of the leading wire against the surrounding fluid. Its advantages are twofold: (1) With a metal shield there is always some space between the shield and the conductor, thus producing a condenser with the resulting disturbances usually seen on bending the metal shielded wire. In the type described, the KCl-salt bridge fills the space between the insulated wire and the outer cover entirely and follows uniformly any movement of the flexible lead. Merely a film of liquid or semi-liquid, as used in agar-KCl or similar bridges, is sufficient for the shielding. $BaSO_4$ or another x-ray-opaque material may be added when location of the electrode by fluoroscopy is desired. (2) The combination of the glass electrode and the reference half cell in one piece saves space and is easy to handle. Even a calomel or another reference half cell may be incorporated to form one piece with the electrode as seen in Fig. 1 b. The use of this type of shielded electrode is of particular advantage in the measurement of pH in body cavities.

A more detailed description of a measuring device, in which this type of shielded glass electrode is used in the determination of intestinal pH, with a report of clinical findings will be presented later.

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A DIRECT METHOD OF DETERMINING THE ERYTHROCYTE, LEUCOCYTE AND THROMBOCYTE COUNT OF FOWL BLOOD

A MODIFICATION of the Blain method of staining the leucocytes in bird blood yields a rapid, reliable means of enumerating the cellular elements of the blood in the counting chamber. Two solutions are employed, the first containing the stain and the second the preservative for the cells. Because granulocytes have an affinity for brilliant cresyl blue and lymphocytes for pyronin, a stock solution of these is prepared consisting of 1 cc of 1 per cent. aqueous brilliant cresyl blue and 0.25 cc of saturated aqueous solution of pyronin (1 gram in 15 cc of water).

The first solution for staining used in the method described herein consists of 0.2 cc of the stock dye mixture in 25 cc of normal saline. This is filtered once through neutral paper. The second solution is that employed by Blain—12 per cent. of formalin in Locke's solution.

Blood is procured from the wing vein, and immediately after puncture it is drawn up to the 1 mark in the red-cell counting pipette. The pipette is then half filled with the first solution, gently rotated for about five seconds, and then filled to the 101 mark with the second solution and shaken for half a minute to mix. Counts may be made at once, although better differentiation is obtained if the mixture is allowed to stand 15 minutes or more. Thin covers, not more than 0.5 mm in thickness, are used, and the preparation is studied under a 4 mm objective.

The erythrocytes appear as pale oval discs with the nuclei sometimes barely perceptible. The thrombocytes vary from pale ovals slightly smaller than the erythrocytes and with a single polar granule, to small lance-shaped, faintly lilac-colored bodies. The latter type tends to occur in clusters and is more numerous in specimens made just before clotting begins, *i.e.*, after one or more pipettes have been filled in succession from the same puncture. The heterophiles take varying quantities of the blue dye and stand out sharply as blue-black bodies slightly smaller than the erythrocytes. The lymphocytes are uniformly round, faintly pink bodies, clearly distinguishable from thrombocytes, which in their colorless state appear to belong more to the erythroblast series. Monocytes are indistinguishable from the large lymphocytes, but since this is not primarily a differential count, that is not important.

Checked against Shaw's method over a series of blood counts on the bobwhite quail, this method gives approximately the same total leucocyte count and has the added advantage that the solution is more stable than Shaw's. The solution containing the dye will keep for about a week. The stock solution is less stable, but the dyes kept separately in solution are good indefinitely. The formalin solution must be made fresh each day, but adjustment of the pH and temperature are unnecessary.

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