their organogenetic potency and differentiated roots and buds when transferred to medium NNS (Figure 3). When regenerates were transferred to tubes containing larger amounts of medium NNS, whole plants developed (Figure 4). After attaining leaf rosettes with 5 to 7 leaves, the regenerated plants were successively transferred to Perlit and then to the soil, where they grew normally (Figure 5). Experiments transferring the regenerates to the soil via liquid medium NNS with a bridge, made from Whatman paper No. 1, failed. The calli grew brown and regressed, and the plants died.

The karyological and genetical analysis of the regenerates obtained will be the subject of future work. The induction of regeneration of whole plants in callus cultures of *Gazania splendens* MOORE will make it possible to use the in vitro explant cultures in the explant breeding programmes for the tribe Arctotideae.

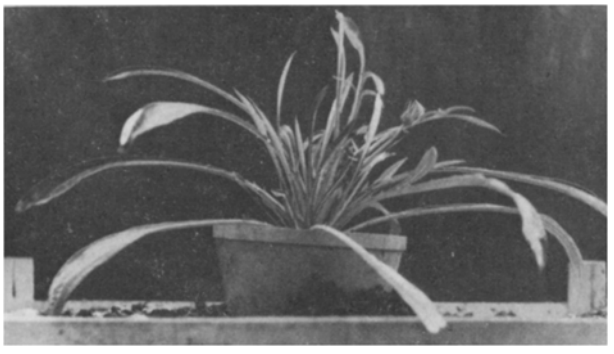

Fig. 5. A regenerate arisen in the 4th passage of the callus after developmental stages described in the text, fully growing; age 10 months from the starting day of the 4th passage[8].

Zusammenfassung. Es wird eine Methode zur Induktion der Organogenese und Entwicklung ganzer Pflanzen aus dem Kallus von *Gazania splendens* MOORE beschrieben.

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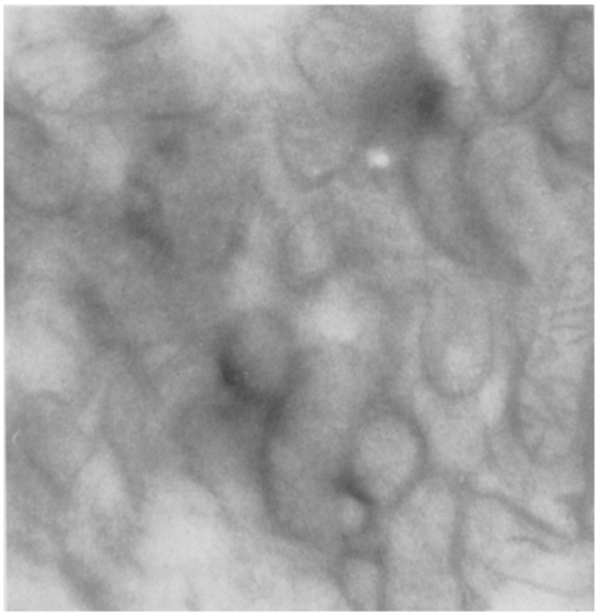
[8] Photo 1 to 4 by P. WANNER, 5 by Ing. F. KOCOUREK.

Ultracryotomy shows the crystae of mitochondria

The field of biological electron microscopy is founded on the assumption that the structure visible in the electron microscope is the 'true' structure of the living tissue. Normally, tissue is processed by fixation, dehydration and plastic embedding. Such extended chemical treatment might alter structure but this assumption, that it does not, has produced many successes covering the whole field of cell biology.

Recently, we have introduced[1] and refined[2] the process of ultracryotomy, where fresh tissue is frozen and cut into ultrathin sections at low temperatures (below −120 °C). Provided that the thin sections are freezedried and protected from rehydration by vacuum coating with a layer of carbon, membrane structure is preserved. In a recent paper[2] we were not able to report crystae in the visible mitochondria of hepatic cells. We have since improved our technique and, using a lower accelerating voltage in the electron microscope (40 keV), we are now able to confirm that mitochondria do indeed have crystae (Figure). The assumption that chemical processing preserves 'true' structure is supported.

This observation extends the resolution of ultracryotome sections down to 100 Å. It is hoped that shortly the resolution of ultracryotome sections will be comparable to sections cut through plastic embedded tissue.



Mitochondria in the cytoplasm of a parenchymatous hepatic cell. Although the section was prepared by ultracryotomy with no chemical treatment which could preserve structure or enhance contrast, the mitochondrial crystae are clearly visible. ×38,000.

Résumé. La technique des sections congelées de tissus biologiques (ultracryotomie) permet maintenant d'obtenir une résolution de 100 Å.

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13 September 1973.

[1] S. HODSON and J. MARSHALL, J. Microsc. *91*, 105 (1970).
[2] S. HODSON and L. WILLIAMS, in preparation.
[3] We thank the Wellcome Foundation for supporting this research.