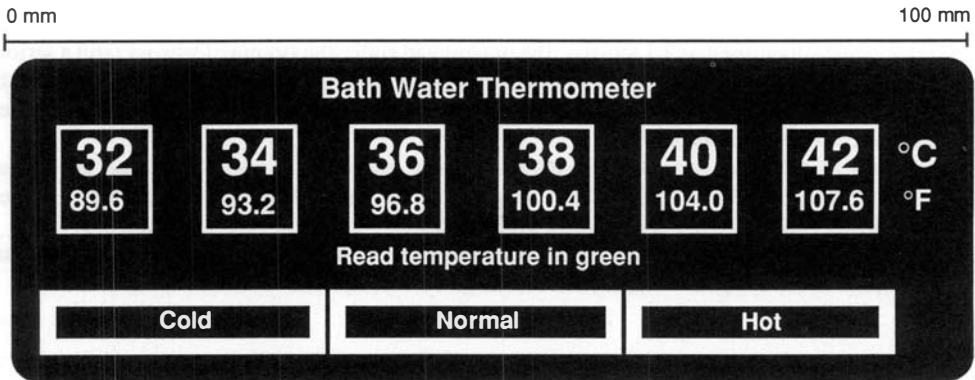


A LIQUID CRYSTAL THERMOMETER AS AN AID TO THE PREVENTION OF DAMAGE FROM EXCESSIVE HEAT IN ANAESTHETIC EXTREMITIES

Sir,

I understand that patients with leprosy whose hands or feet lack normal sensation due to nerve damage, experience considerable day-to-day difficulty in protecting their extremities against the effects of excessive heat from various sources. In recent years, liquid crystal thermometers (LCT) have been developed with a variety of different applications, one of the most practical being the measurement of body temperature in the new born infant.¹ Thermochromic liquid crystals react to changes in temperature by changing colour and can be made to respond to temperatures from -30°C to as high as 120°C depending on the application. As the temperature increases, liquid crystals behind each window will first show a red colour, then change to green, and finally blue, before becoming invisible to the eye. When a window appears in green this indicates that the temperature specified by that window has been reached.

A liquid crystal thermometer (LCT) in the form of an encapsulated plastic strip (Figure 1) has



The "Cold" window turns green when the bath water is within the Cold Range (32 - 34°C)

The "Normal" window turns green when the bath water is within the Normal Range (36 - 38°C)

The "Hot" window turns green when the bath water is within the Hot Range (40 - 42°C)

With training this thermometer can effectively be used by the innumerate

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been produced with readings from 32 to 42°C (90 to 107°F). It is used for measuring the temperature of bath water (as for instance in the bathing of infants or the elderly), but liquid crystal thermometers can also be applied to other heated surfaces such as a cup or mug and may have useful applications in the field of leprosy. Although many patients with loss of sensation in the hands and feet soon come to recognize the dangers of handling hot objects, e.g. in cooking, a liquid crystal thermometer covering the appropriate temperature range may be of value in the learning stages as a device for focussing attention on the need for constant vigilance with regard to heat. (A simple strip thermometer range 30-40°C has also been developed for use as a standard clinical thermometer¹ and another is under study as an aid to the time of ovulation in the female). I would be glad to hear from readers who consider that the bath water thermometer described above may be of value in leprosy.

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Reference

- ¹ Gregory EL. *The thermal control of the newborn infant in developing countries*. M.Sc. thesis, University of Oxford, 1987.