as it could be quantitatively recovered when titrated iodometrically with 0.1 N sodium thiosulphate.

It was reasonable to assume that this was not a simple case of chemical interference between the two drugs, but a more complex interaction connected with the bacterial cell itself.

When added artificially to normal raw milk, the different concentrations of penicillin G in certain cases reproduced the interference, while in certain other trials the results were not satisfactory.

The experiments were carried out with different kinds of raw milk, ranging in total initial count from 10^5 to 10^8 bacteria/ml. and with penicillin concentrations: 1.0, 0.75, 0.50, 0.25, 0.10, 0.05 I.U./ml. When the milk microflora had been in contact for two hours with the penicillin, and the milk was then treated with 0.2 per cent of 30 per cent hydrogen peroxide, the interference was directly proportional to the concentration of penicillin.

The unsuccessful results suggest that the phenomenon depends chiefly, not on the quantity, but on the quality of the very unhomogeneous milk microflora. Therefore the behaviour of the various isolated groups of milk microflora, such as lactic organisms, coliforms, psychrophilic organisms, thermophilic and thermophilic organisms is now being investigated. Results obtained so far indicate that the thermophilic organisms may be responsible. The phenomenon described above was also reproducible when the micro-organisms were grown and treated in nutrient broth. Further metabolic studies are in progress.

A detailed description of this work will be published elsewhere.

Dairy Research Laboratory,
Agricultural Research Station,
Beit Dagon, Israel.

J. BABAD
D. L. BOROS
F. BAUER

Overby, A. J., *Dairy Sci. Abstr.*, **16**, 1 (1954).
Lück, H., *Dairy Sci. Abstr.*, **18**, 364 (1956).

Sex Chromatin ('Chromoleme') in the Purkinje Nerve Cells of some Mammals

THE greater percentage of 'sex chromatin' in the nuclei of somatic cells has been used for determining the genetic of tissues of most mammals, excepting the Rodentia and Lagomorpha, the nuclei of which harbour chromatic masses which were wrongly interpreted as sex chromatin. Nevertheless, the studies of Luers¹ on the blood cells of Lagomorpha, and of Castro *et al.*² on the ameloblasts of Rodentia, showed the possibility of determining the sex in these animals.

Most authors state that the detection of the genetic sex is based upon the finding of a single sex chromatin of 'chromoleme'³, which is supposed to be present in 70–80 per cent of female nuclei, and 5–30 per cent of male.

Table 1. NUMBER OF CHROMOLEMES IN VARIOUS CELLS (PERCENTAGES EXCEPT COLUMN 1).

No. of Chromolemes	Man		Rabbit		Dog		Cat	
	♂	♀	♂	♀	♂	♀	♂	♀
0	15	9	15	6	63	14	63	17
1	83	36	70	14	28	70	36	76
2	2	52	10	62	8	13	1	7
3	—	3	5	14	1	2	—	—
4	—	—	—	4	—	1	—	—

Nevertheless, we hope to demonstrate that the Purkinje cells provide evidence against the general applicability of such a viewpoint. For, in some animals we encountered a greater percentage of two chromolemes in the female, and a single one in the male.

Cerebellum tissue from 5 pairs of each of the following species was studied: dog, cat, rabbit and human.

Fragments were fixed (12–24 hr.) in 10 per cent formalin buffered to pH 6.9. Frozen sections, 20 μ thick, were treated by the Feulgen technique and mounted in balsam after diaphanization with creosote. Only intact nuclei in the centre of the section were selected for counting.

As can be seen from Table 1 in so far as the dog and cat are concerned, we fully agree with other authors. In fact, we found many nuclei with a single chromoleme in the female, and only a small percentage in the male (in the female, 70 per cent for the dog and 76 per cent for the cat; in the male, 28 per cent for the dog and 36 per cent for the cat).

On the other hand, with regard to humans and the rabbit, as we have already remarked in a previous paper⁴, a higher percentage with two chromolemes in the nuclei was discovered in the female, whereas many nuclei from the male had a single chromoleme.

Thus sexing by the method of Barr and Bertram⁵, is valid only within certain limits. In the case of the Purkinje cells, which we varied between the different groups of mammals selected for study, the diagnosis of sex is possible, in both humans and rabbits, when the nuclei containing one or two chromolemes are considered.

For the dog and cat, we can apply the principles of Barr and Bertam⁵, that the finding of a higher percentage of cells with a single chromoleme points to the female sex. For practical purposes a large number of cells containing one chromoleme indicate a female, whereas those with no chromoleme indicate a male.

Similarly, in the case of the humans and rabbits, sections which show a high percentage of cells with a single chromoleme indicate a male; and those with a greater number of nuclei with two chromolemes indicate a female.

It is our impression that these changes in the number and behaviour of the chromolemes can be ascribed either to fusion of the heterochromatins of the sex chromosomes⁵, or to a non-specific fusion of heterochromatins of homologous parts of other chromosomes⁴.

According to our work in progress, such chromatin masses may confirm what Pavan and Breuer⁶, in *Rhynchosciara angelae*, called 'genic secretion', which, in mammals, would be a manifestation of the so-called 'metabolic chromatin'⁷.

NYLCEO MARQUES DE CASTRO
WILSON DA SILVA SASSO

Escola Paulista de Medicina,
Department of Histology,
São Paulo, Brazil.
May 15.

¹ Luers, T., *Blut*, **2**, 81 (1956).

² Castro, N. M., Sasso, W. S., and Goes, M. R., *Nature*, **178**, 1059 (1956).

³ Castro, N. M., and Sasso, W. S., *Ann. Fac. Farm. Odont. Univ. S. Paulo*, **11**, 249 (1953).

⁴ Castro, N. M., thesis, *Fac. Med. Vet. Univ. S. Paulo*, (1955).

⁵ Barr, M. L., and Bertram, E. G., *Nature*, **163**, 676 (1949).

⁶ Pavan, C., and Breuer, M. E., *Symposium on Cell Secretion*, *Fac. Filos. Univ. Minas Gerais* (1955).