

CORRESPONDENCE

Irish evidence

SIR — Mr Peter H. Roberts's letter (*Nature* 19 March, p.184) offers the importation of infected Irish cattle as an explanation for the fluctuating incidence of bovine tuberculosis in the South West region between 1974 and 1980. It also says that the Zuckerman report carefully avoids this factor. I should like to set out the facts.

Table 10, on page 57 of the report, records the ministry's assessment of the sources of bovine tuberculosis infection in all infected cattle herds in Great Britain during 1972–1978, including imported Irish cattle. The figures for the South West and Sussex show 331 cases attributed to badgers and 4 (of which 2 were in Sussex) to imported Irish cattle. The totals for the rest of Great Britain are 0 and 171 respectively. It is little wonder therefore that Lord Zuckerman did not pursue the Irish cattle question when investigating infection in badgers in the South West.

The following breakdown of the figures for infection attributed to Irish cattle imports further detracts from the force of Mr Roberts's argument

| | Great Britain | SW England |
|-------|---------------|------------|
| 1972 | 59 | 1 |
| 1973 | 23 | 0 |
| 1974 | 22 | 0 |
| 1975 | 23 | 0 |
| 1976 | 23 | 1 |
| 1977 | 12 | 0 |
| 1978 | 13 | 0 |
| TOTAL | 175 | 2 |

Traditionally the Irish trade has been, and still is, mainly with the North-East of England and East Scotland. In the 2-year period before 1976 when, Mr Roberts suggests, cattle infected with bovine tuberculosis were imported from the Irish Republic, there was no increase in disease incidence from this source. What the figures do show is the effectiveness of the decision to introduce, in 1976, pre-export testing of Irish cattle.

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Who is Nabi?

SIR — Readers may wish to know that the name of Isadore Nabi, the signatory of a recent letter criticizing my views on sociobiology and ethics (*Nature* 19 March, p.183) is fictitious. Should the writer ever make a statement over his own name, I hope he will confess that he lifted the two 1975 phrases of mine out of context in a way that reverses the meaning of one and makes it appear to contradict the other. I also trust that he will mention my later and fuller treatments of sociobiology and ethics in *On Human Nature* (1978) and *The Tanner Lectures on Human Values, Volume I* (1980).

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Isadore Nabi is believed to be the pseudonym of Professor R.C. Lewontin of Harvard University — Editor, *Nature*.

Erratum

An incorrect spelling was given for the oak wilt fungus in the 26 March issue (*Nature* 290, p.284). The organism is *Ceratocystis fagacearum* and the beetle involved in its transfer is *Scolytus*.

Darwin's truths

SIR — The letter from your correspondents at the British Museum (Natural History) (*Nature* 12 March, p.82) relating to your editorial "Darwin's death at South Kensington" (26 February, p.735) fully supports your contention that something is amiss at that institution. The writers do not appear to understand the difference between a theory and a fact. When Darwin's *Origin of Species* was published in 1859, it was presented as a theory. It was then, and for long afterwards, proper to refer to it as "the theory of evolution". But since then the evidence for the theory has accumulated from many different sources and in many ways, among them natural and laboratory experiments. Wherever and by whatever means the theory has been tested, it has withstood every attempt at falsification.

The atom at the beginning of this century was a theory. No one today will doubt that it is a fact. Yet no one has ever seen an atom. Yet we have seen evolution in process before our very eyes in heritable changes in many forms, perhaps the most remarkable and obvious is the well-known case of industrial melanism in moths. What kind of proof do the South Kensington writers require before they will be willing to accept evolution as a fact? There are many differing theories concerning the mechanisms of evolution, and these are all to the good, but the fact of evolution as a process of change, surely, cannot be denied. The proofs for it are overwhelmingly clear.

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SIR — I am at a loss to understand what all the fuss is about concerning the phrase "if the theory of evolution is true". Darwin used it. I quote from *Origin of Species*:

"There is another and allied difficulty which is much more serious. I allude to the manner in which species belonging to several of the main divisions of the animal kingdom suddenly appear in the lowest fossiliferous rocks . . . If the theory of evolution be true it is indisputable that before the lowest Cambrian strata was deposited long periods elapsed as long or probably far longer than the whole interval from the Cambrian to the present day, and that during these periods the world swarmed with living creatures . . . The difficulty of assigning any good reason for the absence of vast piles of strata rich in fossils beneath the Cambrian system is very great."

This, coupled with the following quote by Dr W.R. Thompson, Fellow of the Royal Society, in the foreword of the *Origin of Species* (1956) does nothing to inspire confidence or belief in the current theories of how life started or progressed on Earth.

"It does appear to me in the first place that Darwin in the *Origin of Species* was not able to produce palaeontological evidence sufficient to prove his views, but that the evidence he did produce was adverse to them, and I may note that the position today is not notably different . . . As we know there is a great divergence of opinion among biologists not only about

the causes of evolution but even about the actual process, the divergence exists because the evidence is unsatisfactory and does not permit any certain conclusions." I am left wondering which theory requires the most blind faith.

GORDON SMITH

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Room for all

SIR — At first amused, I am now saddened by the "Death of Darwin" controversy (*Nature*, 26 February, p.735 *et seq.*). We have slipped back a hundred years: how long before letters signed Wilberforce and Huxley appear? Why "either-or"? Why cut off either right or left hands? Is there not room for Darwin, Hennis, God — and even Marx?

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Popper's philosophy

SIR — Accusations that museum displays organized in the light of cladistic philosophy represent creeping Marxist-Leninism were bad enough. But when *Nature* sees fit to defend the scientific status of Darwinism on the grounds that "metaphysical theories are not necessarily bad theories"¹ then matters philosophical have truly gotten out of hand.

It should come as no surprise to those familiar with the writings of various cladists that the writings of Professor Popper on evolutionary theory are held in great esteem. After all, he has argued for years that no view of history, whether human, biological or technological, admits of the classification scientific. For Popper the events of history are unique and, thus, not amenable to systematic explanation via theories of any sort². Since cladists find the infusion of the least amount of theoretical insight into classification suspect in much the same way that their positivistically minded cousins, the phoneticists, did a decade or so ago, it is hardly surprising that they would greet the rediscovery of Professor Popper's writings from the 1940s and 1950s with great glee.

Popper's hostility to evolutionary theory explains the favour his views receive from systematists fond of cladism. But it does not explain why this same hostility should inform the judgments others make of the scientific status of Darwinism. Popper's views have been roundly and soundly criticized by numerous philosophers interested in the scientific status of evolutionary theory. The apparently timeless contentions that the theory is (1) tautologous, (2) unfalsifiable, (3) lacks predictive power and (4) lacks confirmation have shown to be false by a decade of scholarship in the philosophy of biology dating from the appearance of David Hull's *Philosophy of Biological Science*^{3,4}. Why *Nature* should choose the cladists' favourite philosophical authority over the ruminations of contemporary authors gives one pause not about politics but about the reading habits of the scientific community.

There are numerous reasons for not taking Professor Popper's criterion of demarcation of science and non-science seriously. Perhaps the most obvious is that it just does not cut well — cosmology and evolutionary theory wind up in the metaphysical hopper, astrology