Present day practice

Photographic recorder for erythrocyte sedimentation rates

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A photographic recorder for erythrocyte sedimentation rates (ESR) was developed and has now been in routine use in this laboratory for over a year. The need for such a device arose from the difficulty in dealing with specimens arriving too late in the day for the technical staff to read the results. As many of the requests involved outpatients attending clinics it was thought uneconomic in terms of both hospital and patient to bring them back for this single test. Attempts to read ESRs on an overtime or emergency basis proved to be either expensive or unsuccessful and keeping the specimens refrigerated overnight produced unreliable results.

The prototype apparatus was constructed from various spare parts and is shown in the photograph and drawing (Figs. 1 and 2). It consists essentially of a sturdy box with a removable rack for Westergren tubes at one end and a Polaroid camera at the other. The camera shutter is operated by a solenoid switch, which is itself set off by a delay timer after an interval of 60 minutes. The latter switch also controls the light source which is turned on just before the solenoid is activated and the shutter opened.

The exposed film can be removed from the camera at any convenient time, which is usually after 18 to 48 hours, and is simply developed on the spot without delay or darkroom.

The exact details have not been given, as, for example, the timer was obtained from a cooker and the solenoid from a washing machine, and it might well be difficult to find exact duplicates. The Polaroid camera was an inexpensive rollfilm model, though the lens and shutter mechanism had to be replaced by an optical and mechanical system more suitable for close range work.

During the first year of service the timer broke and was replaced by a more accurate and sturdier purpose-built device (Messrs. Hook and Tucker).

When several tests have to be read, and, as the camera will only register once after 60 minutes, it is important to have only a minimal delay between the

Received for publication 19 July 1971.
setting up of each tube. This can be facilitated by connecting the top end of each Westergren tube with a 2 ml plastic syringe by a short length of plastic sleeving. The glass tubes with the attached syringes are then placed in the rack allowing space for the blood samples to be inserted underneath them. The tubes are lowered into the blood which is then drawn up the tube by traction on the plunger of the syringe.

It must be emphasized that the actual measurement of the ESR conforms with the Westergren method as described in current textbooks of haematology.

A similar apparatus based on the above has now been produced for evaluation by Shackman Instruments Limited, Chesham, Bucks.

Thanks are due to Dr C. A. Holman and Dr D. N. Whitmore for advice, Mr. L. Hanning for the illustration, and to the Lewisham Group Hospital Management Committee for defraying the cost.

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