

tangential orientirten bastfaserartigen Elementen, welche der primären Rinde naturgemäss einen hohen Grad von Festigkeit verleihen.

*Cytisus Laburnum.*

Phellogen ist im einjährigen Zweige die zweit- oder dritt-äusserste Rindenzellreihe, sie entwickelt im ersten Jahre centrifugal-intermediär<sup>1)</sup> mehrere Korkzellschichten mit stark verdickten Aussenwänden<sup>2)</sup> und zwei bis drei Phellodermzellschichten, die im ersten Jahre noch relativ dünnwandig sind und Chlorophyll führen. An einem Zweige von 1 cm Durchmesser war die Korkrinde überall dreischichtig, nur wenige Stellen besaßen vier und mehr Schichten. Die Zellen waren tangential bereits gestreckt und collenchymatisch. Noch ausgeprägter zeigt sich der Einfluss des secundären Dickenwachsthumms an älteren Stämmen. Dort ist das Phelloderm sechs- und mehrschichtig, tangential langgestreckt und stark collenchymatisch. Chlorophyll und Oel findet sich im Inhalt. Borke habe ich nur an Stellen, wo Wundkork erzeugt war, beobachtet. Das im Anschluss daran entwickelte Phelloderm bestand aus zartwandigen Zellen mit Stärkeinhalt.

(Schluss folgt.)

## Berichte gelehrter Gesellschaften.

### Linnean Society of London.

#### Report of Last Meeting.

June 17th.—Dr. A. Günther, President, in the Chair.

Dr. D. H. Scott exhibited original preparations by Prof. Ikeno and Dr. Hirase, of Tokio, Japan, illustrating their discovery of spermatozoids in two gymnospermous phanerogams, namely *Ginkgo biloba* and *Cycas revoluta* (cf. Bot. Centralblatt. Bd. LXIX. 1897. Nos. 1—2. and Annals of Botany, June 1897). The slides showed the spermatozoids while still in the pollen-tube, before the commencement of active movement. In the case of *Ginkgo* one section showed the two male generative cells, closely contiguous and enclosed in the pollen-tube. The general structure resembles that in many other Conifers at the same stage, e. g. *Juniperus Virginiana* and *Pinus silvestris* (Strasburger, Hist. Beiträge. IV. pl. 2). In *Ginkgo*, however, each generative cell showed a distinct spiral coil, situated in each cell, on the side remote from its neighbour.

Another preparation of *Ginkgo* showed a series of sections across the micropyle, passing through a pollen-tube and its generative cells, the plane of section being in this case approximately parallel to the surface of contact of these two cells, through which

<sup>1)</sup> Sanio p. 93.

<sup>2)</sup> Haberlandt, Physiologische Pflanzenanatomie. II. Auflage (Fig. 38).

four of the sections passed. In the two terminal sections of this series the spiral coil was clearly shown, consisting of about three windings. The spiral is connected with the nucleus of the cell, but whether it is itself of nuclear or cytoplasmic origin is not certain.

In the preparation from *Cycas revoluta*, several pairs of generative cells were shown; in some cases the pollen-tube enclosing them was intact. The spiral coils in some of the generative cells were surprisingly clear, consisting of about four windings. A distinct striation was visible in connection with the coil, probably indicating the presence of the numerous cilia described by the Japanese discoverers.

The facts admit of no other interpretation than that given by these authors, namely that in both *Ginkgo* and *Cycas* each generative cell gives rise to a spiral spermatozoid; the latter by its own movements (actually observed by Dr. Hirase in the case of *Ginkgo*) no doubt travels from the end of the pollen-tube to the female cell.

In a discussion which followed on this highly important subject, Dr. W. T. Thiselton Dyer, Mr. W. Carruthers, Prof. E. Ray Lankester, Prof. Howes, and the President took part.

M. Miller Christy read a paper on „*Primula elatior* Jacq., in Britain.“ He remarked that this widely-distributed continental plant, though figured accidentally in „English Botany“ in 1799, was not really detected in Britain till 1842, to which time the totally distinct hybrid Oxlip (*P. acaulis* × *veris*) was, by British botanists, confused with, and mistaken for it, as is still frequently the case. In Britain, *P. elatior* occupies a sharply defined area, divided by the valley of the Cam, with only two outlying localities, so far as Mr. Christy could ascertain. This area covers the two most elevated and unbroken portions of the river-valleys and the Chalk being entirely avoided. The boundary-lines (some 175 miles in length) which had been traced by Mr. Christy with precision were, in consequence, very sinuous. They enclosed together about 470 square miles, over which area the Oxlip flourishes in immense abundance in all old woods and some meadows; while the Primrose (which grows all around) is entirely absent. Along the dividing line between the two, which is very sharply defined, hybrids are produced in great abundance. On the other hand, the Cowslip (which grows both around and throughout the Oxlip-area) very rarely hybridizes with it. Mr. Christy believed that the Primrose was, in this country, gradually hybridizing the Oxlip out of existence. He then noticed a rare single-flowered variety of *P. elatior*, which he proposed to call var *acaulis*, and several aberrations, showing upon the screen photographic views of these and of the hybrids, as well as a map of the distribution of the Oxlip in Britain.

In a discussion which followed, Mr. C. B. Clarke, and Sir John Lubbock, Bart., confirmed the accuracy of Mr. Christy's observations.

Sir **John Lubbock**, Bart., communicated the substance of a paper entitled „Further observations on Stipules“, in continuation of a former paper communicated by him to the Society on the 18th March last. The present paper, which was illustrated by diagrams, has reference, inter alia, to the Ash, Hop, and two species of Pea (*Lathyrus gandiflora* and *L. pratensis*).

Mr. **W. Carruthers**, in commenting upon this paper, expressed the satisfaction which he was sure would be felt by botanists at the way in which the author was carefully working out details in the life-history of British plants, and in that respect conforming to the spirit of the Charter of the Society which expressly defined the object of its formation to be „the cultivation of the science of natural history in all its branches, and more especially of the Natural History of Great Britain and Ireland.“

Prof. **Conway Macmillan**, of the University of Minnesota, communicated the principal points of a paper „On Minor Tension-lines between Plant-formatians.“

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## Instrumente, Präparations- und Conservations- Methoden etc.

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**Fleurent, E.**, Sur la détermination de la composition immédiate du gluten des farines de blé. (Comptes rendus des séances de l'Académie des sciences de Paris. T. CXXIV. 1897. No. 18. p. 978—979.)

**Michel**, Sur le collage des coupes de paraffine par simple dessiccation et sur le choix des paraffines. (Comptes rendus hebdomadaires de la Société de biologie. 1897. 5. Juin.)

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## Botanische Gärten und Institute.

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**Daffert, F. W.**, Relazione annual do Instituto Agromico do Estado de S. Paulo (Brazil) em Campinas 1894 e 1895. Volume VII e VIII. S. Paulo 1896.

Der Bericht enthält folgende Arbeiten, über welche auch in deutscher Sprache referirt ist:

1. **Daffert, F. W.** und **Bollinger, R.**: Untersuchungen über die einheimischen Futterpflanzen. Der Zweck der schon seit Jahren im Gange befindlichen Untersuchungen ist die Auswahl von Futterpflanzen, welche sich den in Brasilien massgebenden landwirthschaftlichen Verhältnissen anzupassen vermögen. Es werden im vorliegenden Bande behandelt: *Paspalum*

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