The test for root-forming activity, using pea cuttings, has been described by Went[5]. The β-indolylacetic acid was prepared by the method of Majima and Hoshino[6]. The indole-β-carboxylic acid was prepared by direct combination with carbon dioxide as described by Zatti and Ferratini[7].

KENNETH V. THIMANN.
J. B. KOEPFLI.
William G. Kerckhoff Laboratories of Biology and Gates Chemical Laboratories,
California Institute of Technology,
Pasadena, Calif.
Nov. 15.

[1] K. V. Thimann and F. W. Went, *Proc. Kon. Akad. Wetensch.*, Amsterdam, **37**, 456; 1934.
[2] *Z. physiol. Chem.*, **214**, 241; 1933.
[3] *ibid.*, **228**, 104; 1934.
[4] K. V. Thimann and J. Bonner, *Proc. Roy. Soc.*, B, **113**, 145; 1933.
[5] *Proc. Kon. Akad. Wetensch.*, Amsterdam, **37**, 445; 1934.
[6] *Ber.*, **58**, 2042; 1925.
[7] *Ber.*, **23**, 2296; 1890.

Starvation and Regenerative Potency in *Dendrocoelum*

THE regenerative potency of Planarians may be depressed in several ways, for example, by irradiation (Wiegand, 1930, and others), or by repeated regeneration of the head-region (10 days after a previous amputation: Sivickis, 1931). This has been interpreted by some authors as due to a reduction in the amount of formative material available, by others as due to alterations in the general metabolism of the body and the degree of differentiation of the tissues involved (Sivickis).

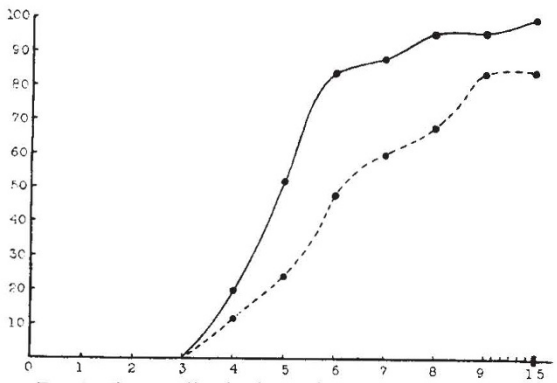

FIG. 1. Regeneration in starved *Dendrocoelum* (dotted line) and normal control (continuous line); ordinates, percentage of regenerates showing eyes; abscissae, time in days.

Well-fed stocks of defined degrees of starvation were taken, their heads amputated, and observation continued for 15 days (for details see Sivickis). The appearance of eyes were taken as the criterion of successful regeneration. Four series, differing slightly in detail as to level of cut, degree of starvation and temperature, have given concordant general results, in that the regenerative potency was always lower in the starved stocks, regeneration being delayed, and (in three of the four series) the percentage of non-regenerating specimens increased (see Fig. 1 and table). The proportion of non-regenerating specimens for all series was 0 per cent for controls and 10 per cent for the starved stocks, although the mortality rate of the latter was not increased at all.

Starvation thus has the same effect on regeneration as radium treatment or as previous head-amputation (see especially Sivickis, Fig. 3). This indicates with a high degree of certainty that the reduction of regenerative potency in all three cases is due to a reduction in the amount of formative material available for regeneration. Studies on the histology of starvation (for example, Schultz, 1904, Stoppenbrink, 1905, Berninger, 1911, Bartsch, 1923) clearly show that such material is used up during starvation, and the work of Steinmann (1925, 1926) shows the close resemblance of the histological changes observed in starvation and in regeneration.

ALEXANDER A. WOLSKY.
Biological Research Institute,
Tihany, Lake Balaton,
Hungary. Nov. 20.

REFERENCES.
Bartsch, O., *Roux's Arch.*, **99**; 1923.
Berninger, J., *Zool. Jahrb.*, Abt. Physiol., **30**; 1911.
Schultz, E., *Roux's Arch.*, **18**; 1904.
Sivickis, F. B., *Arbeiten Ungar. Biol. Forschungsinst.*, **4**; 1931.
Steinmann, P., *Verh. Naturforsch. Ges. Basel*, 1925. *Roux's Arch.*, **108**; 1926.
Stoppenbrink, F., *Z. wiss. Zool.*, **79**; 1905.
Weigert, K., *Z. wiss. Zool.*, **136**; 1930.

Series	Anterior level of cuts	Days of starvation	Number of cut pieces			Number survived at the end of expt.			Number of regenerations			Delay in time of completion of regeneration
			starved	control	Σ	starved	control	Σ	starved	control	Σ	
1.	A[1]	10	25	25	50	23	22	45	23	22	45	> 24 hours
2.	A[1]	8–10[3]	25	25	50	21	23	44	18	23	41	24 hours
3.	B[2]	8–10[3]	25	25	50	16	16	32	14	16	30	> 24 hours
4.	A[1]	20	25	25	50	25	25	50	21	25	46	> 24 hours
Summary			100	100	200	85	86	171	76	86	162	

[1] Closely posterior to eyes. [2] Midline between eyes and pharynx. [3] Judged only by the colour of the intestine.

To test these ideas, experiments were undertaken on the effect of starvation. For this purpose, the abundant species *Dendrocoelum lacteum* is very convenient, since the degree of starvation is reflected in the colour of the animals, the dark gut contents showing through the translucent white body.

Duration of Life-Cycle of the Death-Watch Beetle

So far as published accounts record, the death-watch beetle (*Xestobium rufovillosum*, De G.) has never been bred in the laboratory and no study has, therefore, been possible of the factors affecting its development and the duration of its life-cycle. In discussing the treatment of timber roofs attacked by *Xestobium*, Lefroy[1] summarised in 1924 the knowledge of the biology of the insect up to that time and pointed out how little was known of its life-history and habits.

During the past four years, a study of the life-cycle and duration of the different stages of the insect has been in progress at the Forest Products Research Laboratory, and in the course of this work the beetle has been reared from egg to adult. The results of this investigation—a full account of which will be published elsewhere—lead to the general conclusion that, given a suitable timber, for example, oak or willow, the