

THE FAMILY LILIACEAE IN TENNESSEE

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The first extensive list of the Tennessee species of the Liliaceae was published by Gattinger (1901). Subsequently, various workers have thoroughly discussed the following genera: *Trillium* (Anderson, 1934); *Uvularia* (Anderson, 1934, and Dietz, 1952); *Polygonatum* (Ownbey, 1944); *Disporum* (Jones, 1951).

In view of recent extensive collections of the vascular plants of Tennessee and interest in the state flora project, in 1950 the writer began the preparation of a revised list of the species of Liliaceae in the state. Much of the material used was in the form of exsiccati from various herbaria. Sixty-nine species representing thirty genera are now known to occur in Tennessee and some species are represented by varieties.

The species are listed by genera in the order in which they appear in the New Gray's Manual (Fernald, 1950). Following the scientific name will be found the synonyms and common name, if any, and a general statement concerning the distribution of the species in the state and a list of counties in which it has been collected. Every species, except where otherwise stated, is supported by a specimen which has been seen by the writer.

The work was made possible by a Carnegie Foundation Grant-in-Aid through the University of Chattanooga. My appreciation is expressed to the local Carnegie Committee for approving my request for a grant. Dr. A. J. Sharp, Professor of Botany at the University of Tennessee and Director of the State Flora Project, has been the adviser. His help has been invaluable. The writer wishes also to express appreciation for the help of the curators and staffs of the herbaria where material was studied. Material collected in Tennessee was studied at the Gray Herbarium and herbaria of the following institutions: New York Botanical Garden, Smithsonian Institution, Philadelphia Academy of Natural Science, East Tennessee State College, The University of Tennessee (which provided the majority of the records) and the writer's own collection at the University of Chattanooga. In addition, sheets were borrowed from the herbaria of the Brooklyn Botanic Garden, Vanderbilt University, and the herbarium of Dr. J. M. Shaver at George Peabody College. Other botanists who have been helpful are Dr. E. Lucy Braun, Dr. Edgar Anderson, Dr. Robert Dietz, Dr. Royal Shanks, and Dr. Edgar T. Wherry. My sincere appreciation is expressed to my friend, Mrs. Leon Cross, for her help in checking records at several of the herbaria and accompanying me on field trips.

LIST OF THE SPECIES OF LILIACEAE IN TENNESSEE AND THEIR DISTRIBUTION BY COUNTIES

Xerophyllum asphodeloides (L.) Nutt. Gattinger (1901) and the New Gray's Manual (Fernald 1950) credit this plant to East Tennessee; hence, it is being included in this list. The writer has seen no specimen from the state.

Chamaelirium luteum (L.) Gray. Fairy-wand or Devil's-bit. Collections from twenty-four counties distributed "over the state": Anderson, Benton, Blount, Campbell, Carter, Cocke, Davidson, Franklin, Hamilton, Hardeman, Hardin, Henderson, Hickman, Lewis, Madison, McNairy, Morgan, Rhea, Sevier, Sullivan, Tipton, Union, Wayne and Grundy County (Svenson 1941).

Amianthium muscaetoxicum (Walt.) Gray. Fly Poison. Campbell, Cheatham, Franklin, Hamilton, Loudon, Maury, Roane, Sevier and Union, all counties in the eastern half of the state.

Stenanthium granineum (Ker.) Morong. Featherbells. Anderson, Blount, Hamilton, Knox, Lewis, Morgan, Polk, Roane and Sevier, most of which are in eastern Tennessee.

Zigadenus leimanthoides Gray. (*Oceanorus* Small.) Coffee and Rutherford Counties. Gattinger (1901) reported it from "The Frog Mountains, East Tennessee."

The common name "bunchflower" is applied to members of the genus *Melanthium*.

Melanthium virginicum L. Polk and Sevier and Svenson (1941) found it in Morgan County.

Melanthium hybridum Walt. (*Melanthium latifolium* Desr.) Carter County.

Melanthium parviflorum (Michx.) S. Wats. (*Veratrum parviflorum* Michx.) Jackson in middle of state and Blount, Carter, Cocke, and Sevier, all mountainous counties in extreme eastern part of Tennessee.

Veratrum viride Ait. False Hellebore or Indian Poke. Blount, Carter, Polk, Rhea, Sevier and, according to Gattinger (1901), also in Cocke County.

The common name "bellwort" is applied to members of the genus *Uvularia*.

Uvularia grandiflora Small. In twenty-four counties widely distributed: Anderson, Blount, Carter, Cheatham, Davidson, Giles, Grundy, Franklin, Hamilton, Hawkins, Haywood, Hickman, Jackson, Knox, Lewis, Lauderdale, Marion, Putnam, Sevier, Sequatchie, Shelby, Tipton, Unicoi and Union.

Uvularia perfoliata L. Not as widely distributed as many collectors had previously thought. In twelve eastern counties and in Dickson. Anderson, Blount, Carter, Dickson, Franklin, Grainger, Grundy, Hamilton, Knox, Loudon, Sullivan, Van Buren and Union.

Uvularia sessilifolia L. (*Oakesia sessilifolia* S. Wats.) In fifteen counties: Blount, Carroll, Franklin, Grainger, Grundy, Hamilton, Haywood, Jackson, Lawrence, Lewis, Robertson, Sevier, Unicoi, Washington and White.

Uvularia pubida (Walt.) Fernald (*Uvularia puberula* Michx.) (*Oakesia puberula* Wats.) Blount, Carter, Cocke, Johnson, Polk and Union, all counties in East Tennessee.

Allium canadense L. Wild or Meadow Garlic. In fourteen counties scattered over the state: Blount, Cheatham, Davidson, Dyer, Franklin, Grainger, Knox, Hamilton, Lewis, Madison, Maury, Putnam, Unicoi and Wilson.

Allium vineale L. Field Garlic. Widely distributed as a naturalized weed.

Allium cernuum Roth. Nodding or Spring Wild Onion. My list includes fourteen counties in eastern and middle parts of the state: Anderson, Blount, Carter, Cocke, Cumberland, Davidson, Franklin, Hamilton, Jefferson, Morgan, Robertson, Rutherford, Unicoi and Washington.

Allium tricoccum Ait. Wild Leek or Ramps. Rutherford and Giles in middle of state and Blount, Carter and Sevier in eastern Tennessee.

Nothoscordum bivalve (L.) Britt. Yellow False Garlic. In sixteen counties, mostly Middle Tennessee: Cheatham, Davidson, Franklin, Giles, Hamilton, Jefferson, Knox, Lincoln, Marion, McMinn, Marshall, Maury, Madison, Rutherford, Warren, Wayne.

Emerocallis fulva L. Common Orange Day Lily. Introduced and naturalized over the state.

Lilium philadelphicum L. Red Wood Lily. Hamilton and Morgan Counties.

Lilium Grayi S. Wats. Orange Bell or Gray's Lily. Carter County.

Lilium canadense L. Wild Yellow or Canada Lily. In Davidson, Hickman, Knox, Lincoln, Sevier, Tipton and Union Counties.

Lilium michiganense Farw. Michigan or Midland Lily. Coffee and Davidson Counties.

Lilium superbum L. Turk's-cap Lily. Blount, Cocke, Sevier and Sullivan, all in high mountains in East Tennessee.

Lilium Michauxii Poir. (*Lilium carolinianum* Michx.) Carolina lily. Blount, Carter, Cocke, Greene, Polk and Washington, and presumably over all of the extreme eastern part of the state.

The common name "trout lily" or "adder's tongue" is applied to members of the genus *Erythronium*; they were also formerly called "dog's tooth violet."

Erythronium americanum Ker. In nineteen scattered counties in East and Middle Tennessee: Anderson, Carter, Coffee, Davidson, Franklin, Hamilton, Hamblen, Johnson, Knox, Lincoln, Lewis, Marion, Maury, Polk, Putnam, Sevier, Sullivan, Washington, and Wayne.

Erythronium albidum Nutt. Davidson and Montgomery Counties in middle of state.

Camassia scilloides (Raf.) Cory. (*Camassia esculenta* Robins, also *Quamasia esculenta* Coville) Wild Hyacinth or Eastern Camas. Local in seven scattered counties: Cheatham, Davidson, Franklin, Hamilton, Jefferson, Knox and McMinn.

Ornithogalum umbellatum L. Star-of-Bethlehem. Introduced and escaped locally growing readily in waste places.

Oxyria crocea (Michx.) Raf. (*Schoenolirium croceum* Gray.) Sunbells. In Cedar Barrens of Middle Tennessee: Davidson and Rutherford Counties.

Muscari botryoides (L.) Mill. Grape Hyacinth.

Muscari comosum Mill. Found occasionally, both species introduced and escaped.

Yucca flaccida Haw. (*Yucca Smalliana* Fern.) Spanish bayonet. Gattinger (1901) said, "distributed over the state" but collections have been infrequent, perhaps due to difficulty of pressing.

Asparagus officinale L. The asparagus of cultivation, not native and often escaping cultivation over the state.

Clintonia borealis (Ait) Raf. Northern Bead Lily. Restricted to high altitudes in East Tennessee: Carter, Cocke, Johnson, Polk, Sevier and Unicoi Counties.

Clintonia umbellata (Michx.) Morong. Speckled Bead Lily. Cumberland County in middle of state and otherwise from eastern counties: Blount, Campbell, Cocke, Carter, Polk, Sevier and Sullivan.

Smilacina racemosa (L.) Desf. False Solomon's Seal. This species is represented by collections from more counties than in other species in the list. It has been collected in: Anderson, Benton, Bledsoe, Blount, Bradley, Campbell, Carter, Carroll, Chester, Cheatham, Coffee, Cumberland, Davidson, Decatur, Dickson, Dyer, Grainger, Hardeman, Hamilton, Henry, Johnson, Knox, Lauderdale, Lewis, Loudon, Madison, Marion, McNairy, Obion, Polk, Putnam, Rhea, Roane, Robertson, Sequatchie, Sevier, Shelby, Sullivan, Unicoi, Union, Van Buren and Washington counties.

Maianthemum canadense Desf. (*Unifolium canadense* Greene.) Two-leaved Solomon's Seal. In Blount, Carter, Johnson, Monroe, Sevier and Unicoi, all mountainous counties in the extreme eastern part of the state.

Disporum lanuginosum (Michx.) Nicholson. Yellow Mandarin. Restricted to counties in eastern half of the state: Anderson, Blount, Claiborne, Cocke, Cumberland, Davidson, Grainger, Hamilton, Knox, Morgan, Polk, Putnam, Roane, Sequatchie, Sevier, Sullivan, Unicoi, Union, Van Buren, Washington and White.

Disporum maculatum (Buckl.) Britt. Spotted Mandarin. Also eastern half of the state: Anderson, Cocke, Grainger, Hamilton, Jefferson and Warren.

Streptopus amplexifolius (L.) DC. Claspingleaved Mandarin or twisted stalk. One in Dr. Shaver's collection from Davidson County.

Streptopus roseus Michx. Rose Mandarin. Carter, Sevier and Sullivan, in East Tennessee.

The common name "true solomon's seal" is applied to members of the genus *Polygonatum*.

Polygonatum pubescens (Willd.) Pursh. Anderson, Sevier, Sullivan, Van Buren and probably in Bledsoe because found along the Bledsoe-Van Buren County line.

Polygonatum biflorum (Walt.) Ell. Widely collected. In more than thirty counties: Anderson, Bledsoe, Blount, Bradley, Carroll, Cheatham, Cumberland, Decatur, Davidson, Fayette, Grainger, Hamilton, Hardeman, Hickman, Knox, Lawrence, Lewis, Loudon, Madison, Marion, McNairy, Montgomery, Obion, Polk, Roane, Robertson, Rutherford, Sequatchie, Sevier, Sullivan, Van Buren, Washington and White.

Polygonatum canaliculatum (Muhl.) Pursh. (*Polygonatum commutatum* (R. & S.) Dietr.) Almost as widely distributed as the preceding species: Blount, Campbell, Cheatham, Davidson, Dyer, Hamilton, Henderson, Henry, Jackson, Johnson, Knox, Lauderdale, Loudon, Sequatchie, Sevier, Shelby, Tipton, Union and Wayne Counties.

Convallaria majalis L. Lily-of-the-Valley. Cultivated species, occasionally escaped.

Convallaria montana Raf. Native wild species. In the mountains of East Tennessee: Anderson, Claiborne, Carter, Polk, Sevier, Sullivan and Washington.

Medeola virginiana L. Indian Cucumber Root. In three counties in western Tennessee: Carroll, Henderson and Hardeman and otherwise in eastern half of the state: Bledsoe, Blount, Cocke, Fentress, Franklin, Grundy, Grainger, Hamilton, Johnson, Polk, Sequatchie, Sevier, Sullivan, Van Buren and Washington.

Trillium L. Trilliums, some species called Wake Robin.

SPECIES WITH SESSILE FLOWERS

Trillium cuneatum Raf. (*Trillium Hugerii* Small) Anderson, Blount, Campbell, Sevier, Knox; then Hamilton and west through twenty-two counties: Bledsoe, Coffee, Cannon, Cheatham, Cumberland, Davidson, DeKalb, Franklin, Grundy, Hardin, Lawrence, Marion, Montgomery, Putnam, Rhea, Robertson, Rutherford, Sevier, Warren, Sequatchie, Wayne and White.

Trillium luteum (Muhl.) Harbison. Fifteen counties, in eastern half of the state: Anderson, Bledsoe, Blount, Cocke, Claiborne, Davidson, Grainger, Hamilton, Knox, Loudon, Montgomery, Polk, Rutherford, Sevier and Union.

Trillium sessile L. Davidson and Cheatham Counties in middle of the state.

Trillium lancifolium Raf. (*Trillium lanceolatum* (Boykin) S. Wats.) Hamilton and Marion, Chattanooga area.

Trillium stamineum Harbison. This species is in the western part of the state; the counties are: Cheatham, Davidson, Decatur, Dickson, Giles, Hardin, Hickman, Lawrence, Lewis, Lincoln, Maury and Wayne.

Trillium recurvatum Beck. In Knox and westward through nineteen other counties: Bledsoe, Cumberland, Davidson, Dickson, Dyer, Henry, Knox, Lauderdale, Madison, Obion, Putnam, Scott, Shelby, Stewart, Tipton, Van Buren, Warren, Weakley, White.

SPECIES WITH PEDICILLATE FLOWERS

Trillium catesbaei Ell. Blount and Polk, East Tennessee.

Trillium erectum L. The species typically with maroon flowers, found throughout the state: Anderson, Bledsoe, Blount, Claiborne, Carter, Coffee, Davidson, Franklin, Grundy, Hamilton, Hawkins, Johnson, Knox, Marion, Polk, Putnam, Roane, Scott, Sevier, Sullivan, Van Buren, Unicoi, White and Morgan (Svenson 1941.)

Trillium erectum var. *album* (Michx.) Pursh. Found in Anderson, Blount, Claiborne, Franklin, Sevier, and Sullivan Counties.

Trillium erectum var. *blandum* Jennison. Blount, Claiborne, Knox and Polk Counties in East Tennessee.

Trillium erectum var. *flavum* Eaton. In Roane County.

Trillium grandiflorum (Michx.) Salisb. Great Flowered Trillium. In about half of the counties in the eastern half of Tennessee: Bledsoe, Blount, Carter, Claiborne, Coffee, Cumberland, Davidson, Grundy, Hamilton, Knox, Marion, Putnam, Rhea, Scott, Sevier, Unicoi, and Van Buren. Also, Svenson (1941) gives Moore County.

Trillium Yaseyi Harbison. Five counties in southeast part of state: Blount, Sevier, Knox, Hamilton and Polk.

Trillium undulatum Willd. Painted Trillium. In the high mountains of eastern Tennessee: Carter, Cocke, Johnson, and Sevier Counties.

Aletis farinosa L. Stargrass or Colicroot. This has been collected in fifteen counties in the eastern half of state: Blount, Bledsoe, Carter, Cocke, Cumberland, Davidson, Fentress, Hamilton, Monroe, Pickett, Sevier, Union, Van Buren, Warren and Washington.

Smilax L. SMILAX, GREENBRIER, CATBRIER

HERBACEOUS SPECIES

Smilax herbacea L. Collections seen from five widely separated counties: Hardeman, Henderson, Knox, Sevier, and Wayne. Gattinger (1901) said it was found "over the state".

Smilax pulverulenta Michx. Specimens annotated by Dr. Bernice Speece (1952) indicate that it is easily confused with *S. herbacea* so some of my records for each species may be incorrect. My notes from herbarium labels credit it to: Anderson, Hardeman, Henderson, Loudon, Shelby and Union Counties.

Smilax ecirrhata (Engelm.) S. Wats. Anderson, Franklin, Grundy and Knox Counties.

Smilax Hugerii Small. Anderson, Franklin, Grundy, Hickman, Knox, Lincoln, Loudon, Marion, Putnam, Scott and Union Counties.

WOODY SPECIES

Smilax Walteri Pursh. Madison County (S.M. Bain 371, 1892) No recent collections.

Smilax rotundifolia L. Collections represent all parts of the state: Anderson, Blount, Carter, Cheatham, Coffee, Davidson, Fayette, Fentress, Franklin, Greene, Hamilton, Pickett, Robertson, Rutherford, Sevier, Shelby, Sumner and Wayne Counties from herbarium specimens. Benton, Campbell, Cannon, Carroll, Chester, Crockett, Cumberland, Decatur, Dickson, Dyer, Giles, Grundy, Hardeman, Hardin, Hawkins, Haywood, Henderson, Henry, Hick-

man, Humphreys, Johnson, Knox, Lauderdale, Lewis, McNairy, Sullivan, Union, Van Buren, Warren, Washington, Weakley, White and Wilson (Shanks (1952.)

Smilax Bona-nox L. Twelve counties scattered throughout the state: Anderson, Bradley, Davidson, Grainger, Grundy, Hamilton, Knox, Lewis, Loudon, Rutherford, Sevier, Union and White from herbarium specimens. Chester, Coffee, Cheatham, Decatur, Dickson, Fayette, Franklin, Giles Harde- man, Hardin, Haywood, Henderson, Hickman, Lauderdale, Marion, Maury, Shelby, Sumner, Van Buren and Warren Counties. (Shanks 1952).

Smilax Bona-nox var. *hederaefolia* (Beyrich) Fern. Anderson, Grainger, Hamilton, Knox, Lewis and White Counties.

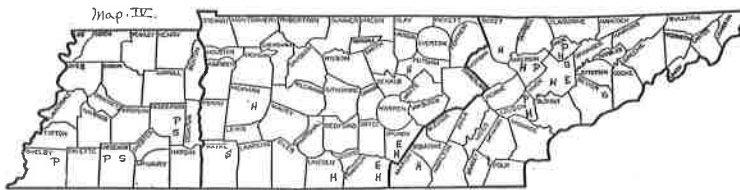
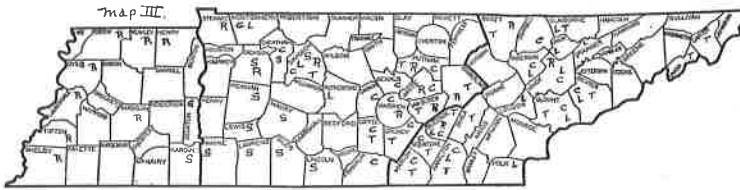
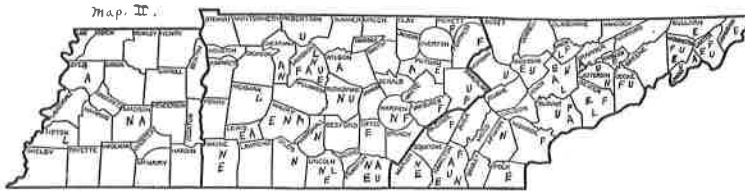
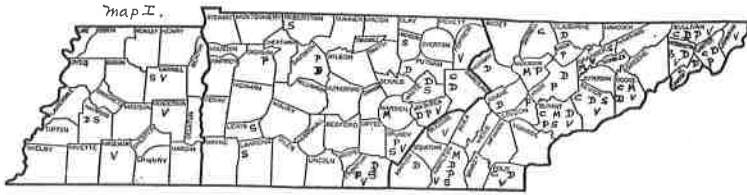
Smilax hispida Muhl. Twenty counties representing all parts of the state: Campbell, Cheatham, Coffee, Davidson, Dickson, Franklin, Giles, Grundy, Hamilton, Hardin, Johnson, Lauderdale, Monroe, Sevier, Shelby, Tipton, Union, Washington, Wayne, and Weakley from herbarium material. Carroll, Fayette, Knox, Lake, Marion, Morgan, Obion, Polk, Putnam, Wil- liamson (Shanks 1952).

Smilax glauca Walt. All parts of the state: Anderson, Blount, Bradley, Carter, Chester Cocke, Coffee, Grainger, Hamilton, Henderson, Henry, Knox, Lauderdale, Lewis, Monroe, Morgan, Pickett, Polk, Roane, Rutherford, Sevier, Stewart and Union Counties from herbarium sheets, Benton, Bledsoc, Carroll, Crockett, Davidson, Decatur, DeKalb, Dyer, Fayette, Fentress, Frank- lin, Gibson, Giles, Grundy, Hancock, Hardeman, Haywood, Hickman, Humphreys, Johnson, Lawrence, Lincoln, Madison, Marion, McNairy, Over- ton, Perry, Putnam, Scott, Shelby, Sumner, Van Buren, Warren, Wayne, Weakley and White (Shanks 1952.)

The distributions of the foregoing species may be condensed into three categories: those found over the state or essentially throughout the state; those definitely restricted by altitude or other factors; and the third group which, while not apparently restricted, contains species whose distribution as known at present would not place them in either of the foregoing groups. The distribution of species in this third group is shown on maps. Those found over the state, about one-fifth of the total species are: *Trillium erectum*; four species of *Smilax*: *Bona-nox*, *rotundifolia*, *hispida* and *glauca*; *Chamaelirium luteum*; *Uvularia grandiflora*; *Allium cernuum*; *Yucca flaccida*; *Smilacina racemosa* and two species of *Polygonatum*: *biflorum* and *canaliculatum*. About two-fifths are restricted. *Oxyria crocea* and *Zigadenus leimanthoides*, *Erythronium albidum* and *Lilium michiganense* are found in two counties each. Their distributions together represent four adjacent counties in the middle of the state. *Lilium philadelphicum* has been collected in Hamilton County and *Trillium lancifolium* in Hamilton and adjacent Marion County, the stations being in the southern part of each county, only a few miles from the Georgia line. This is evidently a northern extension of the range of this very southern species. The only specimen of *Smilax Walteri* seen from Tennessee was collected in Madison County. *Allium tricoccum* has been collected in two counties in eastern Tennessee and two in the middle of the state. Twenty others, including the varieties of *Trillium erectum*, are restricted to areas of high altitude in eastern Tennessee. In addition to the *Trilliums* mentioned are:

DISTRIBUTION OF LILIACEAE IN TENNESSEE

Map I—C—*Clintonia umbellata*, D—*Disporum lanuginosum*, M—*Disporum maculatum*, P—*Uvularia perfoliata*, S—*Uvularia sessilifolia*, V—*Medeola virginiana*. Map II—F—*Aletris farinosa*, U—*Allium cernuum*, A—*Allium canadense*, L—*Lilium canadense*, E—*Erythronium americanum*, N—*Nothoscordum bivalve*. Map III—C—*Trillium cuneatum*, L—*Trillium luteum*, S—*Trillium stamineum*, R—*Trillium recurvatum*, G—*Trillium grandiflorum*. Map IV—S—*Smilax herbacea*, P—*Smilax pulverulenta*, E—*Smilax ecirrhata*, H—*Smilax Hugerii*.



Xerophyllum asphodeloides; *Amianthemum muscaetoxicum*; *Stenanthium gramineum*; *Melanthium parviflorum* and *Melanthium hybridum*. *Melanthium virginicum* is supported by specimens seen from the mountains in East Tennessee and Svenson (1941) no. 7073 from Morgan County. Others are

Veratrum viride; Uvularia pudica; Liliium superbum; Liliium Michauxii; Clintonia borealis; Maianthemum canadense; Streptopus roseus; Polygonatum pubescens; Convallaria montana; Trillium catesbaei; Trillium undulatum and Trillium Vaseyi.

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NEWS OF TENNESSEE SCIENCE

(Continued from Page 10)

on leave from the Faculty of Medicine of the University of Alexandria (Egypt), who is visiting associate professor of clinical physiology, and Dr. Fawzy Z. Akhnoukh, also from Egypt, who is serving as resident physician in the Division of Pediatrics.

The Chemistry Department of Carson-Newman College recently received \$2,000 from the Foundation for Medical Research, for the synthesis of quaternary salts and related compounds.

Dr. Albert Myers, formerly acting head of the Chemistry Department of Furman University, has joined the staff of the Carson-Newman College Chemistry Department. His special fields are Physical and Analytical Chemistry.

Dr. A. C. Cole, The University of Tennessee, Knoxville, spent the summer of 1954 collecting ants in Nevada and other parts of the southwest. He was aided in this work by a grant from the Penrose Fund of the American Philosophical Society.

A new course in radioactivity for secondary school science teaching personnel will be offered by the College of Education at the University of Tennessee, Knoxville, for the period July 18-July 29, 1955. The course is intended to meet the special needs of the following groups: (1) those who

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