investigations bearing directly upon experimental problems. We have, therefore, arranged with Messrs. Oliver and Boyd, Edinburgh, to undertake the publication of the *British Journal of Experimental Biology*, the first number of which will appear in September next. The new journal will receive communications in comparative physiology, experimental embryology, genetics, and animal behaviour, as well as cytological, morphological, and histological contributions bearing on current experimental problems. It will also publish by invitation authoritative résumés of recent progress in various fields of inquiry. Any relevant original contribution will be considered for publication.

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An Einstein Paradox.

The fallacy of the argument put forward by Prof. R. W. Genese, in the former part of his letter in Nature of June 2, p. 742, lies in his supposing that the time t at which K sees the light-signal from L is related to the time t', when K_1 sees the same signal, by the transformation

$$t'=\beta(t-vx/c^2),$$

where $\beta=(1-v^2/c^2)^{-\frac{1}{2}}$.

If we suppose the light-signal to be emitted from L at a time T (in K's system) and T_1 (in K_1's system), then

$$T_1=\beta(T-vx/c^2), \quad . \quad . \quad . \quad . \quad (1)$$

$$x_1=\beta(x-vT), \quad . \quad . \quad . \quad . \quad (2)$$

where $x=KL, \quad x_1=K_1L.$

Suppose now that K receives the signal at time t (in his system) and that K_1 receives it at time t_1' (as judged by K_1's system). Let t_1 be the time in K's system corresponding to t_1' in K_1's system. Then

$$t=T+x/c, \quad . \quad . \quad . \quad . \quad (3)$$

$$t_1'=T_1+x_1/c, \quad . \quad . \quad . \quad . \quad (4)$$

and $$t_1'=\beta(t_1-vx/c^2). \quad . \quad . \quad . \quad . \quad (5)$$

Substitution from (1) and (2) in (4) gives, with (3),

$$t_1'=\beta t(1-v/c),$$

and comparison with (5) shows that $t \neq t_1$.

A little careful consideration of these equations will now show that the supposed paradox does not arise for the case $x_1=0$. J. T. Combridge.

King's College, Strand.

Multiple Temperature Incubator.

In the course of some experimental work on insects which we have been carrying out, it was necessary to have a large number of constant temperatures. As it was impossible to have a complete incubator for every temperature, an incubator was designed by Mr. T. W. Kirkpatrick and myself to give a continuous series of constant temperatures.

The principle used is the conduction of heat along an insulated metal bar between two constant temperatures. In practice one of these is an ice-box and the other a hot water bath at any convenient temperature. Between the two is a bar, tube, or trough of metal, four to twelve feet long, which has holes bored at close intervals throughout its length. Both copper and aluminium have been used for the conducting bar. The whole is well insulated to avoid the influence of the daily temperature change.

The apparatus has exceeded our expectations and would probably be of great use to investigators in other fields. Full details with scale drawings and temperature charts will be published shortly in a Bulletin of the Ministry of Agriculture of Egypt, which will be sent to any one who is interested.

C. B. Williams.
Ministry of Agriculture (Entomological Section),
Cairo, June 20.

Phosphorescence caused by Active Nitrogen.

In order to prepare aluminium chloride for atomic weight determination, I burnt pure aluminium metal in a current of pure dry chlorine. Before starting the reaction, pure dry nitrogen was passed through the apparatus to expel the air. After this has been attained, the flow of nitrogen was stopped and a slow current of pure dry chlorine was allowed to pass over the metal. Since the pure dry gas reacts very slowly with aluminium at ordinary room temperature, the tube containing aluminium was heated to about 500° C. After the completion of the reaction, the aluminium chloride formed and a quantity of uncombined metal was cooled in a very slow stream of nitrogen. As the red heat ceased, a bright green phosphorescence appeared in the reaction tube surrounding small pieces of corroded uncombined metal.

This phenomenon was excited the next day when the synthesis was continued, and the last traces of chlorine were removed by nitrogen. In both cases the afterglow disappeared after about one minute. Two important facts should be added, namely:

(1) The reaction tube—free of chlorine—with aluminium chloride and the metal was heated again to the same high temperature, and nitrogen was passed over while the whole system was cooling down. The bright green light did not appear. Nothing of this kind of light was visible when the pure metal was heated alone. This is a sufficient proof that the observed afterglow in the former cases was not caused by a trace of any known or unknown impurity of the metal used.

(2) The phenomenon was not observed during the synthesis of aluminium bromide which was carried out by Prof. Th. W. Richards and me in the same manner, and with an aluminium of the same origin.

In Nature of May 5, p. 599, and May 26, p. 705, were published letters by Prof. E. P. Lewis and Mr. W. Jevons describing phosphorescence caused by active nitrogen. These letters, particularly the second, by Mr. W. Jevons, suggested to me that the afterglow of aluminium left in the reaction tube was very probably caused by active nitrogen. The presence of traces of active nitrogen was caused by the violent reaction of the chlorine left in the tube with the aluminium metal. This reaction activated some of the nitrogen passed over the metal. When, however, all the chlorine was expelled and the contents of the reaction tube were heated as in the case described above, no phosphorescence appeared. H. Krepelka.

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