

Inexpressible trinucleotides

SIR — It is indeed interesting, as Charles Jennings says in his News and Views article¹, that the mutant polypeptide encoded by expanded-repeat genes in Huntington's patients is associated with a specific protein, and the immunological evidence for a novel structure in the expanded-repeat proteins is highly suggestive.

But, while these observations may well be relevant to the pathology in Huntington's disease, in our view they cannot provide a general explanation for the trinucleotide repeat diseases. This is because the commonest trinucleotide diseases are fragile X syndrome, which is caused by expansions of CGG and CCG trinucleotides, and myotonic dystrophy, which is caused by expansion of a (CTG)_n tract. Neither in fragile X nor in myotonic dystrophy is the trinucleotide repeat expressed as protein, though in both cases it is transcribed into RNA. So the ideas of Jennings¹ can be applicable only to some of the functions of some trinucleotides, and there must be other functions at the nucleic acid level that explain aspects of the pathology in the trinucleotide conditions. These functions presumably reflect unusual structure and/or protein-binding potential²⁻⁵ in DNA or RNA or both. While several groups have reported unusual compact structures of single-stranded CNG tracts, there is little consensus about what these may be. The safest position at the moment is that there are probably several structures, and that which one is formed depends upon length and sequence of the tract and ambient conditions⁶.

James McClellan

Sarah Newbury

Biophysics Laboratories,
University of Portsmouth,
St Michael's Building,
White Swan Road,
Portsmouth PO1 2DT, UK

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First flight

SIR — If Samuel Pierpont Langley really had successfully tested a steam-drive airplane in 1896, flying for 1.2 km before walking away from its crash¹, there would be little point in planning to celebrate the 1.0 centenary of the Wright brothers' 120-, 175-, 180- and 852-foot flights of 17 December 1903 (refs 2,3). In fact, Langley's pioneering flights of 1896 were of two

26-pound unmanned machines⁴. The two launches of his manned 'Aerodrome' on the Potomac river were embarrassing failures that nearly killed his pilot and collaborator Charles Manly: the last was on 8 December 1903. Some believe that this craft (which had the backing of the Smithsonian Institution, the Congress and the US Army) could have flown had its launching catapult not failed. In retrospect, however, it seems that only the Wrights had given sufficient thought to the problems of controlling a machine in the air.

Langley died in 1906. In 1914, the Smithsonian, of which he had been an assistant secretary, allowed Glenn Curtiss to salvage Langley's machine, modify it and then succeed in a 5-second flight². The modified craft was then shamefully displayed as the world's first man-carrying aeroplane. This provoked Orville Wright eventually (in 1928) to donate the surviving Wright Flyer to the Science Museum in London. In 1942, the Smithsonian finally conceded the Wrights' priority², and received the flyer for its own collection in 1948, the year of Orville's death³.

Graham Kemp

MRC Biochemical and Clinical
Magnetic Resonance Unit,
John Radcliffe Hospital,
Oxford OX3 9DU, UK

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Not there yet

SIR — 26 October 1996 is not "the singular opportunity of celebrating the sixtieth centenary of the creation of the Universe" (J. L. Heilbron and W. F. Bynum *Nature* **379**, 15; 1996), nor is it even an option. The time span from James Ussher's creation date of 22 October 4004 BC to 22 October 1996 is just 5,999 years because, as Cesare Emiliani repeatedly pointed out in his efforts for calendar reform, there is no 'zero year' between BC and AD dates. (The time span from July of 1 BC to July of 1 AD is one year, not two). Thus all the *ab mundo condito* (AMC) anniversary dates and their corresponding "centenaries" in the article are premature by one year.

Cesare Emiliani unfortunately died last year, but how delighted he would have been at this premature celebration in *Nature*. His last communication on calendars was, in fact, published in *Nature* (as were two previous letters on the subject). Elliott and Emiliani (*Nature* **375**, 530; 1995) showed that *Nature* is in exalted company: no less an authority than Pope John Paul II proclaimed the Great Jubilee marking the start of the third millennium to be in the year 2000 rather than 2001. Both *Nature* and the Pope could very appropriately

reprise Emiliani's shortest paper (in response to a criticism of a previous paper), "Oops. Nobody's perfect". *Sic transit gloria mundi*, as Emiliani often said.

Harmon Craig

Scripps Institution of Oceanography,
University of California, San Diego,
La Jolla, California 92093, USA

SIR — Pace Heilbron and Bynum, it would surely be appropriate to commemorate the sixth millenary of "the beginning of time" according to James Ussher at the autumn equinox of 1997, that is, 1997 September 22 23.54 UTC. Some precision in the timing should be used in recognition of Ussher's own precision. In 1654, for instance, in correspondence with the Danish astronomer Nicolaus Mercator, Ussher commended a calendar employing 8 leap years in 33 years, which is indeed more accurate than the 97 leap years in 400 years of the Gregorian calendar.

In his *Annals of the Old Testament*, Ussher does not describe how he made use of astronomical tables, but he would have been aware that in 4004 BC the difference between Julian and Gregorian dates amounted to about 32 days, and thus a Julian date of 23 October 4004 BC was a Gregorian date of 21 September 4004 BC, that is, the autumnal equinox.

R. B. Elliott

77 Rathdown Park, Dublin 6, Ireland

■ J. L. Heilbron and W. F. Bynum write: Our correspondents calculate correctly within the constraints of calendrical convention. But we have written for those who, like the Pope, disdain to postpone commemorating creation out of deference to arithmetic; indeed we recommend that creation be celebrated frequently, especially every October, from now until the end. □

Please write legibly

SIR — Gill Juleff's letter about ancient iron-smelting technology in Sri Lanka (*Nature* **379**, 60-63; 1996) mentions the mediaeval crucible steel produced in India and known nowadays as *wootz*. This word has a peculiar history — at least according to the *Oxford English Dictionary*, which describes it as apparently having originated in a misprint for *wook*, representing the Canarese word *ukku*, pronounced with an initial 'w' and meaning steel. As the first example of the word is in the Royal Society's *Philosophical Transactions* of 1795 ("Dr. Scott has sent over specimens of a substance known by the name of wootz..."), it seems likely that that is when the misprint, or misreading of Dr Scott's handwriting, took place.

James Bottomley

22 Beaufort Place,
Thomson's Lane,
Cambridge CB5 8AG, UK