of β -galactosidase has been completely suppressed by 8-azaguanine have been examined by the methods described by Matthews, and it has been found that 8-azaguanine has been incorporated into ribo- but not deoxyribo-nucleic acid. It has been suggested that nucleic acid is concerned in the formation of induced enzyme^{2,4}; the present findings are consistent with that suggestion, as incorporation of 8-azaguanine into the nucleic acid might be expected to impair its function equally in protein synthesis as in virus formation.

E. H. CREASER

Medical Research Council Unit
for Chemical Microbiology,
Department of Biochemistry,
University of Cambridge.

¹ Creaser, E. H., *J. Gen. Microbiol.*, [12, 283 (1955)].

² Gale, E. F., and Folkes, J. P., *Nature*, 173, 1223 (1954).

³ Matthews, R. E. F., *J. Gen. Microbiol.*, 10, 521 (1954).

⁴ Pardee, A. B., *Proc. U.S. Nat. Acad. Sci.*, 40, 263 (1954).

Bacterial Utilization of Cyanide

DURING experiments to determine the fate of potassium cyanide contained in sewage during treatment on percolating filters, a bacterium was isolated capable of growing on silica gel medium containing only potassium cyanide as a source of nitrogen and carbon; traces of iron, copper and phosphate were also present. The organism, which consisted of Gram-positive branching filaments approximately 1μ in diameter, some of which were broken up into bacillary segments, grew on solid medium as a hard, white and powdery colony reaching a maximum of 1 mm. in diameter after incubation for seven days at 28°C . Aerial hyphae and conidia are present (Fig. 1); but the latter are probably not true reproductive bodies as the organism is killed by drying. The organism is aerobic and a strict autotroph, growth being inhibited in culture by the presence of agar or peptone. It can utilize concentrations of cyanide up to 15 mgm. per 100 ml., but appears to grow best on cyanide concentrations of approximately 4 mgm. per 100 ml. The bacterium was difficult to culture, growth being

Fig. 1

slow and sparse; but it exhibited surprising activity, a few colonies being able to utilize more than 0.5 mgm. cyanide per day.

Ammonia is produced, apparently quantitatively, from cyanide by the growth of the organism; the fate of the carbon is not yet known.

The organism has been provisionally classed among the Actinomycetaceae, and investigation of its biochemical activity is proceeding.

G. C. WARE
H. A. PAINTER

Water Pollution Research Laboratory,
Elder Way,
Stevenage, Herts. Jan. 12.

Vaginal Sulphydryl and Disulphide Groups during the Oestrous Cycle of the Mouse

KERATINIZATION of the vaginal epithelium of the mouse occurs during the oestrous cycle. In view of the regular periodicity of this process, it was thought profitable to examine some of its associated histochemical characteristics. The occurrence of —SH and —SS groups in the oestrous vaginal epithelium of the rat has been previously noted¹. No record of the variations in the distribution of these groups during the normal oestrous cycle appears to exist.

Vaginae were removed from thirty white mice and fixed for 24 hr. in a solution of 1 gm. trichloroacetic acid dissolved in 100 ml. of 80 per cent alcohol; they were embedded in paraffin and sectioned at 7μ . The stages of the cycle were determined from M.F.4 (Gurr's vaginal smear stain) and haematoxylin and eosin preparations in accordance with the description and terminology of Allen². Sulphydryl and disulphide groups were demonstrated by the Barnett and Seligman³ and the Chèvremont and Frédéric⁴ ferricyanide procedures. The ferricyanide procedure was adapted to the study of —SS groups by comparing preparations, previously reduced with thioglycolic acid⁵, with corresponding —SH group preparations (C. W. M. Adams, personal communication). Controls were incubated for 3 hr. in saturated aqueous mercuric chloride to inhibit —SH groups.

At the beginning of dioestrus, slight positive reaction for the —SH group was found in the cytoplasm of all epithelial cells; this was most marked in the basal layer. The nuclei showed a negative reaction. During later dioestrus, the most intense —SH group positivity was found in the deepest two to three layers of the epithelium; the superficial layer of cells showed no reaction, although between them there was a definite positive reaction (Fig. 1). These superficial cells do not become keratinized, but remain throughout prooestrus and early oestrus as the 'swollen' cells of the vaginal wall⁶. No —SS groups could be detected throughout the dioestrous phase. In early prooestrus the deepest seven to eight layers of the epithelium showed slight —SH group reactivity, while the superficial cells, as in late dioestrus, showed no reaction. The intermediate zone of squamous transformation showed intense localization of —SH groups and was also characterized by the first appearance of —SS group reaction; as this zone becomes keratinized during later prooestrus, the stratum corneum so formed showed an intense concentration of —SS groups. The corneum and deep layers of the late prooestrous epithelium reacted weakly for —SH groups, while the two layers