A glance at the text-figure, however, reveals that, while the specimen without doubt belongs to a *Cercopithecus*, it cannot be regarded as a last permanent molar, both on account of the general pattern and also because of the divergent roots. There is little doubt that it is a first deciduous molar ($d\overline{_3}$) of normal type, which from the lack of comparative material—the authors mainly refer to Elliot's monograph—could not be recognized by the authors. This tooth certainly belongs to *Macacus robustus* Young, described from the same locality.

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[1] Young and Liu, *Bull. Geol. Soc. of China*, **30**, p. 52, Fig. 5 (1951).

Experiments on the Cause of Dorsiventrality in Leaves

SUSSEX[1] has reported that in apices of potato shoots the presumptive area of I_1, the next leaf due to arise, develops into a centric leaf, having the shape of a narrow cone, if isolated from the rest of the stem apex by a vertical cut. Such structures are what we previously called radial leaves[2]. He concludes that the normal dorsiventrality of the leaves is induced by the stem apex. On the other hand, in *Lupinus albus* we found that the presumptive areas of I_1 and of I_2, the next younger leaf again, when similarly isolated, gave rise only to fully dorsiventral leaves with leaflets[2]. We have therefore now isolated by vertical cuts in several potato apices the presumptive area of I_1, or of I_2; but these areas gave rise only to dorsiventral leaves, except in one apex which was seen to be suffering from loss of turgor some hours after the operation. In this apex the isolated I_1 area gave rise to a radial leaf. In a further series of operations on potato apices we made the isolating cuts deep and inserted thin pieces of mica, to keep them open and to prevent substances from diffusing across them. The pieces of mica were left in position for some days, by which time the isolated leaf could usually be seen to have arisen. After about a fortnight the apices were pickled and sectioned, and the cuts were found to be still open. Even in these apices all the isolated presumptive areas which developed further, eight I_1 and two I_2 areas, gave rise to dorsiventral leaves, though one of the leaves, an I_1, was partly tubular. Many of these leaves had indeed looked conical at first when seen in the solid, but when examined in sections later they were seen to be fully dorsiventral, though their blades were often curved inwards towards the stem. These results are quite different from those reported by Sussex, and do not indicate that in potatoes the dorsiventrality of the leaves is induced by the stem apex.

However, in *Epilobium hirsutum*, which forms radial leaves very readily, we have obtained results similar to those reported by Sussex for potato shoots; for the isolated I_1 areas developed only into radial leaves. Yet it is very doubtful whether this indicates that dorsiventrality is induced by the stem apex even in *Epilobium hirsutum*. For in this species, though not in others, we have also obtained radial leaves from the central part of the presumptive area of I_1 and from the central part of P_1, the youngest actual leaf, when these regions were not isolated from the stem apex, but were confined at their sides between two vertical cuts which left them continuous with the stem apex towards the centre. In these experiments the stem apex continued to grow and to form leaves, though its growth was sometimes weakened.

At present, therefore, it seems probable that radial leaves can develop in *Epilobium* from some small part of the apical cone of the stem or from the central part of the youngest actual leaf, when such a part, from causes still not clear, grows up from a base which is not large enough to give rise to a dorsiventral leaf. Even a regenerated apex in *Epilobium* may be converted into a typical radial leaf of limited growth if it is extremely small. Also in our potato apices a few small radial leaves developed from small unoccupied areas of tissue that were left over somewhere between the isolated I_1 leaves and the stem. An effect of reduced size of the isolated areas may perhaps account for the radial leaves reported in potatoes by Sussex, though his isolated pieces do not seem from his drawings and description to have been smaller than most of ours. They do seem, however, to have been too close to P_1 for the correct angular position, which may have made a difference. It needs to be further considered whether in *Epilobium hirsutum* reduced size or perhaps weakened growth of the isolated I_1 areas accounts for the radial leaves which developed from them. We hope to publish a fuller account and discussion of our experiments elsewhere.

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[1] Sussex, I. M., *Nature*, **170**, 755 (1952).

[2] Snow, M., and Snow, R., *Phil. Trans. Roy. Soc.*, B, **221**, 1 (1931) **225**, 63 (1935).

Degrading Illite and Potash Fixation

SOIL clays from Ireland have been examined by X-ray diffraction, and for these soils and some others a relation between potash fixation and clay mineralogy has been established. The clay minerals detected were illite (as defined by Brown[1]), vermiculite, chlorite, kaolin and a material which will be provisionally called 'degrading illite'. Some of the soils contained four of these minerals, others only three.

All the minerals except 'degrading illite' are well established[2]. Diffraction patterns of air-dry clay containing 'degrading illite' show a band from 10 A. to higher spacings which generally merges with the background at 12–13 A. and never extends beyond 14 A. On treating the clay with glycerol, the band disappears giving either (*a*) lines at 10 A. and 14 A. or (*b*) a line at 14 A. It has not yet been possible to decide finally between (*a*) and (*b*) as the mineral always occurs with illite, which gives a line at 10 A. Heating the clay to 350° C. for 12 hr. also causes the band to disappear and the intensity of the 10-A. line is enhanced.

The soils which had been shown by field experiments to fix potash all contained 'degrading illite' while the others did not. None of the other clay minerals showed this simple relationship. It is there-