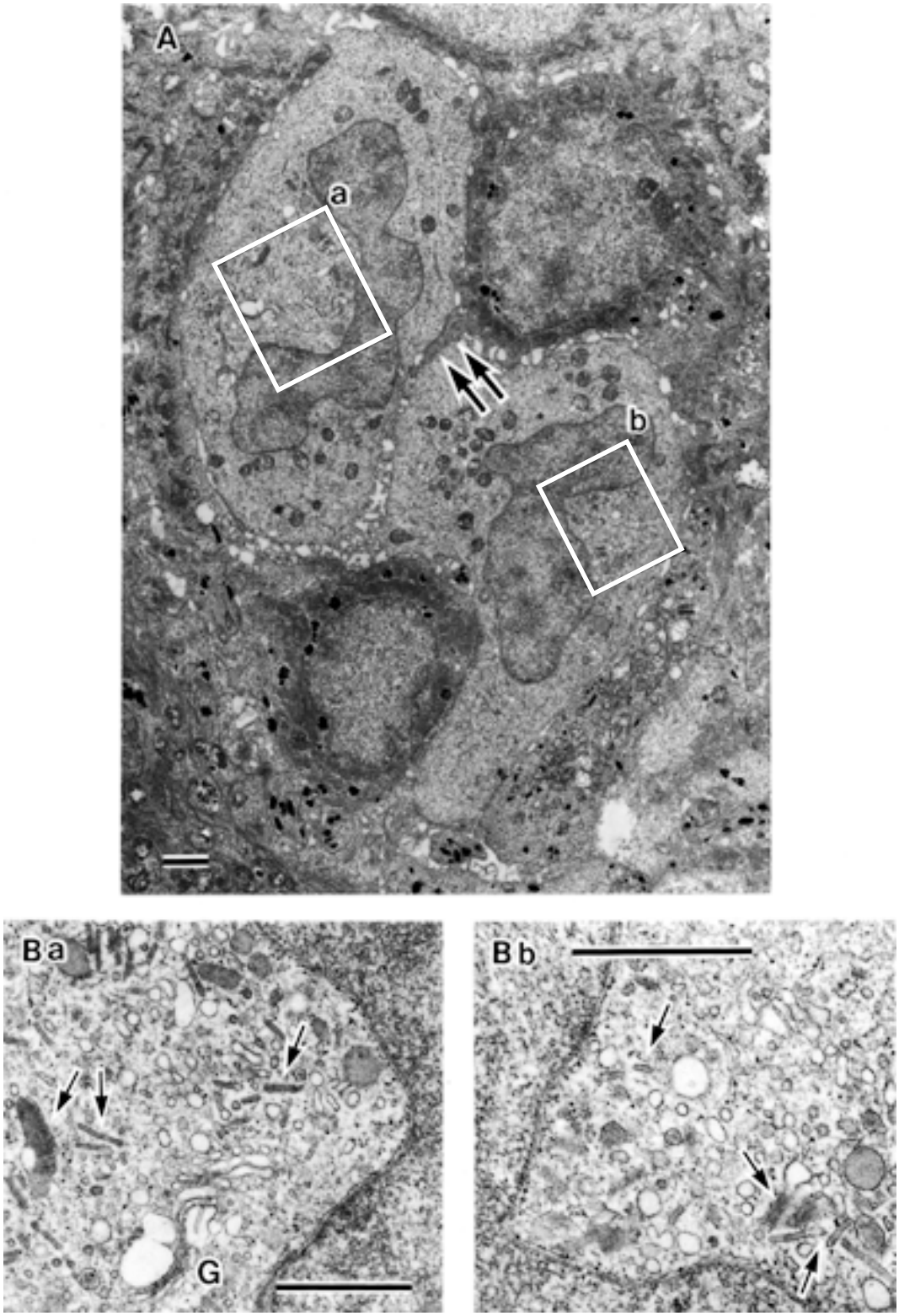

Fig. 5. Legends on p. 209 (bottom).

Discussion

The features of these mitotic LCs in the normal human epidermis are the first ones observed both by light and electron microscopy. They seem to show actual evidence for the reproduction of LCs in the normal human epidermis. In 1979, 2 groups of investigators (Frelinger et al., 1979; Katz et al., 1979) using bone marrow chimeric animals showed that LCs in the epidermis originated from bone marrow, and this concept has since been widely accepted. Thereafter, however, Czernieleski et al. (1985) using flow cytometry showed that human epidermal LCs were a cycling cell population in the normal (physiological) epidermis, and cited the study by Konrad and Hönigsmann (1973) as morphological evidence. The present observations confirm their view. Czernielewski and Demarchez (1987) further studied the self-reproducing capacity of LCs in the human skin grafted onto the nude mouse. Thereafter, Miyauchi and Hashimoto (1989) using the ATPase staining technique presented the mitotic activities of epidermal LCs in the normal mouse skin. Compared with these studies, the present study shows the actual features of mitotic LCs in close proximity to the natural state of the human epidermis. In this study, the relation between the mitosis of LCs and the kind or osmolarity of the fixative buffer (vehicle) could not be clarified, and the relation between the mitosis of LCs and epinephrine in the local anesthetic is also indistinct. However, it is very interesting that the mitotic LCs in the prophase were detected only in the materials which had been prefixed in the fixative dissolved in Kindaly 2 . Why so? This problem remains for further study.

As a whole, it must be one of the most important observations that Bibeck granules have been witnessed in all mitotic phases of human LCs.

By the TRUS technique, it was possible for the first time to carry out a wide survey of the human epidermis, to find a large amount of mitotic LCs at the light microscopic level and to view fine details of the same cells at the electron microscopic level. Thus, anyone hereafter can observe mitotic LCs both in the normal and pathological human epidermis, and consequently, the nature, kinetics and function of LCs can be more clearly understood.

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Fig. 5 (p. 208) A: A Langerhans cell (LC) in the telophase (Fig. 1: Row 11-No. 2), × 7,000. Double arrows indicate the process of the neighboring keratinocyte invading between the daughter LCs. **Ba and b:** High magnification photographs of the rectangular areas in **A**, × 21,000 and × 28,000, respectively. In the Golgi area, a lot of vesicles and Birbeck granules are observed (G, Golgi apparatus; arrows, Birbeck granules). These show clearly the reopening of the cell function as soon as cell division is completed. Scale bar =1 μm.

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