OTC administration as well, a statistically significant intensive activation, that is, enlargement of 'productive' follicles (Fig. 1*B*) occurred in all cases. OTC suppressed the active tissue of the liver in the irradiated area to a much higher degree.

In conclusion, it may be said that OTC has a positive effect on recovery from post-irradiation leucopænia. The question arises, of course, why OTC manifests itself by suppressing the areas of 'active' tissue of the liver while it causes an activation of follicles in the spleen. Perhaps it may be supposed that, in view of the fact that the blood formation in birds does not take place in all hæmatopoietic organs with equal intensity, the hæmatopoiesis-stimulating substances may assert themselves as activators at one time and in a paradoxical manner at another, as could be observed in our case.

P. Mach
J. Surynek
J. Krul

[1] Müller, P., and Hammont, C. W., *J. Lab. Clin. Med.*, **39**, 462 (1952).
[2] Petrov, R. V., and Rogozkin, V. D., *Patolog. fiziol. eksper. terapija*, II, 1, 3 (1958).
[3] Murray, R. G., Pierce, M., and Jacobson, L. O., *Biological Effects of External X- and Gamma-Radiation*, Part 2, edit. by R. E. Zierkle (1956).
[4] Bloom, W., *Histopathology of Irradiation From External and Internal Sources* (1948).
[5] Skalka, M., and Hill, M., *Folia biologica*, **5**, 60 (1959).

Stimulating Effect of Oxytetracycline on some Fractions of Blood Plasma Proteins in Irradiated Chickens

The changes in blood plasma proteins in total-body irradiated chickens have characteristics of such changes as had been described in mammals[1]. Oral tetracycline administration to non-irradiated humans in a daily dose of 50 mgm. markedly influences the metabolism of plasma albumin and β- and γ-globulins[2]. The antibiotics of tetracycline line being a common component of fortified feeding mixtures the influence of feeding OTC (Pfizer) on the blood plasma proteins was followed in total-body X-irradiated chickens.

A batch of 30 chickens, 8 weeks of age, was used in this experiment. Two lots were fed OTC in a dose of

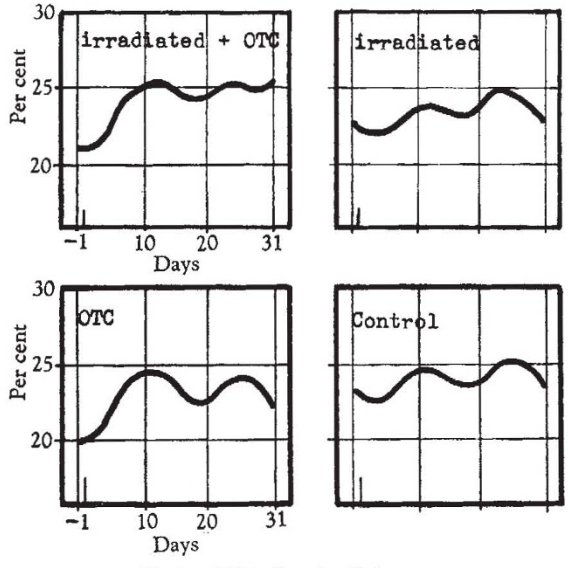

Fig. 2. β-Globulins plus fibrinogen

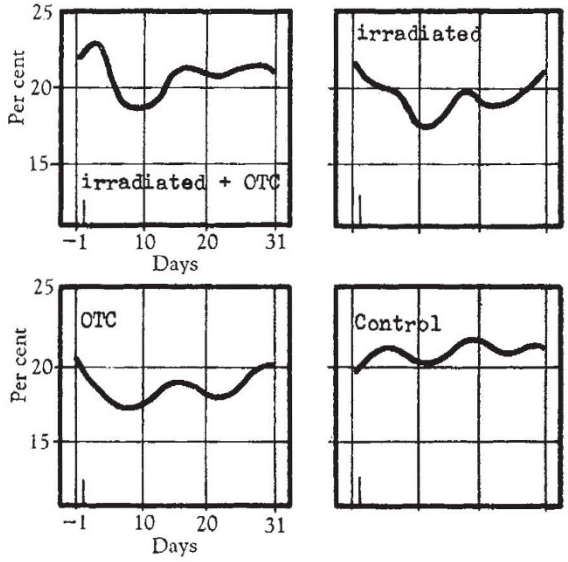

Fig. 3. γ-Globulin

0·7 mgm. per 1 kgm. live weight in 1 per cent aqueous solution per day during a period of 30 days. A single total-body irradiation was performed with a total dose of 500 r. (14 r./min.). The plasma was subjected to analysis with the aid of paper electrophoresis in a wet chamber with the *MGF* Berlin apparatus.

In view of separation difficulties β-globulins and fibrinogen had to be evaluated jointly. In the lots fed OTC, constantly raised values are found, that is, in the group that had been irradiated, this occurs after the sixth day following exposure (after an initial slight drop); in the group that had not been irradiated it can be observed as early as the third day following administration of OTC (Fig. 2).

The γ-globulin component was the most affected one following the irradiation. In the lot that had been irradiated, following administration of OTC, an early remission occurred (Fig. 3). In the other fractions of the blood plasma proteins the administration of OTC did not manifest itself.

In conclusion, the stimulating effect manifesting itself in the fraction β-globulins plus fibrinogen can be evaluated in both irradiated and non-irradiated groups. The stimulation of γ-globulins manifested itself in the irradiated area only.

The active share of OTC in the transformation of the blood plasma proteins is an indirect one. In spite of the marked economic success attained by feeding antibiotics to domestic animals the mechanism of action in transformation of substances is not explained sufficiently, as well-demonstrated facts may show: the relationship between antibiotics and vitamin utilization (especially B_{12} and folic acid that participate in protein metabolism), between endocrine glands and the metabolism of mineral substances. The entering of antibiotics into ferment complexes cannot be regarded as fully explained.

P. Mach
J. Surynek

Department of Pathological Physiology,
Veterinary College, Brno.

[1] Dressler, J., and Bulsky, A., *Acta univ. agric. Brno*, **29**, 61 (1960).
[2] Satoskar, R. S., and Lewis, R. A., *Antibiot. and Chemother.*, **4**, 1152 (1954).