LETTERS TO THE EDITORS

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Method for Obtaining Wool Roots for Histochemical Examination

A USEFUL technique has been developed for obtaining moderately large samples of wool roots for histochemical examination. It is hoped that this technique will assist in elucidating the mode of formation of the wool fibre and also facilitate investigations already in progress in this laboratory, which are concerned with developing methods for removal of wool from sheepskins.

Fig. 1

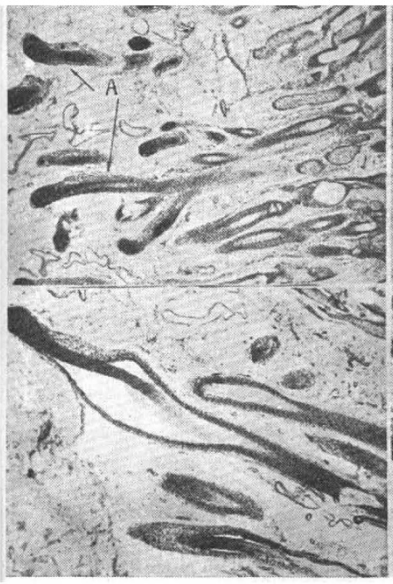

Fig. 2

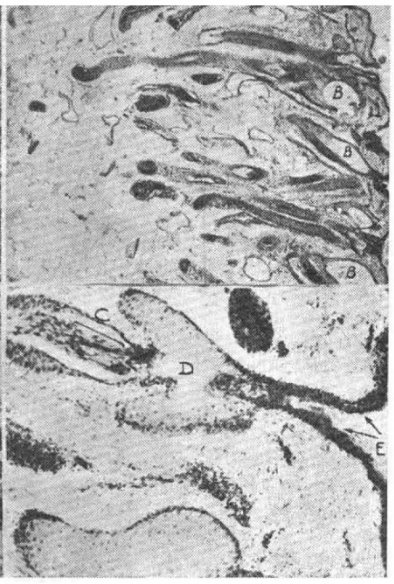

Fig. 3

Fig. 4

Formerly, it was possible, by tedious dissection of pulled staples of wool, to obtain a few milligrams of wool roots; by the new method 0·5–1·0 gm. can be collected with little effort.

A piece of sheepskin approximately 500 sq. cm. is cut from a fresh skin, most of the wool removed with scissors, and the remainder clipped to within 2–3 mm. of the skin. The skin is then placed flat, with flesh side down, on a piece of plate-glass. A beeswax–rosin mixture (2 : 7 by weight) at about 60° C. is then run over the surface of the skin to a thickness of about 5 mm. When the wax has set, it is lifted with the adhering skin from the glass and the skin peeled away from it gradually, leaving a wax sheet with the wool fibres firmly embedded in it and with the roots exposed. The roots can be harvested readily by clipping with an electric razor, or preferably with a fine animal-hair clipper. The clipping must be done carefully to avoid contamination with particles of wax. By this method it is possible to obtain material which is all of subepidermal origin.

To ascertain the nature of the tissue thus obtained, sections of the skin have been made before and after removal of the roots. The results of this examination are recorded in the accompanying photomicrographs.

A section of skin is shown in Fig. 1 with the wool roots intact and visible at points marked *A*. In Fig. 2 is seen a section of the same skin after removal of the fibres. Some tissue breakdown is evident; but the lining epithelium and the basal cells are for the most part intact. The vascular areas shown at *B* are probably artefacts and may be due to the removal of sudoriferous glands during sectioning. In Fig. 3 a complete root with shaft is seen *in situ*. The open area around the fibre is, no doubt, an artefact; but it does indicate that there is no strong attachment of the fibre to the follicle lining around the zone of keratinization. Fig. 4 shows the effect of removal of the root on the neighbouring structures. Derangement of the epithelium is evident at *C*; but, as shown at *D*, little or no sebaceous gland tissue has been removed, and the epidermis at *E* is intact.

The yield of roots from the wax sheets is affected by the depth of the root in the skin, and from measurements made on a number of different skins it was found that, whereas a root-length of 0·7–0·8 mm. yielded only 10–20 mgm. per 100 sq. cm. skin, a root length of 1·2–1·3 mm. yielded 200–300 mgm. per 100 sq. cm. skin. If the wool roots are too short for clipping, root extract can be obtained by applying a suitable extractant to the wax sheet and brushing it over the surface.

Roots have been obtained by the same technique from guinea pig skin, and no doubt the method is applicable to any type of skin.

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Fine Structure of Cell Walls in Fresh Plant Tissues

THE increasing preoccupation of plant physiological laboratories throughout the world with problems of growth makes it very desirable that the details of structure in the cell wall, in growing tissue, should be known as completely as possible in the condition occurring in the living tissue itself. A good deal of the discussion arising from growth studies centres around the configuration of the cell wall, and the facile generalization of the striking results of X-ray analysis in dried material to cover the condition in fresh