

hour group, except that the cornified cells of the vagina had become more distinct. The periphery of the vagina was still lined by cells of the mucoid type. The four animals in the sixty-hour group all had cornified vaginal cells. In some instances, remnants of the mucoid cells could be seen clinging to the border, others were free in the lumen. Twelve hours later an examination of the vaginas of two mice showed a complete cornification, no trace of mucoid cells was seen, cornified cells were being shed and the borders becoming approximated.

The uteri of these animals showed progressive changes. At twelve hours a slit-like opening lined by cuboidal epithelial cells was present. At seventy-two hours the uteri showed widely distended lumina surrounded by elongated cells.

Follicular fluid from the sow's ovary may therefore cause mucification, for about 60 hours, of the vaginal epithelium in the normal immature mouse. This would invalidate the usefulness of a test depending upon the early appearance of mucus-like cells as an index of corpus luteum extract.

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STUDIES ON THE ETIOLOGY OF EGYPTIAN TRACHOMA

A BACTERIOLOGICAL investigation of trachoma, as it prevails in Egypt, was carried out in the Memorial Ophthalmic Laboratory at Giza (Cairo) from February to April, 1933. We are indebted to the officers of the Government Public Health Department and to Dr. R. P. Wilson, the director of the laboratory, as well as to the members of its staff, for their whole-hearted cooperation.

The cases of trachoma studied conformed clinically to the disease as it occurs in America among Indian and white races. We obtained tarsectomized tissue—the tarsi having been removed for therapeutic purposes—from eleven patients having trachoma, chiefly of Types I, IIa and IIb of MacCallan's designations,¹ that is, types of the disease characterized mainly by follicular reaction. The tissue was cultivated following the mode of procedure originally devised by Noguchi.²

Bacterium granulosis was recovered from four of the eleven cases. The subconjunctival inoculation of cultures of the recovered microorganisms induced progressive granular conjunctivitis in four *Macacus sinicus* monkeys.³ The general appearance of the

experimental disease in these animals was identical with that observed by Noguchi, ourselves and others in monkeys inoculated with *Bacterium granulosis*^{2,4} isolated from cases of trachoma occurring in the United States. On our return to New York we inoculated similarly five *Macacus rhesus* monkeys with the four pooled Cairo cultures. From six to eighteen days after the injection, four of the animals showed the characteristic granular conjunctivitis.

The Cairo strains agree in morphological, cultural and serological properties and in effects on animals with those obtained from patients suffering from trachoma and residing in other parts of the world.⁵

No evidence was obtained implicating as the incitant of the disease in Egypt any other microbic or ultramicroscopic agents. We failed to find in the cells of the trachomatous lesions inclusion bodies of the kind characteristic of many ultramicroscopic viruses. On the other hand, the Prowazek-Halberstaedter bodies, which appear to be composed of bacterial elements,⁶ were observed in seventeen of forty-eight cases of trachoma studied in Egypt. In all instances in which these structures were detected the material examined had been derived from patients suffering from secondary bacterial infections, usually with Koch-Weeks' bacilli, superimposed on the trachomatous lesions.⁷

In view of our failure to detect in Egypt any other causal agent of trachoma and from the positive findings regarding *Bacterium granulosis*, the conclusions of Noguchi on the causal relation of the organism to the human disease have received additional support.⁸

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- MOORE, RAYMOND C. *Historical Geology*. Pp. xiii + 673. 413 figures. McGraw-Hill. \$4.00.
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⁵ F. Tallo, *Boll. Istit. Sieroterap. Milanese*, 11: 225, 1932; C. Weiss, *Arch. Institut Pasteur, Tunis*, 19: 433, 1930.

⁶ See also A. W. Williams, *Jour. Inf. Dis.*, 14: 261, 1914; and I. A. Bengtson, *Am. Jour. Ophth.*, 12: 637, 1929.

⁷ Cf. F. H. Stewart, Sixth. Ann. Rep. Giza Memorial Ophthalmic Laboratory, p. 107, Cairo, 1931.

⁸ A full report of the investigations will be published in a forthcoming number of the *Archives of Ophthalmology*.

¹ A. F. MacCallan, "Trachoma and Its Complications in Egypt," pp. 1-74. London, Cambridge University Press, 1913.

² H. Noguchi, *Jour. Exp. Med.*, 48: Suppl. 2, pp. 1-53, 1928.

³ All inoculations were made in ether-anesthetized animals.