

normal seed-reserve. First, we find that the protein content of the cotyledons of seedlings grown in a nitrogen-free culture medium may fall in eight days to about half its initial value; but the urease content may remain unchanged. Secondly, if seedlings are grown under optimal conditions in soil, we find in the cotyledons no appreciable change in major nitrogen fractions over ten days; but a reduction in urease begins to be apparent at about the fourth-sixth day, followed by a rapid fall almost to zero at about the eighth day. The rapid rise in water-content from about the fourth day shows that this is the time when cell-extension and vacuolation begin; and since Brown and Broadbent² have shown that this is a time of considerable metabolic activity, it seems likely that disappearance of urease is connected with its onset.

Moreover, examination by Granick's³ histochemical method shows that the urease is retained in the bundle-sheaths (the cells of which enlarge relatively little) long after it has disappeared from the mesophyll; detached cotyledons, which expand more slowly than do cotyledons attached to the seedling, also lose their urease more slowly; and etiolated seedlings, the cotyledons of which do not expand, retain their urease for at least thirteen days. In general, the urease metabolism appears to be bound up with the development of the cotyledons rather than with that of the seedling as a whole; and we are attempting to identify more closely the particular process with which it is associated.

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W. T. WILLIAMS
P. CH. SHARMA

Botany Department,
Bedford College,
London, N.W.1.
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¹ Williams, W. T., *Nature*, **165**, 79 (1950).

² Brown, R., and Broadbent, D., *J. Exp. Bot.*, **1**, 249 (1950).

³ Granick, S., *Plant Physiol.*, **12**, 471 (1937).

Extraction of Chloride from Mammalian Skin

IN the course of an investigation into the distribution of chloride between blood plasma and skin in the cat, difficulty was encountered in determining the chloride content of the skin. Digestion of the tissue in concentrated nitric acid is impracticable owing to loss of chloride; the tissue proved to be too tough to be ground in trichloroacetic acid, which is the standard procedure with other tissues. Freezing before grinding had no helpful effect and cutting the tissue into very small fragments before grinding was, though successful, both laborious and time-consuming; mincing was impracticable owing to the relatively small samples which could be used.

By chance, it was found that a sample of skin which had been dried for 18-24 hr. at 105-110° C. for determination of its water content was quite readily macerated if left in 10 per cent trichloroacetic acid a few minutes before being ground. The same effect was produced by drying cat's skeletal muscle, which in the fresh state is much more resistant to maceration than is frog's muscle. On the other hand, liver and kidney, which can be readily macerated in the fresh state, were considerably toughened by the

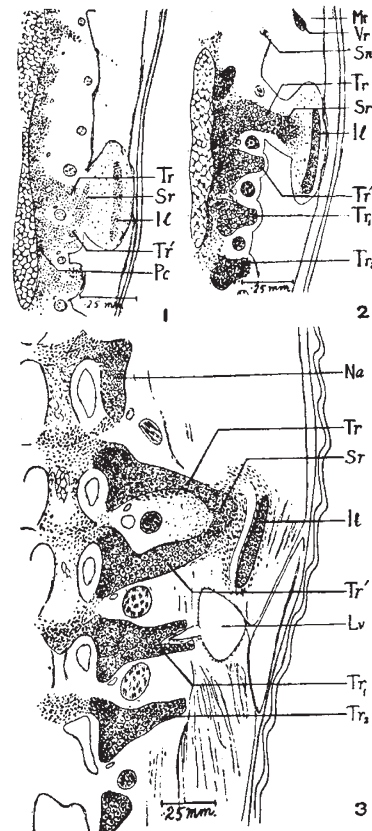
drying process. Thiocyanate was also stable in skin during the drying process and could be determined in the trichloroacetic acid filtrate. Since the ease with which a tissue can be handled undoubtedly affects to some extent the amount of attention which is bestowed upon it, the observation now made may be of use to others.

M. GRACE EGGLETON

Department of Physiology,
University College,
London.
May 31.

Sacral Ribs of Lacertilia

THE sacral ribs of Lacertilia have been for many years the subject of discussion by zoologists. Some consider that the transverse processes of the sacrum are homologous with the ribs of the presacral region^{1,2}. Siebenrock³ made a thorough study of this subject and came to the conclusion that the first sacral vertebra of Lacertilia possesses ribs instead of transverse processes. Moodie⁴, however, states quite clearly that there are no sacral ribs in modern lizards. According to him lizards "occupy an isolated place among all other known reptiles in not having any sacral ribs whatever". He considered the processes carried by the sacral vertebrae as transverse processes and not ribs. A similar conclusion was arrived at by Huene⁵. Later, Moodie⁶ referred to this view again,



Il, Ilium; *Lv*, large vesicle opposite the transverse process of the first tail vertebra; *Mt*, Myotome; *Na*, neural arch; *Pc*, primary centrum; *Sn*, spinal nerve; *Sr*, sacral rib; *Tr*, *Tr'*, *Tr₁*, *Tr₂*, transverse process of the sacral, secondary sacral, first caudal and second caudal; *Vr*, ventral rib