THE CORNEAL STROMA IN EXPERIMENTAL HERPETIC KERATITIS IN RABBITS*

by

RICHARD W. DARRELL**
& FRANTIŠEK VRABEC***

(New York)

INTRODUCTION

In the preceding paper, the histopathologic changes in corneal epithelium following Herpes simplex virus infection were presented. The corneal stroma is also a very active participant in the corneal reaction to Herpes simples virus infection, and is the subject of the present paper. Two silver stains have been used to reveal alterations in keratocytes, intercellular spaces, corneal nerves and blood vessels, as well as changes in the population of inflammatory cells consequent to infection. In addition to these staining techniques, the replica method of Wolf has been used to reveal the morphology of the stromal surface.

* From the Department of Ophthalmology, Columbia University, New York City, New York
** Dr. Med.Sci., Instructor in Ophthalmology, Columbia University, New York City, New York 10032
*** Dr. Sc., Professor of Ophthalmology on leave from Charles University, Prague 10, Czechoslovakia

This investigation was supported by National Institutes of Health Research Grants No. EY 00072-06, AI 08021-03 and NB 00492-15 and Contract No. Nonr 266 (71) from the Office of Naval Research. Reprint requests should be directed to Dr. DARRELL.
MATERIALS AND METHODS

These have been described in the preceding paper.

RESULTS

During the first 7 hours after inoculation, changes within the stroma are limited to a slight edema just beneath the site of inoculation. Keratocytes directly injured at the time of inoculation disintegrate, as well as the most superficial nerve fibers. Beneath the zone of direct damage a slight edema appears, keratocytes begin to contract their processes, and nerve fascicles crossing beneath this area develop wavy outlines with otherwise intact and smooth fibers. This change of the outlines of nerve fascicles indicates some swelling of the adjacent

Fig. 1
A group of polymorphonuclear leukocytes at the surface of the denuded stroma 7 hours after the inoculation. No such infiltration was found within the stroma or epithelium. Jabonero’s silver carbonate method, 380 ×.