

experiments with dogs and with human subjects showed that its degree of penetration was low. Metrazol and hydrocyanic acid can be shown to produce their typical effects in dogs by sublingual administration, but the degree of penetrability is not striking and no effects were obtained in human subjects with relatively large doses. . . . The fat-water distribution coefficient of drugs is a dominant factor in determining their penetrability through the oral mucosa. . . . The majority of drugs . . . do not penetrate the oral mucosa in significant amounts, and it is unsound practice to rely on this technic with any drug whose effectiveness by this route has not been conclusively demonstrated." 50 references.

J. C. M. C.

(HUNDERSEN, TRYGVE, AND LIEBMAN, S. D.: *Effect of Local Anesthetics on Regeneration of Corneal Epithelium*. Arch. Ophth. 31: 29-33 (Jan.) 1944.

"Clinically it has been observed from time to time that local anesthetics have an inhibitory influence on the regeneration of corneal epithelium. . . . Heretofore no attempt has been made to determine experimentally whether or not local anesthetics affect the regrowth of corneal epithelium. . . . Guinea pigs (4 for the study of each drug) were used as test animals. . . . The drugs used in these experiments were fresh preparations similar to those in daily use in the clinic of the Massachusetts Eye and Ear Infirmary. These drugs were solutions of 10 per cent cocaine hydrochloride, 4 per cent cocaine hydrochloride, 1 per cent butacaine sulfate, 4 per cent tetracaine hydrochloride, 1 per cent phenacaine hydrochloride and 0.5 per cent tetracaine hydrochloride, all containing 0.5 per cent chlorobutanol. One per cent phenacaine hydrochloride and 0.5 per

cent tetracaine hydrochloride in ointment form were instilled into the right eyes of the two other groups of guinea pigs. The left, or control, eyes of these animals were treated with ointment base containing no local anesthetic. The experiments for the 10 per cent cocaine hydrochloride and the 1 per cent phenacaine hydrochloride were carried out in duplicate series, and the eyes of the second series of animals were removed at varying intervals for histologic examination. Further studies were carried out to evaluate the influence of tonicity of the cocaine and the tetracaine solutions on the regeneration of corneal epithelium. . . . All of the local anesthetics tested had some delaying effect on the healing process of the corneal epithelium of the guinea pig. This effect is modified in degree by the concentration and the tonicity of the anesthetic agent. The pH is probably not a determining factor, since buffered solutions at a pH comparable to that of the anesthetics used showed relatively little inhibitory action. Of the various anesthetics tested, 1 per cent phenacaine hydrochloride and a hypertonic 0.5 per cent solution of tetracaine hydrochloride were the least toxic to the regenerating epithelium." 3 references.

J. C. M. C.

CHAPMAN, W. P.; ARROWOOD, JULIA G., AND BEECHER, H. K.: *The Analgetic Effects of Low Concentrations of Nitrous Oxide Compared in Man with Morphine Sulphate*. J. Clin. Investigation 22: 871-875 (Nov.) 1943.

"The purpose of this study is to report, on the basis of quantitative studies, that nitrous oxide in low concentration (consciousness not impaired, beyond a slight euphoria) has power to relieve pain comparable to that of morphine and yet does not have the undesirable side effects which limit the use of morphine. . . . Fifteen healthy