

this production defects are associated with general non specific reaction mechanisms. These mechanisms are independant of the extend and magnitude of specific characters. 5-HT injection prior to coccidial challenge inhibits, partly but significantly, these general troubles without noticeable alteration of the parasitic disease *per se*.

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## SENSITIVITY OF *EIMERIA* OOCYSTES TOWARDS TEMPERATURE

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## BACTERIAL CONJUGATION IN THE INTESTINAL TRACT OF THE BROILER

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avec la collaboration technique d'Annie BREE et Martine PLAT

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Several mechanisms of genetic exchange are known in bacteria and have been extensively studied *in vitro*.

In spite of its great possible ecological significance, genetic transfer *in vivo* has been little studied.

Conjugal transfer of genes between interfertile strains of *Escherichia coli* has been demonstrated in the mouse intestine, but such a transfer has not been reported in poultry.

In order to investigate this possibility, we contaminated axenic (« germ-free ») chicken with an Hfr and an F<sup>-</sup> strain of *E. coli*. The Hfr was thr<sup>-</sup> and Streptomycin sensitive, the F<sup>-</sup> strain was a Streptomycin resistant pro<sup>-</sup> his<sup>-</sup> double auxotroph.

In one experiment we inoculated the F<sup>-</sup> strain first and the Hfr one week later. In another experiment, the Hfr strain was given first.

Faeces were collected daily and appropriate dilutions were plated on LB medium to determine the total number of *E. coli*, and on minimal medium containing glucose and streptomycin to obtain the number of thr<sup>+</sup> pro<sup>+</sup> his<sup>+</sup> Sm<sup>r</sup> recombinants.

During the period when the chicken were monocontaminated with either the Hfr or the F<sup>-</sup>

strain no mutant with a *thr<sup>+</sup> pro<sup>+</sup> his<sup>+</sup> Sm<sup>r</sup>* phenotype was found. One day after the administration of the second strain, recombinants with such a phenotype appeared and their number increased up to the tenth day, at the end of the experiment. We conclude that genetic transfer between interfertile strains of enterobacteria may take place in the alimentary tract of poultry.

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### CHEMICAL AND AETHIOLOGICAL OBSERVATIONS ON KERATOCONJUNCTIVITIS SINUSITISES IN BIRDS

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This preliminary study concerning keratoconjunctivitis sinusitises in birds, reveals the very important place of mycoplasm in the genesis of these diseases in chickens, turkeys, pheasants and partridges.

The association of some viruses increases the intensity of the pathological process.

The bacteria most frequently isolated from the lesions are *Escherichia coli* and *Pseudomonas aeruginosa* ( $10^7$  to  $10^9$  bacteria per gram of tissue).

The causal agent, free of bacteria, can be cultivated in chicken embryo fibroblastes (C. E. F.) The infected C. E. F. are able to reproduce kerato-conjunctivitis sinusitis in chickens inoculated per conjunctival or intra-sinusal route or per contact.

This observation reveals that the interfering bacteria have in fact a secondary place in the aetiology of K. C. S.

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### REARING TECHNIQUES FOR AXENIC BIRDS

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It is absolutely necessary that the animal stock used for experimentations is as reliable as possible. With this end in view, the Avian Pathology Station (I. N. R. A.) has perfected a technique of germfree poultry production.