Castanea dentata were on the ground and *Juniperus virginiana* was frequent as the bluff terminated and sloped westwardly to Gin Creek.

Figure 1 shows the localities for *Pinus strobus* 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.

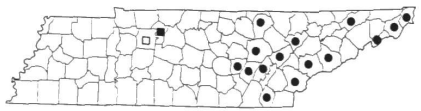

FIG. 1. *The known distribution of* Pinus strobus *in Tennessee. Solid circles from Wofford and Evans (1979); solid square, Cheatham County; open square, Dickson County.*

DISCUSSION

It appears that many of the mature white pine specimens observed by Svenson 54 years ago in Cheatham County are now dead. The number of fertile specimens has apparently decreased but reproduction is still occurring. A second population is reported here for the first time from adjoining Dickson County. At present, it is more extensive than the Cheatham County population and has a greater number of fertile trees. While neither of the populations or sites presently appears endangered, these and perhaps other areas in the Turnbull Creek gorge are worthy of preservation and deserve further and closer botanical exploration. The statement by Svenson that "the entire locality has the appearance of a fragment of the northern Alleghenian forest, isolated in Middle Tennessee" certainly appears warranted.

ACKNOWLEDGMENT

This research was supported by a grant from the Tennessee Department of Conservation.

LITERATURE CITED

Critchfield, W. B. and E. L. Little, Jr. 1966. Geographic distribution of the pines of the world. Pub. 991. Forest Service, United States Department of Agriculture. 97 p.

Fowells, H. A. 1965. Silvics of forest trees of the United States. Agr. Handbook 271. Forest Service, USDA. 762 p.

Little, E. L., Jr. 1971. Atlas of United States trees, Vol. 1, conifers and important hardwoods. Pub. 1146. Forest Service, United States Department of Agriculture. 200 p.

Shanks, R. E. 1952. Checklist of the woody plants of Tennessee. Journ. Tenn. Acad. Sci. 27: 27-50.

Svenson, H. K. 1925. The white pine in Middle Tennessee. Rhodora 27: 27-28.

_____. 1941. Notes on the Tennessee flora. Journ. Tenn. Acad. Sci. 16: 111-160.

Wilson, C. W., Jr. 1972. Geologic map and mineral resources summary of the White Bluff Quadrangle, Tennessee. Tennessee Division of Geology, Nashville. Map and 14 p.

Wofford, B. E. and A. M. Evans. 1979. Atlas of the vascular plants of Tennessee. I. Pteridophytes and Gymnosperms. Journ. Tenn. Acad. Sci. 54: 32-38.

JOURNAL OF THE TENNESSEE ACADEMY OF SCIENCE

VOLUME 55, NUMBER 3, JULY, 1980

SOME FIRSTS? IN THE COLLEGES OF TENNESSEE

JAMES X. CORGAN

Austin Peay State University
Clarksville, Tennessee 37040

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 chemistry 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 preceeded 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 geology 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 curricula 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 approaches to classroom teaching. Recitation, in which students took turns reading from the text, may have been the normal mode of instruction in pioneer institutions. It made few demands on the teacher and was probably poor pedagogy in the sciences. In the pioneer colleges, the lecture mode of instruction was normally reserved for advanced students and for subjects in which a professor had special competence. Lecture-laboratory instruction, which is so important in the sciences, obviously required greater professorial expertise than simple lecture instruction. The function of this report is to record the introduction of laboratory-based science courses into the college curricula of Tennessee.

Today, there is little agreement on the meaning of terms like "laboratory-based" and "lecture-laboratory" instruction. Laboratories in physics and geology are dissimilar and a 20th century chemistry professor would probably be ill at ease in a 19th century chemistry laboratory. What is laboratory-based instruction?

Within the context of the present study the term laboratory-based or laboratory instruction is used to indicate the use of an array of instructional techniques that permitted students in the various sciences to analyze materials, to identify specimens, and/or to manipulate data generated by scientific observations. Used in this broad way, laboratory instruction includes everything from chemical cookery to sketching leaves.

On the modern college campus there are often as many scientific laboratories as there are subdisciplines within the sciences. Each laboratory tends to be a distinct spatial unit, a room with one exclusive use. Facilities were more modest in the pioneer institutions of the last century. At first the laboratory was intangible, just a meeting between teacher and students. Early 19th century laboratory activities were not formally scheduled and simple demonstrations probably took the bulk of laboratory time. Still students clearly learned procedures since some of them were later able to function professionally in the sciences.

The lack of a tangible space makes the 19th century laboratory hard to document. Further, Tennessee's pioneer colleges were often shoe-string ventures with grandiose expectations. As a result, catalogs of course offerings, the titles of professors, lists of textbooks, and similar "advertisements" are a poor basis for concluding that a college actually offered instruction in a subject. Even today there can be significant differences between the courses listed in college catalogs and the courses actually offered. In the 19th century there were also major differences between the facilities advertised by colleges and the facilities that actually existed. To cite just one example, Johnson (1936) discussed the elaborate laboratory facilities advertised by East Tennessee University in the late 1840's. In fact, even as late as 1850, this college had no significant scientific equipment and no laboratory facilities (Miles and Kuslan, 1968). Plans to acquire instructional materials had, apparently, never been implemented. Thus, to conclude that laboratory-based instruction was actually offered in a discipline, it seems essential to establish that the college had a knowledgeable laboratory-oriented professor and that facilities were actually at hand.

SOURCES

With dozens of scientific and technical organizations active in modern Tennessee, it should be child's play to locate data on the growth of science in Tennessee's academic institutions, but the search for historical information is actually far from simple. Book-length histories of the growth of scientific disciplines in Tennessee yield little data on state-level academic firsts (Andre, 1971; Crouch and Claybrook, 1976; Dow, 1958; Glenn, 1912; Hamer, 1930; Kirkeminde, 1976; Platt and Ogden, 1966). Thus this study focused on more diffuse published sources: widely esteemed bibliographies in zoology, geology, and history; histories of Tennessee's oldest colleges; known issues of antebellum scientific and technical journals that were published in Tennessee; historical journals published in Tennessee; histories of the cities and counties of Tennessee; known biographies of Tennessee's pioneer scientists; publication of the Tennessee Academy of Science; contemporary issues of Tennessee-based educational journals, like 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 Nashville Public Library, the Austin Peay State University Library, the Tennessee State Library and Archives, the Lawson-McGhee Library (Knoxville), and the Knoxville 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, the subject is unstudied and even the most preliminary report should merit the attention of scholars. To concerned scholars, the author would like to extend an invitation: improve upon the data that are here presented.

BOTANY

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 joined the faculty of East Tennessee in 1846 and rigorous instruction in botany apparently began during his first year.

For a professor of the 1840's, Currey 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 pioneer in several fields (Eve, 1876; Glenn, 1912; Platt and Ogden, 1969).

Before he came to East Tennessee University, Currey published at least one article that showed a familiarity with botany (Currey, 1843). 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 opinions (Currey, 1855). Currey may have been the first native of Tennessee and the first

resident of the state to contribute to the botanical literature. Clearly he knew enough to teach an adequate unit on botany within the framework 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 mineral collection (Cook, Mitchell, and Dean, 1856). If he was laboratory and specimen oriented in other fields, it seems reasonable to assume he would take a similar approach toward instruction in botany. This is especially probable since Currey was a product of the University of Nashville where specimen-based and laboratory-based science courses were the norm.

Chemistry

Laboratory-based instruction in chemistry probably made 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 reputation 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. In Bowen's era chemical studies at Yale clearly offered an opportunity for undergraduate laboratory work. Bowen, himself, published analyses he made during his undergraduate days. Bowen died in 1828 and left no published record of his work in Tennessee. Fortunately some of his laboratory notes were included in a summary of data on the chemical character of spring waters (Currey, 1853b). This publication shows that Bowen had access to a creditable chemical laboratory.

Given a highly accomplished laboratory-oriented chemistry teacher and an adequate laboratory it seems reasonable to interpret a beginning point for first-rate instruction in chemistry. Actually, some of the details of Bowen's life are poorly known and there is one vexing question: "where was Bowen in 1825?" Geiser (1932) suggests he was employed by Cumberland University in Nashville. If so, did he have a laboratory?

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-based coursework in chemistry in the colleges of Tennessee. In North American institutions, 1826 is a rather early starting point for laboratory instruction in chemistry. Chemistry did not become widespread until after 1840 when the works of Justus Liebig, a European, caught the fancy of American agriculturists (Rossiter, 1975). On a world scale, collegiate-level laboratory instruction in chemistry has very ancient roots. According to a recent review, laboratory-based instruction in chemistry was probably first offered at the University of Leiden, in the Netherlands, during the 17th Century. Palomo (1977) recently reviewed Dutch literature on science at Leiden. A tradition of experimentally oriented instruction extends back to the late 17th Century, to the era when chemical experimentation was just beginning. Perhaps it is no coincidence that a person with a M.D. from the University of Leiden introduced laboratory-based geological coursework into the college curricula of Tennessee.

Geology

Soon after Gerard Troost, M.D., M. Pharm., moved to Nashville in 1827, he acquired the assets of the Nashville Natural History Museum (Corgan, 1977). This institution was Tennessee's first science-oriented museum. It began in 1818 as the "Museum of Natural and Artificial Curiosities for the State of Tennessee" (Miles, 1946). The museum was a private enterprise founded by Ralph Earl, a noted artist. By 1826, it was called the Nashville Natural History Museum and De St. Leger was the proprietor (e.g.: Anonymous, 1826). When Troost took over in the fall of 1827 the contents of the museum were blended with Troost's private holdings. Minerals dominated the combined collection.

In 1828 Troost was employed to teach geology at the University of Nashville. He was the first geology professor in Tennessee history and the Nashville Natural History Museum afforded an excellent basis for laboratory instruction. In Tennessee colleges, laboratory-based instruction in geology clearly dates from Troost's employment by the University of Nashville in 1828. By 1829, the Natural History museum was closed to the public (Corgan, 1977). Most of the collection was moved to the University with the rest being stored at Troost's home (Featherstonaugh, 1844).

During 1833, or earlier, Troost became involved in writing a textbook for an advanced geology course; a specimen-oriented course in paleontology (Anonymous, 1834). It was, probably, the first course of this type offered in the southern states if not the first course in North America. Troost's book was to be an eclectic text; partially a translation of a standard European work, by Goldfuss, and partially Troost's personal comments on North American fossils. While permission was obtained from both the European author and the original publisher, the text may never have been issued. At least it has, thus far, been impossible to locate a copy.

The attempt to prepare a paleontology text that would require specimen study does show that by the mid-1830's, the University of Nashville had laboratory-based geology courses at both beginning and advanced levels. The first geology text actually published by a Tennessean was "Key to the Geology of the Globe." This was authored by Richard Owen of the University of Nashville in 1857 (Griggs, 1955; Cummings, 1969).

In geology, more than in any other science, a field course, generally held during the summer or in an intersession, is a standard part of modern undergraduate curricula. In a sense, student field work just extends the laboratory approach to instruction by taking the laboratory into the natural setting. In Tennessee, field instruction in geology dates from 1846 when Prof. I. Newton Loomis of Franklin College, in Nashville, led his students on a month-long excursion to Mammoth Cave, Kentucky (Loomis, 1846b).

A month in the field in 1846 was a bit different from

the standardized geologic field courses described in modern college catalogs. Most participants walked from Nashville to Mammoth Cave. The bulk of the student body joined in the trip and many faculty members went, including some from fields outside the sciences. Students who played in the school band brought their instruments, which were carried in a cart. On appropriate occasions the band led the way and the field party marched along. When the crew from Franklin College passed through a town, everyone knew a geological party was out in search of knowledge.

After 1846, the rules of Franklin College required that at least one professor spend his vacation on a geological excursion with students (Fanning, 1847a). In 1847 Tolbert Fanning offered the field session and it was truly an innovative educational experience. Fanning was a noted evangelist as well as a leader in scientific affairs (Corgan, 1978). He combined his geological excursion with a heavy schedule of revival-style preaching. When the 1847 geologic field season ended, Fanning wrote two articles. One emphasized religious accomplishments (Fanning, 1847a). The other focused on scientific observations (Fanning, 1847b).

Under both Loomis and Fanning geological excursions by Franklin College faculty and students were quite different from modern field courses. Still, the field trips of the 1840's and those of today share the same educational objective. They let the student apply "book learning" in a natural setting.

Zoology

Since Gerard Troost was Tennessee's first State Geologist and a prolific author of geological reports, it is natural to identify him with academic advances in geology, but he was much more than a one-science man. Among other things, he was a professionally competent zoologist specializing in herpetology. A careful reading of early 19th century herpetology texts, like Holbrook's treatise (Adler, 1976), shows that Troost supplied specialists throughout the world with reptiles and amphibians collected in Tennessee. He also wrote one formal taxonomic paper that dealt with living vertebrates (Troost, 1836). This was, apparently, the first systematic zoological report written by a Tennessean. It also seems to be the first taxonomic paper on the vertebrate fauna of Tennessee.

Clearly Troost knew enough about vertebrates to function as a teacher of vertebrate zoology. His many publications on invertebrate fossils, summarized by Glenn (1905), show that he was also competent to deal with invertebrate taxa.

From about 1828 through 1849, Troost normally taught a course in Natural History. It was distinct from courses in geology and chemistry. While this course was labeled Natural History, it reflected Troost's interests in vertebrate zoology. And, it was taught by a skilled anatomist in a room filled with living snakes, bird pelts, and mastodon bones. 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 offered instruction in mathematics, the medical disciplines, engineering, physics, astronomy, and other scientific fields. Each academic specialty presents its own problems in historical interpretation.

Mathematics is a good example of a discipline that challenges the historian. Every pioneer college no matter how tiny or how poorly staffed was a center of mathematical learning, but it is hard to evaluate the level of learning involved. Could students solve problems? How skilled was the teacher? James Hamilton, who joined the faculty of the University of Nashville in 1827, was the first out-of-state expert recruited by a Tennessee college specifically to teach mathematics (Corgan, 1978). His appointment was clearly a milestone in the history of mathematics education in Tennessee. Most of the other milestones are currently unknown.

The development of astronomy in Tennessee colleges illustrates another kind of historical problem. By the mid-1840's astronomy was taught as a separate subject at Franklin College in Nashville (Fowler, 1846a; 1846b). Still, this may not be a significant "first" in higher education in Tennessee. The mode of instruction is unknown and there are other, even more serious, problems in evaluating this "first."

From the beginning of college instruction the heavens have been a normal topic of discussion. The classics of antiquity, like the works of Aristotle, demand an analysis of astronomical concepts and thus the night sky has always challenged the imagination of those who have studied Greek and Latin. Physics also blends into the sciences of antiquity. Presently, knowledge of the faculty and facilities of many early colleges is quite limited. To trace the history of disciplines that blend into classical studies would require almost total knowledge of pioneer schools.

It may be historically significant that Cumberland University in Lebanon, Tennessee, had established a school of engineering by 1852, but details of the curriculum are little known. The school was under the direction of A. P. Stewart (Corgan, 1978). He may have been the only full-time member of the engineering faculty. When he left the university his place was taken by A. H. Buchanan whose title was simply Professor of Civil Engineering (Corgan, 1978). Clearly Cumberland University made a sustained attempt to provide education in engineering but no one knows how many graduates became functional engineers.

Currently, study of the introduction of the various medical disciplines into the curricula of Tennessee's medical schools is hampered by a lack of published discussions of course offerings at two pioneer Memphis institutions: the Botanico-Medical College and the Memphis Medical College. Both schools began in 1846 (Hamer, 1930).

Knowledge of the beginnings of the various agricultural sciences is as limited as knowledge of medical fields. By the winter of 1841, Turner Vaughn had been appointed Professor of Agriculture at Union University in Murfreesboro. A speech he made upon acceptance of the appointment is preserved (Anonymous, 1842), but the appointment may not actually mark the start of scientific agricultural education in the colleges

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-1840'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, 1846a). 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 professional specialization for the educated person. When Bowen died, in 1828, 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 superfluous, 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 continuous flow of time. During that flow of time many thresholds have been crossed in establishing a strong, laboratory-based science program in the colleges of Tennessee. A few key dates are

1818 A science-oriented museum
1826 A chemistry course
1827 First specialist in mathematics
1828 Geology and Zoology courses
1833? An advanced geology course
1836 First systematic paper in vertebrate zoology by a Tennessean
1846? Advanced courses in agriculture
1846 A botany class
1846 A field course in geology
1852 A school of engineering
1853 First botanical publication by a Tennessean
1857 First geology 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 new source of knowledge might clarify all critical dates in an entire discipline like physics, or medicine, or agriculture.

Acknowledgements

At my request, Dr. S. R. Bruesch of the University of Tennessee Memphis Merical Faculty read the first version of this paper. For guidance in developing this paper, I am also indebted to one of the *Journal's* anonymous reviewers who provided a lengthy, thoughtful, and constructive criticism. Finally, for financial support, I am indebted to an Austin Peay State University "Tower Fund" faculty research grant. The grant covered the costs of travel, interlibrary loans and manuscript preparation.

Literature Cited

Adler, K. 1976. North American Herpetology by John Edwards Holbrook. Soc. Study Amphibians and Reptiles. Reprint of a five volume treatise issued during 1842. 5 volumes in 1, XIIX + 153 pp and 24 plts + 143 pp and 20 plts + 128 pp and 30 plts + 139 pp and 35 plts + 119 pp and 38 plts.

Andre, J. E. 1971. The History of Systematic Botany in Tennessee: 1770-1942. Unpubl. M.S. Thesis, University of Tennessee. 118 pp.

Anonymous. 1826. (Nashville Museum, Advertisement). Nashville Banner and Whig, Wednesday, December 6, 1826, page 4.

———. 1834. Important work. Amer. Jour. Sci. 25:430-431.

———. 1842. Agricultural education Agriculturist 1:3-5.

Cook, G., Mitchell, J. B., and Dean, J. R. 1856. Report on minerals. Southern Jour. Medical Physical Sci. 4:254-256.

Corgan, J X. 1977. Offbeat pioneers. Jour. Tennessee Medical Assn. 70:873-876.

———. 1978. Notes of Tennessee's pioneer scientists. Jour. Tennessee Acad. Sci. 53:2-7.

Crouch, A. W., and Claybrook, H. D. 1976. Our Ancestors Were Engineers. Nashville Section, American Soc Civil Engineers. 59 pp.

Cummings, C. M. 1969. Richard Owen, teacher in Tennessee. Tennessee Historical Quart. 28:273-296.

Currey, R. O. 1843. Natural History. Guardian 3:7.

———. 1853a. *Gelseminum semipervidens,* or yellow jasmine of the south. Southern Jour. Medical Physical Sci. 1:39-41.

———. 1853b. Analysis of mineral water. Southern Jour. Medical Physical Sci. 1:124-126.

———. 1853c. (Review of) "The principles of botany as exemplified in the Cryptogamia," by Harland Coultas. Southern Jour. Medical Physical Sci. 1:229-230.

———. 1855. Wonders of vegetation. Southern Jour. Medical Physical Sci. 3:183-192.

Dow, T. D. 1952. History of the Tennessee State Dental Association. Tennessee Dental Assn., Nashville. 300 pp.

Eve, P F. 1876. Brief biographical sketches of the professional dead of Middle Tennessee. Trans. Medical Soc. State Tennessee 1876:78-90.

Fanning, T. 1846. Agricultural chemistry. Naturalist 1:157-160; 205-207.

———. 1847a. Observations on a tour to the south. Christian Review 4:2-7; 37-45.

———. 1847b. Geological observations on the south. Christian Review 4:14-20.

———. 1850. Analysis of soil as practiced at Franklin College. Naturalist 1:193-196.

Featherstonaugh, G. W. 1844. Excursion through the Slave States, from Washington on the Potomac to the Frontier of Mexico; with Sketches of Popular Manners and Geological Notes. Harper and Brothers, New York, 168 pp.

Fowler, J. S. 1846a. Astronomy. Naturalist 1:217-227; 365-366.

———. 1846b. History of astronomy. Naturalist 1:261-262.

Geiser, S. W. 1932. Naturalists of the frontier. X. notes on scientists of the first frontier. Southwest Review 18:50-86.

Glenn, L. C. 1905. Gerard Troost. Amer. Geol. 35:72-94.

———. 1912. The growth of our knowledge of Tennessee Geology. Tennessee Geol. Survey, Resources of Tennessee 2:167-219.

Griggs. R. F. 1955. Richard Owen. Peabody Jour. Education 53:161-165.

Hamer, P. M. 1930. The Centennial History of the Tennessee State Medical Association, 1830-1930. Tennessee State Med. Assn., Nashville, 580 pp.

Johnson, T. C. 1936. Scientific Interests in the Old South. Appleton-Century Co., New York. 214 pp.

Kirkeminde, P. B. 1976. History of Veterinary Medicine in Tennessee. Modern Typographers. 950 pp.

Loomis, I. N. 1846a. Analytic chemistry. Naturalist 1:11-12; 49-52; 200-204; 241-245.

———. 1846b. Geologic encampment. Naturalist 1:337-343; 385-387.

Miles, G. 1946. The Tennessee antiquarian society and the west. Publ. East Tennessee Hist. Soc. 18:87-106.

Miles, W. D., and Kuslan, L. 1968. Washington's first consulting chemist, Henri Erni. Records Columbia Historical Soc. 56-58:154-166.

Palomo, D. J. 1977. The Dutch connection: The University of Leiden and Swift's Academy of Lagado. Huntington Library Quart. 41:27-35.

Platt, S. J., and Ogden, M. L. 1969. Medical Men and Institutions of Knox County, Tennessee, 1789-1957. S. B. Newman Printing Co., Knoxville. 427 pp.

Ross, S. 1962. Scientist: the story of a word. Annals of Science 18:65-85.

Rossiter, M. W. 1975. The Emergence of Agricultural Science, Justus Liebig and the Americans, 1840-1880. Yale Univ. Press. 275 pp.

Troost, G. 1836. On a genus of serpents, and two new species of the genus Heterodon, inhabiting Tennessee. Annals New York Lyceum 3:174-190.

JOURNAL OF THE TENNESSEE ACADEMY OF SCIENCE

VOLUME 55, NUMBER 3, JULY, 1980

THE DEMOGRAPHIC STATUS OF THE OAYANA INDIANS OF NORTHEASTERN SOUTH AMERICA

PHILLIP E. WYLIE, CHARLES M. FUGLER,
RICHARD D. DIXON AND JAMES C. SABELLA

University of North Carolina at Wilmington
Wilmington, North Carolina 28401

Abstract

The continued existence of the Oayana as a physical and cultural entity is uncertain. Demographic data indicate that the population has stabilized numerically under constant vigilence of medical missions in spite of governmental indifference. As long as the Oayana remain at a low technological level based on subsistence agriculture and environmental exploitation demographic increase is improbable. The absence of collective immunity and the persistence of endemic malaria relegates the Oayana to a status of low reproduction and imminent crises of high mortality.

Introduction

The fate of most tropical rainforest 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 communicable diseases to which the Amerindian possesses no immunity. Although physical annihilation is well documented, extinction by acculturation is not uncommon, especially in those populations of sufficient size to withstand the effect of epidemic communicable diseases.

The Oayana of Surinam, French Guiana and Brazil have reached a crises in their tribal history. Once isolated in the interior tropical rainforest of the Guianas, the Oayana are now in frequent contact with Europeans, populations of African origin and remnants of forest Amerindians. Increased frequency of contact with indigeneous and non-indigeneous groups, increased frequency of introduction of disease and accelerated acculturative stresses will determine the eventual fate of the Oayana.

Therefore, unpublished demographic data, obtained for 1971, will serve as a basis for future population analyses of the Oayana. In that the Oayana may confront immediate population decline and extinction should requisite medical assistance and physical protection not be provided by the governments in whose territories they now reside, the demographic data, hereinafter presented, may be utilized by investigators concerned with the survival of rainforest populations.

Historical Review

The Carib-speaking Oayana (Roucoyenne) currently reside in semi-permanent villages on the upper Maroni River and its principal tributaries, the Lawa, Tapanahoni, Litani and Palaemeu in Surinam and French Guiana, and on the Yari River of the Amazonian drainage (Figure 1).

The Oayana immigrated to the Guianas within recent historic time. Fragmentary evidence places the entrance of the Oayana and the Oayampi, apparently lengthy inhabitants of the Amazonian watershed, near the close of the 18th and the beginning of the 19th centuries (Sausse, 1951). In 1730 the Oayana were located in the Brazilian Amazon near the upper Oyapock River. In the early records of exploration the appelation Oayana included the Roucoyenne (now synonymous with Oayana) and a small allied group, the Poupoulouis (Sausse, *op. cit.*).

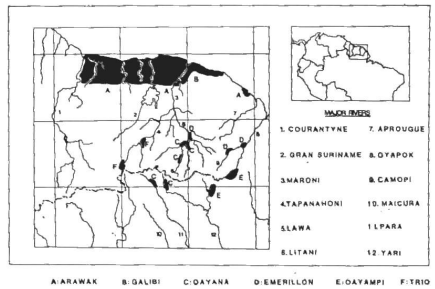

FIG. 1. *Location of the known extant tribes in Surinam and French Guiana.*