Letter to the Editor

PREPARATION OF 2-(4'-HYDROXYBENZENEAZO)-BENZOIC ACID

This dye is usually very expensive. It is easy to make up by the following method, and the product is indistinguishable from that sold as a reagent for albumin.

Dissolve 13.7 g (0.1 Mole) anthranilic acid in 140 ml of dilute hydrochloric acid (1 vol concentrated acid and 4 vol water). Place the solution in the deep-freeze with an immersed thermometer until the temperature falls below -5°C and the contents are a semisolid mush (solution A).

Dissolve 7 g (0.1 Mole) sodium nitrite in about 25 ml water. Cool in the deep-freeze but do not allow to become solid (solution B).

Remove solution A from the deep-freeze and break up the semisolid mush. Add solution B, 1 to 2 ml at a time, shaking gently after each addition. If the temperature rises above -2°C return to the deep-freeze until the temperature has fallen below -5°C , then continue the addition. Test mixture with starch-iodine paper when nearly all solution B has been added. If iodine is liberated, enough nitrite has been added. If not, continue to add nitrite, about 1 ml at a time, until the test becomes positive. Cool again to below -5°C . Add, 1 ml at a time, 5% ammonium sulphamate; if the foaming is excessive, add a drop of caprylic alcohol. Continue the addition until foaming ceases. The starchiodine test should now be negative. Return to the deep-freeze until the temperature falls below -5°C .

Solution C is made up by dissolving 9.4 g (0.1 Mole) phenol in 40 ml 20% caustic soda. Add solution C to the diazo solution in 1 to 5 ml quantities, returning the flask to the deep freeze whenever the temperature rises to -2°C .

Do not use a mouth pipette. Use a Pasteur pipette or a Pumpette.

When all the phenol has been added, wash the last traces in with a few millilitres more water. Cool again to -5°C or below. Add 10 ml 40% caustic soda, mix well and test with indicator paper. If not strongly alkaline, add more caustic soda until it becomes so. The solution goes deep brown and clears. Add 70 g sodium chloride and agitate until dissolved. When solution is complete add hydrochloric acid (1 in 5) until strongly acid, while stirring or shaking vigorously. A yellow precipitate appears. Filter off the precipitate in a sintered glass Buchner funnel (porosity 0, 1, or 2) and wash twice with water on the funnel, breaking up the cake each time. Suck and press dry. Transfer to an unglazed plate and dry overnight in the oven at 105°C to remove the last traces of phenol. Grind to a convenient powder in a mortar. Yield is about 15 g.

The absorption spectra show flat maxima at 360 nm in acid and between 450 and 360 nm in alkaline solution. The difference spectrum shows that with the acid solution in the reference cell there is a maximum at 410 to 420 nm, peak at 412 nm, whereas with alkali in the reference cell the maximum is at 335 to 342 nm. This suggests that for the estimation of albumin by the AutoAnalyzer method, the 420 or 480 nm filters might be more suitable than the 505 nm filter usually recommended, and indeed, excellent results have been obtained at 480 nm. GEORGE DISCOMBE

Central Middlesex Hospital, London

Book reviews

HANDBOOK OF DIAGNOSTIC CYTOLOGY By H. E. Hughes and T. C. Dodds. (Pp. 247. £5.) London and Edinburgh: E. and S. Livingstone Ltd. 1968.

Cytological diagnosis is passed on by oral tradition and textbooks only play a minor part in teaching. However, an all-colour atlas as good as this provides a valuable store for reference and comparison. Some may quarrel with the choice of colour values (which are artificial anyway), but the photographs show exactly what the authors intended. Almost all of the 168 figures are multiple, and most fields are shown at two magnifications.

The emphasis is on gynaecological cytology, and the sections on the respiratory, gastrointestinal and urinary tracts, and on the breast and 'body fluids' progressively fall off in completeness and in usefulness. The style is rightly didactic, but tends to oversimplify; for instance, malignant cells have to be differentiated or undifferentiated, with no half measures, and Ruth Graham's rather eccentric classification of differentiated squamous carcinoma cells is followed. There are one or two identifications which in my opinion are wrong. Figure 97 shows Charcot-Leyden crystals and not anucleate squames. All the cells in Fig. 102 meant to be oat cells look like lymphocytes; if they fail to convince a brother cytologist then they ought not to be used to convince a trainee.

This beautiful book is not overexpensive, and it is to be hoped that a future edition may be expanded into two volumes, the second one being an improved non-gynaecological section.

A. I. SPRIGGS

PATHOLOGY OF LEUKEMIA By George D. Amromin. (Pp. 460; 365 illustrations. \$26.50.) New York: Hoeber Medical Division, Harper and Row. 1968.

The changing pattern of the pathology of leukaemia is ably reflected in this volume. Based on over 600 personal necropsies and many specimens otherwise obtained are lucid descriptions of pathological changes characteristic of leukaemia. Leukaemic pathology and iatrogenic disorders associated with modern chemotherapy and antibiotics are compared with those of the preceding era. Particular emphasis is laid on the many tissue and physio-pathological changes due to chemotherapy. Colleagues of the author contribute fascinating chapters on selected developments disclosed by new techniques. These include the electron microscopical features of normal and leukaemic formed blood elements, cytogenetics, and the application of enzymatic histochemical techniques to normal and leukaemic cells. Useful observations on differential diagnosis and preleukaemic states are contributed by the author, who also clearly differentiates leukaemia from the other proliferative disorders of the haemopoietic system. While the text does not review current concepts of the pathogenesis of leukaemia, nor does it dwell unduly upon analytical criteria for therapeutic effectiveness, it certainly familiarizes the practising pathologist with the protean manifestations of