dimensions of the pores. As many as six rows may be found where the tracheid touches the ray cell, and here the pores may extend considerably beyond the border of the pits. Again, in arrangement, the pits, though usually alternate, may be opposite, and are often scattered.

One remarkable feature is that many tracheids have bent ends, usually at the rays. These bent ends reach over several tracheids, and thus afford a means for radial conduction. Such tracheids have long been known in the Araucarineæ and are considered to be ancestral to true ray tracheids. They are for the first time described in a Cordaitean form.

Trabeculæ are present in many tracheids; a feature which has not been noted previously among Cordaitean forms. Peculiar wandering parenchymatous cells are also found associated with the medullary rays.

Tyloses: A Study of Their Occurrence and Practical Significance in Some American Woods: Eloise Gerry.

In this study of the occurrence of tyloses in wood from trees of commercial size grown in the United States, 203 specimens were examined. The 143 specimens of hardwoods include 94 species belonging to 45 genera, 24 of which contained tyloses. The 60 specimens of conifers included 45 species belonging to 13 genera, 1 of which contained tyloses. Of the total 139 species examined, 56 belonging to 25 genera[2] contained tyloses.

Tyloses were found in the sapwood of all the species where their presence was established in the heartwood.

Well-developed tyloses were found in the outermost rings near the bark of 30 species of hardwoods.

True tyloses occur in the wood tracheids of certain pines, principally of the white pine group.

Epithelial cells sometimes effect a partial or even a complete tylose-like closing of the resin canals in *Pinus, Larix, Picea* and *Pseudotsuga.*

A considerable proportion of the vertical canals, even in the heartwood of the pines, are wholly or partly open.

Tyloses act like a natural filler in the hardwoods.

The woods where tyloses are abundant are, as a rule, durable.

[2] *Æsculus, Fagus, Liquidambar, Liriodendron, Magnolia, Oxydendrum, Platanus, Populus, Salix, Castanea, Catalpa, Celtis, Chilopsis, Eucalyptus, Fraxinus, Hicoria, Juglans, Morus, Quercus, Rhus, Robinia, Sassafras, Toxylon, Ulmus, Pinus.*

Tyloses, because they are very impermeable to air, water and creosote, reduce the penetrance of the woods in which they are strongly developed, thus decreasing, for instance, the tendency for such woods to become water-logged.

The presence of tyloses closing the vessels of a hardwood does not, however, prevent the penetrance of a preservative such as creosote into the other wood elements.

(*To be concluded*)

George T. Moore,
Secretary

Societies and Academies

The Tennessee Academy of Science

The annual meeting of the Tennessee Academy of Science was held in Furman Hall, Vanderbilt University, Nashville, Tenn., on November 28, 1913. President Watson Selvage delivered an address relative to the aims and purposes of the Academy, and the following papers were read and discussed:

"A Natural Bridge of Tennessee in Process of Formation," by H. D. Miser.

"Physiographic Features of Tennessee," by L. C. Glenn.

"Development of the Phosphate Industry in Tennessee," by Lucius P. Brown.

"Caverns and Rock Shelters of the Cumberland Valley," by W. E. Myer.

"Food Preservation," by L. C. Bliss.

"A New Geological Map of Tennessee," by A. H. Purdue.

"Some Neglected Principles of Physiography," by A. H. Purdue.

"Some Early Topographic Maps," by L. C. Glenn.

The following officers were elected for the ensuing year:

President—L. C. Glenn, Vanderbilt University, Nashville.

Vice-president—W. E. Myer, Carthage.

Secretary—Roscoe Nunn, 1235 Stahlman Building, Nashville.

Treasurer—Archibald Belcher, Middle Tennessee Normal School, Murfreesboro.

Editor—James A. Lyon, Southwestern Presbyterian University, Clarksville.

The president appointed as members of the executive committee, S. M. Bain, University of Tennessee, Knoxville, and E. J. McCroskey, Lebanon.

Roscoe Nunn,
Secretary