

CHECKLIST OF TENNESSEE DIATOMS TO 1951¹

HERMAN SILVA

The University of Tennessee, Knoxville

There have been comparatively few studies of diatoms (Chryso-
phyta; Class Bacillariophyceae) in Tennessee and neighboring south-
eastern states. Although Jacob Bailey established a beginning for
further investigation in his "Observations" of 1851, and the Reverend
Francis Wolle's *Diatomaceae of North America* included southeastern
records, there have been few subsequent reports until rather recent
times. Whitford's *Fresh-Water Algae of North Carolina*, 1943, in-
cluded some identifications, and there has been a scattering of others
in local floras and plankton studies.

With the exception of a description of *Meridion intermedium*
H. L. Smith, 1878, reports of Tennessee diatoms are relatively recent.
Eddy reported a few from Reelfoot Lake, 1930, and Lackey, 1943,
included identifications from the Cumberland and Duck Rivers. The
first list of identifications from the writer's Smoky Mountain collec-
tions was published in Silva and Sharp, 1944, and the present, greatly
expanded, list includes hitherto unpublished identifications from the
entire state and a few near-by localities, as well as all previous reports.

Most of the specimens indicated by number are on file in the herbaria
of the University of Tennessee and the Philadelphia Academy of
Natural Sciences. Other southeastern states from which species have
been reported are indicated by abbreviations.

BACILLARIOPHYCEAE

CENTRALES

Discineae

COSCINODISCAEAE

COSCINODISCUS Ehrenberg, 1838

Coscinodiscus subtilis Ehr. Davidson Co.: Concrete pools at Kelly's Kennels
at Nashville Aug. 20, 1949, #1824.

CYCLOTELLA Kuetzing, 1834

Cyclotella Meneghiniana Kuetz. Middle Tenn.: Cumberland and Duck
Rivers 1938-9.²

MELOSIRA Agardh, 1824

1. *Melosira granulata* Ehr. Madison Co. (N. C.): On rocks in river (pH
5.5-6, 73° F.) by N. C. hwy. 208, near Tenn. state line, June 25, 1949, #931.
Middle Tenn.: Cumberland and Duck Rivers, 1938-9². Lauderdale-Colbert
Counties (Ala.): rocks in running water below Wilson Dam, Oct. 4, 1949,
(Hall) #1949.

¹Contribution of the Botanical Laboratory, University of Tennessee, n. ser. No.
142. The writer is indebted to Dr. Ruth Patrick, not only for the identifications
published in the 1944 paper, but also for a most enjoyable and informative program
of instruction on diatoms in 1950 at the Philadelphia Academy of Natural Sciences.

²Reported by Lackey, 1942.

2. *Melosira varians* Agardh. Madison Co. (N. C.): Roadside spring hole near river at junction of N. C. hwy. 208 and 212, June 25, 1949, #932. Sevier Co.: On bank in seeping and running water under Mill at Pigeon Forge, July 29, 1949, #1592. Blount Co.: #84 and #96^a. Knox Co.: Stream at Price's Grocery on Old Sevierville Pike beyond Island Home, July 20, 1949, #1518; inside concrete drainpipe from Knoxville Waterworks, July 22, 1949, #1573. Overton Co.: Around margins of artificial lake in Standing Stone State Park, June 15, 1949, #1428. Davidson (?) Co.: Cumberland River, 1938-9²; concrete pools at Kelly's Kennels at Nashville, Aug. 20, 1949, #1824, and innumerable other stations.

STEPHANODISCUS Ehrenberg, 1845

Stephanodiscus niagarae Ehr. and *S. astraea* (Ehr.) Grun. are said to be widely distributed in lake plankton, but neither has been reported from the southeastern United States.

Solenineae

SOLENIACEAE

RHIZOLENIA Ehrenberg, 1843

Rhizolenia eriensis H. L. Smith. Middle Tenn.: Cumberland and Duck Rivers, 1938-9.² N. C.

BIDULPHIACEAE (EUCAMPIODEAE)

ATTHEYA T. West, 1860

Attheya Zuchariasi Brunn. Davidson (?) Co.: Cumberland River, 1938-9.²

PENALES

Araphidinae

TABELLARIACEAE

TABELLARIA Ehrenberg, 1840

1. *Tabellaria fenestrata* (Lyngb.) Kuetz. Lumpkin Co. (Ga.): Artificial lake at Vogel State Park, Aug. 14, 1949, #1735. Moore Co.: In mill pond at Cumberland Springs, June 29, 1949, #1026, and several other collections. N. C., S. C., Fla.

ODONTIDIACEAE

MERIDION Agardh, 1824

1. *Meridion circulare* (Grev.) Agardh. Madison Co. (N. C.): Roadside spring hole near junction of N. C. hwy. 208 and 212, June 25, 1949, #933. Blount Co.: oRcks in small stream (4500 ft.) at Little River Trail, Aug. 18, 1941, #67.³ Coating on submerged rocks in pool at Abrams Falls, June 19, 1949, #881. Knox Co.: Among mosses on rocks in spring outflow of large spring at Seven Springs, July 23, 1949, #1563; among grasses in shallow area of pond at Carter's Mill, Aug. 2, 1949, #1610. Overton Co.: Pond completely covered with *Sagittaria* spp., north of Monroe, June 15, 1949, #1479-80. Parsons Cave Branch near Fosters Cave #2, June 14, 1949, #1391, and many others.

2. *Meridion intermedium* H. L. Smith. Knox Co.: Tennessee River at Knoxville around 1877, Montgomery Co.

ODONTIDIUM Kuetzing, 1844

1. *Odontidium hiemale* (Lyngb.) Kuetz. (*Diatoma hiemale* (Lyngb.) Heib.). Middle Tenn.: Cumberland and/or Duck Rivers (reported in Lackey, 1942, but any source indication was omitted, probably through misprint).

³Reported by Silva and Sharp, 1944.

2. *Odontidium hiemale* v. *mesodon* (Ehr.) Grun. Swain Co. (N. C.): Rocks in small stream (4500 ft.) Bradley Fork, Sept. 5, 1941, #125^a. Sevier Co.: #130 and #214.^a Blount Co.: Rocks in small stream (4500 ft.) Little River Trail, Aug. 18, 1941, #125.^a

3. *Odontidium vulgare* (Bory) Pfitzer. (*Diatoma vulgare* Bory). Montgomery Co.: Field pond at Meriwether, March 18, 1950, #2097.

FRAGILARIACEAE

ASTERIONELLA Hassall, 1850

1. *Asterionella formosa* Hass. Davidson (?) Co.: Cumberland River 1938-9.² N. C., Ky.

2. *Asterionella gracilima* (Hantzsch) Heib. Davidson (?) Co.: Cumberland River 1938-9.² Weakley Co.: Farm pond by Tenn. hwy. 54, east of Dresden, July 14, 1949, #1332. Obion and Lake Counties, Reelfoot Lake, 1928.⁴

CERATONEIS Ehrenberg, 1840

1. *Ceratoneis arcus* Kuetz. Blount Co.: In seepage through concrete dam by Peery Bros. Mill at Walland, June 19, 1949, #867.

2. *Ceratoneis arcus* v. *amphioxius* (Rab.) Hust. Blount Co.: In seepage through concrete dam by Peery Bros. Mill at Walland, June 19, 1949, #867.

FRAGILARIA Lyngbye, 1819

1. *Fragilaria capucina* near v. *mesolepta* (Rab.) Grun. Blount Co.: In seepage through concrete dam at Peery Bros. Mill at Walland, June 19, 1949, #867.

2. *Fragilaria construens* (Ehr.) Grun. Overton Co.: Margins of artificial lake at Standing Stone State Park, June 15, 1949, #1422. Moore Co.: In mill pond at Cumberland Springs, June 29, 1949, #1026. Neither identification is as satisfactory as might be desired.

3. *Fragilaria crotonensis* Kitton. Middle Tenn.: Cumberland and Duck Rivers, 1938-9.²

4. *Fragilaria Harrisonii* W. Smith. Blount Co.: On rocks in falling water at Abrams Falls, June 19, 1949, #880. Knox Co.: Among mosses in outflow of large spring at Seven Springs, July 23, 1949, #1563.

5. *Fragilaria virescens* Ralfs. Madison Co. (N. C.): On rocks in river near junction of N. C. hwy. 208 and 212, June 25, 1949, #931. Swain Co. (N. C.): Mucky trail-side pool (3000 ft.) Bradley Fork, Sept. 5, 1941, #122^b. Sevier Co.: Brink (4200 ft.) of Ramsey Cascades, Sept. 4, 1941, #134^b. Blount Co.: #73 and #78^a; seepage through concrete dam at Peery Bros. Mill at Walland, June 19, 1949, #867 (resembles v. *eliptica* somewhat). Davidson Co.: Concrete pools at Kelly's Kennels at Nashville, Aug. 20, 1949, #1824 (a variant).

6. *Fragilaria virescens* v. *capitata* Krasske. Swain Co. (N. C.): Quiet pool (3200 ft.) in rapid stream, Bradley Fork, Sept. 5, 1941, #122.^b

SYNEDRA Ehrenberg, 1830

1. *Synedra acus* Kuetz. Overton Co.: Margins of artificial lake at Standing Stone State Park, July 15, 1949, #1428. Ga., Ky.

2. *Synedra nana* Meister. Weakley Co.: Farm pond by Tenn. hwy. 54, a few miles east of Dresden, July 14, 1949, #1332.

3. *Synedra rumpens* Kuetz. Moore Co.: Mill pond at Cumberland Springs, June 29, 1949, #1026.

4. *Synedra rumpens* v. *familiaris* (Kuetz.) Grun. Sevier Co.: Moist siliceous bluff (1600 ft.) Little River Gorge below Elkmont, Sept. 9, 1941, #4111^b.

¹Reported in Eddy, 1930.

Maury Co.: Trailside bank alongside Barr Creek near Mr. Worley's farm, Hampshire, June 15, 1949, #895.

5. *Synedra tenuissima* Kuetz. Obion and Lake Counties: Reelfoot Lake, 1929.¹

6. *Synedra ulna* (Nitzsch) Ehr. Madison Co. (N. C.): On rocks in river near junction of N. C. hwy. 208 and 212, June 25, 1959, #932. Sevier Co.: Moist siliceous bluff (1600 ft.) Little River Gorge below Elkmont, Sept. 9, 1941, #4111³. Blount Co.: Rocks (1750 ft.) in fork of Abrams Creek below Sams Gap Road, Aug. 26, 1941, #9³. Knox Co.: Stream at Price's grocery on Old Sevierville Pike beyond Island Home, July 20, 1949, #1517; small stream near Vestal on Martin Mill Pike, July 20, 1949, #1520; among mosses on submerged rocks in outflow of large spring at Seven Springs, July 23, 1949, #1564. Overton Co.: Rhea's Big Spring on Tenn. hwy. 42, six miles north of Livingston, #1477; pond completely covered with *Sagittaria* spp., north of Monroe, June 15, 1949, #1480. Moore Co.: Mill pond at Cumberland Springs, June 29, 1949, #1026. Middle Tenn.: Cumberland and Duck Rivers 1938-9². Davidson Co.: Concrete pools at Kelly's Kennels, Aug. 20, 1949, #1824-8 (a variant).

7. *Synedra ulna* v. *aequalis* (Kuetz.) Hust. Moore Co.: Mill pond at Cumberland Springs, June 29, 1949, #1026.

8. *Synedra ulna* v. *biceps* (Kuetz.) Hust. Middle Tenn.: Cumberland and Duck Rivers 1938-9.² Ky.

9. *Synedra ulna* v. *genuina* f. *constricta* Mayer. Blount Co.: Rocks in swift stream (2700 ft.) Hannah Mt. Train, Aug. 26, 1941, #82³; in seepage through concrete dam by Peery Bros. Mill at Walland, June 19, 1949, #867. The specimen seems to be a little off type.

10. *Synedra ulna* v. *delicatissima*. Middle Tenn.: 1938-9.² The writer was unable to locate any reference to this variety, and the author, when queried, was not able to give information at the time, but it is rather strongly felt that the author probably intended *S. acus* v. *delicatissima* (W. Smith) Grun., which may be found in Hustedt, 1930.

11. *Synedra ulna* v. *oxyrhynchus* f. *constricta* Hust. Blount Co.: Rocks in swift stream (2700 ft.) Hannah Mt. Trail, Aug. 26, 1941.³

12. *Synedra ulna* v. *radians*. Middle Tenn.: 1938-9.² The situation here is quite similar to that of v. *delicatissima* above. In this case there is a *S. acus* v. *radians* (Kuetz.) Hust. in Hustedt.

13. *Synedra ulna* v. *Ramesi* (Héribaud and Peragallo) Hust. Sevier Co.: Rocks (1450 ft.) in Fighting Creek, Sept. 3, 1941, #112³. Blount Co.: Rock in two feet of clear water (1150 ft.) at Forks of Little River, Aug. 31, 1941, #108³; seepage through concrete dam by Peery Bros. Mill at Walland, June 19, 1949, #867, which seems to be intermediate between this variety and v. *impressula* Hust.

Raphidiodinea

EUNOTIACEAE

EUNOTIA Ehrenberg, 1837

1. *Eunotia alpina* (Naeg.) Hust. Weakley Co.: Farm pond by Tenn. hwy. 54, east of Dresden, July 14, 1949, #1332.

2. *Eunotia arcus* Ehr. Knox Co.: With floating *Rhizoclonium hieroglyphicum* (Ag.) Kuetz. in Ft. Loudon Lake embayment at Blue Grass, July 20, 1949, #1563.

3. *Eunotia arcus* v. *bidens* Grun. Knox Co.: With floating *Rhizoclonium hieroglyphicum* (Ag.) Kuetz. in Ft. Loudon Lake embayment at Blue Grass, July 20, 1949, #1563.

4. *Eunotia exigua* (Breb.) Grun. Sevier Co.: Damp rock in Silers Bald Trail (6500 ft.) near Clingman's Dome, Aug. 18, 1941, #62.^a
5. *Eunotia flexuosa* Kuetz. Overton Co.: Muck by spring at tent camp of Standing Stone State Park, July 15, 1949, #1446.
6. *Eunotia lunaris* (Ehr.) Grun. Swain Co. (N. C.): Mucky trailside pool (3000 ft.) Bradley Fork, Sept. 5, 1941, #125^b. Weakley Co.: Farm pond by Tenn. hwy. 54, east of Dresden, July 14, 1949, #1332 (a variant). N. C.
7. *Eunotia microcephala* Krasske. Swain Co. (N. C.): #122 and #125^b. Sevier Co.: Sandy stagnant pool (3000 ft.) Ramsey Prong, Sept. 4, 1941, #140^b. Blount Co.: Rock in small stream (4500 ft.), Little River Trail, Aug. 18, 1941, #67.^a
8. *Eunotia monodon* Ehr. Knox Co.: Among grass in shallow area of pond at Carter's Mill, Aug. 2, 1949, #1610. Some characters of *E. gracilis* (Ehr.) Rab. are present, however.
9. *Eunotia pectinalis* v. *minor* f. *intermedia* Krasske. Sevier Co. (at N. C. state line): Spring (5500 ft.) at Double Springs Gap, Aug. 18, 1941, #64^b; sandy stagnant pool (3000 ft.) Ramsey Prong, Sept. 4, 1941, #140^b. Blount Co.: Marsh (3850 ft.) at lower end of Russell Field, Aug. 25, 1941, #78^b; coating on submerged rocks in pool at Abrams Falls, June 19, 1949, #881 (a variant).
10. *Eunotia praerupta* Ehr. Knox Co.: On ground near bait pond at Mack's east of Knoxville on U. S. hwy. 70, June 18, 1949, #867.
11. *Eunotia valida* Hust. Weakley Co.: Farm pond beside Tenn. hwy. 54, east of Dresden, July 14, 1949, #1332.
12. *Eunotia veneris* (Kuetz.) O. Muell. Swain Co. (N. C.): Mucky trailside pool (3000 ft.) Bradley Fork, Sept. 5, 1941, #125.^b

Monoraphidineae

ACHNANTHACEAE

ACHNANTHIODEAE

ACHNANTHES Bory, 1822

1. *Achnanthes conspicua* v. *brevistriata* Hust. Davidson Co.: In concrete pools of Kelly's Kennels at Nashville, Aug. 20, 1949, #1824.
2. *Achnanthes dispar* Cleve. Knox Co.: Chilhowee Park Lake (pH 7.0, 26° C.), June 18, 1949, #830. Monroe Co.: Mud in marshy area of stream choked with water cress (pH 7.0, 70° F.), June 28, 1949, #950.
3. *Achnanthes lanceolata* (Breb.) Grun. Blount Co.: Rock in swift stream (2700 ft.) Hannah Mt. Trail, Aug. 26, 1941, #82^b. Knox Co.: Among mosses on rocks in large spring at Seven Springs, July 23, 1949, #1563.
4. *Achnanthes lanceolata* v. *rostrata* Hust. Overton Co.: Margins of artificial lake at Standing Stone State Park, July 15, 1949, #1428. Montgomery Co.: Along Parsons Cave Branch, July 14, 1949, #1391.
5. *Achnanthes minutissima* Kuetz. Knox Co.: On ground near bait pond at Mack's east of Knoxville on U. S. hwy. 70, June 18, 1949, #867. Overton Co.: Pond completely covered with *Sagittaria* spp., by Tenn. hwy. 42, north of Monroe, July 15, 1949, #1479.
6. *Achnanthes minutissima* v. *cryptocephala* Grun. Sevier Co.: Moist siliceous bluff (1600 ft.) Little River Gorge below Elkmont, Sept. 9, 1941, (Sharp) #4111^b. Blount Co.: Rock in two feet of clear water (1150 ft.) forks of Little River, Aug. 31, 1941, #108^b. Knox Co.: Sand bottom of aquarium at Univ. of Tenn., Aug. 9, 1949, #1700.

COCCONEIDIAE

COCCONEIS Ehrenberg, 1838

1. *Cocconeis pediculus* Ehr. Knox Co.: On mud beside stream three miles east of Knoxville on U. S. hwy. 70, June 18, 1949, #852.

2. *Cocconeis placentula* Ehr. Blount Co.: Rocks in pools (1325 ft.) Abrams Creek at Hannah Mt. Trail crossing, Aug. 26, 1941, #84^a; on *Vaucheria* spp. in falling water of Abrams Falls, June 19, 1949, #880. Knox Co.: Among grass in shallow edge of pond at Carter's Mill, Aug. 2, 1949, #1610; in microcosm, Univ. of Tenn., Aug. 9, 1949, #1700. Monroe Co.: Near Sweet-water in marshy area of stream choked with water cress, June 28, 1949, #950. Davidson Co.: Concrete pools of Kelly's Kennels at Nashville, Aug. 20, 1949, #1824. Montgomery Co.: Edge of small stream in ravine east of Greenwood Cemetery, Dec. 17, 1949, (Clebsch) #2036.

3. *Cocconeis placentula* v. *euglypta* (Ehr.) Cleve. Knox Co.: On submerged rocks in outflow of large spring Seven Springs, July 23, 1949, #1563.

4. *Cocconeis placentula* v. *lineatus* (Ehr.) Cleve. Blount Co.: Rocks in pools (1325 ft.) Abrams Creek at Hannah Mt. crossing, Aug. 26, 1941, #84^a. Knox Co.: On mud beside stream three miles east of Knoxville on U. S. hwy. 70, June 18, 1949, #852; on ground near bait pond at Macks east of Knoxville on U. S. hwy. 70, June 18, 1949, #867.

Biraphidineae

NAVICULACEAE

AMPHIPROROIDEAE

AMPHORA Ehrenberg, 1840

1. *Amphora holsatica* Hust. Overton Co.: Margins of artificial lake in Standing Stone State Park, July 15, 1949, #1422.

2. *Amphora ovalis* Kuetz. Davidson Co.: In rocky stream in ravine on Little Marrowbone Creek Road Aug. 20, 1949, #1828. Montgomery Co.: Along Parsons Cave Branch, June 14, 1949, #1391. Shelby Co.: Feeder stream into pond at corner of Gerber Road and U. S. hwy. 64, June 30, 1949, #1093 (a variant).

3. *Amphora perpusilla* Grun. Davidson Co.: Concrete pools of Kelly's Kennels at Nashville, Aug. 20, 1949, #1824.

CYMBELLA Agardh, 1830

1. *Cymbella affinis* Kuetz. Blount Co.: #84 and #108^a. Knox Co.: Small stream ½ mile from Vestal on Martin Mill Pike, July 20, 1949, #1520; inside concrete drainpipe from Knoxville Waterworks, July 22, 1949, #1573.

2. *Cymbella cuspidata* Kuetz. Davidson Co.: Rocky stream in ravine on Little Marrowbone Creek Road, Aug. 20, 1949, #1828. The punctae are too coarse, however, so the identification is quite uncertain.

3. *Cymbella cymbiformia* (Kuetz.) V. H. Madison Co. (N. C.): Spring hole near junction of N. C. hwy. 208 and 212, June 25, 1949, #933. Blount Co.: Coating on submerged rocks in pool at Abrams Falls, June 19, 1949, #881. Knox Co.: Stream by Price's grocery on Old Sevierville Pike beyond Island Home, July 20, 1949, #1517. Montgomery Co.: Along Parsons Cave Branch, July 14, 1949, #1391.

4. *Cymbella cystula* (Hemprich) Grun. Madison Co. (N. C.): On rocks in river near junction of N. C. hwy. 208 and 212, July 25, 1949, #391.

5. *Cymbella hebridica* (Gregory) Grun. Blount Co.: Coating on submerged rocks in pool at Abrams Falls, June 19, 1949, #881. Knox Co.: Sand bottom of aquarium, Univ. of Tenn., Aug. 9, 1949, #1700. Moore Co.: In mill pond at Cumberland Springs, June 29, 1949, #1026.

6. *Cymbella naviculiformis* Auersw. Swain Co. (N. C.): Mucky trailside pool (3000 ft.) Bradley Fork, Sept. 5, 1941, #125^s. Blount Co.: Submerged (1650 ft.) Abrams Creek, Aug. 28, 1941, #100^s. Knox Co.: On mud beside stream at bridge three miles east of Knoxville on U. S. hwy. 70, June 18, 1949, #848. Overton Co.: Pond completely covered with *Sagittaria* spp. north of Monroe on Tenn. hwy. 42, July 15, 1949, #1480.

7. *Cymbella prostrata* (Berk.) Cleve. Madison Co. (N. C.): On rocks in river near junction of N. C. hwy. 208 and 212, June 25, 1949, #931. Blount Co.: Submerged rocks (1650 ft.) Abrams Creek, Aug. 28, 1941, #100^s. Montgomery Co.: Along Parsons Cave Branch, June 14, 1949, #1391.

8. *Cymbella tumida* (Breb.) V. H. Blount Co.: #100 and #108^s.

9. *Cymbella turgida* (Gregory) Cleve. Lumpkin Co. (Ga.): Artificial lake at Vogel State Park, Aug. 14, 1949, #1735. Knox Co.: Chilhowee Park Lake (pH 7.0, 26° C.) June 18, 1949, #830. Moore Co.: Mill pond at Cumberland Springs, June 29, 1949, #1026. Haywood Co.: Slough beside U. S. hwy. 70 and 79 near Brownsville, June 30, 1949, #1096. Shelby Co.: Feeder stream into pond at junction of Gerber Road and U. S. hwy 64, June 30, 1949, #1093.

10. *Cymbella ventricosa* Kuetz. Sevier Co.: Rocks (1450 ft.) in Fighting Creek, Sept. 3, 1941, #112^s. Blount Co.: Submerged rocks (1650 ft.) Abrams Creek, Aug. 28, 1941, #100^s; seepage through concrete dam by Peery Bros. Mill at Walland, June 19, 1949, #867.

GOMPHONEMA Agardh, 1824

1. *Gomphonema acuminatum* Ehr. Overton Co.: Margins of artificial lake at Standing Stone State Park, July 15, 1949, #1422-8 (a variant).

2. *Gomphonema acuminatum* v. *coronata* (Ehr.) W. Smith. Knox Co.: Stream by Price's Grocery on Old Sevierville Pike near Island Home, July 20, 1949, #1518. Moore Co.: Mill pond at Cumberland Springs, June 29, 1949, #1026.

3. *Gomphonema angustatum* (Kuetz.) Rab. Blount Co.: On seeping rocks at Abrams Falls, Sept. 9, 1949, #1886. Overton Co.: Wet muck beside spring in tent camping area of Standing Stone State Park, July 15, 1949, #1446. Davidson Co.: Concrete pools of Kelly's Kennels at Nashville, Aug. 20, 1949, #1824; in rocky stream in ravine on Little Marrowbone Creek Road, Aug. 20, 1949, #1828.

4. *Gomphonema augur* Ehr. Moore Co.: Mill pond at Cumberland Springs, June 29, 1949, #1026.

5. *Gomphonema commutata* Grun. Blount Co.: Rocks (1750 ft.) in fork of Abrams Creek below Sams Gap Road in Cades Cove, Aug. 25, 1941, #96.^s

6. *Gomphonema constrictum* Ehr. Lumpkin Co. (Ga.): On pilings in artificial lake at Vogel State Park, Aug. 14, 1949, #1735. Blount Co.: On seeping rocks at Abrams Falls, Sept. 3, 1949, #1886. Knox Co.: Stream by Price's Grocery on Old Sevierville Pike beyond Island Home, July 20, 1949, #1517. Davidson Co.: Concrete pools of Kelly's Kennels at Nashville, Aug. 20, 1949, #1824.

7. *Gomphonema constrictum* v. *capitata* (Ehr.) V. H. Lumpkin Co. (Ga.): In artificial lake at Vogel State Park, Aug. 14, 1949, #1735. Sevier Co.: Moist siliceous bluff (1600 ft.) Little River Gorge below Elkmont, Sept. 9, 1941, (Sharp), #4111.^s

8. *Gomphonema gracile* Ehr. Blount Co.: Seepage through concrete by Peery Bros. Mill at Walland, June 19, 1949, #867. Overton Co.: Margins of artificial lake at Standing Stone State Park, July 15, 1949, #1428. Weakley Co.: Farm pond by Tenn. hwy. 54, a few miles east of Dresden, July 14, 1949, #1332.

9. *Gomphonema gracile* v. *lanceolata* (Kuetz.) Cleve. Sevier Co.: Quiet

pools beside river (2600 ft.), end of Ramsey Cascades Road, Sept. 4, 1941, #130.³

10. *Gomphonema gracile* v. *naviculoides* (W. Smith) V. H. Sevier Co.: Quiet pools beside river (2600 ft.) end of Ramsey Cascades Road, Sept. 4, 1949, #130.³

11. *Gomphonema longiceps* Ehr. Lumpkin Co. (Ga.): Artificial lake in Vogel State Park, Aug. 14, 1949, #1735. Obion Co.: Farm pond by Tenn. hwy. 54, a few miles east of Dresden, July 14, 1949, #1332 (a variant).

12. *Gomphonema longiceps* f. *gracilis* Hust. Lumpkin Co. (Ga.): Artificial lake in Vogel State Park, Aug. 14, 1949, #1735. Moore Co.: Mill pond at Cumberland Springs, June 29, 1949, #1026.

13. *Gomphonema olivaceum* (Lyngb.) Kuetz. Knox Co.: On mud beside stream at bridge on U. S. hwy 70, three miles east of junction, near Mack's, June 18, 1949, #852.

14. *Gomphonema parvulum* Kuetz. Madison Co. (N. C.): Roadside spring hole near junction of N. C. hwy. 208 and 212, June 25, 1949, #932 (a variant). Sevier Co.: On bank with seeping and running water under mill at Pigeon Forge, July 29, 1949, #1591. Knox Co.: Swampy area on Univ. of Tenn. farm just south of Knoxville, Aug. 1, 1949, #1596; floating in backwater of Ft. Loudon Lake at Knoxville Waterworks, July 25, 1949, #1573. Overton Co.: Rhea's Big Spring by Tenn. hwy. 42, six miles north of Livingston, July 15, 1949, #1477 (a variant). Haywood Co.: Roadside slough by U. S. hwy. 70 near Brownsville, June 30, 1949, #1096. Shelby Co.: Feeder stream into pond at Gerber Road and U. S. hwy. 64, June 30, 1949, #1093.

15. *Gomphonema sphaerophorum* Ehr. Blount Co.: #96 and #108³; on rocks in Abrams Falls, June 19, 1949, #880-1. Knox Co.: Small stream ½ mile beyond Vestal on Martin Mill Pike, July 20, 1949, #1520; stream at Price's Grocery on Old Sevierville Pike beyond Island Home, July 20, 1949, #1517.

16. *Gomphonema ventricosum* Gregory. Blount Co.: Coating on rock in pool at Abrams Falls, June 19, 1949, #881.

NAVICULOIDEAE

CALONEIS Cleve, 1894

Caloneis formosa (Gregory) Cleve. Overton Co.: Margins of artificial lake in Standing Stone State Park, July 15, 1949, #1428.

GYROSIGMA Hassall, 1845

1. *Gyrosigma acuminatum* (Kuetz.) Rab. Blount Co.: Seepage through concrete dam by Peery Bros. Mill at Walland, June 19, 1949, #867. Davidson Co.: Rocky stream in ravine on Little Marrowbone Creek Road, Aug. 20, 1949, #1828.

2. *Gyrosigma balticum* (Ehr.) Cleve. Montgomery Co.: Along Yellow Creek in Riggins Mill Region near Shiloh, Aug. 21, 1949, #1860.

3. *Gyrosigma Wannsbeckii* (Donkin) Cleve. Monroe Co.: Marshy stream (pH 7, 70° F.) choked with water cress by U. S. hwy. 11, near Sweetwater, June 28, 1949, #950. Davidson Co.: Rocky stream in ravine on Little Marrowbone Creek Road, Aug. 20, 1949, #1828 (a variant). Shelby Co.: Feeder spring into pond at Gerber Road and U. S. hwy. 64, June 30, 1949, #1093 (a variant).

MASTOGLOIA Thwaites, 1856

Mastogloia Smithii Thwaites. Blount Co.: Mud on Charlie Meyers' pond June 19, 1949, #879. Maury Co.: Running humus-bottomed pool by Barr Creek, June 15, 1949, #898.

NAVICULA Bory, 1822

1. *Navicula angelica* Ralfs. Blount Co.: Coating on submerged rock at Abrams Falls, June 19, 1949, #881.
2. *Navicula cari* v. *angusta* Grun. Swain Co. (N. C.): #12, #125, and #126³. Blount Co.: #67 and #82.³
3. *Navicula crucigera* (W. Smith) Cleve. Moore Co.: Mill pond at Cumberland Springs, June 29, 1949, #1026.
4. *Navicula cryptocephala* Kuetz. Blount Co.: #84, #96, and #100³. Weakley Co.: Farm pond by Tenn. hwy. 54, a few miles east of Dresden, July 14, 1949, #1332. Haywood Co.: Roadside slough near Brownsville, June 30, 1949, #1096 (a variant). Shelby Co.: Feeder stream into pond at Gerber Road and U. S. hwy. 64, June 30, 1949, #1093.
5. *Navicula cryptocephala* v. *pumila* Grun. Blount Co.: Rocks in pool (1325 ft.) Abrams Creek at Hannah Mt. Trail crossing, Aug. 26, 1941, #84.³
6. *Navicula cuspidata* v. *Heribaudi* Peragalla. Blount Co.: In seepage through concrete dam by Perry Bros. Mill at Walland, June 19, 1949, #867.
7. *Navicula decusis* Ostrup. Blount Co.: Rock in two feet of clear water (1150 ft.), forks of Little River, Aug. 31, 1941, #108.³
8. *Navicula helvetica* Brunn. Shelby Co.: Feeder stream into pond at corner of Gerber Road and U. S. hwy. 64, June 30, 1949, #1093.
9. *Navicula lucidula* Grun. Knox Co.: Small stream by Martin Mill Pike 1/2 mile from Vestal, July 20, 1949, #1520.
10. *Navicula minuta*. Middle Tenn.: 1938-9.² The writer can only speculate as to what was intended here. Perhaps it was *N. minima* Grun. or *N. minuscula* Grun.
11. *Navicula mutica* Kuetz. Sevier Co.: #112 and #4111³. Blount Co.: #82 and #108.³
12. *Navicula placenta* Ehr. Swain Co. (N. C.): Mucky trailside pool (3000 ft.) Bradley Fork, Sept. 5, 1941, #125³. Blount Co.: Rocks in swift stream (2700 ft.) Hannah Mt. Trail, Aug. 26, 1941, #82.³
13. *Navicula placentula* f. *rostrata* A. Mayer. Madison Co. (N. C.): Roadside spring hole near junction of N. C. hways. 208 and 212, June 25, 1949, #933.
14. *Navicula radiosa* Grun. Davidson Co.: Rocky stream in ravine on Little Marrowbone Creek Road, Aug. 20, 1949, #1828.
15. *Navicula radiosa* v. *tenella* (Bréb.) Cleve. Swain Co. (N. C.): Mucky trailside pool (3000 ft.) Bradley Fork, Sept. 5, 1941, #125³. Blount Co.: #73, #100, and #108.³
16. *Navicula Reinhardtii* Grun. Madison Co. (N. C.): Roadside spring hole near junction of N. C. hways. 208 and 212, June 25, 1949, #933.
17. *Navicula rhynchocephala* Kuetz. Blount Co.: Rocks in pools (1325 ft.) Abrams Creek at Hannah Mt. Trail crossing, Aug. 26, 1941, #84.³
18. *Navicula viridula* Kuetz. Blount Co.: #84 and #100.³

NEIDIUM Pfitzer, 1871

1. *Neidium iridis* (Ehr.) Cleve. Blount Co.: Submerged rocks (1650 ft.) Abrams Creek, Aug. 26, 1941, #100³. Overton Co.: Pond completely covered with *Sagittaria* spp. north of Monroe along Tenn. hwy. 42, June 15, 1949, #1479.
2. *Neidium affine* (Ehr.) Cleve. Overton Co.: Margins of artificial lake at Standing Stone State Park, July 15, 1949, #1422. Montgomery Co.: Along Parson's Cave Branch, July 14, 1949, #1391 (a variant).
3. *Neidium dubium* f. *constricta* Hust. Overton Co.: Floating with other

algae in shallow water of artificial lake at Standing Stone State Park, July 15, 1949, #1428.

4. *Neidium iridis* v. *ampliata* (Ehr.) Cleve. Overton Co.: Wet muck beside spring at tent camping area of Standing Stone State Park, July 15, 1949, #1446.

5. *Neidium Koslowi* Mereschkowsky. Overton Co.: Margins of artificial lake at Standing Stone State Park, July 15, 1949, #1422.

PINNULARIA Ehrenberg, 1840

1. *Pinnularia divergens* W. Smith. Madison Co. (N. C.): Roadside spring hole near junction of N. C. hwy. 208 and 212, June 25, 1949, #932.

2. *Pinnularia gibba* Ehr. Madison Co. (N. C.): Roadside spring hole near junction of N. C. hwy. 208 and 212, June 25, 1949, #932.

3. *Pinnularia gibba* v. *mesogongyla* (Ehr.) Hust. Madison Co. (N. C.): On rocks in river near junction of N. C. hwy. 208 and 212, June 25, 1949, #931.

4. *Pinnularia interupta* W. Smith. Overton Co.: Margins of artificial lake at Standing Stone State Park, July 15, 1949, #1422-8.

5. *Pinnularia mesolepta* (Ehr.) W. Smith. Shelby Co.: Feeder spring into pond at corner of Gerber Road and U. S. hwy. 64, June 30, 1949, #1093.

6. *Pinnularia polyonca* (Breb.) O. Muell. Weakley Co.: Farm pond by Tenn. hwy. 54, a few miles east of Dresden, July 14, 1949, #1332.

7. *Pinnularia undulata* Gregory. Blount Co.: Coating on submerged rocks in pool at Abrams Falls, June 19, 1949, #881 (a variant).

PLEUROSIGMA W. Smith, 1852

The genus has been reported from Middle Tennessee by Lackey, 1942, and from Kentucky.

STAURONEIS Ehrenberg, 1843

1. *Stauroneis anceps* Ehr. Blount Co.: Coating on submerged rocks in pool at Abrams Falls, June 19, 1949, #881 (a variant). Overton Co.: Around margins of artificial lake at Standing Stone State Park, July 15, 1949, #1428 (a variant).

2. *Stauroneis anceps* v. *rhomboidalis* f. *linearis* (Ehr.) Cleve. Overton Co.: Wet muck by spring in tent camping area at Standing Stone State Park, July 15, 1949, #1446.

3. *Stauroneis dilatata* Ehr. Davidson Co.: Concrete pools at Kelly's Kennels, Aug. 20, 1949, #1824. Haywood Co.: Slough by U. S. hwy. 70 near Brownsville, June 30, 1949, #1096.

VANHUERCKIA Schuett, 1896

1. *Vanhuerckia rhomboides* (Ehr.) Breb. (*Frustula rhomboides* (Ehr.) DeToni). Weakley Co.: Farm pond by Tenn. hwy. 54, a few miles east of Dresden, July 14, 1949, #1332. Haywood Co.: Slough beside U. S. hwy. 70 near Brownsville, June 30, 1949, #1096. Shelby Co.: Feeder stream for pond at corner of Gerber Road and U. S. hwy. 64, June 30, 1949, #1096.

2. *Vanhuerckia rhomboides* v. *amphipleuroides* Gom. (*Frustula rhomboides* v. *amphipleuroides* Grun.). Blount Co.: #91, #100, and #108³; Coating on submerged rocks in pool at Abrams Falls, June 19, 1949, #881.

3. *Vanhuerckia vulgaris* (Thwaites) V. H. (*Frustula vulgaris* (Thwaites) DeToni). Madison Co. (N. C.): Roadside spring hole near junction of N. C. hwy. 208 and 212, June 25, 1949, #933 (a variant). Swain Co. (N. C.): Mucky trailside pool (3000 ft.) Bradley Fork, Sept. 5, 1941, #125³. Blount Co.: Submerged rocks (1650 ft.) Abrams Creek, Aug. 28, 1941, #100³. Haywood Co.: Slough beside U. S. hwy. 70, June 30, 1941, #1096.

EPITHEMIACEAE

DENTICULA Kuetzing, 1844

1. *Denticula tenuis* Kuetz. Overton Co.: Margins of artificial lake at Standing Stone State Park, July 15, 1949, #1422.
2. *Denticula thermalis* Kuetz. Overton Co.: Margins of artificial lake at Standing Stone State Park, July 15, 1949, #1428. Montgomery Co.: Along Parsons Cave Branch, July 14, 1949, #1391.

EPITHEMIA de Brebisson, 1838

- Epithemia Hyndmanni* W. Smith. Davidson Co.: Fishpool by greenhouse on Vanderbilt campus, March 17, 1950, #2060.

RHOPALODIA O. Mueller, 1895

1. *Rhopalodia gibba* (Ehr.) O. Muell. Overton Co.: Margins at edge of artificial lake in Standing Stone State Park, July 15, 1949, #1422-8. Montgomery Co.: Along Parsons Cave Branch, July 14, 1949, #1391.
2. *Rhopalodia gibberula* (Ehr.) O. Muell. Lumpkin Co. (Ga.): Submerged in artificial lake of Vogel State Park, Aug. 14, 1949, #1735. Blount Co.: On seeping rocks at Abrams Falls, Sept. 9, 1949, #1886.

NITZSCHIAECEAE

HANTZSCHIA Grunow, 1880

1. *Hantzschia amphioxys* (Ehr.) Grun. Madison Co. (N. C.): Roadside spring hole near junction of N. C. hwy. 208 and 212, June 25, 1949, #933 (a variant). Lumpkin Co. (Ga.): Plankton cast in artificial lake at Vogel State Park, Aug. 14, 1949, #1736. Blount Co.: Coating on submerged rocks in pool at Abrams Falls, June 19, 1949, #881.

2. *Hantzschia amphioxys* f. *capitata* O. Muell. Haywood Co.: Slough beside U. S. hwy. 70 near Brownsville, June 30, 1949, #1096.

NITZSCHIA Hassall, 1845

1. *Nitzschia acicularis* (Kuetz.) W. Smith. Middle Tenn.: Cumberland and Duck Rivers 1938-9.²
2. *Nitzschia acuta* Hantzsch. Madison Co. (N. C.): Rocks in river near junction of N. C. hwy. 208 and 212, June 25, 1949, #931. Blount Co.: Seepage through concrete dam by Peery Bros. Mill at Walland, June 19, 1949, #867.
3. *Nitzschia angustata* (W. Smith) Grun. Montgomery Co.: Along Parsons Cave Branch, June 14, 1949, #1391.
4. *Nitzschia capitellata* Hust. Blount Co.: On rocks in falling water at Abrams Falls, June 19, 1949, #880.
5. *Nitzschia dissipata* (Kuetz.) Grun. Madison Co. (N. C.): Rocks in river (pH 5.5-6, 73° F.) near junction of N. C. hwy. 208 and 212, June 25, 1949, #931.
6. *Nitzschia fonticola* Grun. Davidson Co.: Rocky stream in ravine along Little Marrowbone Creek Road, Aug. 20, 1949, #1828.
7. *Nitzschia frustulum* Kuetz. Madison Co. (N. C.): Roadside spring hole near junction of N. C. hwy. 208 and 212, June 25, 1949, #933. Overton Co.: Pond completely covered with *Sagittaria* spp. by Tenn. hwy. 42 north of Monroe, July 15, 1949, #1480.
8. *Nitzschia Heufleriana* Grun. Davidson Co.: Concrete pools of Kelly's Kennels at Nashville, Aug. 20, 1949, #1824.
9. *Nitzschia Lorenziana* Grun. Blount Co.: In falling water of Abrams Falls, June 19, 1949, #881.

10. *Nitzschia palea* (Kuetz.) W. Smith. Knox Co.: Sand bottom of aquarium at Univ. of Tenn., Aug. 9, 1949, #1700.

11. *Nitzschia sigma* (Kuetz.) W. Smith. Shelby Co.: Feeder stream of pond at corner of Gerber Road and U. S. hwy. 64, June 30, 1949, #1093.

12. *Nitzschia sublinearis* Hust. Knox Co.: Chilhowee Park Lake (pH 7.0, 26° C.), June 18, 1949, #830.

SURIRELLACEAE

CYMATOPLEURA W. Smith, 1851

1. *Cymatopleura solea* (Bréb.) W. Smith. Knox Co.: Small stream ½ mile beyond Vestal on Martin Mill Pike, July 20, 1949, #1520.

2. *Cymatopleura solea* v. *regula* (Ehr.) Grun. Knox. Co.: Stream by Price's Grocery on Old Sevierville Pike beyond Island Home, July 20, 1949, #1517.

SURIRELLA Turpin, 1828

1. *Surirella angustata* Kuetz. Madison Co. (N. C.): On rock in river near junction of N. C. hwy. 208 and 212, June 25, 1949, #931.

2. *Surirella delicatissima* Lewis. Overton Co.: Pond completely covered with *Sagittaria* by Tenn. hwy. 42 north of Monroe, July 15, 1949, #1479-80.

3. *Surirella didyma* Kuetz. Shelby Co.: Feeder stream for pond at corner of Gerber Road and U. S. hwy. 64, June 30, 1949, #1093.

4. *Surirella linearis* v. *constricta* (Ehr.) Grun. Blount Co.: Seepage through concrete dam by Peery Bros. Mill at Walland, June 19, 1949, #867. Knox Co.: Mud beside stream crossing U. S. hwy. 11-E, June 18, 1949, #852.

5. *Surirella linearis* v. *helvetica* (Brunn.) Meister. Knox Co.: Chilhowee Park Lake (pH 7.0, 26° C.), June 18, 1949, #830.

6. *Surirella Moelleriana* Grun. Madison Co. (N. C.): Roadside spring hole near junction of N. C. hwy. 208 and 212, June 25, 1949, #933.

7. *Surirella ovata* Kuetz. Haywood Co.: Slough by U. S. hwy. 70 near Brownsville, June 30, 1949, #1096 (a variant). Shelby Co.: Feeder stream into pond at corner of Gerber Road and U. S. hwy. 64, June 30, 1949, #1093 (a variant).

8. *Surirella robusta* Ehr. Knox Co.: In flow from very large spring on Blue Grass Road from Farragut, July 20, 1949, #1520. Weakley Co.: Farm pond by Tenn. hwy. 54 east of Dresden, July 14, 1949, #1332.

9. *Surirella robusta* v. *splendida* (Ehr.) V. H. Shelby Co.: Feeder stream into pond at Gerber Road and U. S. hwy. 64, June 30, 1949, #1093.

10. *Surirella tenera* Gregory. Weakley Co.: Farm pond by Tenn. hwy. 54 east of Dresden, July 14, 1949, #1332.

11. *Surirella tenera* v. *nervosa* Mayer. Blount Co.: #84 and #91^a.

BIBLIOGRAPHY

- Bailey, J. W. 1851. Microscopical observations made in South Carolina, Georgia and Florida. *Smiths. Contrib. Knowledge*, 2:1-29.
- Eddy, W. 1930. The plankton of Reelfoot Lake, Tennessee. *Trans. Amer. Micros. Soc.*, 49:246-251.
- Hustedt, F. 1930. Bacillariophyta (Diatomeae). In Pascher's *Die Sueswasser-flora Mitteleuropas*, Heft 10. Jena.
- Lackey, J. B. 1942. The plankton and protozoa of two Tennessee rivers. *Amer. Mid. Nat.*, 27:191-202.
- Smith, H. L. 1878. Description of new species of diatoms. *Amer. Quart. Micros. Jour.*, 1:12-18.

(Concluded on page 85)