GUAIACUM (LIGNUM-VITÆ)

The wood of *Guaiacum sanctum* exhibits very fine and quite uniform cross-markings, visible with the aid of the lens. The rays are very fine, uniseriate, mostly 5–7 cells high, deeply colored, appearing under lens like fine hachures. The height of the tiers varies from 0.15 to 0.18 mm. The scattered vessels are filled with a dark-colored resin which adds to their prominence. The vessel segments alternate with the rays.

Guaiacum officinale L. is similar to *G. sanctum* in the arrangement of the wood elements. The distance between markings is often as low as 0.11 mm. The rays are about 0.05 mm. apart laterally and 90 μ vertically.

In addition to those mentioned above, the writer has observed many tropical woods (particularly African and Brazilian) with tier-like arrangement of their elements.

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A SCLEROTINIA ON APPLE

PRIOR to 1902 the fungus causing the brown rot of fruit, both drupaceous and pomaceous, was, at least in this country, commonly referred to *Monilia fructigena*. Norton[1] observed the perfect stage of the fungus on peach, and called it *Sclerotinia fructigena* (Persoon) Schroeter. Coincident with Norton's work on the *Sclerotinia*, Aderhold,[2] of Germany, was making a study of some forms of this genus and was able to secure a perfect stage of a *Monilia* on apple. He has published good evidence that the form of *Sclerotinia* he found on apples was *Sclerotinia fructigena* (Persoon) Schroeter, and that the form Norton found on peach was *Sclerotinia cinerea* (Bon.) Schroeter instead of *S. fructigena*, although this name has not since been taken up by American authors.

Aderhold was the first investigator to report the perfect stage of *Monilia* or brown rot fungus on apple, and it has not, so far as I know, been reported since.

I have recently (November, 1911) obtained apothecia of *Sclerotinia* upon mummied apples, which were strikingly different in some respects from those described by Aderhold. These were produced by placing mummied apples in a greenhouse during April, 1911. The mummied fruits were lying upon the surface of the soil and were of course subjected to alternate wetting and drying. During the following summer the greenhouse was neglected and the mummies became very dry, which may to some extent account for the growth of the apothecia later on during the season. The sclerotia remained apparently dormant until a light heat was applied in the building during November. They were first observed by me November 13, 1911. The temperature in the greenhouse at this time was very similar to that of spring conditions, which, I think, was mainly responsible for the growth of the apothecia.

When collecting these decayed fruits only those were selected that were thought to have been grown two seasons previously. Of a dozen or more mummies placed in the greenhouse, all disappeared during the summer but eight; of these eight, five produced forty-one apothecia.

The apothecia arose from the characteristic sclerotia of this genus. The cups varied in size from one to four mm. across. When young they were decidedly campanulate, then flattening to a disk and later becoming cup-shaped again. In color they varied from a cinnamon-brown to gray, when mature.

The mummies were all lying upon the surface of the soil, therefore there was no necessity for a long growth of stipe. Its length ranged on the average from 1 to 2.5 mm. One stipe made a growth of one half centimeter.

In general, the parts of the apothecia are very similar to those growing upon peach, and also to those described by Aderhold as growing upon apple. The most striking dissimilarity is in size, the new form being much smaller.

The asci measure 44 to 64 microns long and

[1] *Trans. Acad. Sci. St. Louis*, Vol. 12, p. 91, 1902.

[2] *Ber. Deutsch. Bot. Land. Ges.*, Vol. 22, p. 267, 1904. Aderhold and Ruhland, *Arbeit. Biol. Abt. Lamd. Forst. Gesandh.*, Vol. 4, p. 29, 1905.

4 to 6 microns wide. The spores are oblong, somewhat pointed at both ends, 6 to 8 microns long and 2 to 3 microns wide. The paraphyses which are very numerous and which vary somewhat from filiform to clavate, are 40 to 60 microns long and 1 to 3 microns wide.

TABLE GIVING THE COMPARATIVE MEASUREMENTS OF THE PEACH AND APPLE SCLEROTINIAS

	Asci	Asco-spores	Para-physes	Apothe-cia	Stipe
Peach	89.3–10.26μ by 5.9–6.8μ	6.2–9.3μ by 3.1–4.6μ			3–5 cm. long
Apple (Demarree)	44–64μ by 6–8μ	6–8μ by 2–3μ	40–60μ by 1–3μ	1–4 mm. across	1–5 cm. long
Apple (Aderhold)	120–180μ by 9–12μ	11–12.5μ by 5 6–6.8μ	175–180μ by 2–5μ	1 mm. across	.5–15cm. long

The above table shows very plainly the dissimilarity of the forms found by Aderhold and those found here. In every respect the different parts of the *Sclerotinia* are smaller than those described by the German investigator.

It is to be regretted that I was unable to produce any growth from the ascospores, though they were tried in various cultures, including fruit and cooked apples; therefore there is no proof of any connection with a conidial form of *Sclerotinia*. But it seems evident that this is a new *Sclerotinia*, although it may be, and it is my supposition that it is, the perfect form of the fungus causing the brown rot of apples in this country. It may, however, be the perfect stage of *Monilia uredoformis* Ellis & Everhart[1] which has been reported as growing upon apples. If so *Monilia uredoformis* Ell. & Ever. would be referred to *Sclerotinia* as *Sclerotinia uredoformis*, although it is very obvious that this can not be done until *Monilia* spores can be produced from the new form. The investigation of this *Sclerotinia* will be continued and I hope to be able to report something more definite later.

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[1] *Proceed. Acad. N. Sc. Phil.*, 1893, p. 461.

THE AMERICAN SOCIETY OF NATURALISTS

The twenty-ninth annual meeting of the American Society of Naturalists was held in Guyot Hall of Princeton University on December 28.

The eastern and central branches of the American Society of Zoologists so arranged their program that members were enabled to attend the Naturalists' meeting. Many members of the Association of Anatomists, which also met at Princeton, attended the program. Although the Botanical Society met elsewhere, a number of botanists were present. It may fairly be said, judging from the attendance of the sessions, that the Naturalists' Symposium was the central feature of the entire Princeton meetings.

The Anatomists, Zoologists and Naturalists had a joint smoker at the Princeton Inn on Wednesday evening.

The Naturalists' dinner was given on Thursday evening at the Princeton Inn. More than one hundred persons were present, this being the largest attendance for a number of years. After the dinner the president, Professor H. S. Jennings, delivered his address on "Heredity and Personality." This splendid address was most enthusiastically received and has been published in the December 29th number of Science.

The scientific program of the meeting was given on Thursday, both forenoon and afternoon.

The forenoon meeting was devoted to a discussion of "The Relation of the Experimental Study of Genetics to the Problems of Evolution." The following papers were presented:

E. G. Conklin (Princeton University): The Problems of Evolution and the Ways they may be best Attacked.

C. B. Davenport (Carnegie Institution): Light thrown by the Experimental Study of Heredity upon the Factors and Methods of Evolution.

W. Johannsen (University of Copenhagen): Modern Exact Genetics in relation to the Problems of Evolution.

H. F. Osborn (American Museum of Natural History): Unit Characters, Continuity and Discontinuity, as observed by the Paleontologist.

H. L. Clark (Museum of Comparative Zoology, Harvard University): Pure Lines and Phylogeny.

At the afternoon session papers on Genetics were read as follows:

B. M. Davis (University of Pennsylvania): Further Hybrids of *Œnothera biennis* and *O.*