equipment. The method can also be used to concentrate urine samples for electrophoresis.

I am grateful to Mr J Millar for constructing the device and to Ms P Price for typing the manuscript.

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Letters to the Editor

Growth of *Neisseria gonorrhoeae* in a simple medium at 28°C

Although it is generally documented that *Neisseria gonorrhoeae* does not grow below 30°C there seems no more precise information on the minimum of its growth temperature range.¹ During some studies of simple media for the cultivation of this organism, it was observed that growth of all of a few strains tested did in fact occur at 28°C but not at 24°C. It was decided to examine a larger batch of isolates with a view to obtaining more data on the minimum growth temperature for this species.

The test medium was a semi-solid one which consisted of brain heart infusion broth (Difco) to which was added agar powder (0.1%) and soluble starch (0.1%). It was dispensed in 4 ml volumes in plastic tubes (100 × 12 mm) and autoclaved at 121°C for 15 minutes.

The organisms tested were a batch of 65 freshly collected clinical isolates. After ensuring purity of the isolates, growth was emulsified in nutrient broth and 2 drops of dense suspension were inoculated on to the surface of the test medium. One tube was incubated in a cabinet at 36°C and the other in an agitated water bath at a temperature of $27.7 \pm 0.2^\circ\text{C}$ (hereafter referred to as 28°C). The bath thermometer was calibrated against a standard instrument. Two chocolate agar plates were also inoculated; one was incubated at 36°C in 10% carbon dioxide and the other in air at room temperature (20-22°C).

The control plates at 36°C all yielded growth and those at room temperature

none. All tubes of the test medium showed growth after varying periods. Those at 36°C showed distinct turbidity within 24 hours whereas those at 28°C did so within 24 to 48 hours. Growth first appeared as a shallow surface sludge. When this was disturbed by gentle shaking and distributed into the deeper regions of the medium, growth continued and produced an evenly turbid suspension to a depth of about 15 mm. The final density of this growth varied widely among the isolates and in general correlated with the colony size of the isolates on chocolate agar. No critical survival study was made on the cultures but many, though not all of those tested, yielded growth when plated after about 30 days.

The semi-solid agar is proving a useful medium for growth and short term maintenance of gonococcal strains. Other semi-solid media such as that devised by Vera² and marketed as Cystine Trypticase Agar (Baltimore Biological Laboratories) have been used for many years for this purpose. Serum enrichment as advocated by some workers³ would appear to be unnecessary in media designed for the maintenance of the gonococcus.

It should be of interest to extend the investigations on low temperature growth of the gonococcus particularly to include observations on agar surfaces. Meanwhile it is now established that this organism does, under some cultural conditions, grow at a temperature of as low as, at least, 28°C.

DI ANNEAR

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I should like to thank Mr M Blums, State Health Laboratory Services, Perth, Western Australia for kindly identifying and supplying the strains tested.

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IgM mesangial deposits in nephrotic syndrome

We have studied 14 patients (aged 8-39 years) with an idiopathic nephrotic syndrome. Seven patients were male and seven female. On light microscopy, moderate increase in cells and mesangial matrix were observed in all cases. The most characteristic findings by immunofluorescence microscopy were generalized and diffuse mesangial granular deposits of IgM in all the biopsies. There was λ 3 deposition in 12 cases, and C1q and κ 4