mena,* of which we have as yet no sufficient cognizance. They strive to reach the generalisation of a Newton, without the numerical foundations laid by a Tycho Brahé and a Kepler.

"On the Retinal Currents of the Frog's Eye, excited by Light and excited Electrically." By AUGUSTUS D. WALLER, M.D., F.R.S. Received and Read March 29, 1900.

(Abstract.)

I. Introduction.

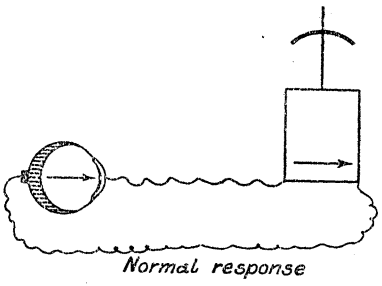
II. Plan of experiment.

III. Results.

1. A fresh normal eyeball manifests positive current, which gradually declines to zero, and becomes reversed.

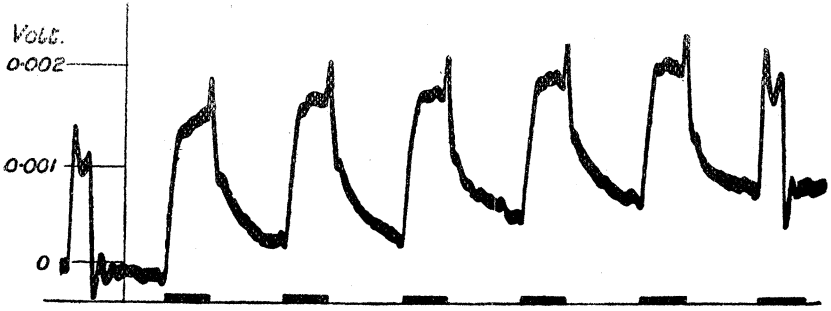
2. On exposure to light the normal current, whether positive or negative, undergoes a positive variation.

FIG. 1.



3. The magnitude of the response to light increases with the duration of illumination.

FIG. 2.



* Germ plasma and other theories are invented before we know fully the facts they are supposed to describe.

4. The magnitude of the response to light increases with the strength of illumination.

5. With lapse of time—or immediately in consequence of partial injury, the character of the response to light alters its type. Three stages are to be recognised in accordance with the state of the retina, as (*a*) fresh; (*b*) transitional; (*c*) stale.

In the first stage the response is positive.

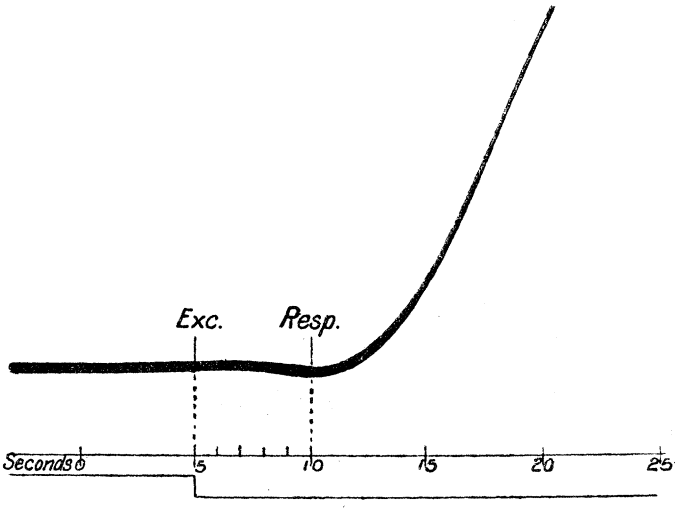
In the second stage the response is mixed.

In the third stage the response is negative.*

Theory.—Simultaneous opposite electrical effects are aroused in the retina by light.

6. The interval of time between stimulus and response is much in excess of a physiological latent period. In the second stage this "period of hesitation" may amount to five seconds.

FIG. 3.



7. Under the influence of carbonic acid the response to light undergoes diminution or abolition followed by secondary augmentation.

8. In consequence of tetanisation in either direction the normal current becomes strongly positive (or less negative). This positive change gradually subsides.

9. The positive response to light subsequent to such tetanisation is much augmented, and the negative response is diminished.

* I have made a few experiments on mammalian eyes (cat), justifying the statement that the response immediately after removal is positive, and that at a later period it is negative.

10. During tetanisation of moderate strength and of whatever direction the normal current becomes positive (or less negative). This positive change gradually subsides.

11. Strong single induction shocks of whatever direction arouse prolonged positive after-effects, that gradually subside.

12. Single condenser discharges (2 to 10 M.F., 1 to 7 volts), of whatever direction, arouse prolonged positive after-effects.

13. In consequence of gentle massage of the eyeball, the normal current becomes strongly positive (or less negative). This positive change gradually subsides.

14. In consequence of gentle massage of the eyeball, the positive response of the 1st stage gives place to a negative response (*vide supra*, 5).

15. Fatigue—*i.e.*, diminution of response by reason of previous activity—is less pronounced in the case of the retina than in that of muscle. It is manifested in nearly the same degree to stimulation by light, and to stimulation by tetanising currents.

16. The positive response to light (2), the positive effect of tetanisation (10), and the positive after-effect of condenser discharges (13) are suppressed by anæsthetics (ether and chloroform) and by rise of temperature (to 40—45°). The suppression may be permanent or temporary. An anæsthetised like a dead eyeball tested by currents, as in 11 and 12, manifests only polarisation currents negative in direction to the exciting currents. Tetanisation, as in 10, gives only polarisation effect in the direction of the break shocks negative to the direction of the make shocks.

IV. Conclusions.

"Observations on the Effect of Desiccation of Albumin upon its Coagulability." By J. Bretland Farmer, M.A., Royal College of Science, London. Communicated by Dr. H. T. Brown, F.R.S. Received March 21,—Read April 5, 1900.

It has been known for some time that it is possible, under certain circumstances, to expose seeds to the influence of high temperatures without thereby necessarily destroying their power to germinate. Some experiments in this direction were conducted at the Royal Gardens, Kew, some years ago by Dr. Morris, but the results, although of much interest, do not appear to have been published. However, the seeds were exposed to the action of boiling water, and even to a higher temperature in an oven, without losing their ability to germinate when the ordeal was over.

It has been noticed, in heating seeds in water, that if the seed-coat