

field strength in the mid-cornea to be  $2.349 \times 10^{-8}$  gauss. This agrees with measurements made during the magneto-oculogram.<sup>3</sup>

This field is around 42.5 million times smaller than the Earth's magnetic field. In comparison with the field strengths used in the experiment, the estimated ocular magnetic field is 638 million times smaller than a 15 gauss field, 851 million times smaller than a 20 gauss field and  $6.4 \times 10^{10}$  times smaller than a field of 1500 gauss.

It seems that the field strengths used in the experiment are far higher than any that would be encountered in an eye under normal conditions. In fact, by far the largest field strength in any eye will be that of the Earth, and as these are vector quantities this would significantly disturb any concentric pattern of field lines across the cornea. Perhaps a better test of the hypothesis would be to have an electrical wire running vertically through a tissue culture plate. This could then carry a known current and generate a magnetic field with concentric field lines. The current in the wire and thus the field generated could be altered to test many field strengths, bearing in mind the magnitudes estimated above. The demonstration of epithelial whorling around such a wire generating a much smaller magnetic field would be much better evidence of the validity of the original hypothesis.

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#### References

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2. Lorrain P, Corson D. *Electromagnetic fields and waves*, 2nd ed. Freeman, San Francisco: 1970:296-7.
3. Armstrong RA, Janday B. A brief review of magnetic fields from the human visual system. *Ophthalmic Physiol Opt* 1989;9:299-301.

Sir,

I concur entirely with the comments made by Davies on our paper cited above. Davies has put in quantitative terms what we have already said in the last paragraph of the paper: 'The hypothesis that we originally set out to test is not totally substantiated by the above experiment. The response of corneal epithelial cells to magnetic fields *in vitro* does not prove that the same occurs on the ocular surface. The electromagnetic field of the eye is, theoretically, several orders of magnitude smaller than that used in the above experiments. This study does however,

reveal a unique behaviour of cultured human corneal epithelial cells in response to static magnetic fields.'

Our original study was designed to demonstrate whether corneal epithelial cells exhibited magnetotaxis or magnetotrophism, whatever the strength of the field. As to the rationale of the strength of fields used, we were guided by the only previous publication by Galaktionova<sup>1</sup> in this regard, who had used magnetic field strengths of 0.4-1.6 T to induce changes in mitotic index of murine corneal epithelial cells. The appearance of 'whorls' was, to us, peculiar, unusual, unexpected and interesting. We were aware of the vast differences in order of magnitude of the electromagnetic fields of the eye and those used in the study and, as also indicated by Davies, are at present conducting experiments using a Helmholtz coil to subject corneal cells to finite and measurable quantities of current. We thank Davies for his formulae and calculations, which will certainly help us augment our thoughts in this regard.

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#### Reference

1. Galaktionova GV. Patterns of cell proliferation in the murine corneal epithelium in various schedules of exposure to static magnetic field. *Vopr Kurortol Fizioter Lech Fiz Kult* 1985;6:45-8.

Sir,

Fleck *et al.*<sup>1</sup> report in their audit on screening for retinopathy of prematurity (ROP) that no cases of threshold ROP developed in infants with birth weights >1250 g. They question the need to screen infants over 1250 g. Current Royal College of Ophthalmologists (RCO) guidelines recommend that all neonates with a birth weight  $\leq 1500$  g and gestational age  $\leq 32$  weeks should be screened.<sup>2</sup>

A recent audit carried out at St James's Hospital, Leeds, looked at all cases of neonates screened between July 1993 and May 1996. One hundred and eighty-nine patients were screened and a total of 288 screenings were carried out. Only 5 patients developed threshold disease (1.7%) as defined by RCO guidelines for screening of ROP.<sup>2</sup> Birth weights of these individuals ranged from 495 to 780 g (average 810 g).

These findings are consistent with other studies which have also found no cases of cicatricial or threshold ROP among infants with a birth weight >1250 g.<sup>3-6</sup> We agree that the current RCO guide-