misleading, indeed ludicrous, to have a system that awards the same score both to a University that successfully teachers GR and String Theory in its third and fourth years respectively, and to a University that teaches an introductory course on vectors and vector calculus in its third year, and the same course as part of a Mathematics MSc. For instance, what is a prospective overseas student to make of this? We have scored an own goal of Keanesq proportions.[3] Indeed, if you will allow me to take the football analogy further, Manchester United, Charlton and Preston may all have approximately the same number of points this year, but only the QAA would lump them in the same table and enter the latter two in the Champions league instead of Liverpool and Arsenal (sorry Leeds fans).[4]

Moreover, who is to blame for the creation of this gross waste of time and effort? Maybe it's Maggie, and I would dearly love to think it was. But may be not. A few years ago at the BAMC, possibly in Sheffield, a number of us were moaning about the state of School Mathematics, and in particular A-level. There had been a spate of letters in the press on this issue (including one by myself) since, as a result of grade inflation, a trained monkey could get a grade A at A-level maths. I observed to a number of us that schools and A-level boards were not the only places were there was grade inflation (for instance 25 years ago 25% of students at Cambridge got firsts, now it's 33%), and also dodgy practice in the setting and marking of exams. Almost everyone in the discussion agreed … yet only one very junior person offered to join me in a letter to the press about University standards rather than A-level standards. All the senior people seemed more worried about negative spin on their institution than facts.

Hence it is no wonder that we have the TQA when we have not been willing to self-regulate, and it is likely to get worse, especially for younger lecturers, once the ILT gets into full swing.

But it is not just teaching where it seems that self-regulation might be breaking down. We are still allowed, at present and on the whole, to self-regulate our research and research funds. But clearly someone is starting to get worried.

Those of you who have been invited to join the Mathematics College of the EPSRC will have received a copy of the *Seven Principles of Public Life*. Last year EPSRC published a booklet covering scientific misconduct. The teaching of ethics is meant to be part of each M.Res. course. In the last decade the American Physical Society has published Guidelines for Professional Conduct, while the American National Academy of Sciences has published an excellent booklet on Responsible Conduct in Research.

The EPSRC is supposedly so keen that we avoid conflicts of interest that each time they send us material to review they state that

> The acid test [concerning conflicts of interest] is whether a member of the public,

[3] At the time of the speech, Roy Keane of Manchester United had scored an own goal against Real Madrid that had helped put Manchester United out of the Champions League.

[4] Manchester United, Charlton and Preston were newly crowned champions of the Premier League, First Division and Second Division respectively. Also, at the time of the speech, it looked like Manchester United, Liverpool and Arsenal would qualify for the Champions League the next season.

> knowing the facts of the situation, might reasonable think that judgement could be influenced by the *possibility* of private or commercial gain.

But might a member of the public at least raise an eyebrow when the Chairman of an EPSRC panel of an oversubscribed initiative is awarded one of the grants? Should not the Chairman, if not all the members of the panel, have no vested interest?

When EPSRC cannot find enough reviewers, should the proposer really be phoned up and asked for suggestions?

What about applying the EPSRC 'acid test' to other situations?

Should a Journal Editor needing a publication for a final report of one of his/her grants get his/her post-doc to submit the paper to him/her?

Should a Vice-Chancellor, head of Research Council, or other academic accept a knighthood, peerage or other honour while in office, or say for the period of 5 years afterwards, in case they be seen the Government's poodle?

Since election to the Royal Society confers advantages both for the individual and for their institution, should not the Royal Society open its procedures for independent inspection? Might not some harbour the suspicion, no doubt untrue, that it is easier to get elected if 12 or 13, rather than none or 1, of your colleagues are already Fellows.

What about other examples of mis-conduct — say adding random names to papers for the sake of the RAE. If the Government, and more importantly the general public, do not believe that we can keep our own house in order then it there may not just be TQA which is associated with visits and inquisitions ... might not the RAE turn into the RQA.

Finally, let me return to the TQA, and a paragraph that has been in and out of this talk a number of times. There are rumours, I repeat rumours — I have no facts, but a number of rumours — that in the run up to the TQA a number of institutions either 'discovered' very useful documentation at a late stage, or found a way of time reversing the date on others. This was no doubt justified by the fact that the TQA is no way to run Higher Education. But there is a technical word for this practice ... fraud. Also, if you can do it for teaching, why not smooth out that niggling little bump in your research graph that you really know should not be there, but you just cannot get rid of. Or exaggerate a little on your research proposal, or your final report. Or forget to point out the restrictions of your theory which has no hope of applying in the physically realistic range.

It is bad science, it is bad mathematics. In my opinion a suitable memorial for George Batchelor and David Crighton would not be a building or Chair, but a determination to ensure that as a community we continue to have *high and exacting standards*.

Let me finish with a quote from the Analects of Confucius.

> One day a disciple asked Confucius 'If a king were to entrust you with a territory which you could govern according to your ideas, what would you do first?' Confucius replied, 'My first task would would certainly be to rectify the names.' The puzzled disciple asked, 'Rectify the names? And that would be your first priority? Is this a joke?' Confucius was required to explain what he meant: 'If the names are not correct, if they do not match realities, language has no object. If the language is without an object, action becomes impossible - and therefore, all human affairs disintegrate and their management becomes impossible. Hence, the very first task of a true statesman is to rectify the names.'