

becomes useless for exact work, and we long ago tried and discarded such a method for this reason.

A method that does not possess this disadvantage is to use partially platinised glass screens. These can easily be made by methods already known, and the effect on any illuminant is to reduce its intensity without changing its character. In my own practice I have a number of these, the absorption of which has been tested by a photometer, mounted in a small frame so that they can in a moment be passed along in the path of the beam. The process is, in fact, less troublesome than operating a sliding resistance. The light can therefore be reduced by a known amount at each step. The advantage of this when a change is made, say from a low power ocular to a high one, is obvious. The relative light-transmitting power of the oculars is known, and it is, therefore, only necessary to move a suitable screen into position in each case when the intensity of illumination in the field of view is the same for both. Should a gradual change of intensity be required, then an arrangement recently placed on the market by Messrs. R. and J. Beck, Ltd., will do all that is necessary. It consists of two graduated neutral wedges which are moved across one another by a simple gearing so that any degree of opacity may be obtained and the light controlled between wide limits.

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Hampstead, London, N.W.3, November 29.

Hybridity and the Evolution of Species.

DR. J. P. LOTSY, in his letter to NATURE of November 24, asks zoologists to answer the question: Is there any evidence that the presence of oligopyrene and apyrene sperms in some insects and molluscs is due to hybridity?

In the first place the atypic sperms of molluscs are not of the same nature as those of moths, for in the case of moths the appearance of atypicality is during the maturation stages. The spermatocyte which will give rise to the atypic sperms has not yet been distinguished cytologically from one which will give rise to normal sperms.

So far as the atypic sperms of prosobranch mollusca are concerned, quite a different condition holds good. Some years ago it was shown (Quart. Jour. Micr. Science, vol. 63, p. 421) that apart from the then known fact that the atypic and typical spermatocytes were cytologically distinguishable, it was possible to trace back these two sorts of cells to two different kinds of germinal epithelial cells. In the primary spermatogonium of the atypic series, the mitochondria were granular, while those of the typical series were sausage- or rod-shaped—a difference which I showed to hold good through growth stages and maturation divisions. It seems clear that the atypicality of the sperms of some molluscs is a quality deep-seated in certain germ-cells, while that of some moth sperms is possibly merely traceable to abnormalities in metabolism due to the rapidly changing conditions during histogenesis.

Now with regard to Dr. Lotsy's query as to whether the atypicality of mollusc sperms is evidence as to hybrid ancestry, it may be mentioned that in Pulmonata Mollusca, the mitochondria are always granular in the spermatocytes, while the atypic spermatocytes of prosobranch Mollusca alone are granular, while those of the typical are sausage-shaped.

I leave an interpretation of this important fact to Dr. Lotsy or his opponents. One more word—these differences in the mitochondria of the two kinds of

spermatocytes of Paludina can be seen *intra vitam* in freshly teased out cells.

J. BRONTÉ GATENBY.

University of Dublin, November 26.

A Simple Micro-barograph.

READERS of NATURE may be interested in a simple form of differential barometer by means of which changes in air pressure as small as one part in a hundred thousand may be readily observed. The apparatus consists of a vacuum flask to the mouth of which is fitted a two-holed cork. One hole bears a capillary tube and the other a small tube provided with a tap.

A small drop of liquid is introduced into the capillary, and with the tap B open, it can be made to occupy any desired initial position. Tap B is now closed, and the movements of the drop A following

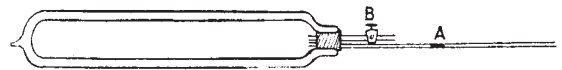


FIG. 1.

the changes in volume of the enclosed gas will indicate very small changes of pressure. The capillary, of course, must be kept level during the observations.

Using a vacuum flask of capacity 450 c.c., a capillary of 0.3 sq. mm. cross-section, and a drop of light paraffin oil as the liquid, the writer was able to demonstrate the changes of atmospheric pressure which occur during a change of vertical height of 1 ft.

The instrument was primarily designed for the purpose of demonstrating change of atmospheric pressure with height, and should be of use to teachers to demonstrate this phenomenon.

It would be interesting to know whether such an instrument has other applications. It may prove of interest to meteorologists for observing minute changes of atmospheric pressure during small time-intervals, and possibly also to aviators if set up in a less sensitive form.

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Scientific Workers in Russia.

MANY British scientific workers have acquaintances and friends among Russian men of science, and as Christmas is approaching they may wish to send a Christmas greeting which will support their colleagues during the hardest time that Russian science has ever had to endure. The American Relief Administration (67 Eaton Square, London, S.W.1) receives contributions in money, and from its famine relief stores in Russia will guarantee to deliver a parcel of food-stuffs to any person designated and will forward a receipt from the latter.

If a difficulty is found in selecting a particular Russian scientific worker, the parcel may be addressed simply to the Rector of the University of the city in question or to the President of the Military Medical Academy at Petrograd or the Academy of Sciences for distribution among the men of science of the respective institutions.

If necessary, I can furnish information about a number of Russian scientific workers.

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