Table 1. SECRETION BY THE GLANDS OF THE OVIDUCTS OF FROGS AND TOADS IN RESPONSE TO PROGESTERONE OR AN EXTRACT OF OVULATING OVARIES. FIGURES IN BRACKETS DENOTE THE NUMBER OF ANIMALS IN EACH GROUP

Treatment	*Rana temporaria*		*Bufo bufo*	
	Quotient of secretion ± *S.E.*	*P**	Quotient of secretion ± *S.E.*	*P**
0·2 ml. arachis oil in lumen of oviduct	6·07 ± 0·79 (12)	—	12·8 ± 0·996	—
0·5 mgm. progesterone in lumen of oviduct	13·1 ± 3·37 (10)	< 0·03	—	
0·1 mgm. progesterone in lumen of oviduct	12·9 ± 2·36 (7)	< 0·01	40·1 ± 5·32	< 0·001
0·1 mgm. progesterone in dorsal lymph sac	—		41·02 ± 5·18 (9)	< 0·001
0·2 ml. ovary extract in lumen of oviduct	—		29·4 ± 8·11 (3)	< 0·05

* Values of *P* for comparison of experimental groups with arachis oil controls (using right-hand tail '*t*' test).

In the frog increasing the dose to 0·5 mgm. did not appear to promote further secretion. In the toad a very similar response was obtained whether the progesterone was injected directly into the oviduct or into the dorsal lymph sac.

In another series of experiments twelve toads were each injected with 1,000 I.U. of chorionic gonadotrophin ('Pregnyl') and killed 48 hr. later when the animals were in various stages of ovulation. The ovaries were removed, dried at 37° C. for 24 hr., then ground up in a mortar with sand and extracted with ether in a Soxhlet apparatus. 0·2 ml. portions of the clear oil obtained after evaporating off the ether were injected into the ligatured oviducts of ovariectomized and hypophysectomized toads as in the progesterone series. Table 1 shows that this extract gave a higher mean quotient of secretion compared with arachis oil controls, though there was considerable variation in the responses of the assay animals.

These experimental results agree closely with the more detailed work by Houssay and his co-workers on *B. arenarum*, and suggest that the production by the ovary during ovulation of a hormone having a stimulating action on the glands of the oviduct may be a general characteristic of the Amphibia.

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PLANT PHYSIOLOGY

Response of Growing Plants to a Uniform Daily Rotation

PLANTS under various fixed conditions of light, temperature, and humidity have been turned continuously about a vertical axis at the rate of one revolution a day. The results suggest that the plants used are sensitive to the direction of rotation; a rotation which is clockwise when viewed from above inhibits growth, anti-clockwise direction stimulates growth. As the finding may be useful background to a study of the twining of plants, the initial results are being reported.

Cyclamen. In subdued daylight, or in artificial top lighting, plants which were made to rotate clockwise showed, after two or three days, a loss of turgidity in some of the leaves, which yellowed and died as the experiment continued. Plants turned anti-clockwise were as healthy and turgid as stationary ones.

Scarlet Runner Beans. Beans which normally twine anti-clockwise were found not to twine around their supports when growing plants and their supports were rotated anti-clockwise at one revolution a day under fixed side-lighting with tungsten lamps. Plants which were turned clockwise began to twine but lost turgidity, and some leaves yellowed and died. When these plants were transferred at an early stage of reaction to anti-clockwise movement they showed partial or full recovery.

Oats. Husked oats (variety Milford), were prechilled in tap-water at 5° C. for 48 hr. The seed was then sown, groove side down, on moist filter paper in a covered dish, and held at 20° C. in darkness. After 24 hr., germinated seedlings were transplanted on to 4-in. diameter perforated plastic holders over tapwater. Each holder and dish (48 seedlings per holder) was transferred to a completely dark, controlled-climate cabinet provided with a suitable set of turntables to give clockwise and anti-clockwise rotations. Cabinet temperature was controlled to 1° C. and relative humidity to 1 per cent. In successive experiments the controlled temperatures ranged from 25° C. to 28° C. and the relative humidity 85–95 per cent. After 5 days, the lengths of coleoptiles and roots were measured. In every experiment the mean lengths under each treatment were expressed as a percentage deviation from the mean of the stationary plants. The average deviations throughout nine experiments were as follows:

Clockwise	Coleoptiles	− 6·1 per cent
	Roots	− 8·6 ,,
Anti-clockwise	Coleoptiles	+ 5·6 ,,
	Roots	+ 10·2 ,,

In individual experiments the means of the clockwise-rotated sets of plants were always smaller than those of the stationary, and the anti-clockwise in all cases larger (for example, for coleoptiles—clockwise 42·7 ± 0·8 mm., stationary 46·3 ± 0·7 mm., anti-clockwise 48·2 ± 0·9 mm.).

The subject of diurnal rhythms as affecting the above is being considered.

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Energy-trapping Centres in Photosynthesis

IN opaque specimens of packed *Chlorella* cells, the quantum yield of red fluorescence varies with the wave-length of the exciting light[1]. From a maximum value measured at the absorption peak at wave-length 675 mμ, decreases to about 70 per cent of this value occur at shorter wave-lengths, as shown in Fig. 1. In contrast, dilute suspensions with measured true absorption give a relatively constant yield, suggesting that competitive selective scattering and re-absorption losses are largely responsible for the yield decreases observed in opaque specimens.