

normal morphogenesis (we observed instances of the same for the nose but not for the eye). This would seem to indicate that its formation is subject to regulation by some antagonistic principle proceeding from the central part of the organizer. In fact one might consider the 'transforming' (NIEUWKOOP), or 'mesodermalizing' (TOIVONEN) principle (SAXÉN and TOIVONEN²) to be essentially antagonistic to the 'activating' or 'neuralizing' one, which limits the span of induction of the neural tissue, i.e. produces spinal cord in place of the brain.

Our results mentioned above cannot be fully explained on the assumption of the presence of a transverse gradient of a single inducing substance with the peak at the centre, for it is not a decrease in the quantity of the neural cells that are induced, but the failure of their individuation.

OKADA, HAMA and TAKAYA⁵⁻¹³ reported that by implantation of the entire organizer before invagination only trunk and tail structures were induced and never the fore-brain and its derivatives. As indicated above, our experiments generally yielded induction of fore-brain formations by longitudinal strips of uninvaginated organizer. GALLERA^{14,15} also reported some instances of fore-brain structures induced by parts of the uninvaginated organizer.

Zusammenfassung. Nachweis grösserer medio-lateraler Regionalunterschiede im Organisator des Frosches *Rana cyanophlyctis*.

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Intracellular Location of Hyphae in Experimental Dermatomycosis

The precise location of the infective agents in cutaneous infections with bacteria, yeasts and fungi is of paramount importance in terms of basic scientific knowledge, pathogenesis and the development of more specific therapeutic measures. SARKANY et al.¹ and MONTES² demonstrated the intracellular epidermal location of the bacterium

Corynebacterium minutissimum, the etiologic agent for erythrasma. MONTES has found that *Malassezia furfur*³ and *Candida albicans*⁴ also occupy an intracellular position in the horny layer. To date there has been little study of routine dermatophyte (ringworm) infections although the organisms in culture have been examined^{3,5-7}.

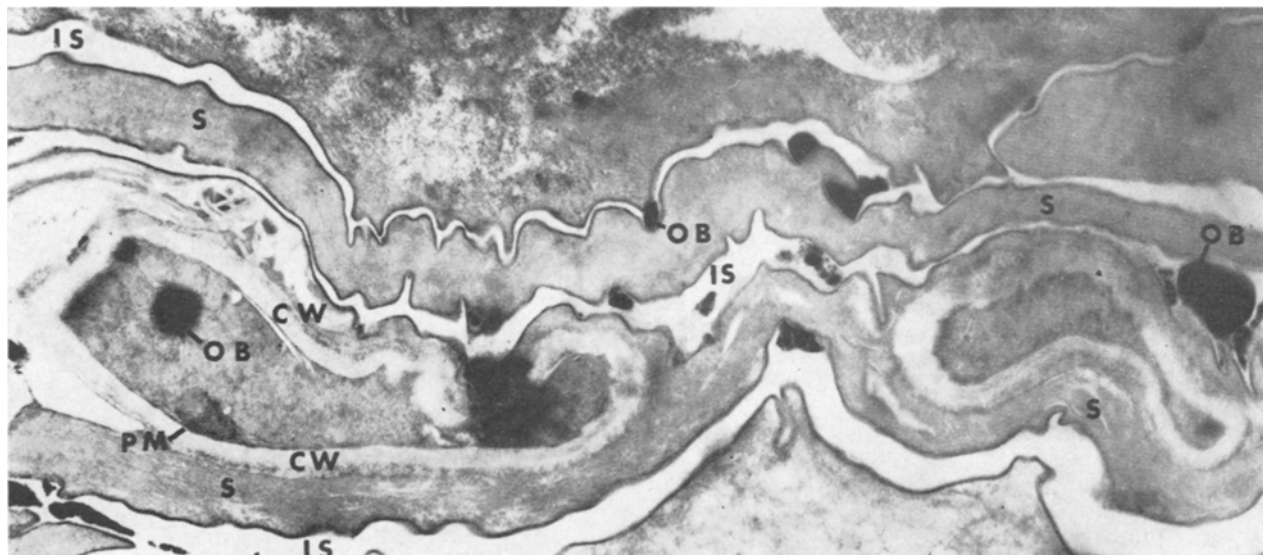


Fig. 1. Cross section of hypha located within squame (S). CW, cell wall; PM, plasma membrane; IS, intercellular space; OB, osmophilic body. $\times 16,000$.

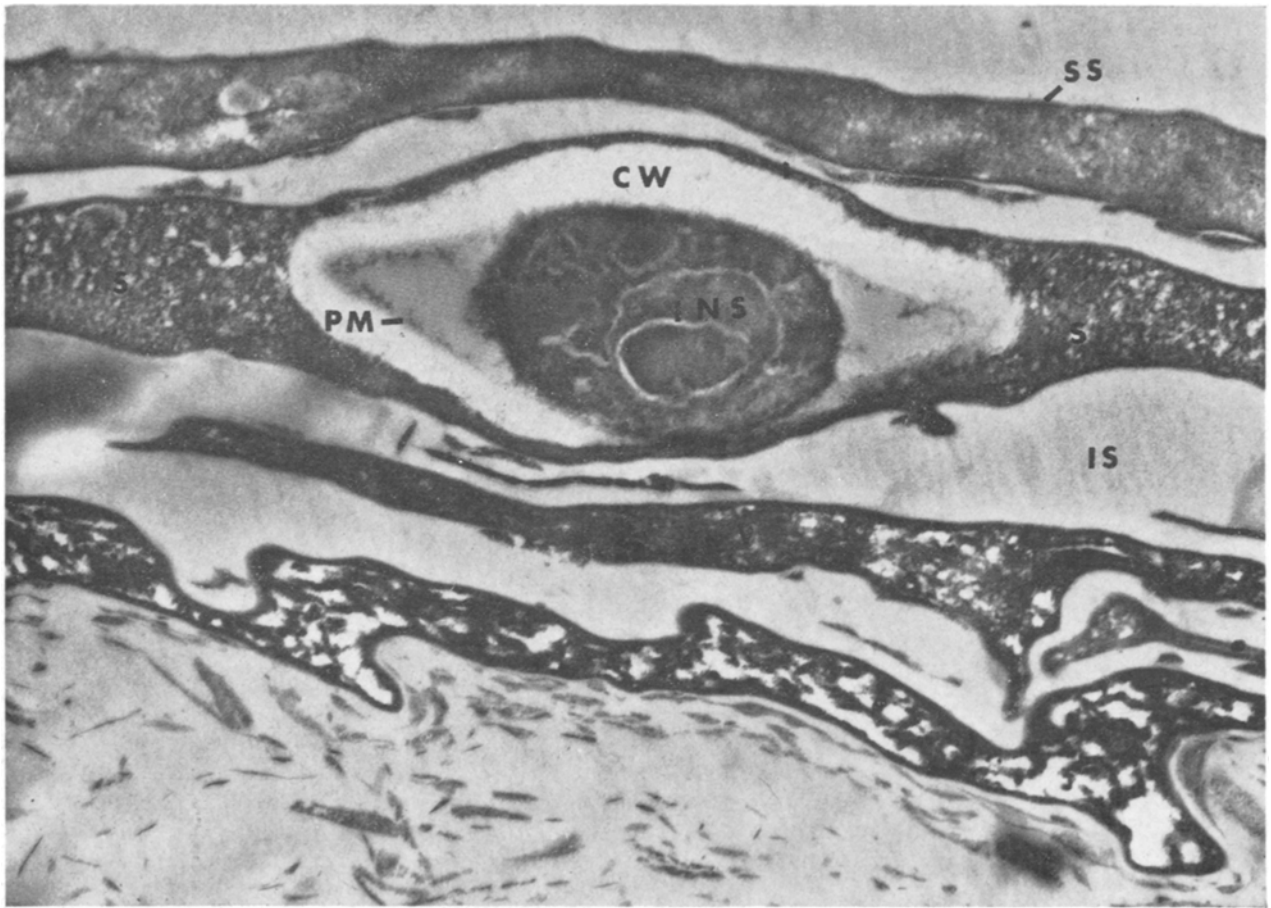


Fig. 2. Cross section of hypha within squame (S). INS, internal structure; SS, skin surface. $\times 22,000$.

The object of this paper is to demonstrate the location of dermatophyte (*Trichophyton mentagrophytes*) hyphae within the cells of the guinea-pig's infected stratum corneum.

Materials and methods. The flank skin of guinea-pigs was injured and inoculated with a suspension of spores of *Trichophyton mentagrophytes* according to the method of MARTIN⁸. The organism was type No. 455 obtained from the Communicable Disease Center. 5 days later, at or near the peak of inflammation, skin from infected areas was cut into 0.25 mm² sections and fixed for 16 h under refrigeration at 5°C in 1% osmium tetroxide in veronal acetate (buffered at a pH of 7.2-7.4). The tissue was then washed in 10% neutral formalin for 2 h, dehydrated in a graded series of ethanol and embedded in Araldite. Thin sections were made with a Porter-Blum microtome and mounted on copper grids for electron microscopy. After staining in lead citrate, the sections were examined with an RCA-EMU 3F electron microscope with an accelerating voltage of 50 kV.

Results and conclusion. Hyphae were found intracellularly within squames of the horny layer in all of the sections examined. Figures 1 and 2 clearly reveal this intrasquamal (intracellular) location of the hyphae (see legends). This seems to demonstrate the ability of dermatophytes to penetrate cell walls, thereby gaining access to keratin for nutrients and possibly also attaining a protected site in the skin.

Zusammenfassung. Nach experimenteller *Trichophyton-mentagrophytes*-Infektion wurden in den Stratum-Corneum-Zellen des Meerschweinchens intrasquamale Pils-hyphen identifiziert. Dies erlaubt ein detailliertes Verständnis der Pathogenese einer Dermatophyteninfektion.

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