virus produced a systemic mosaic disease in *P. vulgaris* var. Prince.

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Normal Mouth and Intestinal Flora of the Ferret (*Mustela furo* L.)

Although the ferret is widely used as an experimental animal, particularly in the study of virus diseases, very little work has been done on the commensal bacteria of the animal itself. Some work on its pathological conditions has been published by Hughes[1], Momberg-Jorgensen[2], Symmers and Thomson[3], Symmers, Thomson and Iland[4], and Skulski and Symmers[5]; but none has been found concerning the bacterial flora which can commonly be isolated from the mouth and intestine of the healthy ferret. The present investigation was made to study this flora, in a colony of tuberculosis-free ferrets, maintained in first-class conditions, which has its own unit of breeding gills, and is augmented at intervals by fresh stock purchased from breeders in the surrounding area.

One hundred and eighteen ferrets were examined as soon as possible after joining the colony. Swabs were taken from the mouth and throat and from the rectum. These were cultured on horse-blood agar and McConkey's medium, and incubated aerobically and anaerobically at 37° C. for a minimum period of 72 hr. The animals were fasted for 16 hr. before being swabbed orally.

As it was not practicable to kill healthy ferrets, the internal organs were not examined. Therefore, no results are available for comparison with those of Schweinburg and Sylvester[6] in other laboratory animals.

The flora isolated from the ferrets was usually mixed, comprising at least two bacterial species; but these were not always the same from the mouth and the rectum. The commonest organism was *Bacterium coli*, which was isolated from 108 of the 118 ferrets (91·5 per cent). Most strains were lactose fermenters but nine were atypical varieties, The other bacteria isolated were strains of *Proteus vulgaris*, *Staphylococcus albus*, alpha- and beta-hæmolytic streptococci, *Micrococcus catarrhalis*, diphtheroids chiefly *Corynebacterium xerosis* types, *Pseudomonas pyocyanea* and Gram-positive spore-bearing bacilli. These bacteria were not further identified nor was any selected for individual study.

The observations are grouped in Table 1 to show the site of origin of each bacterial species and the number of times it was isolated, and in Table 2 to show the number of ferrets from which one or more bacterial species were isolated.

From these observations it would appear that the flora of the alimentary tract of the ferret is similar to that of other animals. The relatively high proportion of strains of *Proteus* which was isolated from 74 of 118 ferrets (62·7 per cent) might be significant, although a comparable proportion was reported by Goret *et al.*[7], who found it in the fæces of 68·1 per cent of dogs which showed no signs of intestinal infection. The absence of anaerobes such as the *Clostridia* commonly present in the fæces of many animals is also noteworthy.

Table 1

Bacterium	Number of ferrets from which it was isolated			
	Oral swab	Rectal swab	Both	Total
Bact. coli, typical	19	27	53	99
Bact. coli, atypical	5	3	0	8
P. vulgaris	12	48	14	74
Staph. albus	43	7	5	55
Streptococcus alpha-hæmolytic	25	6	0	31
beta-hæmolytic	3	7	0	10
M. catarrhalis	21	0	0	21
Diphtheroids	14	0	0	14
Ps. pyocyanea	17	1	1	19
Spore-bearing bacilli	3	3	0	6

Table 2

Number of bacterial species isolated per ferret	1	2	3	4	5	6	7	8
Number of ferrets	9	35	36	29	8	1	0	0

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Effect of Chloretone on Tunicate Embryos

It has been known for many years that amphibian embryos, allowed to develop under narcosis before muscular movements start, show the normal reflex and muscular activity when removed from the anæsthetic[1]. Amphibian tadpoles can be narcotized only for short periods, as they need to feed.

The tadpoles of *Ciona intestinalis* do not suffer this disadvantage, as they do not feed before metamorphosis. I have found that embryos of *Ciona* placed in 0·1 per cent chloretone in sea water five hours before hatching do not show the muscular twitching seen in controls and show no hatching movements at all. In the majority of cases the egg membranes eventually disintegrate, but in some they remain intact until metamorphosis is well advanced. The narcotized tadpoles metamorphose at approximately the same time as free-swimming controls. A period of free swimming has previously been thought necessary for metamorphosis[2] in the non-viviparous ascidians; but the observation reported here does not support this.

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Jan. 31.

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