CORRESPONDENCE

Defence for Chelsea

SIR — Your correspondent, in summarizing the recommendations of the Committee on Academic Organisation of London University, has failed to comment on an alarming feature of the discussion document. The committee state that their judgements on academic standards in institutions are based on "general reputation" and their own personal opinions. It is on this basis that it is implied that the *majority* of departments at Chelsea College are not of the standard of the university at all. How else can those who survive the proposed "peer review" be accommodated on a "single site", given the present size of the college?

The University of London is a great, but complex, institution. It faces brutal cuts in funding over an alarmingly short period of time and it was thus wise to have set up the Committee on Academic Organisation under Sir Peter Swinnerton-Dyer to assess the implications of the expected cuts and advise on their implementation with minimal damage to academic standards. But the committee has yielded to the temptation of extrapolating objective financial analysis into arbitrary recommendations based on subjective and highly damaging prejudgements. Instead of setting the scene for cooperative rationalization and contraction, the document has generated anger and dissention.

The committee had already clearly established that for years the sub-allocation of the UGC block grant to London by the Court of the University has favoured certain colleges at the expense of others. Inevitably, the high unit-cost colleges, with their favourable facilities and staff ratios, have tended to attract more research grant monies than have the low unit-cost colleges. Nevertheless, and in spite of the conditions under which they have been forced to operate, the under-provided schools have not only become better integrated and more innovative than the giants, but contain many departments of true distinction.

Yet the committee's conclusion is that it is "unthinkable" that the necessary savings should be made where the high costs have been identified. Instead, the worst of the burden is to fall on colleges that, having been starved from the centre, are now judged, *a priori*, not to be academically excellent — as if, in any case, excellence can ever be ascribed to a college rather than to individual departments.

Chelsea College has survived a succession of externally-engineered crises, and in the face of them has grown from strength to strength. Operating at exceptionally low unit-costs we still have built up departments that are among the biggest and best of their kind in the university, and some of which have a major international reputation. Why then have we been singled out for gratuitous attack? Is it simply and cynically that we are a sitting target, fully-stretched financially and spatially, and big enough if destroyed to spare others their share of the agony?

A simple way to destroy a college is to malign its reputation, so that potential students and benefactors and the various grant-giving bodies shy away. If this is not what the committee consciously set out to do, then the publication of the discussion document represents a sad error of judgment.

The attack on academic standards at Chelsea College not only offends us, it insults boards of studies of the university and its external examiners, jointly charged with maintaining standards in their subjects. They are, by implication, accused of incompetence.

The committee should now retract their scenarios and their gratuitous insults to Chelsea and to the other colleges judged to be "weak", and leave the schools themselves voluntarily to suggest rationalization within objectively defined guidelines. Otherwise, the university should forthrightly reject as incompetent the latter part of the report.

H. BAUM

Department of Biochemistry, Chelsea College, London SW3, UK

Postdocs are OK

SIR — I object strongly to your comments regarding the future for postdoctoral fellows in the United States (*Nature* 11 June, p.441). The 50 per cent increase in postdoctoral grants since 1972 represents an expansion of the equality of opportunity for recent graduates, and the federal policy-makers responsible ought to be applauded, rather than attacked with words like "demeaning employment", "exploited", and "scandal". You confuse an equality of *opportunity* with an equality of *outcome*. Sadly, this is a common confusion that muddies the minds of the liberal thinkers of both our peoples, and breeds frustration amongst the unfortunate victims that subscribe to their thought.

The value of postdoctoral study and its "prize" of an academic post remain intact ("88 per cent of the most recently appointed assistant professors in chemistry had done a postdoctoral stint" etc., p.443). For many, this study is preceded by an overkill of classroom exercises and examinations, and followed by endless faculty committee meetings and governmental paperwork, leaving only those precious postdoctoral years where one can devote full time to research, and *attempt* to achieve the scholastic maturity necessary for undertaking truly independent investigations. (Incidentally, independence is the mark of a "professional", not the social status, health insurance, or salary implied by your comments and the juvenile anecdotes of the disappointed. Anything less denotes hired help, regardless of training, qualification, or special ability.) The statistics of the Grodzins Committee fail to take into account those students of highest ability and fortune who achieve this maturity while earning their degree (all are supposed to) and therefore do not need a postdoctoral period of additional opportunity. For the remaining majority, it stands to reason that an increase in the numbers electing to enter this race for a fixed number of prizes will be followed by an increase in the numbers who do not win. Is that so surprising as to deserve front page coverage? Is it morally offensive? Is it indicative of someone in authority having failed in their responsibility, as you state? I think not. You propose that those who do not win "should be paid a bounty, a kind of retrospective recompense for deprivations". Now *that* I do find morally offensive, lying somewhere between race-fixing and squandering public money on a losing proposition, or to be blunt, on losers.

DEXTER B. NORTHROP

University of Wisconsin-Madison, USA

Cox sure?

SIR — Barry Cox's comments on the British Museum (Natural History) exhibit on Origin of Species (*Nature* 4 June, p.373) contain an incredible statement which must not pass without challenge. Otherwise, the creationists' claim that evolutionary science is really dogma will have received the *imprimatur* of your journal. The statement is:

> "We [biologists] don't even think that it [the evidence] could support a dramatically different *scientific* (*sic*) theory, in the way that earlier observations of the heavens were transformed from being compatible with an Earth-centred Universe to demonstrating a Sun-centred Solar System."

As a practising biologist, I wish to register my dissent. Surely, Dr Cox got carried away. Does he understand the implications of novel findings in genetics so completely that he can make such a statement with serenity? Is it certain that new data on genome organization and variation will not lead to fundamentally new ideas about the mechanisms of speciation? Have we fully assimilated the lessons of overlapping and interrupted coding sequences, mobile genetic elements, and somatic differentiation by chromosome rearrangements? With all due respect to Dr Cox and the many scientists who believe that the problem of evolution is solved "in principle", let me state my conviction that there is a great deal of aptness in the analogy between Ptolemaic astronomy and our current understanding of evolution.

JAMES A. SHAPIRO

Department of Microbiology, University of Chicago, Illinois, USA

Fit for what?

SIR — In his article (*Nature* 4 June, p.373) on the new Origin of Species exhibition in the British Museum (Natural History), Dr Cox quotes the sound track of a film loop "The Survival of the Fittest is an empty phrase, it is a play on words". This appears to refer to the widespread belief that "survival of the fittest" is a tautology, because our only measure of the fitness of an organism is its ability to survive. This is not so; in the long run survival is a problem for palaeontology, because fossils are our only evidence of what has failed to survive. And in palaeontology, there is a technique which can be used to estimate fitness (in the ordinary dictionary sense). This uses the "paradigm" method developed by Rudwick[1] for testing functions inferred from structures in fossils. The structure concerned is compared with a paradigm which is the ideal for the performance of that function (due allowance being made for the nature of animal materials). Paul[2] has taken this farther, and compared with the appropriate paradigms a series of structures which perform the same functions in different primitive echinoderms. He concluded that, for the functions of protection, feeding and respiration, the echinoderms of the Cambrian and Ordovician were less efficient than their successors. Moreover, this was compatible with the elimination of the unfit by competition (which is "survival of the fittest" in reverse).

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This is not the ideal test of "survival of the fittest"; it does not compare fitness and survival within one population. Instead, it compares populations, of which the later is descended from survivors of the earlier (at both the individual and the species level). The populations are separated by some millions of generations; this interval is long enough for comparison of the populations with an objective standard to reveal an increase in fitness. Could this cumulative increase in fitness be produced by anything except "survival of the fittest"?

D.G. STEPHENSON

Department of Geology,
University of Keele, UK

1. Rudwick, M.J.S. *Br. J. Phil. Sci.* **15**, 27-40 (1964).
2. Paul, C.R.C. in *Patterns of Evolution* (ed. Hallam, A.), 125-158 (Elsevier, Amsterdam, 1977).

University staffing

SIR — On behalf of my members I should like to make comment on the article, "Change wanted" in *Nature* of 11 June (p.442).

I do not wish to proffer an opinion on the second interim report from the Swinnerton-Dyer committee but I do want to protest most strongly about your suggestion that a cutback in non-academic staff would be quicker and should be considered first.

First, the financial savings accrued from such cuts would be a drop in the ocean in comparison with the salaries saved from the academic staff. We as technicians are aware of departments with an academic staff establishment which in no way reflects the actual number of students taught. It is the top-heavy nature of such departments that needs careful consideration.

Second, the last sentence in the article asks "But is not the university an institution whose chief purpose is academic?". In order to maintain that purpose the academics need the back-up services of trained technicians to provide an efficient lab class and assist with research projects. An academic with a heavy teaching load trying to do research at the same time would either have to cut back the amount of teaching or give up a substantial part of his research projects in order to replace the technical services now provided.

As regards cleaners and porters, they already work in rather grubby conditions and I am sure that academic standards would not be improved if the academics had to clean their own rooms or provide an adequate supply of toilet paper in the lavatories.

In conclusion, we are aware that because of government cuts, savings must be found somewhere. But please do not point the finger at one group of staff. Far rather let each college put its own house in order and safeguard the jobs and careers of all its employees by looking at other areas of saving first.

The universities could also make a positive and voluble stand against the government cuts in an effort to maintain the opportunity of higher education for as many people as possible.

A.L. PRICE THOMAS

Branch Chairman,
Association of Scientific, Technical and Managerial Staffs,
Westfield College Branch, London NW3, UK

Psychiatry on trial

SIR — Your ill-disguised dismissal of R.D. Laing (*Nature* 4 June, p.367) does little to clarify the many interconnected issues raised by the Sutcliffe case. Permit me to draw the following lessons from his trial:

(1) Escape into the protection of some illness, however well-defined or spurious, is no longer possible. Each of us needs to accept responsibility for our actions.

(2) The utter "normality" displayed by Sutcliffe during his trial now puts the onus on psychiatry to defend its labelling of unacceptable behaviour as "illness": may I remind you that there are psychiatrists amongst those who collude in the incarceration of Soviet dissidents.

(3) That anyone, particularly psychiatrists, should be surprised when the "common and pervasive" sexual abuse of, and violence towards women takes such an extreme form, is but a sad reflection on our society. Where I beg to differ from you is in not ascribing this to "psychiatric illness" but rather to the inevitable consequence of a pervasive morality. The sooner we stop hiding behind the comfort of psychiatric illness the better we shall see our own responsibility as members of the society that has nurtured Sutcliffe.

K. PAULUS

Clifton, Bristol, UK

Search for truth

SIR — Although not directly involved in the investigation of the origin of species, astronomers are, nevertheless, involved at the "sharp end" of research into origins as they seek to explore the Universe and as such I would like to comment on the leading article "How true is the theory of evolution?" (*Nature* 12 March, p.75).

Darwin's theory of evolution, like the theory of special creation, is just that, a theory, which is incapable of being proved as fact by scientists, and also incapable of being falsified. Both theories therefore, if given the label of scientific theories, fulfil Popper's second criterion. Second, in order to assemble and evaluate evidence for particular theories, scientists, hopefully, try to be as objective as they possibly can; if not, then their credibility may well be called into question. However, most people would find it impossible to be totally objective and impartial in weighing up evidence. Each of us has prejudices which we are incapable of putting out of our minds as we seek to assess observed facts, so their interpretation can never be fully objective.

This problem is particularly acute when the origin of the species is being investigated. The whole question of the existence of God and as a consequence our accountability to him as God, past conflicts between church leaders and scientists, dissatisfaction with the implications of evolution on the one hand and with the role of the Bible and the church on the other have all made the investigation of the origin of the species a good deal more subjective than other areas of scientific investigation.

Creationists will do themselves a great disservice by choosing to bury their heads in the sand as scientific investigation proceeds in the future but equally so will evolutionists if they draw up behind a barrier of indignation at the thought of Darwin's theory never achieving the status of fact.

Objectivity of investigation and interpretation is not only desirable but very necessary, for in the final analysis the truth will stand all investigations and still be the truth long after we are all laid to rest.

HOWARD READ

Department of Astronomy,
University of Manchester, UK

American Creation

SIR — The correspondence arising from the British Museum's cladistic activities has had one common aim — to avert the imminent threat of an upturn in creationism (Jukes, *Nature* 21 May p.186; editorial 28 May p.271). We are tempted to ask why evolutionism feels threatened by creationism, when the real controversy has not yet been stated openly. This does not lie in E. O. Wiley's question (*Nature* 30 April, p.730) "Does the phenomenon of evolution occur?", since the majority of creationists would not deny that evolution occurs, but in the question "Did the evolutionary mechanism provide the actual pathway from sterile Earth to living world?"

Any view of origins that does not invoke a supernatural Creator must conclude either that it did or that life arrived from space in some form, as proposed by Crick and Orgel, Wickramasinghe and Hoyle, and others. Either view must be accepted by faith, either in the propositions themselves or in the ability of science to provide proof in the future. The atheist, whose metaphysical presuppositions do not allow him to countenance any form of divine activity, is more close-minded than many theists, who would happily accept either theory or the alternative, special creation.

To take a narrower view, any survey of Bible-believing Christians would reveal a wide spectrum of conclusions. These would range from those who believe that God has worked through essentially neo-Darwinian evolution, to those "creationists" who find current evidence for Darwinian evolution unconvincing and conclude that special creation is consistent not only with the scientific evidence but also with the whole of Scripture, the reliability of which can be verified experientially by the Christian.

It is often stated that many creationists take no account of the scientific arguments for evolution. Since the converse is also true, we will point to some of the issues we consider relevant. It is reasonable to point out that no plausible theoretical model exists which provides a mechanism for the spontaneous generation of nucleic acids as informational macromolecules specifying polypeptides which themselves mediate the replication and expression of that information. The experiments demonstrating the formation of a variety of organic molecules from presumptive prebiotic soups fall far short of providing a pathway for chemical evolution. Again, it is self-evident that the fossil record leaves much to be desired and few biologists recognise the dependence of the geological column on radiometric dating methods based on questionable assumptions about initial conditions. The whole history of evolutionary thought is littered with the debris of dubious assumptions and misinterpretations, especially in the area of fossil "hominids". To come up to date, protein and DNA sequence data, generally viewed as consistent with an