



D. Colquhoun FRS
Phone: (+44)-(0)20-7679-3765
Skype: d.colquhoun
Fax: (+44)-(0)20-7679-7298
email: d.colquhoun@ucl.ac.uk
web: <http://www.ucl.ac.uk/Pharmacology/dc.html>
26 Oct 2006

Prof Alan North FRS
Manchester
November 10, 2006

Comments on the proposed reorganisation of Life Sciences at UCL

Dear Alan

I am eager to see that reorganisation here does not do more harm than good. I've given the matter a good deal of thought and talked to a lot of people. I hope you'll find time to read my views.

First I should say that I think some of the proposals are excellent, particularly those related to teaching. I am not arguing for the *status quo*. In particular, the following changes are very welcome.

- (1) The idea of a common entry to life sciences degrees seems excellent now that the size of courses has increased so much. One of its benefits will be to allow later specialisation and hence better motivated third year students.
- (2) The source of most of the (very undesirable) "tribalistic" behaviour of departments, and of most of the duplication of effort, was competition for FTEs. That was quite unacceptable and the plan should do much to cure it. I suspect it will cost money rather than save it, because organisation previously done by academics themselves will now be done by a new administrative structure.
- (3) Removal of some administration (such as HR responsibilities) to a faculty level should give more time for "heads of themes" to do academic work. But that could very easily be cancelled out insofar as "themes" could have a lot more people in them than some departments (such as Pharmacology) have now,
- (4) Thinking about departmental structure is useful. Two problems are obvious. It has been clear for ages that the anatomy department had grown too big. It may also be the case that Biochemistry had become rather isolated. I'm certainly not opposed to some reorganisation of the existing departmental structure, *but*, for the reasons given in the next paragraph, it must be done in a way that keeps the researchers happy.

Organisation of research

On the research side, Malcolm Grant's declared aim is to promote excellence now and to ensure it in the future. We all want that. Achieving that aim seems to me to be quite simple in principle. Research is done by individuals, not by universities, faculties or departments. The *only* way to get good research is to recruit good people and to provide them with an environment in which they want to stay. The happiness of the individual researcher is, therefore, essentially all that matters. Tinkering with departments, divisions, themes etc is essentially irrelevant except insofar as it provides an environment which helps to recruit and retain the best people. It is one of the perpetual myths of administrators (not entirely absent from the faculty's document) that reorganising boundaries will somehow turn second class research into first class. It won't.

When I said, above, that reorganisation must be done in a way that keeps researchers happy, that is not just altruism. If it is not done that way, the best people will drift away as chances arise (and the worst will stay). It might take a decade, but the damage could be enormous. I have several friends at places like Imperial and Edinburgh who, after suffering several rounds of reorganisation would be happy to leave. That presents UCL (and Manchester) with some useful opportunities, but only if we don't make the same mistakes ourselves.

The collaboration myth

The most annoying myth (again present in our faculty document) is that (a) there exist barriers to collaborative work between departments, and (b) renaming the departments will make these (imagined) barriers go away. I have been collaborating all of my working life, and until quite recently the collaboration has never been within the department, often not in UCL and sometimes not in the UK (Sakmann, Neher, Reuter etc). The same is true for others in the department. In no case has the location mattered in the slightest. That is even more true now than when I started, thanks to email and video Skype, but it never was true anyway. Collaboration depends above all on the individuals involved (as well as the nature of your work). There are some people at UCL whom I don't see from one year to the next, despite being very close geographically. There are others I talk to every day. That will remain true whatever divisions, themes or departments you have. It is a characteristic of the people, not of either administrative structures or (within reason) physical location.

What keeps people happy?

If you accept my thesis that just about the only important thing for the future of research is attracting, and retaining, the best people, we have to ask next how to achieve that. It won't be the same for everyone, but some common themes seem to emerge. These are as follows.

Size matters

Bottom-up approach matters

Brand name, morale and loyalty matter

Choice matters

Disciplines sometimes matter

Pharmacology in particular

I'll deal with each of these topics next.

Size matters

The most common theme that has arisen in endless meetings and conversations concerns the size of the management unit. People do *not* want to be part of a large amorphous division, and the main reason for that is that they want to know their boss well, and they want their boss to know them well. To take a random example, a patch clamper does not want an fMRI person as boss (and, doubtless, *vice versa*), because they feel that their work will not be understood or appreciated. If the group is too big they may have to make an appointment weeks in advance to meet a boss. There have even been cases where the boss didn't recognise their own staff.

Bottom-up approach

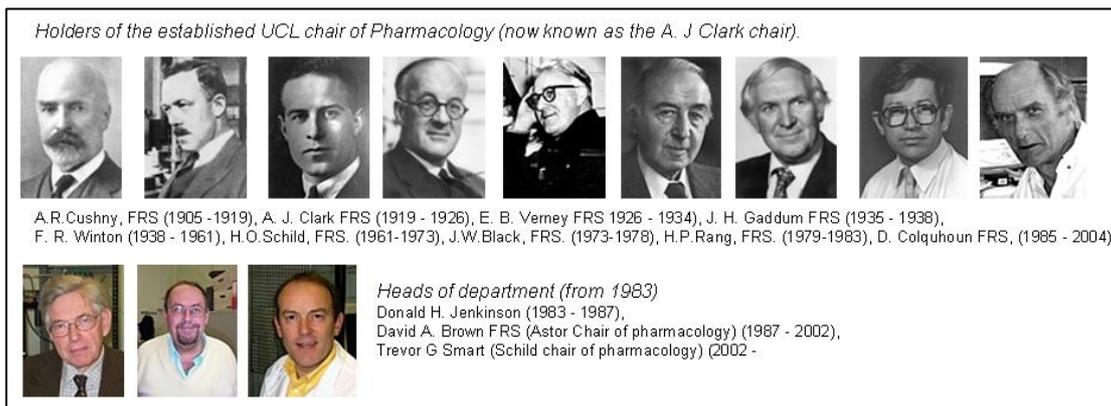
The best researchers, on the whole, don't like being told what to do by committees of elderly people. They get nervous when they hear about 'strategy committees' and the like. They think that they are in a better position to set their own strategy than any committee, and, if they are the sort of person we want to retain, they are probably right. In a sense, it doesn't even matter if they are right, because if a good person leaves, even for wrong reasons, UCL is the loser.

Brand name, morale and loyalty matter

These are intangible matters, but nevertheless they matter a great deal. There are some people who come into work in the morning and don't step outside the lab until they go home. Such people might not much care about their surroundings or their colleagues, but, other things being equal, they are not the best people to have around. They won't collaborate much regardless of where they are. Most people, I think, get a good deal of satisfaction from working in a group that has a good reputation, a good brand name if you like. For many of us (me, certainly) part of the brand name comes from UCL itself. It feels like 'my sort of place'. UCL is undoubtedly very keen on promoting its brand name (the change to the new logo will cost £600 000). But UCL has no reputation *per se*, all it has the sum of the reputations of the individuals who work here. In some cases, that attaches itself to the department in which they work.

The importance of brand name and loyalty is manifested in two ways. From the research viewpoint, it contributes to good morale, it attracts good researchers and it helps to retain them. At the level of teaching and administration, loyalty to a group makes an enormous contribution to the willingness of people to pull their weight.

As an example, most people in the Department of Pharmacology get a buzz from its reputation. The pictures of past eminent people on the wall makes a real contribution to recruiting and retaining people, and to their willingness to do chores. That is a contribution to UCL that should not be thrown away without very good reason.



Choice matters

There are some people at UCL who would prefer to be working in a different 'department' (or whatever the current politically-correct name is for administrative groups). There are others who are happy where they are. If one accepts that the paramount, indeed the only, way to improve our research is to recruit and retain the best people, it follows that both people should, as far as possible, be allowed to work where they are happiest. That is a good Benthamite principle too. I am not arguing that the administrative structure should stay exactly as it is now (as I said at the outset, some of it needs to be changed). But I am arguing that it in the long term interests of UCL that changes should have the assent of the people who are affected by them. If changes are made that they do not like, the good ones will eventually leave.

Disciplines sometimes matter

A common argument is that there are no longer any boundaries between research areas so words like physiology, pharmacology and biochemistry no longer have any useful meaning.

One objection to this statement is that it is presented as a modern development whereas in fact there is nothing new about it at all. It has been so throughout my working lifetime. My own work could be described as pharmacology, but it could equally be called physiology or biophysics, or even, at times, statistics of stochastic processes.

The other objection is that, although it is true for research, it is certainly not always true for teaching. That is particularly obvious in the case of a subject like pharmacology which has, unlike other preclinical subjects, a direct relationship with a very successful industry. There is a body of knowledge that is unique to pharmacology. How many physiologists could show a student how to derive the Schild equation, for example? People in the department come from many different backgrounds, but those without a pharmacological background acquire the necessary knowledge so they can teach it. Quantitative pharmacology was taught for many years by Donald Jenkinson, originally a physical chemist before he did his PhD with Bernard Katz, and now much of it is taught by Guy Moss, whose first degree was in physics. In an amorphous division there would be far less incentive for people to acquire a body of knowledge that might not be directly relevant to their research.

Indeed recent experience (some of it at UCL) suggests that disciplines can easily wither over a decade or so, when there is no focus for them (see below).

Pharmacology in particular

I'll return to this topic at the end.

What is the evidence?

Scientists are accustomed, in their own work, to have a scrupulous regard for evidence. That makes it odd that, when they start to talk about management and education, their regard for evidence seems often to evaporate. It seems relevant to ask what we can learn from experience both elsewhere and within UCL about the effects of reorganisations. It isn't easy of course, because it's a consequence of disregard for evidence that reorganisations are commonly done on grounds that might almost be described as ideological, with no regard for how one might judge the success or otherwise of the experiment. Another relevant point is that, in most places, the reorganisations are too recent for their long term effects to have become apparent: personally, I'd rather wait for the data.

Experience in the UK outside UCL

Two or three places reorganised life sciences long enough ago that some useful inferences might be possible.

Edinburgh

Edinburgh provides, for me, the most striking example of what can happen. They had a superb pharmacology department when I did my PhD there, but it vanished in 1999 into an enormous division of neuroscience. They found that didn't work very well and there have been three re-reorganisations since then (I no longer contribute to their alumni fund in disgust). One of the few remaining top rate pharmacologists in Edinburgh (lately a Royal Society Research Fellow in my lab) says

“Depts, as [they] were, also provide a focus for the delivery of teaching - this is completely lost at UoE” and “it seems you (the powers that be [at UCL]) are throwing the baby out with the bathwater.”

Imperial

At Imperial they also found that the confident predictions of theorists that they would save money and improve research were wrong. They too have had to suffer several rounds of re-reorganisation to get things working reasonably well. Each time they are re-reorganised, much time is wasted and inconvenience is caused for those who are trying to do the teaching and research. It's interesting that these changes were forced on Imperial by Richard Sykes whose motto seems to be that “bigger is better”. Not only did that approach not work when he tried to acquire UCL, but it did not work at GSK either. After his departure from GSK, their division had to be split into seven much smaller units (<http://www.drugresearcher.com/news/ng.asp?id=11048-gsk-sets-up>)

“(R&D RESTRUCTURING

“We have created six Centers of Excellence for Drug Discovery (CEDDs) designed to act as small business units

within the larger R&D organization,"
[\(http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/02-22-2001/0001433051&EDATE \)](http://www.prnewswire.com/cgi-bin/stories.pl?ACCT=104&STORY=/www/story/02-22-2001/0001433051&EDATE)

As so often, it seems that universities are in danger of following industrial management methods of 20 or 30 years ago (things like the ‘Chicago model’), well after the ideas have become discredited in industry.

Leeds

This example is less clear because pharmacology there was somewhat moribund at the time it vanished. The name ‘pharmacology’ has vanished entirely from Leeds now, apart from the title of a degree. Those who teach the degree seem to be mainly in the ‘Research Institute of Membrane and Systems Biology’

“The Institute is one of three research institutes in the Faculty – amongst the largest groupings of biological scientists in the UK, comprising in total about 175 academics and independent research fellows.”
[\(http://www.fbs.leeds.ac.uk/institutes/imsb/imsb.htm\)](http://www.fbs.leeds.ac.uk/institutes/imsb/imsb.htm)

That, I think, is a great deal too big for good administration or staff loyalty.

Experience within UCL

Some of the best examples of how mergers can cause whole areas of work to wither come from within UCL itself.

At one time we had departments of Zoology, Botany and Genetics. They were leaders in their fields and the source of much of UCL’s fame. Then zoology and botany merged. The combined department, thanks to A.V.(‘Av’) Mitchison had an excellent reputation in immunology, but very soon plant sciences withered (as did much other zoology). UCL now finds itself with virtually no plant science and weak in ecological aspects of zoology at a time when these subjects have gained great economic importance, and great popularity with university entrants too. Nothing was learned from this mistake, because soon afterwards Genetics too was absorbed into this large amorphous department. There is no need to emphasise the enormous importance of genetics today, but once its identity was lost, it too soon began to wither. Although we still have some excellent people in genetics, it is a shadow of its former glory.

I predict that precisely the same will happen to the discipline of pharmacology if it is absorbed into a large and amorphous “theme of neuroscience, physiology and pharmacology”.

This is not imagination: it’s a matter of learning from (quite recent) history. The situation is not only closely analogous with that of biology, but also this has been precisely what is already happening in Leeds and Edinburgh.

Experience in the USA

Curiously enough, the USA, source of so many ideas about efficient management, has not followed the same path of merging disciplines into large divisions. There are

about 173 “Departments of Pharmacology” in the USA, and the best of them have superb reputations. Some of the best are listed in the appendix. Stanford, Yale, Cornell, Columbia, SUNY, UCSD etc have encouraged the development of Pharmacology, not abolished their departments. That is an example that we should not ignore.

Conclusions

Reorganisation in general and Pharmacology in particular

I am not arguing that the departmental structure should remain exactly as it is now. On the contrary some changes are needed. Anatomy is far too large at present, and biology should also be split up in an attempt to restore some of the former glory of disciplines that have tended to wither as a result of their anonymity following earlier mergers.

That being said, I *am* arguing for a strong representation of Pharmacology as a named discipline in any new structure. Some of the reasons have been given above. It is about the right size now, it is financially in good shape, and it is highly rated in the RAE. After such success it would be sheer vandalism to abolish it, as the draft faculty document essentially does. To do so would undoubtedly damage our teaching in the long term, and hence the service we provide for the UK pharmaceutical industry. In the longer term (a decade or more) the good pharmacologists would drift away and the discipline would wither for lack of any name or focus.

That, I maintain, would be a bad thing.

APPENDIX

The “Departments of Pharmacology” in North America.

This is a selection of 40 of the better universities selected from the 173 departments listed at

http://www.aspet.org/public/training_programs/training_programs.html#undergraduate

The exact name of the department is listed in each case.

Albert Einstein **Dept of Molecular Pharmacology**

<http://www.aecom.yu.edu/home/faculty/academic.asp?id=072>

<http://www.aecom.yu.edu/molpharm/>

Baylor College of Medicine **Dept of Pharmacology**

<http://www.bcm.edu/pharmacology/>

Boston University **Dept of Pharmacology and Experimental Therapeutics**

<http://www.bumc.bu.edu/Dept/Home.aspx?DepartmentID=65>

Brown U Providence RI **The Department of Molecular Pharmacology, Physiology and Biotechnology**

<http://bms.brown.edu/mppb/index.html>

Chicago School of Medicine **Dept of Cellular and Molecular Pharmacology**

<http://www.rosalindfranklin.edu/cms/Pharmacology/PMB.cfm>

Columbia University New York. **Dept of Pharmacology**

http://salk.cpmc.columbia.edu/dept/gsas/ac_programs/pharmacology_frame.html

Cornell. **Department of Pharmacology**, Joan & Sanford I. Weill Medical College of Cornell University,

http://biomedsci.cornell.edu/graduate_school/html/14814.cfm

Dalhousie University, Halifax Canada. **Department of Pharmacology**

<http://pharmacology.medicine.dal.ca/>

Dartmouth Medical School, NH **Department of Pharmacology & Toxicology**

<http://dms.dartmouth.edu/pharmtox/>

Drexel University School of Medicine **Department of Pharmacology & Physiology**

<http://www.drexelmed.edu/DepartmentsCentersandInstitutes/BasicScienceDepts/PharmacologyPhysiology/tabid/325/Default.aspx>

Duke University School of Medicine **Department of Pharmacology and Cancer Biology**

<http://pharmacology.mc.duke.edu/index2.html>

Emory University School of Medicine **Department of Pharmacology**

<http://www.pharm.emory.edu/>

The George Washington University Washington DC
Department of Pharmacology & Physiology
<http://www.gwumc.edu/pharm/>

Georgetown University Medical Center. Department of Pharmacology
<http://www.georgetown.edu/departments/pharmacology/overview.html>

Harvard Medical School Department of Biological Chemistry and Molecular
Pharmacology
<http://bcmp.med.harvard.edu/>

McGill University, Montreal, Canada. Department of Pharmacology and Therapeutics
<http://www.medicine.mcgill.ca/pharma/>

New York University School of Medicine The Department of Pharmacology
<http://www.med.nyu.edu/pharmacology/>

The Pennsylvania State University College of Medicine
Department of Pharmacology
<http://www.hmc.psu.edu/pharmacology/about/>

Queen's University Kingston Ontario. Department of Pharmacology and Toxicology
<http://meds.queensu.ca/medicine/pharm/>

University of Rochester Department of Pharmacology and Physiology
<http://www.urmc.rochester.edu/phph/>

Rutgers School of Medicine Department of Pharmacology
<http://www2.umdnj.edu/pharmweb/>

Stanford University School of Medicine Department of Molecular Pharmacology
<http://molepharm.stanford.edu/>

St Louis University The Department of Pharmacological & Physiological Science
<http://www.slu.edu/colleges/med/pharmphys/>

State University of New York at Buffalo Department of Pharmacology and
Toxicology
<http://www.smbs.buffalo.edu/pmy/>

State University of New York at Stony Brook. Pharmacological Sciences
<http://www.pharm.stonybrook.edu/>

State University of New York Upstate Medical University Department of
Pharmacology
<http://www.upstate.edu/pharm/>

Tufts University School of Medicine, Boston, MA. Department of Pharmacology and
Experimental Therapeutics
<http://medicine.tufts.edu/dept/pharm.cfm>

Tulane University School of Medicine **Department of Pharmacology**
<http://www.pharmacology.tulane.edu/>

University of California at Irvine **Department of Pharmacology**
<http://www.ucihs.uci.edu/pharmaco/>

University of California at Los Angeles **Department of Medical and Molecular Pharmacology**
<http://www.nuc.ucla.edu/>

University of California at San Diego. **Department of Pharmacology**
<http://pharmacology.ucsd.edu/index/>

University of California at San Francisco. **Department of Cellular and Molecular Pharmacology**
<http://cmp.ucsf.edu/>

University of Colorado. **Department of Pharmacology**
<http://www2.uchsc.edu/pharm/>

University of Maryland School of Medicine **Department of Pharmacology and Experimental Therapeutics**
<http://pharmacology.umaryland.edu/>

University of Miami School of Medicine **Department of Molecular and Cellular Pharmacology**
<http://chroma.med.miami.edu/pharm/>

University of Rhode Island **Department of Pharmacology and Toxicology**
<http://www.uri.edu/pharmacy/programs/graduate/pt.shtml>

The University of Texas Southwestern Medical Center at Dallas.. **Department of Pharmacology**
http://www.swmed.edu/home_pages/pharma/Pharmsite/Pharmframeset.html

University of Toronto **Department of Pharmacology**
<http://www.utoronto.ca/grdpharm/>

University of Washington, Seattle WA. **Department of Pharmacology**
<http://www.depts.washington.edu/phcol/>

Yale University, New Haven CT. **Department of Pharmacology**
<http://info.med.yale.edu/pharm/>