

used can produce microampere beam currents, we kept currents low to prevent heating of the sample. Despite the wide range of current densities ($24\text{--}1,110\text{ nA cm}^{-2}$) no significant variation was observed in the decomposition rate ($0.016\text{ mg nA}^{-1}\text{ h}^{-1}$), which compared favourably with that of Bonner *et al.*^{4,5} ($0.015\text{ mg nA}^{-1}\text{ h}^{-1}$).

After irradiation, samples were dissolved in 3 M HCl in 2-propanol (2 ml) and maintained at 100°C for 3 h. After solvent evaporation, the resulting 2-propyl esters were treated overnight at room temperature with a 1:1 mixture of trifluoroacetic anhydride and methylene chloride (2 ml). The enantiomeric composition of the resulting *N*-trifluoroacetyl 2-propyl esters was determined by gas-liquid chromatography (GLC)¹¹ on a column ($2.4\text{ m}\times 2\text{ mm}$) of SP-300 (5% *N*-lauroyl-L-valyl-*tert*-butylamide on Supelcoport; 100–120 mesh) using a Hewlett-Packard model 402 unit coupled to a Hewlett-Packard model 3370B digital electronic integrator. The precision and sensitivity of the method were confirmed using leucine of known enantiomeric composition processed in a manner identical to the irradiated samples. With 49.5% D-enantiomer our technique measured $49.56\pm 0.1\%$ (5 analyses); with 50.5% D-enantiomer it measured 50.54 ± 0.08 (7 analyses).

Each irradiated sample of DL-leucine provided sufficient material for several determinations of enantiomeric composition. Before each determination either a sample irradiated with unpolarised electrons or a non-irradiated sample was analysed as a control to identify instrumental difficulties. To preclude bias GLC was carried out with the sense of polarisation of the bombarding electrons concealed.

As Table 1 shows, in spite of the wide range of experimental parameters investigated and attempts (samples 23–27) to duplicate as closely as possible the conditions reported by Bonner *et al.*⁴, we observed no asymmetric decomposition of DL-leucine by longitudinally polarised electrons. Indeed we observed no single case of preferential decomposition of one of the enantiomers of DL-leucine on irradiation with polarised electrons.

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REPLY—We are indebted to Drs Walters and Hodge for making available to us an earlier version of the above manuscript in which only the first 22 experiments were reported. At our suggestion that these experiments were not comparable to

ours due to the much higher current densities used, they undertook experiments 23–27, where the experimental parameters were apparently much closer to those we used. It is therefore particularly puzzling to us that these last five experiments also failed to show any asymmetric degradation.

In our linear accelerator irradiations we also occasionally (in about one-third of our experiments) observed no asymmetric degradation whatsoever. When an asymmetric effect was observed, however, it was consistently in one direction for AP electrons (three experiments; 43 GLC analyses) and in the opposite direction for P electron (three experiments; 66 GLC analyses), with statistical significance (*t* test) at the 99.9+ % confidence level. Clearly, there are unknown operational parameters over which we, at least, had incomplete control in our experiments.

Since the initial publication of our positive results we have reported^{1,2} the discovery of the racemisation of amino acids by ionising radiation. It seems likely that such radioracemisation must also compete with asymmetric degradation² in irradiation experiments such as ours and those of Hodge *et al.*, whether because of the electrons themselves or their bremsstrahlung. Could it be that unknown experimental parameters might tip the balance between a slight asymmetric bias in such irradiations, or (with overriding radioracemisation) none at all? Future experiments may shed light on this or other possible reasons for the unexplained discrepancies in our results and those of Hodge *et al.*

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Errata

In the letter 'Calcium conductance of acetylcholine-induced endplate channels' by P. D. Bregestovski, R. Miledi and I. Parker, *Nature* **279**, 638–639, the greek letter tau (τ) was omitted from six places in the text. These are: para 2 line 13; para 6 lines 1, 4, and 6 (twice); para 9 line 4. These errors are corrected in reprints of the article.

In the article 'Morphology and intracortical projections of functionally characterised neurones in the cat visual cortex' by C. D. Gilbert and T. N. Wiesel, *Nature* **280**, 120–125, in para 4 line 8, for diaminobutyric acid read 3,3'-diaminobenzidine.

Corrigendum

Since publication of the letter 'A Moravian age for the "younger Moines" of central and western Scotland' by M. A. J. Piasecki and O. van Breemen, *Nature* **278**, 734–736, the term 'Grampian group' has been changed to 'Grampian Division'. This follows discussions with an IGS working party and others. The term 'Division' is as used by Johnstone *et al. Mem. Am. Ass. Petrol. Geol.* **12**, 159–180 (1969).