

election of the same people.

Proofs of this positive feedback are easily provided. Of 18 candidate full professors, seven were from the same southern university (Naples) and 13 were professors of terrestrial physics. It is relevant that terrestrial physics professors in Italy are mostly in solid-Earth geophysics, especially in seismology and volcanology (which explains why they are concentrated in southern Italy). Some years ago, a very good candidate for a full professorship in terrestrial physics was rejected on the grounds that his research articles (more than 40, in international refereed journals) in atmospheric physics were "not pertinent".

In the recent competition in the D043 subgroup, there were three vacancies to be filled — our own post in atmospheric physics, one in oceanography and limnology from another university and one at the Institute of Navigation of the University of Naples. The commission formed by lottery and election consisted of three full professors and one associate from the University of Naples and one associate from the other university with a vacancy to fill. None of them has ever published a paper on atmospheric physics, meteorology or the like. Two separate protests on this score by the president of the National Institute of Geophysics were, as usual, ignored by the Ministry of University Research and Technology.

What other countries would expect from such a commission I do not know, but in Italy we quickly saw an obvious flaw; this university, which had prompted the competition by announcing a vacancy, would be in trouble. Indeed, soon after the commission was formed, we knew the name of the seismologist who would win the position as associate professor of atmospheric physics.

In this case, the commission had to decide on the basis of publications, other evidence and a public lecture on a topic of the candidate's choice. Among the 12 applicants considered at the last stage were three in atmospheric science, one of whom had spent ten years at an international institution in Europe, and had acquired an international reputation for his work there. Six weeks after the last of the public lectures, the commission announced its decision. Of the three vacancies, the two at the other universities were filled by local candidates, but the vacancy in atmospheric physics at this university was filled by a seismologist (whose name we knew from the beginning) from the same southern university providing four out of the five commissioners.

Formally, the university has the right to decline to appoint the nominee, on the grounds that he is not what it was looking for, but the ministry has the right to send him anyway. There is also a slight chance

that the Commission on Universities might intervene, but it is empowered to do so only if there have been formal irregularities; provided that there have been no obvious irregularities, a university could have asked for a cardiologist and been sent a dentist instead.

Atmospheric physics is now growing in Italy in response to questions such as that of global warming, but atmospheric scientists are in danger of becoming an endangered species. Yet the ministry and the Commission on Universities have recently decided that atmospheric physics should be an essential part of the physics curriculum. It is doubtful that this goal can be achieved if tenured appointments are decided by power and not competence.

GUIDO VISCONTI

*Universita degli Studi l'Aquila,
Atmospherics Group,
67010 Coppito (L'Aquila),
Italy*

Drug approvals

SIR — The survey by the US Pharmaceutical Manufacturers Association (PMA) of new biotechnology products that have been approved or are in the pipeline (see *Nature* 353, 591; 1991) is interesting, but we at the Food and Drug Administration (FDA) were disturbed by its interpretation of the projected rate of marketing approval for new biotechnology products by the FDA's Center for Biologics Research and Review (CBER).

PMA has calculated FDA's rate of approval for new biotechnology products by dividing the total number of products approved by the total time elapsed since the first product was approved (in 1982), which yields a value of some 1.6 approvals a year. They then reason that because their survey reports 21 products now awaiting approval (although FDA's records indicate the number is closer to 30), it would take FDA's CBRR 13 years to approve these products.

The fallacy of this mathematical sleight-of-hand is that it ignores the fact that for much of the past decade there were very few products in the pipeline and that they were approved rapidly after the marketing applications were received by FDA. Moreover, at least 4 of the 21 are currently ineligible for approval because of marketing exclusivity granted to other similar products under the provisions of the US Orphan Drug Development Act.

Finally, PMA's own data reveal that "FDA required an average review time of 21.4 months" to approve biotechnology therapeutics compared to the mean approval time for other new molecular entities of 31.8 months cited in PMA's "New Drug Approval in 1990". Thus,

FDA has, in fact, approved new biotech products an average of ten months more quickly than for other non-biotech drugs, with all the advantages to manufacturers — and, more important, to patients — that implies.

HENRY I. MILLER
(Director)

*Office of Biotechnology,
Food and Drug Administration,
Rockville, Maryland 20837, USA*

Artists' offspring

SIR — The possibility that artists have more sons than daughters is suggested by a count of the following sources:

- (1) those for whom the relevant information is included in *Who's Who in Art*, 24th edition¹ (which covers artists, designers, craftsmen, critics, writers, teachers and curators);
- (2) those mentioned in the obituary section of the above publication for whom the relevant information can be found in *Who's Who in Art*, 19th edition²;
- (3) those artists and craftsmen in the 1985 to 1990 volume of *The Annual Obituary*³ for whom relevant details can be found therein. (Sons and daughters of artists in both (2) and (3) are counted once only.)

The total numbers of sons and daughters, including deceased children but excluding stepchildren, are 1,834 and 1,640 respectively, giving a sex ratio of 1.1183. A control experiment was carried out involving a count of the sons and daughters recorded in the general *Who's Who*⁴, the aim being to expose any male (or female) bias in reporting offspring: the sex ratio for the first 4,002 offspring was 2,046/1,956 = 1.0460. This is close to the 1.0534 ratio which applies to British births generally (based on statistics of 723,093 births published in the 1987 *Demographic Yearbook*¹) and suggests that there may be no significant male bias in reporting offspring in biographical reference books. Comparing then the sex ratio of the artists' children in (1) – (3) against the sex ratio for the British births generally, the χ^2 value is 3.0173, giving a probability $P=0.085$ approximately. Further work on correlations between parentage and the sex ratio of offspring appears desirable.

R. A. BECK

*49 Curzon Avenue,
Stanmore,
Middlesex HA7 2AL, UK*

1. *Who's Who in Art* (24th edn) (Art Trade Press, Havant, Hants, 1990).
2. *Who's Who in Art* (19th edn) (Art Trade Press, Havant, Hants, 1980).
3. *The Annual Obituary* Vols 1985–88 (ed. Burgess, P.); Vols 1989–90 (ed. Andrews D.) (St James Press, Chicago and London).
4. *Who's Who 1990* (Black, London).
5. 1987 *Demographic Yearbook*, 350 (United Nations, New York 1989).