cultures were kept constantly at about 20° C. under cool white fluorescent lights on a 16-hr. photo-period.

The observations described here were made 35 days later. Material in flasks of soil-water was bright green while that in the flasks of Waris medium showed large patches of purple filaments among green filaments. In the watch glasses filaments in soil-water were pale yellow-green while those in the Waris medium were purple.

Filaments from the Waris medium were examined microscopically. Material in flasks of Waris medium, as well as that in watch glasses of Waris medium, showed some incipient and unsuccessfully completed conjugation. The filaments with purple pigment did not appear to be in a normal physiological state. The chromatophores were still green, but they did not have the regular spiral form typical of healthy cells. The cells were not readily plasmolysed, and the location of the pigment was in doubt. It may have been in the cell sap or perhaps adsorbed to the cell wall. There was no significant difference in the quantity of pigment formed in the material growing in Waris medium in shallow watch glasses and in flasks. Inasmuch as material in watch glasses of soil-water conjugated but did not accumulate purple pigment, it appears that the development of the pigment was not merely correlated with the occurrence of conjugation.

Although we must conclude that it has not been demonstrated that normal healthy cells of *Spirogyra pratensis* form purple pigment, the fact that the alga is capable of forming a large amount of the iron-tannin pigment in certain circumstances is of significance.

It seems now to be indicated that distinction between the algae which form purple pigment and those which do not does not depend upon their ability to synthesize a unique chromagenic substance, but rather upon their ability to tolerate an ecological niche in which iron is available in sufficient quantity to interact with the chromagen or upon their ability to accumulate the iron. There must be differences among species in their ability to produce tannins, of course ; but it is obvious that, in *Spirogyra pratensis*, lack of tannin was not the limiting factor.

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BIOLOGY

Dissociated Nystagmus in the Rabbit

A PROMINENT feature of all forms of nystagmus is the strict co-ordination of movement of both eyes, brought about by fibre systems which cross from one side to the other. We have observed a curious phenomenon in which both eyes move synchronously but in opposite directions.

A longitudinal channel was cut in the rabbit's skull, extending caudally from the coronary suture to the region of the inferior colliculus and running along the sagittal suture. When a fine knife was guided along this channel, at a depth of 10–12 mm. from the surface of the skull, a spontaneous nystagmus, starting with a slow adduction of both eyeballs, was observed in 60 per cent of our experiments. During the rapid phase, the right eye moved to the right and the left one to the left side, that is, simultaneous contraction of both external rectus muscles occurred. The rhythm of this nystagmus was slow and irregular, but exact synchronicity was always preserved, as shown in the nystagmogram (Fig. 1).

Fig. 1. Nystagmogram of dissociated nystagmus. Upper curve, left eye ; lower curve, right eye. Excursions upwards indicate movement of eyeballs to right, downwards to left. Vertical lines, time (sec.). Note irregularity and synchronicity of the dissociated nystagmus

The dissociated nystagmus lasted only for a brief period (some seconds, up to several minutes). This suggests that the acute lesion was responsible for the phenomenon. Rotation of the rabbit during the spontaneous movements, or electrical stimulation of the 'nystagmogenic centre' in the midbrain[1] produced the normal response, which superseded the dissociated nystagmus. It is thus evident that cross-connexions between left and right are still available, although the decussation, occurring in the posterior commissure[2], has been divided. This conclusion is supported by the fact that application of deeper cuts abolishes the dissociated nystagmus as well as the response to labyrinthine or central stimulation.

A full description of these experiments will be published in the *American Journal of Physiology*.

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Strain Differentiation in a Root-infecting Fungus

IN various fields of mycology it has long been realized that, for certain purposes, the orthodox descriptive method of systematic classification is by no means adequate. Fungal strains grouped together on the bais of similar physiological reactions have been found to cut right across species of diverse taxonomic affinities, and it appears that in such disciplines as, for example, clinical medicine, agriculture, and forest pathology, the strain rather than the species is frequently of importance.

While studying the influence of certain root-infecting mycelia on the development of forest tree seedlings, unequal growth effects on the young plants were observed which strongly suggested different strains of the same fungal species as being responsible for the dissimilar performances of the seedlings. Confirmation of such strain differentiation was obtained