corneal ulcer was detected. These events prompted a xerophthalmia survey in the six feeding centres of the camps. In each feeding centre all children present on the day of the survey were examined clinically by the author. Risk factors were also investigated. One thousand five hundred and six children were examined. Bitot's spot was seen in four children, conjunctival xerosis in seven, corneal xerosis in one, and corneal ulcer in two. The children attending the two feeding centres serving the population of newcomers had a significantly higher risk of xerophthal-mia (prevalence ratio 4.8; p<0.01), as did the children with history of diarrhoea in the previous month (prevalence ratio 1.7; p<0.05).

The 0.5% prevalence of Bitot's spot and 0.2% temporary corneal lesions indicate that this condition is an important health problem in the refugee population investigated, not only because of the risk of blindness but also because vitamin A deficiency is associated with increased mortality mainly from diarrhoea, and the major cause of death in the camps. The absence of cases of corneal scar suggests that xerophthalmia is a recent event in this population associated with refugee life, otherwise this permanent lesion would be about five times more frequent than the temporary corneal lesions, because of accumulation. Therefore, the prevalence of this condition should increase over time unless corrective measures are taken. Vitamin A distribution associated with vaccination at registration was strengthened. The history of risk factors for this condition was introduced in the feeding centres for newly admitted children and the at risk population examined for signs of vitamin A deficiency. The Ngaru refugee camps are relatively well organised, but xerophthalmia may well affect other refugees and displaced Rwandan people in other camps.

**Serious eye injury caused by rotating wire brushes**

**Editor,—**Hassett reported a series of cases highlighting the risk of ocular injury from rotating wire brushes. We wish to emphasise this risk and also remind colleagues that such injuries may lead to serious intraocular injury.

A 37-year-old man sustained a corneoscleral perforation by a piece of wire from a rotating brush. He immediately removed the 3 cm long fragment before presenting to the casualty department. At presentation, visual acuity (VA) was 6/12 in the affected eye. Funduscopy and x-ray investigations revealed no evidence of retained intraocular foreign body (IOFB). The anterior chamber (AC) was formed, and slit-lamp examination showed a microhyphaema. The wound was not self sealing and primary repair was performed within 24 hours of the injury.

On the first postoperative day, a hypopyon developed, accompanied by a fibrinous pupillary membrane and intense AC activity. Vitreous biopsy and AC tap provided samples from which a heavy growth of coagulase negative Sphingoloccus aureus was shown. An intravitreal injection of vancomycin and gentamicin was given, and intensive topical administration of these antibiotics commenced. The signs of infection settled, but a mature cataract developed after 2 weeks.

Six weeks after the injury, he underwent further surgery, combining complete vitrectomy with cataract extraction and capsular fixation, posterior chamber lens implantation. After 8 weeks the visual acuity had returned to 6/36.

The overall rate of endophthalmitis secondary to infection following penetrating injury is less than 10%. Penetrating eye injuries caused by high velocity projectiles such as hardened steel fragments from spent shells and chisels are thought to carry a low risk of infection. This is because the particles attain very high temperatures before penetration and therefore sterilise themselves.

Wire brushes are not necessarily at a high temperature when they disintegrate and, as demonstrated in our case, may introduce infection. Therefore we recommend that injuries resulting from the use of rotating wire brushes should be treated with caution, as there is a definite risk of subsequent endophthalmitis.

H Y CHAN
N R HAWKSWORTH
Department of Ophthalmology,
oc Ward A4, University Hospital of Wales,
Heath Park, Cardiff CF4 4XW


**Ophthalmoscopic sign of early keratoconus**

**Editor,—**I read with interest the recent letter by Pathmanathan et al,1 about the ophthalmoscopic sign of early keratoconus.

This sign is known to some ophthalmologists and optometrists who use it regularly in the assessment of suspected cases of keratoconus at Moorfields Eye Hospital, London, as 'the red reflex', because of the disruption of the red reflex by a circular, dark or reddish-brown central shadow which looks like an oil drop.

The sign is best seen through a dilated pupil with a +5 lens in the direct ophthalmoscope head at 33–50 cm from the observer to the patient's eye2 and is almost diagnostic of keratoconus.

Since, however, changes in the refractive index of the lens or early nuclear cataract can be confused with keratoconus when the sign is elicited, it would be desirable to evaluate the cornea from the temporal side also, to eliminate any reflex coming from the lens.

I N NARTEY
Moorfields Eye Hospital,
CityRoad, London EC1V 2PD