by the writer in the *Philosophical Magazine* for May, 1904.

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SOME COMMENTS ON THE REACTIONS OF PERICHÆTA

In a discussion of the method of trial in Science, Vol. XXVI., 662, Professor H. B. Torrey referred to the writer's description of the light reactions of *Perichæta*. He interpreted the behavior of *Perichæta* in weak light as displaying "Unterschiedsempfindlichkeit" and not the tropic reaction, with the resulting conclusion that there would be no orientation in weak light. The writer had stated that *Perichæta* responds to weak light chiefly when the anterior end is extended, presumably because of the greater exposure of photoreceptor cells in the integument. Torrey called these "Unterschiedsempfindlich" reactions because apparently due to an increase in the intensity of the light on the cells. Loeb first introduced the distinction between the tropism as a constant stimulus effect and the reaction to change of intensity in the case of *Serpula*, which bends towards the light and also withdraws suddenly into its tube from the stimulus of a shadow cast upon the oral end. Except for the opposite sign of the heliotropism the reactions of *Perichæta* and this other annelid bear a family resemblance. I need only refer to the familiar facts that *Perichæta* or *Lumbricus* turn away from all but the weakest light and retract into their burrows on sudden illumination. In the open, the worm gives the "Unterschiedsempfindlich" reaction of retracting its head on sudden illumination with strong enough light and after a period of backward creeping follows this up by a tropic, turning response effects of sudden illumination are conspicuously wanting in weak light, as ordinarily only turning movements appear.

A form of response to illumination of the anterior end which is between these extremes consists of creeping backward after a distinct pause, which is often prolonged, and without any sudden movements which would naturally be related to the change produced by the stimulus. These weaker responses might naturally be regarded as constant stimulus effects. Reactions attributed to change of intensity ought to give manifest evidence of the shock in resulting movements or inhibitions.

The objection is raised that the transitoriness of the stimuli in weak light, received during extension movements, would preclude their giving rise to orientation. The tropism is ascribed to a differential tonus produced on the muscles of the two sides. There is no apparent reason why even transitory light stimuli of any intensity might not produce some appreciable tonic effects. It appears, however, that a considerable change of intensity is required to temporarily inhibit forward movement, as is the case in retraction of the head. If the sudden manifestations of shrinking are absent in weak light is it not apparent that the threshold for "Unterschiedsempfindlich" effects is higher than for purely tonic, *i. e.*, tropic effects in the earthworm? As for the application of the trial hypothesis to the behavior in weak light, that is only giving a name to the somewhat gradual process of orientation, interrupted by movements contrariward which are less influenced by the light.

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ENTOMOLOGICAL CONFERENCE ON THE PACIFIC COAST

The department of entomology of the University of California has for several years past held four conferences during the school year at stated intervals, the place alternating with Berkeley. Thus during the last school year four such conferences were held, two at Berkeley, one at Watsonville and another at Davis. The last of these meetings, held in Berkeley, was planned to be more inclusive, inasmuch as entomologists from the entire Pacific coast were invited to attend and present papers. The hope was also expressed that a special organization of western entomologists might be effected, inasmuch as the insect problems of the Pacific slope are so different from those on the other side of the Rocky Mountains.

At this meeting, held April 20 to 23, the following general program was carried out: