law applies in geotropism as in various tropic responses. GILTAY devised a special centrifuge with a vertical axis for testing this point. He finds that with the average of 368 tests, with the angle of the resultant approximating 45°, the primary root fell 2.1° below the resultant. This deviation can well be accounted for by the variation in speed of rotation and the variation of roots themselves. This seems to furnish evidence for the identity in nature of the geotropic and centrifugal stimuli.—WILLIAM CROCKER.

Rôle of hydrocyanic acid.—TREUB[9] has found that the amount of hydrocyanic acid in plants of *Sorghum* increases during the day, not due to the direct action of light, but in proportion to the formation of the products of the assimilation of carbon. It was already known, from investigations with *Pangium edule* and *Phaseolus lunatus*, that light has no part in the formation of hydrocyanic acid except as it favors photosynthesis. Much the same results have been obtained with *Prunus javanica*. *Passiflora foetida* and at least four other plants offer examples for the demonstration of the direct proportion between the formation of hydrocyanic acid and the function of chlorophyll. This can be demonstrated also by the use of variegated leaves. The amount of acid is usually greatest in the young leaves and gradually diminishes as the leaves grow older. With *Sorghum*, young leaves grown in a dry season or on dry soil contain much acid, and for this reason are dangerous as food for stock. Leaves about to fall contain very little acid, while, with only two exceptions, those already fallen contain none. GUIGNARD found that fallen leaves of *Sambucus nigra* contain much of the acid. TREUB confirms these results and finds the same to be true of fallen leaves of *Indigofera galegoides*. The hydrocyanic acid is probably the first recognizable simple organic product of the assimilation of nitrogen, and perhaps the first organic nitrogen compound formed. The amounts of the acid in plants watered with a solution of sodium and potassium nitrate increased or decreased in proportion to the amount of nitrate used. RAVENNA and PELI think that nitrates and carbohydrates are necessary to the formation of the acid. TREUB agrees with these conclusions, and adds that dextrose is especially essential. The acid probably does not occur in plants as such, but in the form of a glucoside from which it can be liberated by an enzyme or by boiling water.—R. CATLIN ROSE.

Parasitic flagellates in plants.—Although rapid progress in the study of parasitic flagellates has shown them to be of widespread occurrence in animal organisms, the discovery of these parasites in plants is a noteworthy fact. The occurrence of a trypanosome-like parasite in the latex of *Euphorbia pilulifera* in Mauritius was first reported by LAFONT.[10] The discovery was soon afterward

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[9] TREUB, M., Nouvelles recherches sur le rôle de l'acide cyanhydrique dans les plantes vertes. Ann. Jard. Bot. Buitenzorg II. **8**:84–118. 1910.

[10] LAFONT, A., Sur la présence d'un parasite de la classe des Flagellés dans le latex de *l'Euphorbia pilulifera*. Compt. Rend. Soc. Biol. **66**:1011–1013. 1909.

confirmed by DONOVAN[11] by observations on the same species of Euphorbia in Madras. LAFONT[12] now follows with a full account of the organism. The parasite, which was originally discovered in the latex of *Euphorbia pilulifera*, occurs also in the two other species *E. thymifolia* and *E. hypericifolia*. A search of the latex of some 50 other species of plants from various families failed to reveal similar organisms. About one-third of the *Euphorbia* plants from different stations were found to be infected. The number of parasites in different plants varies greatly. The infected plants show the effects of malnutrition, and finally drop their leaves and die. The protozoans are elongated, flattened, and somewhat undulate. They do not, however, possess the undulating membrane of trypanosomes, and are therefore placed in the genus *Leptomonas*, as *L. Davidi*. The apex is provided with one cilium, which originates in a blepharoplast. A large nucleus is situated near the center of the body. Division, which was observed in hanging drop cultures, takes place by longitudinal fission, preceded by a thickening of the body of the organism. Various forms, perhaps indicating different stages in the development of the organism, were observed. The simplest are spherical, nucleated masses of protoplasm, which soon form a cilium. It is possible that two parasites exist here. Injection of the parasites into the blood of small animals produced no infection, although some of the animals died from unknown causes.—H. HASSELBRING.

Diseases of celery.—KLEBAHN[13] has added to his numerous excellent contributions of life histories of *Fungi imperfecti* an account of two diseases of celery occurring in the truck gardens on the lowlands surrounding Hamburg. The first is the leaf-spot disease caused by *Septoria Apii* (Briosi and Cav.) Rostr., also known as *S. Petroselini* Desm. var. *Apii*, and as *Phlyctaena Magnusiana* (Allechr.) Bres. The fungus attacks the leaves, stems, and fruits of the celery plants, and forms pycnidia on all of these organs. In following out the manner in which the fungus lives through the winter, the author encountered no other fruiting stages. The fungus is carried over from year to year by means of spores which persist both in the pycnidia on the plant remnants left in the fields, and in the pycnidia on the seeds. With spores from both sources the author was able to produce infections on young plants with ease.

The second disease is a scab of the roots, which, although it has been reported from several places, has never been critically studied. The disease is shown to be due to a species of *Phoma*, for which the author here first uses the name *Ph. apiicola*, unfortunately without giving a technical description of the fungus.

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[11] DONOVAN, C., Kala-azar in Madras, especially with regard to its connection with the dog and the bug (*Conarrhinus*). Lancet **177**:1495–1496. 1909.

[12] LAFONT, A., Sur le présence d'un *Leptomonas*, parasite de la classe des Flagellés dans le latex de trois Euphorbiacées. Ann. Inst. Pasteur **24**:205–219. *figs.* 7. 1910.

[13] KLEBAHN, H., Die Krankheiten des Selleries. Zeitschr. Pflanzenkrank. **20**: 1–40. *pls.* 2. *figs.* 14. 1910.

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