CONABIEA DENTATA was frequent on the ground and Juniperus virginiana was frequent as the bluffed terminated and sloped westwardly to Gin Creek.

Figure 1 shows the localities for Pinusstrobus discussed in this paper in relation to the Tennessee distribution as mapped by Wofford and Evans (1979). Clearly the Middle Tennessee populations represent a significant disjunction that should be included in any discussion of the range of this species. Voucher specimens from both sites discussed have been deposited in the Herbarium of Austin Peay State University.

FIG. 1. The known distribution of Pinus strobus in Tennessee. Solid circles from Wofford and Evans (1979); open circles, Cheatham County, open square, Dickson County.

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LITERATURE CITED


SOME FIRSTS IN THE COLLEGES OF TENNESSEE

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ABSTRACT
A laboratory-based botany course was first offered at a Tennessee institution in 1846. The school was East Tennessee University and Richard O. Currey was the instructor. Laboratory-based instruction in botany began in 1826. The institution was the University of Nashville and the instructor was George T. Bowen. Laboratory courses in geology and zoology also first appeared at the University of Nashville. Both were introduced in 1828 by Gerard Troost. Most statements made above should be preceded by a term of equivocation like apparently.

The growth of other scientific disciplines in Tennessee is less easily deciphered. Still, it is possible to record a few critical dates in mathematics, astronomy, engineering, and agriculture. While curricular innovations are the focus of this study, the same research documented a few other academic highlights: the first textbook written by a Tennessee college professor, the first botanical paper authored by a Tennessee professor, etc.

INTRODUCTION
In developing a general knowledge of the history of science in Tennessee, it seems important to document the introduction of the various scientific disciplines into the curriculum of Tennessee colleges. Precise and meaningful dates are hard to establish because of the nature of instruction in colleges. In early days, just as today, there were various methods of classroom teaching. Recitation, in which students took turns reading from the text, may have been the normal mode of instruction in pioneer institutions. It was probably poor pedagogy in the scientific academic institutions, but the search for historical information is actually far from simple. Book-length histories of the growth of scientific disciplines in Tennessee are scarce. In recent years, state-level academic firsts (Andre, 1971; Crouch and Claybrook, 1976; Dow, 1953; Greene, 1912; Hamer, 1974; Kirkmier, 1976; Platt and Ogden, 1966). Thus this study focused on more diffuse published sources: widely esteemed bibliographies in zoology, geology and history; histories of the cities and counties of Tennessee; known biographies of Tennessee's pioneer scientists; publica- tions of the Tennessee Academy of Science; contempo- rary issues of Tennessee-based educational journals, the Peabody Journal of Education and the Educational Catalyst; etc. When these sources failed to provide an abundance of data, an effort was made to locate archival materials and a fairly intense search was made for the published catalogs of antebellum colleges. The Disciples of Christ Library in Nashville had information on Franklin College. Data on a variety of schools came from the archival holdings and the open stacks of Peabody College, Vanderbilt University, the Nash- ville Public Library, the Austin Peay State University Library, the Tennessee State Library and Archives, the Lawson Library (Knoxville), and the Knox- ville library of the University of Tennessee.

While a reasonable effort was made to locate source materials, oversight is possible and no one can know all sources of knowledge for each scientific discipline. Clearly, this paper is just an initial attempt to locate data on academic firsts. Still, an academic first is undoubtedly significant and even the most preliminary report should merit the attention of academic historians. As a final note, the author would like to extend an invitation: improve upon the data that are here presented.

BOTANIC
Andre (1971) identifies Richard Owen Currey as an early instructor in botany at East Tennessee University and cites the textbook used. Extensive research suggests that Currey, whose title was Professor of Chemistry and Natural History, was actually the first person to teach a laboratory-oriented botany course in any Tennessee college. Currey is known to have been a student of East Tennessee in 1846 and rigorous instruction in botany apparently began during his first year.

For a professor of botany to have had good credentials: an earned A.B. from the University of Nashville and an earned M.D. from the University of Pennsylvania. He was a physician and a Civil War surgeon. In 1836 he published a book entitled Botany (Currey, 1836). After he left East Tennessee, he wrote a number of papers that evidence an uncommon knowledge of botany. These range from a book review (Currey, 1853c), to a summary of knowledge of one species (Currey, 1853a), to a general expression of opinion (Currey, 1855). Currey may have been the first native of Tennessee and the first
resident of the state to contribute to the botanical lit-
iterature. Clearly he knew enough to teach an adequate
unit on botany as part of a year-long course in natural history. But, was his course laboratory
based? For a botany course, laboratory supplies are readily available
and little equipment is needed. Currey did
laboratory work in chemistry (e.g., Currey, 1853b) and
he was widely known for an excellent general col-
lection (Cook, Mitchell, and Dean, 1856). If he was
laboratory and specimen oriented in other fields, it
seems reasonable some experimental work would have
been done in a similar approach toward instruction in botany. This is espe-
cially likely since Currey was a product of the Uni-
versity of Nashville where specimen-based and labora-
tory-based science courses were the norm.

CHEMISTRY
Laboratory-based instruction in chemistry probably
reached its appearance in Tennessee during 1826 when
George Thomas Bowen, A.B., M.D., became Professor of
Chemistry in the University of Nashville. Before he
came to Nashville, Bowen had a well established reputa-
tion as a chemist and mineralogist (Corgan, 1978).
Presumably he provided his students with laboratory-
based courses in chemistry that were similar to his own
undergraduate experience at Yale. Bowen’s era
chemical studies at Yale clearly offered an opportunity
for undergraduate laboratory work. Bowen, himself,
published analyses he made during his undergraduate
years. Bowen’s work left an unbroken record of his work
in Tennessee. Fortunately some of his laboratory
work was published and he was providing a practical cas-
tory! The exact moment that marks the beginning of
collegiate-level chemical education in Tennessee is
difficult to pinpoint. George Bowen went on the payroll of
the University of Nashville in March, 1826. While 1825
is a possible date, 1826 is a more conservative estimate
for the beginnings of a laboratory program in chemistry
in the colleges of Tennessee. In North
American institutions, 1826 is a rather early starring
point for laboratory instruction in chemistry. Chem-
istry did not become widespread until after 1840
when the work of Filippo Luigi (F.L.) Gualandi caught
the fancy of American agriculturalists (Rosseter, 1975).
On a world scale, collegiate-level laboratory instruction in
chemistry was beginning to be a standard part of
higher education by 1830. In any case, some instruction
generally held the summer or in an in
struction, is a standard part of modern undergraduate
curricula. In a sense, chemistry was filled with living
organisms and it reflected Troost’s inter-
est in vertebrate zoology. And, it was taught by a
skilled and devoted faculty, including faculty, birds, pelts, and mammals. It seems reasonable to
conclude that in Tennessee colleges specimen-oriented
laboratory-based instruction in zoology dates from 1828
when the University of Nashville hired Troost.

OTHER FIELDS
The early colleges and universities of Tennessee of-
pered instruction in mathematics, the medical disci-
plines, engineering, physics, astronomy, and other sci-
e n t i f i c f i e l d s . E a c h a c a d e m i c s p e c i a l t y p r e s e n t s i t s o w n
problems and challenges, perhaps on a different level than
those in the field of mathematics, but it is evident that
the teaching of mathematics was considerable
progress in the sciences. During 1846, the University of
Tennessee added a new faculty member who specialized
in mathematics, James Hamilton. While Hamilton’s
appointment was clearly a milestone in the history of mathematics education in Tennessee,
the appointment does not seem to be a major step
forward in the history of underclassmen education.
of Tennessee. It seems impossible to document the range of Vaughn's academic expertise and there is no information available on the nature of his course or courses. By the mid-1860's advanced and specialized courses in agriculture had appeared in Tennessee colleges. At Franklin College, for example, Tolbert Fanning taught Agricultural Chemistry (Fanning, 1846). While this may not have been the first agriculture-oriented chemistry course in Tennessee, it was apparently novel in another way. It was an advanced course. The college also offered a normal exposure to general chemistry (Loomis, 1855). Eventually, Fanning's students even made detailed analyses of soils, introducing pedology into the college curricula of Tennessee (Fanning, 1850).

**Summary and Conclusions**

When George Bowen began teaching chemistry at the University of Nashville, few people thought of science as a profession or specialization for the educated person. When Bowen died in 1838, no one mourned the passing of George Bowen, scientist. The word scientist had not yet entered the English language. It was coined in 1834 and, initially, some regarded "scientist" as a good example of a superluous, unneeded, undesirable word (Ross, 1962).

Today, the social, intellectual, and economic role of the scientist is generally known and each year scores of Tennessee college graduates enter the scientific and technical professions. Between Bowen's day and the present decade there has been a tremendous flow of time. During that flow of time many thresholds have been crossed in educational, laboratory-based science programs in the colleges of Tennessee. A few key dates are:

- **1813** A science-oriented museum
- **1826** A chemistry course
- **1827** First specialist in mathematics
- **1828** Geology and geology courses
- **1833** An advanced geology course
- **1836** First systematic paper in vertebrate zoology by a Tennessee scientist
- **1846** Advanced courses in agriculture
- **1848** A botany class
- **1849** A field course in zoology
- **1852** A school of engineering
- **1853** First botanical publication by a Tennessean
- **1857** First geography textbook by a Tennessean

A lot is known about the introduction of scientific disciplines into the curricula of Tennessee colleges, but much remains unknown. To some extent this lack of knowledge reflects a lack of research. Each date listed above is an approximation. Each may change significantly with future growth of knowledge. Discovery of one or two sources of knowledge might clarify all critical dates in an entire discipline like physics, or medicine, or agriculture.

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- 1853. First botanical publication by a Tennessean
- 1857. First geography textbook by a Tennessean

**Abstract**

The continued existence of the Owaya as a physical and cultural entity is uncertain. Demographic data in- dicate that the population has stabilized numerically un- der constant vigilance of medical missions in spite of governmental indifference. As long as the Owaya re- main at a low technological level based on subsistence agriculture and environmental exploitation demographic increase is improbable. The absence of collective immu- nity and the persistence of African malaria re- flects the Owaya to a status of low reproduction and imminent crises of high mortality.

**Introduction**

The fate of most tropical forest peoples, upon contact with European and African explorers and settlers, is characterized by rapid population decline or in some instances total extinction, primarily through the introduction, accidentally or intentionally, of communi- cable diseases to which the Africanis possess no immunity. Although physical amilification is well docu- mented, extinction by acculturation is not uncommon, especially in those populations of sufficient size to with- stand the effect of epidemic communicable diseases.

The Owaya of Surinam, French Guiana and Brazil have reached their crises in a recent historical period. Once iso- lated in the interior tropical rainforest of the Guiana, the Owaya are now in frequent contact with Europeans, populations of African origin, and remnants of forest- dwellers. Contact with European and African explorers and settlers, increased frequency of contact with in- digenous and non-indigenous groups, increased fre- quency of introduction of disease and accelerated ac- culturative stresses will determine the eventual fate of the Owaya.

Therefore, unpublished demographic data, obtained for 1971, will serve as a basis for future population analyses of the Owaya. In that the Owaya may con- tinue to grow, new recruitment of population decline and extinction should not be anticipated. The Owaya should not be anticipated. The Owaya should receive medical assistance and physical protec- tion not be provided by the governments in whose ter- ritories they now reside, the demographic data, here- nafter presented, may be utilized by investigators concerned with the survival of rainforest populations.

**Historical Review**

The Carib-speaking Owaya (Rousounya) currently reside in semi-permanent villages on the upper Maroni River and its principal tributaries, the Laws, Tapac- haha, Lousi and Palerneu in Surinam and French Guiana, and on the Yari River of the Amazonian drain- age basin.

The Owaya immigrated to the Guianas within recent historic time. Fragmenary evidence places the entrance of the Owaya and the Owayami, apparently large groups of habitants of the Amazonian watershed, near the close of the 18th and the beginning of the 19th centuries (Sauve, 1951). In 1730 the Owaya were located in the Brazilian Amazon near the upper Oyapock River. In the early records of exploration the appellation Owaya included the Roucounen (now synonymous with the Owaya) and a small allied group, the Pounpolous (Sauve, op. cit.).

**FIG. 1. Location of the known extant tribes in Surinam and French Guiana.**

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**Some Firsts in Colleges of Tennessee**

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**The Demographic Status of the Owaya Indians of Northeastern South America**

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