Second series of experiments. In this second series of experiments we experimented on the protective effect of serotonin in *Vicia faba* against an X-ray dose of 400 R (Figures 2 and 3) and we compared this protective effect with that afforded by cysteamine.

The following points can be drawn from these experiments: (1) The control plants developed well and the accessory roots were abundant. (2) The plants in the non-irradiated cysteamine and serotonin solutions also developed very well and the toxic effect of these substances showed itself only in a very slight retardation of the appearance of accessory roots. (3) The plants plunged into cysteamine and serotonin solutions for $^1/_2$ h and then irradiated, developed accessory roots to a certain extent after an inhibitory phase of 6 to 8 days. (4) Plants which received 400 R without protection did not develop any accessory roots at the end of the experiment, 25 days after the application of the X-rays.

Conclusions. Vicia faba (tested by the appearance and growth of accessory roots by the method of JÜNGLING et al.[2]) gave – in our experimental conditions – excellent results. Increasing doses of X-rays (200, 250, 300, 350 R) diminish the appearance and growth of accessory roots in proportion to the X-ray dose applied. 400 R completely impedes the appearance of accessory roots. We were able to confirm the protective effect of cysteamine. With this test serotonin has a very clear radioprotective effect. Cysteamine and serotonin have, in this test with *Vicia faba*, a protective effect like the one they have in tests on mammals[8].

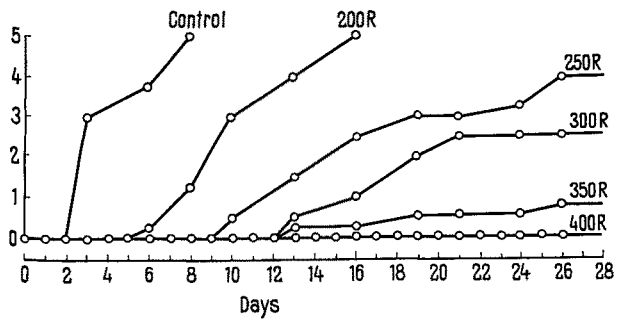

Fig. 1. The effects of X-rays in increasing doses. Abscissae: time from the beginning of irradiations. Ordinate: evaluation of the development of secondary roots.

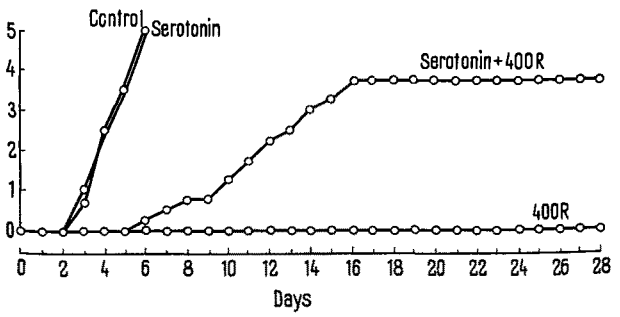

Fig. 2. Protection provided by serotonin against 400 R.

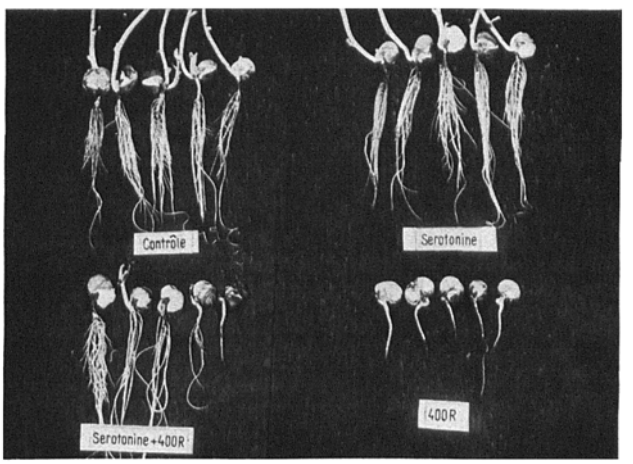

Fig. 3. Protection provided by serotonin against 400 R.

Résumé. La *Vicia faba* se prête bien, non seulement au dosage biologique des rayons X, mais également à des expériences sur la radioprotection. Avec le test utilisé lors de ces expériences, il a été possible de démontrer l'effet protecteur non seulement de la cystéamine, mais aussi celui de la sérotonine.

H. LOZERON, A. MAGGIORA and W. JADASSOHN

Clinique universitaire de Dermatologie, Hôpital Cantonal, Genève (Switzerland), February 5, 1964.

[8] The new way of writing R for r should not be confused with the German unit 'R' which was used from 1924 to 1928 to indicate 1 cm^3 of air at 17° C ('R' = 1,066 r). The French roentgen energy unit R*, introduced by SOLOMON and based on radium γ-radiation, is no longer in use (1 R* = 0,44 r).

Iron Pigmentation of the Gut of Germ-Free and Conventionalized Guinea-Pigs[1]

In the course of some studies of healthy conventionalized and germ-free guinea-pigs, an unexpected difference was consistently observed in concentrations of pigment in the tunica propria of the intestinal tract. We are not aware of any report of this in the literature. The pigment was visible with the routine hematoxylin and eosin staining method and a special stain (Perls) revealed that the pigment contained iron.

[1] Supported in part by Grant DA-49-193-61G27MD to the Albert Einstein College of Medicine by the Research and Development Command of the U.S. Army Medical Service and Grants A-5664 and K6-Gm-14,208 to the Albert Einstein College of Medicine by the National Institutes of Health.

All animals were delivered by Cesarean section and raised under identical conditions in steel isolators, except that the conventionalized animals were deliberately contaminated 2–3 days after birth by normal guinea-pig intestinal tract flora. All animals were killed 7–8 weeks later. In 19 germ-free guinea-pigs, 11 males and 8 females, little or no pigment was observed at any level of the intestine. In 16 conventionalized animals, 9 males and 7 females, the pigment was heavily concentrated in the tunica propria of the cecum and less concentrated in scattered foci throughout the small intestine. Typical examples in conventionalized and germ-free animals are illustrated in Figures 1 and 2.

This finding almost certainly reflects an effect of bacteria or other microorganisms on iron metabolism. This is currently under study.

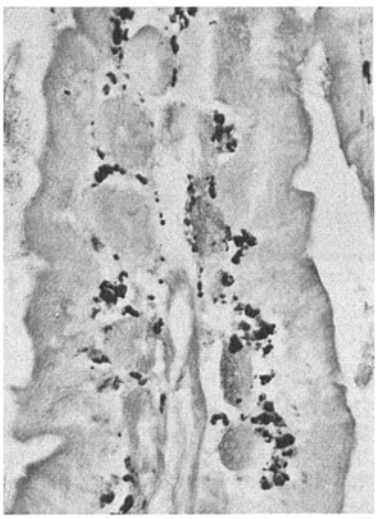

Fig. 1. Conventionalized guinea-pig, cecum. Note tunica propria contains fairly dense foci of black pigment (blue color in original stained section). Perls stain for iron. × 150.

Fig. 2. Germ-free guinea-pig, cecum. Note absence of pigment in tunica propria. Perls stain for iron. × 150.

Zusammenfassung. Die Autoren berichten über vergleichend histologische Untersuchungen des Darmkanals zweier Meerschweinchengruppen, die unter keimfreien Bedingungen geboren und gehalten wurden. Die eine Gruppe wurde einmalig mit der Darmflora normaler Tiere infiziert. Die Konzentration von eisenhaltigem Pigment war bei den keimfreien Meerschweinchen geringer als in der infizierten Gruppe, was auf eine Rolle der Bakterien im Eisenmetabolismus hinweisen dürfte.

E. F. GEEVER and S. M. LEVENSON

Departments of Surgery and Pathology, Albert Einstein College of Medicine, New York (New York, USA), March 16, 1964.

Über die Geruchsspur von *Lasius fuliginosus* zwischen Nest und Futterquelle

CARTHY[1,2] zeigte, dass puppentragende Arbeiterinnen von *Lasius fuliginosus* auf dem Rückweg zum Nest eine Geruchsspur legen, nach der sie sich orientieren. Da verfütterte Holzkohle und verschiedene Farblösungen in dieser Spur wieder erscheinen[2], nimmt er an, dass es sich dabei um eine Substanz handeln muss, welche durch den Anus ausgeschieden wird.

Unsere Versuche galten der Klärung dieser Verhältnisse auf dem Futterweg.

Mit berussten Glasstreifen, welche das künstliche Nest mit der Futterquelle (Zuckerwasser) verbanden, konnten wir feststellen, dass nur auf dem Rückweg vom Futter zum Nest in der von CARTHY[2] beschriebenen Weise markiert wird. Markierbewegung und Spur sind nur dann deutlich und regelmässig, wenn das betreffende Tier ausgiebig Futter aufgenommen hat. Figur 1 zeigt das Umkehrbild einer solchen Spur auf berusster Unterlage.

Versuche im T-förmigen Weg ergaben dasselbe Resultat. Dabei genügt die Markierung einer einzigen heimkehrenden Ameise, um eine kurz darnach ausschwärmende Arbeiterin zur Nahrungsquelle zu führen, welche sich am Ende des einen Schenkels befindet.

Um eine Antwort auf die Frage nach der Herkunft der Spursubstanz zu erhalten, untersuchten wir im T-förmigen Weg die Reaktion von normal gefütterten *fuliginosus*-Arbeiterinnen auf künstliche Spuren, welche

[1] J. D. CARTHY, Nature *166*, 154 (1950).
[2] J. D. CARTHY, Behaviour *3*, 304 (1951).