served dislocation densities, so that the behaviour of J_c in high magnetic fields ($J_c(2\,T) \approx J_c(0\,T)/2$; $J_c(8\,T) \approx J_c(0\,T)/4$) cannot be explained by the observed screw dislocations alone, but would instead be consistent with a total line-defect density (for example, edge dislocations) of $\sim 5 \times 10^{10}$ cm^{-2}, or an even higher point-defect concentration[4]. Preliminary results indicate that J_c starts to vary with magnetic field strength B (for $\mathbf{B} \parallel \mathbf{c}$) at fields of 0.1–2 T, depending on growth conditions.

Finally, we emphasize that our films are fabricated by a standard technique, suggesting that the observed surface structure is general to sputtered YBCO films. Consistent with this suggestion are transmission electron micrographs of sputtered YBCO/$PrBa_2Cu_3O_{7-\delta}$ multilayers[6], which reveal an interface roughness comparable to the surface roughness observed in our STM studies.

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Beneficial effects of ghee

Sir — Milk fats contain small amounts of conjugated linoleic acid (CLA) isomers[1] which may have anti-carcinogenic properties[2]. In India, ghee, the anhydrous milk-fats of cow and buffalo, has been traditionally considered as the most healthy source of edible fat. Ghee is manufactured by different methods of clarification of butter or cream, in which milk protein is a normal constituent in the aqueous phase. Milk proteins provide hydrogen to the double bonds of linoleic acid during heating under anaerobic conditions and catalyse the formation of CLAs, similar to the microbial enzymatic reaction in the rumen[3].

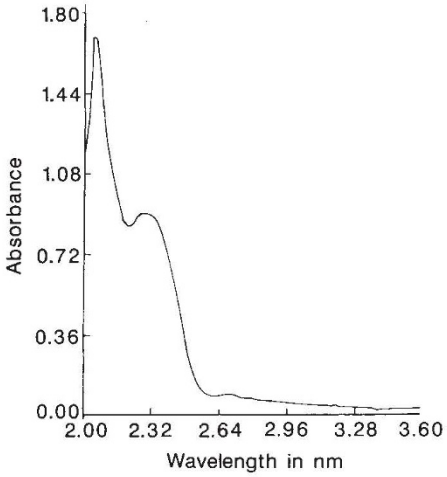

FIG. 1 Ultraviolet absorption spectra of ghee sample (*desi*) in iso-octane at 233 nm in 1-cm cell.

Milk fats extracted by a solvent mixture from cow or buffalo milk contained 0.6 and 0.5% CLAs, respectively, as determined by ultraviolet spectrophotometry method[4]. The extraction of fat from milk by a solvent mixture does not involve fermentation or heating, so the CLAs in these fats are due to the natural microbial enzymatic reaction in the rumen.

In the traditional (*desi*) method of making ghee, whole milk is converted into curd (*dahi*). We have shown that microbial fermentation during curd formation increases

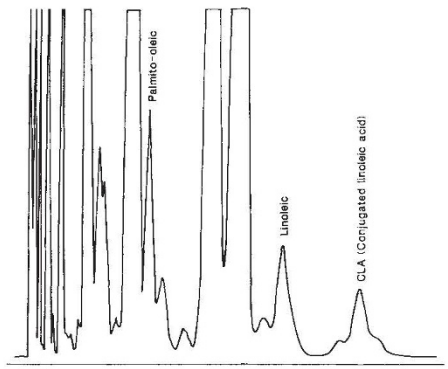

FIG. 2 Gas chromatogram of ghee (*desi*) sample. Identification of minor unsaturated CLA fatty acids.

the CLA content of milk fats to 1.0%. Heating of milk fats in the presence of proteinaceous materials, as in ghee making, is known to increase CLA content[5]. There is a further increase of CLA content (2.5–2.8%) in ghee samples when butter is clarified at higher temperatures (120 °C) than at the 110 °C (1.1–1.3%) traditionally used in villages to make ghee. In the creamery-butter method, the CLA levels were 0.9–1.8% in cow and 0.7–1.6% in buffalo ghee, respectively, at the clarifying temperatures of 110 and 120 °C. In the direct cream method, the levels were 0.6–0.7%.

We re-examined these findings in detail by liquid chromatography using dehydrated castor oil containing 9–11 octadecadienoic acid (c,c; c,t; t,t isomers) derived from recinoleic acid as standard. In general, these CLA values (Fig. 2) were in very close agreement with those obtained by spectrophotometry.

Ghee is an important source of fat for most people in India; there is an annual production of 800,000 tonnes, the bulk of which is by the traditional method. Because milk fat has a high content of saturated fatty acids, we would like to emphasize the beneficial effect of ghee as it contains high levels of CLA (2.5-2.8%).

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Hubble's calibration error

Sir — I should like to comment on the letter from R. N. Wilson in Correspondence (*Nature* **346**, 693; 1990).

Wilson is correct to advocate the use of the pentaprism test for ensuring that the primary and secondary mirrors of a telescope fit together and that the system has been corrected for spherical aberration. Test results with the mirrors of the 2.5-m Nordic Optical Telescope (NOT) prompted a small correction to the shape of the secondary, but we also used the test with the primary alone to ensure the correctness of its conic constant. Because the primaries of Ritchey-Chrétien telescopes are only slightly hyperbolic, deviating very little from parabolic shape, the pentaprim test can be applied without difficulty. The components required for our testing device cost about $3,000.

Our primary mirror was finished so that 80 per cent of the light is concentrated within a circle 0.22 arc-seconds in diameter. It has turned out that the quality of the combination is also very good; despite the effects of atmospheric seeing, image diameters as small as 0.35 arc-seconds (FWHM) have been obtained.

As the person responsible for the optics of the NOT, I should also like to express my opinion of the way in which NASA and the European Space Agency (ESA) have advertized the imaging quality of the Hubble Space Telescope (HST), incidentally disparaging the performance of the NOT.

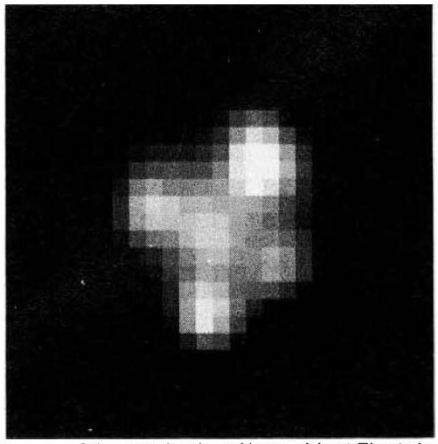

Image of the gravitational lens object Einstein cross, obtained with the CCD camera of NOT using red filter.

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