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Annotated List of Diatoms Reported From Kansas

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ANNOTATED LIST OF DIATOMS

REPORTED FROM KANSAS

Mark E. Eberle

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ERRATA

Page 42, Line 11, Should read:

Navicula smithii -- in Curtis (1901)

Page 131, Line 10, Should read:

Apparently the wrong variety was listed

ACKNOWLEDGMENTS

Many people played essential roles in the preparation of this paper. Foremost among them is Dr. Thomas Wenke who introduced me to diatoms and has helped in many ways to further my education and research.

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Mr. Danny Reinke of the State Biological Survey of Kansas and Dr. Joseph Thomasson of Black Hills State College provided references used in this paper that I might not have otherwise located.

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INTRODUCTION

In recent years, increased interest in the diatoms (Bacillariophyta) of Kansas has greatly expanded both the number of taxa recorded for the state and their known distributions (Williams et al. 1978 and 1979, Reinke 1979a, Wujek et al. 1980, and Czarnecki and Reinke 1981). During the 95 years that separate these recent studies from the first known account of a diatom species in Kansas (Cragin 1886), many taxonomic revisions have been proposed.

This annotated list has been prepared to organize all of the available information in the literature on the diatoms of Kansas. The literature also has been reviewed to briefly summarize the history of research on diatoms in the state.

REVIEW OF LITERATURE

Prior to 1900, three publications mentioned diatoms in Kansas. The Bulletin of the Washburn College Laboratory of Natural History contained a report of *Meridiones radialis* from Douglas County (Cragin 1886); however, this name is of uncertain application. Three years later, the same journal contained a list of 23 taxa from Reno County identified by Wolle (1889). In "Diatomaceae of

North America," Wolle (1894) specifically listed Kansas in the distribution of *Biddulphia laevis* Ehr.

Curtis (1901) made the first substantial contribution to the knowledge of the diatomaceous flora of Kansas. In 1899 and 1900, he read three accounts before the Kansas Academy of Science on collections of diatoms from Shawnee, Reno, and Kiowa counties. His lists included a total of more than 280 different entries. Some of his collections are in the diatom herbarium of the Academy of Natural Sciences of Philadelphia and were among the samples used by Patrick and Reimer (1966 and 1975) to check distributions for "The Diatoms of the United States."

Boyer (1901) reported *Biddulphia laevis* Ehr. from Kansas, and listed this taxon, plus two other species with distributions that specifically included Kansas, in "Synopsis of North American Diatomaceae" (Boyer 1927a and 1927b). Elmore (1921) included 15 taxa from Lyon County in "The Diatoms (Bacillarioideae) of Nebraska." McNaught (1918 and 1920) included genera of diatoms in a survey of algae from city reservoirs in Kansas and wrote a key to genera of diatoms and to species of other algae (McNaught 1920).

Hanna (1932) identified and photographed 26 Pliocene taxa of diatoms from Wallace County. Some

of those taxa are also found in Recent samples. Hanna also described two new taxa in that paper.

The Academy of Natural Sciences of Philadelphia (1958) sampled the Kansas River for the DuPont Company. Powers (1969) sampled it again for the Federal Water Pollution Control Administration and cited the Academy report. These two studies recorded many of the same taxa.

Jantzen (1960) reported genera of diatoms from Stafford County. Williams and Scott (1962) and Williams (1964 and 1972) listed dominant taxa from water-quality sampling stations in the United States, including stations at Coolidge and Kansas City, Kansas. McFarland et al. (1964) reported 13 taxa of diatoms in their algal survey of Cheyenne Bottoms in Barton County. Wujek (1965) published a list of what were thought to be previously unreported diatoms from eastern Kansas; however, a number of those taxa apparently had been reported in earlier publications.

Youngsteadt (1972) studied the distribution of *Asterionella*, *Fragilaria*, and two other genera of algae with respect to parent soil materials. He sampled 15 artificial lakes and seven ponds in southeastern Kansas.

Selva (1976) studied the Tertiary diatoms of the Ogallala Formation in western Kansas. He listed and provided photographs of 203 taxa, some

of which he could not identify to species and variety. Selva (1981) subsequently named seven new taxa and reported observations on two other taxa that he found in his initial study.

Recently, a number of new taxa and new distributional records have been reported from collections of Recent diatoms. Reinke (1979a) reported 11 taxa as new for Kansas and one new distributional record for a previously recorded taxon. He also expanded the known distribution of *Rhopalodia gibba* (Ehr.) O. Müll. (Reinke 1981), and published a preliminary checklist of all algae reported from Kansas (Reinke 1979b). Williams et al. (1978 and 1979) published an account of algae from major reservoirs in the state as part of the National Eutrophication Survey. Wujek et al. (1980) reported 165 taxa of diatoms from several western counties. Czarnecki and Reinke (1981) reported 36 taxa of diatoms as new for the state and listed 17 nomenclatural changes for previously recorded taxa, some of which will be proposed formally in a paper to be published in the Transactions of the Kansas Academy of Science.

Patrick and Reimer (1966 and 1975) included four taxa, with distributions that specifically included Kansas, that were not mentioned in any of the above references. They listed 14 other taxa from "Kansas" plus a number of others from the

"Plains States."

Three additional references that pertain in some way to diatoms in Kansas were located in the literature, but none listed taxa from specific locations. Van Landingham (1970) included ecological data from diatomaceous deposits in Wallace County. He cited an unpublished manuscript (Van Landingham 1960) as the source of his information. Crotty (1889) published methods of collecting, cleaning, and mounting diatoms in the Transactions of the Kansas Academy of Science. Also in that journal, Almeida et al. (1971) discussed holographic microscopy techniques used to examine *Cyclotella* spp. and *Navicula* spp. Although the latter two articles did not include taxonomic or ecological accounts of diatoms, they are likely to be found in literature searches on Kansas diatoms and are mentioned for this reason.

Taxa from unpublished Master's theses have not been included in this list, but taxa from the unpublished Ph.D. dissertation by Selva (1976) and the unpublished Kansas River Survey conducted by the Academy of Natural Sciences of Philadelphia (1958) have been incorporated. The latter two are major surveys that added greatly to the known diatomaceous flora of Kansas, whereas most of the unpublished Master's theses mentioned few taxa of diatoms.

METHODS AND MATERIALS

This annotated list generally follows the taxonomic treatment by Patrick and Reimer (1966 and 1975) for the species, varieties, and forms included in that monograph. Taxa above the level of genus are not considered in this list to facilitate its use by those who subscribe to different classification schemes. Patrick and Reimer (*loc. cit.*) was chosen as the base reference for this list because it is the most comprehensive review of taxa reported for the United States. It also will serve as the primary identification reference for those who study diatoms in this country; thus, by corresponding with Patrick and Reimer (*loc. cit.*), the value of this annotated list should be enhanced.

The taxonomic treatment of Hustedt (1930) was followed for most specific and subspecific taxa in the orders Bacillariales and Surirellales, as well as the three centric orders to be included in the uncompleted portion of "The Diatoms of the United States" (Patrick and Reimer 1966 and 1975). Revisions in this list will need to be made for some of these taxa to conform with the classification scheme to be published by Patrick and Reimer.

Taxa not included in the above references were listed as recommended by Van Landingham

(1967-1979). Each taxon included in this list was checked in Van Landingham (loc. cit.) and, if his treatment differed from that of Patrick and Reimer (1966 and 1975) or Hustedt (1930), it was noted in the list with the taxon involved. This was done because Van Landingham (loc. cit.) listed synonyms, homonyms, and numerous references for each taxon and this information could be helpful to those who work with specimens from previous collections. The numbers of references listed by Van Landingham (loc. cit.) that included a particular name or misidentified taxon have been given occasionally in this list to provide a relative indication of how frequently those names appeared in the literature.

Many authors of papers on diatoms in Kansas did not cite authorities for taxa they reported, and some seem either to have cited authorities incorrectly or cited incorrect authorities. In these instances, Van Landingham (1967-1979) was consulted for all possible authorities. Because of homonyms and other problems, assumptions had to be made for some taxa and others had to be listed as "of uncertain application." If an authority was assumed to be incorrect, the assumption will have been either noted specifically or implied by the style in which this list is written. This style will be explained later. Abbreviations used

for authorities in the original papers have not always been duplicated letter for letter in this list. However, if an authority was omitted in the original paper, it has not been included in this list with the name under which it was reported.

Scientific names of some taxa apparently were misspelled. Also, Curtis (1901) and others seem to have used the wrong Latin endings for some scientific names (e.g., *sphaerophorum* rather than *sphaerophora*). Scientific names have been spelled as they were in the original papers.

Taxa in this list have been arranged in alphabetical order except that nominate varieties have been listed before other varieties of the same species. Names whose status could not be determined have been listed as "uncertain" at the end of each genus. Each taxon has been listed with the names under which it has been reported, authors who have published a record of it, any assumptions made, and other details that seemed important.

Each entry has been written in an indented style to present the information as clearly as possible. The use of this abbreviated style also has kept the list from becoming too long and cumbersome. The following entries were selected for the explanation of this style because they include most of the assumptions made in the list

and should adequately illustrate the abbreviated manner in which this list is written.

1. * *Bacillaria paradoxa* Gmelin var. *paradoxa*
2. *Bacillaria paradoxa* Gmelin (also as
 Homoeocladia paxillifer (O. Müll.)
 Elm. and *Nitzschia paxillifer* (O. Müll.)
 Heib.) -- in McFarland et al. (1964)
3. *Nitzschia paradoxa* (Gmelin) Grun.
4. *Nitzschia paradoxa* Grun. -- in Curtis
 (1901)
5. *Nitzschia paradoxa* -- in Curtis (1901)
 and Powers (1969)
6. *Homoeocladia paxillifer* (Müller) Elm. --
 in Elmore (1921)

- (1) This is the name of the taxon believed to have been reported in the publications that are listed below it. An asterisk identifies each entry in the list except names of uncertain application.
- (2) This is the name reported by McFarland et al. (1964) which differs from the name on line one by the absence of "var. *paradoxa*." McFarland et al. (1964) listed synonyms in the same style as the valid name and did not clearly identify them as synonyms. These synonyms have been listed in parentheses for this reason.

- (3) This synonym of *B. p.* Gmelin var. *paradoxa* was reported as written in lines four and five.
- (4) The indentation indicates the assumption that Curtis (1901) incorrectly cited the authority. If, for example, Curtis had listed the name as "*Nitzschia paradoxa* Rand," then the indentation would indicate that Curtis had listed the wrong authority because *N. paradoxa* Rand is not known in the literature. The former assumption is more common than the latter in the list.
- (5) Curtis (1901) and Powers (1969) did not cite the authority for the name when they listed it in their papers. The indentation indicates the assumption that it is the same as *N. paradoxa* (Gmelin) Grun.
- (6) This is the synonym of *B. p.* Gmelin var. *paradoxa* reported by Elmore (1921).

If the name of a taxon was reported in the same manner as it would be included in this list, it has been written as follows:

- * *Fragilaria brevistriata* var. *inflata* (Pant.)
Hust.
in Selva (1976) and Wujek et al. (1980)

Information listed with the scientific name before the dash was included in the publication cited after the dash, as illustrated below:

Navicula subinflata (fig. 23, pl. III) -- in
Curtis (1901)

Curtis (1901) included drawings of some of the taxa he reported and he noted these figures in his list of taxa. Other authors included various comments with taxa they reported, and those have been included in this list in a similar manner.

The notations "[V.L.]" and "[P & R]" have been included with many of the taxa of uncertain application. These indicate that the information was taken from Van Landingham (1967-1979) and Patrick and Reimer (1966 and 1975), respectively.

This annotated list contains 477 entries of diatom taxa believed to have been reported from Kansas. In addition, 98 names of uncertain application have been included.

ANNOTATED LIST OF DIATOMS

ACHNANTHES

- * *Achnanthes biasoletiana* (?Kütz.) Grun. var. *biasoletiana*
Achnanthes biasoletiana Grun. -- in Curtis (1901)
- * *Achnanthes exigua* Grun. var. *exigua*
in Selva (1976) and Wujek et al. (1980)
Achnanthes exigua Grun. -- in Wujek (1965)
Achnanthes exigua -- in Curtis (1901)
- * *Achnanthes exigua* var. *constricta* (Grun.) Hust.
in Wujek et al. (1980)
- * *Achnanthes exilis* Kütz. var. *exilis*
Achnanthes exilis -- in Curtis (1901)
- * *Achnanthes flexella* (Kütz.) Brun var. *flexella*
in Selva (1976)
- * *Achnanthes grimmei* Krasske var. *grimmei*
in Selva (1976)
- * *Achnanthes hauckiana* Grun. var. *hauckiana*
Achnanthes hauckiana Grun. -- in Czarnecki and Reinke (1981)

- * *Achnanthes hudsonis* Grun. var. *hudsonis*
Achnanthes hudsonis -- in Curtis (1901)
- * *Achnanthes hungarica* (Grun.) Grun. var.
hungarica
in Selva (1976)
Achnanthes hungarica (Grun.) var.
hungarica -- in Wujek et al. (1980)
- * *Achnanthes lanceolata* Bréb. ex Kütz. var.
lanceolata
in Wujek et al. (1980)
Achnanthes lanceolata (Bréb. in Kütz.)
Grun. -- in Selva (1976)
Achnanthes lanceolata Bréb. -- in ANSP (1958)
Achnanthes lanceolata -- in Curtis (1901)
and Powers (1969)
Achnanthes lanceolatum [sic] -- in Curtis
(1901)
- * *Achnanthes lanceolata* var. *dubia* Grun.
in Wujek et al. (1980)
Van Landingham (1967-1979) listed *Achnanthes*
lanceolata var. *rostrata* (Østr.) Hust.
as the recommended name for this taxon.
- * *Achnanthes lanceolata* var. *haynaldii*
(Istv.-Schaarsch) Cl.
in Patrick and Reimer (1966)

- * *Achnanthes microcephala* (Kütz.) Grun. var. *microcephala*
Achnanthes microcephala (Kütz.) Grun. -- in Elmore (1921)
- * *Achnanthes minutissima* Kütz. var. *minutissima*
 in Selva (1976) and Wujek et al. (1980)
Achnanthes minutissima Kütz. -- in ANSP (1958)
Achnanthes minutissima -- in Curtis (1901) and Powers (1969)
Achnanthes minutissima f. *curta* Grun.
Achnanthes minutissima Kg., forma *curta* -- in Curtis (1901)
 Van Landingham (1967-1979) listed
Achnanthes minutissima f. *curta* Grun. as a valid taxon.
- * *Achnanthes trinodis* (W. Sm.) Grun. var. *trinodis*
Achnanthes trinodis -- in Curtis (1901)

AMPHIPLEURA

- * *Amphipleura pellucida* (Kütz.) Kütz. var. *pellucida*
 in Wujek et al. (1980)
Amphipleura pellucida -- in Curtis (1901)

AMPHORA

- * *Amphora acutiuscula* Kütz. var. *acutiuscula*
Amphora acutiscula [sic] Kütz. -- in
 Czarnecki and Reinke (1981)
- Van Landingham (1967-1979) listed *Amphora coffeaeformis* var. *acutiuscula* (Kütz.) Hust. as the recommended name for this taxon.
- * *Amphora blaingraysia* Selva var. *blaingraysia*
Amphora blaingraysia Selva sp. nov. -- in
 Selva (1981)
- * *Amphora coffeiformis* (Ag.) Kütz. var. *coffeiformis*
Amphora coffeiformis (Ag.) Kütz. -- in
 Czarnecki and Reinke (1981)
- Van Landingham (1967-1979) spelled the specific name *A. coffeaeformis*.
- * *Amphora doddii* Selva var. *doddii*
Amphora doddii Selva sp. nov. -- in Selva
 (1981)
- * *Amphora javanica* A.S. var. *javanica*
Amphora javanica A. Schmidt -- in Czarnecki
 and Reinke (1981)

- * *Amphora katii* Selva var. *katii*
Amphora katii Selva sp. nov. -- in Selva
(1981)
- * *Amphora montana* Krasske var. *montana*
Amphora montanum [sic] -- in Powers (1969)
- * *Amphora ovalis* (Kütz.) Kütz. var. *ovalis*
in Selva (1976) and Wujek et al. (1980)
Amphora ovalis Kütz. -- in Wolle (1889) and
Elmore (1921)
Amphora ovalis -- in Curtis (1901)
- * *Amphora ovalis* var. *affinis* (Kütz.) V.H. ex DeT.
in Selva (1976) and Wujek et al. (1980)
Amphora ovalis var. *affinis* -- in ANSP (1958)
Van Landingham (1967-1979) listed *Amphora*
ovalis var. *libyca* (Ehr.) Cl. as the
recommended name for this taxon. See
Patrick and Reimer (1975:69) for a
discussion of the possible status of
this group.
- * *Amphora ovalis* var. *pediculus* (Kütz.)
V.H. ex DeT.
in Czarnecki and Reinke (1981)
- * *Amphora perpusilla* (Grun.) Grun. var.
perpusilla
in Wujek et al. (1980)

- * *Amphora reinholdi* Hanna var. *reinholdi*
Amphora reinholdi Hanna n. sp. -- in
Hanna (1932)
Amphora reinholdi Hanna -- in Selva (1976)
- * *Amphora stroppiana* Selva var. *stroppiana*
Amphora stroppiana Selva sp. nov. -- in
Selva (1981)
- * *Amphora submontana* Hust. var. *submontana*
Amphora submontana Hust. -- in ANSP (1958)
Amphora submontanum [sic] -- in Powers (1969)
- * *Amphora terroris* Ehr. var. *terroris*
Amphora cymbifera Greg. -- in Curtis (1901)
- * *Amphora veneta* Kütz. var. *veneta*
in Wujek et al. (1980)
Amphora veneta Kütz. -- in Hanna (1932)
- ? Uncertain *Amphora*
Amphora libyca -- in Curtis (1901)
- A. libyca* H.L. Sm. = *A. veneta* Kütz.
[V.L.]
- A. libyca* Ehr. (1840) = *A. ovalis* var.
libyca (Ehr.) Cl. [V.L.]
- A. libyca* Ehr. (1840) = *A. ovalis* var.
affinis (Kütz.) V.H. ex DeT. [P & R]
- A. libyca* Ehr. (1854) = *A. ovalis* (Kütz.)
Kütz. [V.L.]

? Uncertain *Amphora* cont.

Amphora lineata (fig. 15, pl. III) -- in
Curtis (1901)

Patrick and Reimer (1975:80) listed
this with their unverified taxa.

Van Landingham (1967-1979) listed
A. lineata Greg. as a synonym of
either *A. coffeaeformis* (Ag.) Kütz.
or *A. coffeaeformis* var. *acutiuscula*
(Kütz.) Kütz.

Amphora (No. 18, Schmidt's Atlas, pl. 39)
-- in Curtis (1901)

Amphora cymbifera Greg. var. (?) was
listed in Schmidt et al. (1874-1959).

ANOMOEONEIS

* *Anomoeoneis costata* (Kütz.) Hust. var. *costata*
in Selva (1976)

* *Anomoeoneis sphaerophora* (Ehr.) Pfitz. var.
sphaerophora

in Selva (1976) and Wujek et al. (1980)

Anomoeoneis sphaerophora (Ehr.) -- in
Hanna (1932)

Continued on the next page.

Anomoeoneis sphaerophora (Ehr.) Pfitz. cont.

Navicula sphaerophora Kg. -- in Wolle (1889)

Navicula sphaerophorum [sic] -- in
Curtis (1901)

In addition to *N. sphaerophora* Kütz.,
Van Landingham (1967-1979) also
listed the following:

N. sphaerophora sensu Donk. =
Navicula cuspidata var.
ambigua (Ehr.) Cl.

Navicula biceps Ehr. -- in Curtis (1901)

See Patrick and Reimer (1966:374-375) for
a discussion of the synonymy of this
taxon.

* *Anomoeoneis vitrea* (Grun.) Ross var. *vitrea*
in Wujek et al. (1980)

? Uncertain *Anomoeoneis*

Anomoeoneis exilis var. *lanceolata* Mayer
-- in Selva (1976)

Van Landingham (1967-1979) listed this
as a valid name. Patrick and
Reimer (1966) included the new com-
bination *A. vitrea* (Grun.) Ross for
A. exilis (Kütz.) Cl., but did not
discuss the status of *A. e.* var.
lanceolata Mayer, so the proper

Continued on the next page.

? Uncertain *Anomoeoneis* cont.

name for this taxon was not
determined.

ASTERIONELLA

* *Asterionella formosa* Hass. var. *formosa*

Asterionella formosa Hass. -- in Reinke
(1979a)

Asterionella formosa -- in Powers (1969)
and Williams et al. (1978 and 1979)

* *Asterionella formosa* var. *gracillima*
(Hantz.) Grun.

Asterionella formosa var. *gracillima* -- in
Williams et al. (1978 and 1979)

BACILLARIA

* *Bacillaria paradoxa* Gmelin var. *paradoxa*

Bacillaria paradoxa Gmelin (also as
Homoeocladia paxillifer (O. Müll.) Elm.
and *Nitzschia paxillifer* (O. Müll.)
Heib.) -- in McFarland et al. (1964)

Nitzschia paradoxa (Gmelin) Grun.

Nitzschia paradoxa Grun. -- in Curtis
(1901)

Nitzschia paradoxa -- in Curtis (1901)
and Powers (1969)

Nitzschia paxillifer (O. Müll.) Heib.

Nitzschia paxillifer -- in ANSP (1958)

Homoeocladia paxillifer (O. Müll.) Elm.
-- in Elmore (1921)

BIDDULPHIA

* *Biddulphia laevis* Ehr. var. *laevis*

Biddulphia laevis Ehr. -- in Wolle (1894),
Boyer (1901), Boyer (1927a), ANSP (1958),
and Reinke (1979a)

Biddulphia laevis -- in Powers (1969)

CALONEIS

* *Caloneis amphisbaena* (Bory) Cl. var. *amphisbaena*

in Wujek et al. (1980)

Caloneis amphisbaena -- in Powers (1969)

* *Caloneis bacillum* (Grun.) Cl. var. *bacillum*

in Selva (1976) and Wujek et al. (1980)

Caloneis bacillum (Grun.) Meresch. -- in
ANSP (1958)

Caloneis bacillum -- in Powers (1969)

Navicula fontinalis Grun. -- in Curtis
(1901)

* *Caloneis clevei* var. *tugelae* (Choln.) Choln.

in Selva (1976)

* *Caloneis hebes* (Ralfs) Patr. var. *hebes*

in Patrick and Reimer (1966)

* *Caloneis lewisii* Patr. var. *lewisii*

Caloneis lewisii Patr. -- in Wujek et al.
(1980)

Continued on the next page.

Caloneis lewisii Patr. cont.

Caloneis trinodis (Lewis) Meist.

Caloneis trinodis (Lewis) Boyer -- in
Wujek (1965)

Navicula trinodis Lewis -- in Elmore
(1921)

Van Landingham (1967-1979) listed *Caloneis
lamella* Zakrz. as the recommended name
for this taxon.

* *Caloneis limosa* (Kütz.) Patr. var. *limosa*
in Selva (1976)

Navicula schumanniana Grun.

Navicula schumanniana -- in Curtis (1901)

Van Landingham (1967-1979) listed *Caloneis
schumanniana* (Grun.) Cl. as the recom-
mended name for this taxon.

* *Caloneis linearis* (Grun.) Boyer var. *linearis*
Navicula linearis Grun.

Navicula linearis -- in Curtis (1901)

According to Van Landingham (1967-1979),
Navicula linearis (Greg.) Ralfs =
Pinnularia linearis Greg., but he
listed only one reference with
Ralfs' combination.

* *Caloneis oregonica* (Ehr.) Patr. var. *oregonica*
in Wujek et al. (1980)

- * *Caloneis permagna* (J.W. Bail.) Cl. var. *permagna*
Caloneis permagna (J.W. Bail.) Cl. -- in
 Czarnecki and Reinke (1981)

- * *Caloneis ventricosa* (Ehr.) Meist. var.
ventricosa

in Wujek et al. (1980)

Navicula leptogongyla Ehr.

Navicula leptogongyla Kg. -- in Wolle
 (1889) and Curtis (1901)

Navicula leptogongyla -- in Curtis (1901)

According to Van Landingham (1967-1979),

Ehrenberg is the only authority for

N. leptogongyla. He also listed

Navicula leptogongyla sensu Grun. in

Schmidt et al. (1874-1959) as a synonym

of *Pinnularia viridis* var. *leptogongyla*

Cl. Curtis (1901) used Schmidt et al.

(loc. cit.) to identify some of the

taxa he reported.

- * *Caloneis ventricosa* var. *minuta* (Grun.) Patr.

in Patrick and Reimer (1966)

Navicula ventricosa var. *minuta* (Grun.) Cl.

Navicula ventricosa forma *minuta* -- in
 Curtis (1901)

See Patrick and Reimer (1966:584).

Van Landingham (1967-1979) did not
 list *N. ventricosa* forma *minuta*.

- * *Caloneis ventricosa* var. *subundulata* (Grun.)
Patr.

in Wujek et al. (1980)

- * *Caloneis westii* (W. Sm.) Hendeby var. *westii*

in Selva (1976)

? Uncertain *Caloneis*

Navicula obtusata W.S. and *Navicula*
obtusata -- in Curtis (1901)

Navicula obtusa W. Sm. = *Caloneis hebes*
(Ralfs) Patr., but this was listed as
questionable by Patrick and Reimer
(1966:589).

Navicula obtusata (Grun.) Cl. = *Navicula*
crucicula (W. Sm.) Donk. [V.L.]

Navicula (No. 47, Schmidt's Atlas, pl. 50,
not named) -- in Curtis (1901)

CAMPYLODISCUS

- * *Campylodiscus clypeus* Ehr. var. *clypeus*

Campylodiscus clypeus Ehr. -- in Czarnecki
and Reinke (1981)

- * *Campylodiscus noricus* var. *hibernicus* (Ehr.)
Grun.

Campylodiscus noricus var. *hibernica* [sic]
(Ehr.) Grun. -- in Reinke (1979a)

COCCONEIS

- * *Cocconeis pediculus* Ehr. var. *pediculus*
in Wujek et al. (1980)
Cocconeis pediculus -- in Curtis (1901)
Cocconeis pediculus (?) -- in Williams et al.
(1978 and 1979)

- * *Cocconeis placentula* Ehr. var. *placentula*
in Selva (1976)
Cocconeis placentula Ehr. -- in Hanna (1932)
and Wujek (1965)
Cocconeis placentula -- in ANSP (1958)

- * *Cocconeis placentula* var. *euglypta* (Ehr.) Cl.
in Wujek et al. (1980)

- * *Cocconeis placentula* var. *lineata* (Ehr.) V.H.
in Wujek et al. (1980)

- ? Uncertain *Cocconeis*
Cocconeis diaphana W. Sm. (*C. pediculus* (?)
Ehr.) -- in Wolle (1889)
According to Van Landingham (1967-1979),
these are not synonyms, so it is
unclear which taxon Wolle identified.

? Uncertain *Cocconeis* cont.

Cocconeis lineata Grun. -- in Wolle (1889)

Van Landingham (1967-1979) listed only

Ehrenberg as an authority for

Cocconeis lineata.

C. lineata Ehr. (1841) = *Cocconeis*
placentula var. *lineata* (Ehr.)

V.H. [V.L.]

C. lineata Ehr. (1854) = *Cocconeis*
pellucida var. *minor* Grun.

[V.L.]

COSCINODISCUS

* *Coscinodiscus rothii* (Ehr.) Grun. var. *rothii*

Coscinodiscus rothii (Ehr.) Grun. -- in
Wujek et al. (1980)

CYCLOTELLA

* *Cyclotella atomus* Hust. var. *atomus*

Cyclotella atomus Hust. -- in ANSP (1958)

Cyclotella atomus -- in Powers (1969)

* *Cyclotella comta* (Ehr.) Kütz. var. *comta*

Cyclotella comta (Ehr.) Kütz. -- in Wujek
et al. (1980)

Cyclotella comta -- in Curtis (1901)

* *Cyclotella glomerata* Bachm. var. *glomerata*

Cyclotella glomerata Bachm. -- in ANSP (1958)

Cyclotella glomerata -- in Powers (1969)

- * *Cyclotella kansasensis* Hanna var. *kansasensis*
Cyclotella kansensis [sic] Hanna var.
kansensis -- in Selva (1976)
Cyclotella kansasensis Hanna n. sp. -- in
Hanna (1932)
- * *Cyclotella kuetzingiana* Thw. var. *kuetzingiana*
Cyclotella kuetzingiana Thw. -- in ANSP (1958)
Cyclotella kutziana [sic] -- in Powers
(1969)
- * *Cyclotella meneghiniana* Kütz. var. *meneghiniana*
Cyclotella meneghiniana Kütz. -- in ANSP
(1958) and Wujek et al. (1980)
Cyclotella meneghiniana -- in Curtis (1901),
Williams (1964), Powers (1969), and
Williams et al. (1978 and 1979)
- * *Cyclotella nana* Hust. var. *nana*
Cyclotella nana Hust. -- in ANSP (1958)
Cyclotella nana -- in Powers (1969)
- * *Cyclotella stelligera* (Cl. et Grun.) V.H. var.
stelligera
Cyclotella stelligera Cl. et Grun. -- in
ANSP (1958) and Wujek et al. (1980)
Cyclotella stelligera -- in Williams et al.
(1978 and 1979)

Hustedt (1930) listed the authority as
C. stelligera Cl. et Grun.

- * *Cyclotella stelligeroides* Hust. var.
stelligeroides
Cyclotella stelligeroides Hust. -- in
ANSP (1958)
Cyclotella stelligeroides -- in Powers (1969)
- * *Cyclotella striata* (Kütz.) Grun. var. *striata*
Cyclotella striata (Kütz.) Cl. et Grun.
(also as *Cyclotella striata* (Kütz.) Grun.
and *Cyclotella striata* Kütz.) -- in
McFarland et al. (1964)
- ? Uncertain *Cyclotella*
Cyclotella michiganiana (?) -- in
Williams et al. (1978 and 1979)
Cyclotella michiganiana Skv. was listed
as a valid name by Van Landingham
(1967-1979).

CYLINDROTHECA

- * *Cylindrotheca gracilis* (Bréb. ex Kütz.) Grun.
var. *gracilis*
Cylindrotheca gracilis (Bréb. ex Kütz.) Grun.
-- in Czarnecki and Reinke (1981)

CYMATOPLEURA

- * *Cymatopleura cochlea* Brun var. *cochlea*
in Selva (1976)
Cymatopleura cochlea -- in ANSP (1958)

- * *Cymatopleura elliptica* (Bréb.) W. Sm. var. *elliptica*
Cymatopleura elliptica (Bréb.) W. Sm. -- in ANSP (1958) and Wujek et al. (1980)
Cymatopleura elliptica -- in Curtis (1901)
Sphinctocystis elliptica (Bréb. ex Kütz.) Kuntze
Sphinctocystis elliptica (Kütz.) Kuntze -- in Elmore (1921)
- * *Cymatopleura solea* (Bréb.) W. Sm. var. *solea*
Cymatopleura solea (Bréb.) W. Sm. -- in ANSP (1958) and Wujek et al. (1980)
Cymatopleura solea (Bréb.) -- in Hanna (1932)
Cymatopleura solea -- in Williams et al. (1978 and 1979)
Cymatopleura solea (both long and short) -- in Curtis (1901)
Sphinctocystis librilis (Ehr.) Hass. -- in Elmore (1921)
 Van Landingham (1967-1979) included
Sphinctocystis librilis (Ehr.) Hass. in the synonymy of *Cymatopleura solea* (Bréb.) W. Sm. with a question mark.
- * *Cymatopleura solea* var. *apiculata* (W. Sm.) Ralfs
Cymatopleura apiculata W. Sm.
Cymatopleura apiculata -- in Curtis (1901)

- * *Cymbella australica* (A.S.) Cl. var. *australica*
Cocconema australicum A.S. -- in Curtis (1901)
Cocconema australicum -- in Curtis (1901)

- * *Cymbella austriaca* Grun. var. *austriaca*
in Selva (1976)

- * *Cymbella cesatii* (Rabh.) Grun. ex A.S. var. *cesatii*
in Selva (1976)
Cymbella cesatii (Rabh.) -- in Hanna (1932)

- * *Cymbella cesatii* f. *schreinfrankii* Selva
Cymbella cesatii forma *schreinfrankii*
Selva fo. nov. -- in Selva (1981)

- * *Cymbella cistula* (Ehr.) Kirchn. var. *cistula*
in Selva (1976)
Cocconema cistula (Ehr.) Ehr.
Cocconema cistula -- in Curtis (1901)

- * *Cymbella cymbiformis* Ag. var. *cymbiformis*
in Wujek et al. (1980)
Cocconema cymbiforme (Ag.) Ehr.
Cocconema cymbiforme -- in Curtis (1901)

- * *Cymbella cymbiformis* var. *nonpunctata* Font.
in Wujek et al. (1980)

- * *Cymbella hauckii* V.H. var. *hauckii*
in Selva (1976)

- * *Cymbella inaequalis* (Ehr.) Rabh. var. *inaequalis*
in Selva (1976)

Van Landingham (1967-1979) listed *Cymbella ehrenbergii* Kütz. as the recommended name for *Cymbella inaequalis* Ross. He did not list *Cymbella inaequalis* (Ehr.) Rabh.

- * *Cymbella lanceolata* (Ag.) Ag. var. *lanceolata*
in Wujek et al. (1980)
Cymbella lanceolata (Ehr.) -- in Hanna (1932)

Van Landingham (1967-1979) listed *Cymbella lanceolata* (Ehr.) V.H. as a valid name and gave the publication date as 1838. Patrick and Reimer (1975) listed the publication date for *Cymbella lanceolata* (Ag.) Ag. as 1830.

Cocconema lanceolatum (Ag.) Ehr.
Cocconema lanceolatum -- in Curtis (1901)

- * *Cymbella laevis* Naeg. ex Kütz. var. *laevis*
in Selva (1976)

- * *Cymbella lunata* W. Sm. var. *lunata*
 in Wujek et al. (1980)
- Van Landingham (1967-1979) listed two possible recommended names for this taxon:
Cymbella gracilis (Ehr.) Kütz. (see Patrick and Reimer (1975:46)) and *Cymbella ventricosa* var. *lunata* (W. Sm.) Woodw. et Tweed.
- * *Cymbella marcinia* Selva var. *marcinia*
Cymbella marcinia Selva sp. nov. -- in Selva (1981)
- * *Cymbella mexicana* (Ehr.) Cl. var. *mexicana*
 in Selva (1976) and Wujek et al. (1980)
Cymbella mexicana (Ehr.) -- in Hanna (1932)
Cocconema mexicanum Ehr.
Cocconema mexicanum -- in Curtis (1901)
Cymbella kamtschatica Grun.
Cymbella kamachatica [sic] Grun. -- in Curtis (1901)
- * *Cymbella mexicana* var. *janischii* (A.S.) Reim.
 in Wujek et al. (1980)
- * *Cymbella microcephala* Grun. var. *microcephala*
 in Selva (1976) and Wujek et al. (1980)
Cymbella minuscula Grun. -- in Curtis (1901)
- See Patrick and Reimer (1975:34).

* *Cymbella minuta* Hisle ex Rabh. var. *minuta*

in Wujek et al. (1980)

Cymbella ventricosa (Kütz.) Kütz.

Cymbella ventricosa Kütz. -- in ANSP
(1958)

Cymbella ventricosa (Kütz.) -- in
Hanna (1932)

Cymbella ventricosa -- in Powers (1969)

Encyonema ventricosum (Kütz.) Grun.

Encyonema ventricosum -- in Curtis
(1901)

Encyonema lunula (Ehr.) Grun.

Encyonema lunula -- in Curtis (1901)

Van Landingham (1967-1979) listed *Cymbella*
ventricosa Ag. as a recommended name;
see Patrick and Reimer (1975:47-48).

* *Cymbella minuta* var. *pseudogracilis* (Choln.)
Reim.

in Selva (1976)

Van Landingham (1967-1979) listed *Cymbella*
turgida var. *pseudogracilis* Choln. as
the recommended name for this taxon.

* *Cymbella minuta* var. *silesiaca* (Bleisch ex Rabh.)
Reim.

in Selva (1976)

Van Landingham (1967-1979) listed *Cymbella*
ventricosa Ag. as the recommended name
for this taxon.

- * *Cymbella muelleri* Hust. var. *muelleri*
in Selva (1976)

- * *Cymbella naviculiformis* Auersw. ex Heib. var.
naviculiformis
Cymbella naviculiformis -- in Curtis (1901)

- * *Cymbella prostrata* var. *auerswaldii* (Rabh.) Reim.
in Wujek et al. (1980)

- * *Cymbella pusilla* Grun. var. *pusilla*
in Selva (1976)
Cymbella pusilla of Grunow -- in Curtis
(1901)

- * *Cymbella sinuata* Greg. var. *sinuata*
in Wujek et al. (1980)
Cymbella sinuata -- in ANSP (1958)

- * *Cymbella triangulum* (Ehr.) Cl. var. *triangulum*
in Wujek et al. (1980)
Encyonema triangulum (Ehr.) Kütz.
Encyonema triangulum -- in Curtis (1901)

- * *Cymbella tumida* (Bréb. ex Kütz.) V.H. var.
tumida
in Wujek et al. (1980)
Cymbella stomatophora Grun.
Cymbella stomatophora -- in Curtis (1901)

- * *Cymbella tumidula* Grun. ex A.S. var. *tumidula*
 in Patrick and Reimer (1975)
Cymbella tumidula -- in Curtis (1901)

- * *Cymbella turgida* Greg. var. *turgida*
Cymbella turgida -- in ANSP (1958)

Van Landingham (1967-1979) also listed
 the following:

C. turgida Pant. = *Cymbella parva*
 (W. Sm.) Wolle

C. turgida Hass. = *Epithemia turgida*
 (Ehr.) Kütz.

Encyonema turgidum (Greg.) Grun. -- in
 Elmore (1921)

Encyonema turgidum -- in Curtis (1901)

- * *Cymbella turgidula* Grun. var. *turgidula*
Cymbella turgidula -- in Curtis (1901)

? Uncertain *Cymbella*

Cocconema cistula (a new variety) -- in
 Curtis (1901)

Cocconema helveticum -- in Curtis (1901)

See *Cymbella helvetica* on page 37.

Cocconema hungaricum -- in Curtis (1901)

Patrick and Reimer (1975) indicated
 that this might be a synonym of
Cymbella cymbiformis var. *nonpunctata*
 Font. Van Landingham (1967-1979)

Continued on the next page.

? Uncertain *Cymbella* cont.

listed *Cocconema hungaricum* as a
synonym of *Cymbella parva* var.
hungarica (Grun.) Cl.

Cymbella anglica -- in Curtis (1901)

C. anglica Lagerst. = *Cymbella*
naviculiformis Auersw. ex Heib.
[V.L. and P & R]

C. anglica V.H. = *Cymbella amphicephala*
var. *intermedia* Cl.-Euler [V.L.]

Cymbella helvetica -- in Curtis (1901)

C. helvetica Kütz. was listed as valid
in Van Landingham (1967-1979).

C. helvetica W. Sm. = *Cymbella parva*
[V.L.]

According to Patrick and Reimer
(1975), *Cymbella parva* is either
Cymbella affinis Kütz. or
Cymbella cymbiformis var.
nonpunctata Font.

Cymbella (No. 40 of Schmidt 9, not named)
-- in Curtis (1901)

Cymbella (No. 52 of Schmidt No. 9, not
named) -- in Curtis (1901)

Encyonema (No. 61 of Schmidt's Atlas,
pl. 10) -- in Curtis (1901)

Encyonema (large, like Schmidt's pl. 71,
fig. 18) -- in Curtis (1901)

DENTICULA

- * *Denticula elegans* Kütz. var. *elegans*
in Wujek et al. (1980)
Denticula elegans Kütz. -- in Hanna (1932)
Denticula elegans -- in Curtis (1901)

- * *Denticula elegans* var. *kittoniana* (Grun.) DeT.
in Selva (1976)

- * *Denticula tenuis* Kütz. var. *tenuis*
in Patrick and Reimer (1975)
Denticula tenuis -- in Curtis (1901)

- * *Denticula tenuis* var. *frigida* (Kütz.) Grun.
Denticula frigida Kütz. -- in Wujek (1965)

- * *Denticula thermalis* Kütz. var. *thermalis*
in Patrick and Reimer (1975)
Denticula thermalis -- in Curtis (1901)

? Uncertain *Denticula*

Denticula splendens -- in Curtis (1901)

This was listed as a reported, but unverified, taxon by Patrick and Reimer (1975). They gave no authority for the name. Van Landingham (1967-1979) did not list this name.

DIATOMA

- * *Diatoma hiemale* (Roth) Heib. var. *hiemale*
in Reinke (1979a)
- * *Diatoma tenue* Ag. var. *tenue*
in Patrick and Reimer (1966)
Diatoma tenue -- in Curtis (1901)
Van Landingham (1967-1979) listed *Diatoma*
elongatum var. *tenue* (Ag.) V.H. as the
recommended name for this taxon.
- * *Diatoma vulgare* Bory var. *vulgare*
in Wujek et al. (1980)
Diatoma vulgare Bory -- in Reinke (1979a)
Diatoma vulgare -- in Powers (1969) and
Williams et al. (1978 and 1979)
- * *Diatoma vulgare* var. *grande* (W. Sm.) Grun.
in Selva (1976)
Van Landingham (1967-1979) listed *Diatoma*
vulgare var. *ehrenbergii* (Kütz.) Grun.
as the recommended name for this taxon.
See Patrick and Reimer (1966:110-111).

DIPLONEIS

- * *Diploneis elliptica* (Kütz.) Cl. var. *elliptica*
in Wujek et al. (1980)

Navicula elliptica Kütz.

Navicula elliptica -- in Curtis (1901)

In addition to *N. elliptica* Kütz.,
Van Landingham (1967-1979) also
listed the following:

N. elliptica sensu W. Sm. =

Diploneis smithii (Bréb.) Cl.

N. elliptica pro parte W. Sm. =

Navicula lyroides Hendey

N. elliptica sensu A.S. =

Diploneis ovalis (Hisle) Cl.

- * *Diploneis fusca* var. *hyperborea* (Grun.) Hust.
in Wujek et al. (1980)

- * *Diploneis interrupta* (Kütz.) Cl. var.
interrupta

Navicula interrupta Kg. -- in Wolle (1889)

- * *Diploneis marginestriata* Hust. var.
marginestriata

in Wujek et al. (1980)

- * *Diploneis oblongella* (Naeg. ex Kütz.) Ross
var. *oblongella*
in Selva (1976)
Diploneis ovalis -- in ANSP (1958)
Navicula elliptica var. *oblongella*
(Naeg. ex Kütz.) Grun.
Navicula elliptica var. *oblongella*
(fig. 24, pl. III) -- in Curtis (1901)
- Van Landingham (1967-1979) listed *Diploneis*
ovalis var. *oblongella* (Naeg. ex Kütz.) Cl.
as the recommended name for this taxon.
- * *Diploneis oculata* (Bréb.) Cl. var. *oculata*
Navicula oculata Bréb.
Navicula oculata -- in Curtis (1901)
- * *Diploneis puella* (Schum.) Cl. var. *puella*
Diploneis puella (Schum.) Cl. -- in Czarnecki
and Reinke (1981)
Diploneis puella -- in ANSP (1958)
- * *Diploneis smithii* var. *pumila* (Grun.) Hust.
Diploneis smithii var. *pumila* -- in Williams
et al. (1978 and 1979)
- ? Uncertain *Diploneis*
Navicula elliptica Kg. (*N. smithii* Bréb.)
-- in Wolle (1889)
N. elliptica Kütz. = *Diploneis*
elliptica (Kütz.) Cl. [P & R]

Continued on the next page.

? Uncertain *Diploneis* cont.

N. smithii Bréb. ex W. Sm. = *Diploneis smithii* (Bréb. ex W. Sm.) Cl. [P & R]

Because these two names were recorded together, it was uncertain which taxon Wolle identified.

Navicula elliptica var. *minuta* Grun.
(fig. 4, pl. II) -- in Curtis (1901)

This was not listed by Van Landingham (1967-1979).

Navicula smithii

N. smithii Bréb. ex W. Sm. = *Diploneis smithii* (Bréb. ex W. Sm.) Cl. [P & R]

Navicula (No. 55, Schmidt's Atlas, pl. 7, with some reserve) -- in Curtis (1901)

ENTOMONEIS

* *Entomoneis alata* (Ehr.) Ehr. var. *alata*

Entomoneis alata -- in Williams et al. (1978 and 1979)

Amphiprora alata (Ehr.) Kütz. -- in McFarland et al. (1964)

Amphiprora alata Kütz. -- in ANSP (1958)

Amphiprora alata -- in Powers (1969)

* *Entomoneis ornata* (Bail.) Reim. var. *ornata*

Amphiprora ornata Bail.

Amphiprora ornata -- in Powers (1969)

- * *Entomoneis paludosa* (W. Sm.) Reim. var.
paludosa

in Wujek et al. (1980)

Amphiprora paludosa W. Sm. -- in Williams
and Scott (1962)

Amphiprora paludosa W.S., said to be British
(fig. 9, pl. II) -- in Curtis (1901)

Amphiprora paludosa -- in Williams (1964)

- * *Entomoneis paludosa* var. *duplex* (Donk.)
Czarn. et Reinke

Entomoneis paludosa var. *duplex* (Donk.)
Czarnecki et Reinke (in press) -- in
Czarnecki and Reinke (1981)

Van Landingham (1967-1979) listed *Amphiprora*
as the recommended name for this genus.

? Uncertain *Entomoneis*

Amphiprora conspicua ?, (perhaps
columetica ?) -- in Curtis (1901)

Van Landingham (1967-1979) listed

Amphiprora conspicua Grev. as a
valid name, but did not list

Amphiprora columetica.

EPITHEMIA

- * *Epithemia adnata* (Kütz.) Bréb. var. *adnata*
Epithemia zebra (Ehr.) Kütz.

Epithemia zebra -- in Curtis (1901)

Van Landingham (1967-1979) listed

Epithemia zebra (Ehr.) Kütz. as a
valid taxon.

- * *Epithemia adnata* var. *minor* (Perag. et Herib.)
Patr.

in Czarnecki and Reinke (1981)

Van Landingham (1967-1979) did not list a
recommended name for this taxon.

- * *Epithemia adnata* var. *proboscidea* (Kütz.) Patr.
in Selva (1976)

Van Landingham (1967-1979) listed *Epithemia*
zebra var. *proboscidea* (Kütz.) Grun. as
the recommended name for this taxon.

- * *Epithemia argus* (Ehr.) Kütz. var. *argus*
Epithemia argus Kg. -- in Wolle (1889)

- * *Epithemia argus* var. *alpestris* Grun.
in Czarnecki and Reinke (1981)

Van Landingham (1967-1979) listed the
authority as *E. argus* var. *alpestris*
(W. Sm.) Grun. See Patrick and Reimer
(1975:176).

- * *Epithemia sores* Kütz. var. *sores*

in Wujek et al. (1980)

Epithemia sores, short form -- in Curtis
(1901)

- * *Epithemia sorex* var. *gracilis* Hust.
in Selva (1981)
- * *Epithemia turgida* (Ehr.) Kütz. var. *turgida*
in Wujek et al. (1980)
Epithemia turgida Ktz. -- in Wolle (1889)

? Uncertain *Epithemia*

Eunotia lunula -- in Curtis (1901)

Eunotia lunula Ehr. = *Epithemia lunula*
(Ehr.) Ralfs [P & R]

See Patrick and Reimer (1966:221).

EUNOTIA

- * *Eunotia arcus* Ehr. var. *arcus*
in Wujek et al. (1980)
- * *Eunotia curvata* (Kütz.) Lagerst. var. *curvata*
in Selva (1976) and Wujek et al. (1980)
Van Landingham (1967-1979) listed this as
a synonym of *Eunotia lunaris* (Ehr.) Grun.
- * *Eunotia glacialis* Meist. var. *glacialis*
in Selva (1976)
- * *Eunotia monodon* Ehr. var. *monodon*
in Wujek et al. (1980)

- * *Eumotia parallela* Ehr. var. *parallela*
in Wujek et al. (1980)
- * *Eumotia praerupta* Ehr. var. *praerupta*
in Selva (1976)
- * *Eumotia vanheurckii* Patr. var. *vanheurckii*
in Selva (1976)

? Uncertain *Eumotia*

Eumotia gracilis -- in Curtis (1901)

E. gracilis (Ehr.) Rabh. = *Eumotia*
glacialis Meist. [V.L. and P & R]

E. gracilis W. Sm. = *Eumotia exigua*
(Bréb. ex Kütz.) Rabh. [V.L.]

Eumotia lunaris -- in Curtis (1901)

E. lunaris (Ehr.) Bréb. was listed as
a valid name by Van Landingham
(1967-1979).

E. lunaris (Ehr.) Grun. = *Eumotia*
curvata (Kütz.) Lagerst.; see
Patrick and Reimer (1966:189).

FRAGILARIA

- * *Fragilaria brevistriata* Grun. var. *brevistriata*
in Selva (1976)
- Fragilaria brevistriata* Grun. -- in Wujek
(1965)

- * *Fragilaria brevistriata* var. *inflata* (Pant.)
Hust.
in Selva (1976) and Wujek et al. (1980)

- * *Fragilaria capucina* Desm. var. *capucina*
in Wujek et al. (1980)

- * *Fragilaria capucina* var. *mesolepta* Rabh.
in Wujek et al. (1980)

- * *Fragilaria construens* (Ehr.) Grun. var.
construens
in Selva (1976)
Fragilaria construens (E.) Grun. -- in
Williams and Scott (1962)
Fragilaria construens -- in Williams (1964)

- * *Fragilaria construens* var. *binodis* (Ehr.) Grun.
in Selva (1976) and Wujek et al. (1980)

- * *Fragilaria construens* var. *exigua* (W. Sm.)
Schulz
in Selva (1976)

- * *Fragilaria construens* var. *venter* (Ehr.) Grun.
in Selva (1976) and Wujek et al. (1980)

- * *Fragilaria crotonensis* Kitton var. *crotonensis*
 in Wujek et al. (1980)
Fragilaria crotonensis -- in Williams et al.
 (1978 and 1979)
Synedra crotonensis (Kitton) Cl. et Moll.
Synedra crotonensis -- in Curtis (1901)
- * *Fragilaria lapponica* Grun. var. *lapponica*
 in Selva (1976)
- * *Fragilaria pinnata* Ehr. var. *pinnata*
Fragilaria pinnata Ehr. -- in Hanna (1932)
 and Wujek (1965)
Fragilaria mutabilis (W. Sm.) Grun.
Fragellaria [sic] *mutabilis* -- in Curtis
 (1901)
Fragilaria elliptica f. *minor* Grun.
Fragellaria [sic] *elliptica* forma *minor*
 -- in Curtis (1901)
 Van Landingham (1967-1979) listed
Fragilaria elliptica f. *minor* as a
 synonym of *Fragilaria pinnata* Ehr.
 Patrick and Reimer (1966:131) did not
 determine the status of this form, but
 included *Fragilaria elliptica* Schum.
 as a synonym of *F. pinnata* Ehr.
- * *Fragilaria pinnata* var. *lancettula* (Schum.)
 Hust.
 in Selva (1976)

- * *Fragilaria turgens* Ehr. var. *turgens*
Fragellaria [sic] *turgens* -- in Curtis (1901)
 Patrick and Reimer (1966:131) listed this
 as a reported, but unverified, taxon.
- * *Fragilaria vaucheriae* (Kütz.) Peters. var.
vaucheriae
 in Selva (1976) and Wujek et al. (1980)
Fragilaria vaucheriae (Kütz.) Peters. -- in
 in ANSP (1958)
Fragilaria vaucheriae -- in Powers (1969)
Fragilaria intermedia Grun. -- in ANSP (1958)
Fragilaria intermedia -- in Powers (1969)
 and Williams et al. (1978 and 1979)
Fragellaria [sic] *intermedia* -- in Curtis
 (1901)
- * *Fragilaria virescens* Ralfs var. *virescens*
 in Selva (1976)
Fragilaria virescens Grun. -- in Wujek (1965)
- * *Fragilaria virescens* var. *mesolepta* (Rabh.)
 Schönf.
Fragilaria virescens var. *mesolepta* Schönfeldt
 -- in Wujek (1965)

FRUSTULIA

? Uncertain *Frustulia*

Navicula rhomboides var. (*Colletonema*
vulgare Thw.) -- in Curtis (1901)

Continued on the next page.

? Uncertain *Frustulia* cont.

Colletonema vulgare Thw. = *Frustulia vulgaris* (Thw.) DeT. [V.L.]

Van Landingham (1967-1979) listed
Navicula rhomboides varieties as
synonyms of taxa in the genus
Frustulia.

GOMPHONEMA

- * *Gomphonema abbreviatum* Ag. var. *abbreviatum*
Gomphonema abbreviatum -- in Curtis (1901)
 - * *Gomphonema acuminatum* Ehr. var. *acuminatum*
in Selva (1976) and Wujek et al. (1980)
Gomphonema acuminatum Ehr. -- in Hanna (1932)
Gomphonema acuminatum var. *coronatum* (Ehr.)
Rabh.
Gomphonema acuminatum var. *coronatum*
(Ehr.) W. Sm. -- in Wujek (1965)
 - * *Gomphonema affine* Kütz. var. *affine*
in Wujek et al. (1980)
Gomphonema affine -- in Curtis (1901), ANSP
(1958), and Powers (1969)
Gomphonema affine f. *major* Grun.
Gomphonema affine forma *major* -- in
Curtis (1901)
Gomphonema affinis [sic] -- in Curtis (1901)
- Continued on the next page.

Gomphonema affine Kütz. cont.

Van Landingham (1967-1979) put *Gomphonema affine* Kütz. in synonymy with *Gomphonema lanceolatum* Ehr., which was listed as the recommended name. Patrick and Reimer (1975:131) put *G. lanceolatum* Ehr. with the taxon *Gomphonema grunowii* Patr. and maintained the valid status of *G. affine* Kütz.

- * *Gomphonema affine* var. *insigne* (Greg.) Andrews
in Selva (1976)

Gomphonema insigne Greg.

Gomphonema insigne -- in Curtis (1901)

- * *Gomphonema angustatum* (Kütz.) Rabh. var.
angustatum

in Selva (1976) and Wujek et al. (1980)

Gomphonema angustatum (Kütz.) Rabh. -- in
ANSP (1958)

Gomphonema angustatum -- in Curtis (1901)
Powers (1969)

- * *Gomphonema angustatum* var. *intermedia* Grun.

Gomphonema angustatum var. *intermedia* -- in
Curtis (1901), ANSP (1958), and Powers
(1969)

Gomphonema angustatum var. *obesa* Lauby

Gomphonema angustatum var. *obesa* -- in
ANSP (1958) and Powers (1969)

Continued on the next page.

Gomphonema angustatum var. *intermedia* Grun. cont.

Van Landingham (1967-1979) included *Gomphonema angustatum* var. *intermedia* Grun. with *Gomphonema parvulum* var. *micropus* Cl. which he listed as the recommended name. Patrick and Reimer (1975:122) listed *G. parvulum* var. *micropus* Cl. as a synonym of *Gomphonema parvulum* (Kütz.) Kütz. var. *parvulum* and maintained the valid status of *G. angustatum* var. *intermedia* Grun. (Patrick and Reimer 1975:126).

* *Gomphonema angustatum* var. *obtusatum* (Kütz.) Grun.

in Patrick and Reimer (1975)

Gomphonema (*angustatum* var.) *obtusatum* (Kütz.) Grun.

Gomphonema obtusatum -- in Curtis (1901)

Van Landingham (1967-1979) listed

Gomphocymbella vulgaris (Kütz.) Möll. as the recommended name for this taxon.

* *Gomphonema angustatum* var. *productum* Grun.

Gomphonema angustatum var. *producta* [sic] Grun.
-- in Curtis (1901)

* *Gomphonema angustatum* var. *sarcophagus* (Greg.) Grun.

Gomphonema sarcophagus Greg.

Gomphonema sarcophagum [sic] -- in Curtis (1901)

- * *Gomphonema clevei* Fricke var. *clevei*
Gomphonema clevei -- in Powers (1969)
- * *Gomphonema consector* Hohn et Hellerm. var.
consector
in Wujek et al. (1980)
- * *Gomphonema constrictum* var. *clavatum* (Ehr.) Patr.
Gomphonema clavatum Ehr.
Gomphonema clavatum -- in Curtis (1901)
Van Landingham (1967-1979) listed
Gomphonema clavatum Ehr. with
"?*Gomphonema constrictum* var. *capitatum*"
(Ehr.) Grun.
- * *Gomphonema dichotomum* Kütz. var. *dichotomum*
in Selva (1976)
Gomphonema intricatum var. *pumila* Grun.
Gomphonema intricatum var. *pumila* -- in
Curtis (1901) and ANSP (1958)
- * *Gomphonema gracile* Ehr. emend V.H. var. *gracile*
in Selva (1976) and Wujek et al. (1980)
Gomphonema gracile -- in Curtis (1901) and
Williams et al. (1978 and 1979)
Gomphonema gracile f. *parva* Grun.
Gomphonema gracile forma *parva* -- in
Curtis (1901)

Continued on the next page.

Gomphonema gracile Ehr. emend V.H. cont.

Gomphonema gracile var. *naviculoides* (W. Sm.)
Grun.

Gomphonema gracile var. *naviculoides* -- in
ANSP (1958) and Powers (1969)

Gomphonema auritum A. Braun -- in Curtis
(1901)

Van Landingham (1967-1979) listed

Gomphonema auritum A. Braun as a syno-
nym of *Gomphonema gracile* var. *auritum*
(A. Braun) V.H.

* *Gomphonema grunowii* Patr. var. *grunowii*
in Wujek et al. (1980)

* *Gomphonema intricatum* Kütz. var. *intricatum*
Gomphonema intricatum Kütz. -- in Wujek
(1965)

* *Gomphonema intricatum* var. *vibrio* (Ehr.) Cl.
in Wujek et al. (1980)

* *Gomphonema martini* Fricke var. *martini*
in Selva (1976)

- * *Gomphonema olivaceum* (Lyngb.) Kütz. var. *olivaceum*
 in Wujek et al. (1980)
Gomphonema olivaceum (Lyngb.) Kütz. -- in
 Elmore (1921) and McFarland et al. (1964)
Gomphonema olivaceum (Lyngb.) Hust. -- in
 ANSP (1958)
Gomphonema olivaceum -- in Curtis (1901),
 Powers (1969), and Williams et al.
 (1978 and 1979)
- * *Gomphonema parvulum* (Kütz.) Kütz. var. *parvulum*
Gomphonema parvulum (Kütz.) var. *parvulum*
 -- in Wujek et al. (1980)
Gomphonema parvulum Kütz. -- in ANSP (1958)
Gomphonema parvulum -- in Curtis (1901) and
 Powers (1969)
Gomphonema parvulum var. *subcapitata* Grun.
Gomphonema parvulum var. *subcapitata*
 -- in Curtis (1901)
Gomphonema lagenula Kg. -- in Curtis (1901)
Gomphonema lagenula -- in Curtis (1901)
- * *Gomphonema semiapertum* Grun. var. *semiapertum*
 in Patrick and Reimer (1975); from Hanna
 (1932)
Gomphonema semiapertum Grun. -- in Hanna
 (1932)
- * *Gomphonema sphaerophorum* Ehr. var. *sphaerophorum*
Gomphonema sphaerophorum Ehr. -- in Wujek
 (1965)

- * *Gomphonema subclavatum* (Grun.) Grun. var.
subclavatum

in Selva (1976)

Gomphonema subclavatum -- in ANSP (1958) and
Powers (1969)

Gomphonema (montanum var.) subclavatum Grun.

Gomphonema montanum var. *subclavatum*
-- in Curtis (1901)

Van Landingham (1967-1979) listed *Gomphonema*
montanum var. *subclavatum* Grun. as the
recommended name for this taxon.

- * *Gomphonema subclavatum* var. *commutatum* (Grun.)
A. Mayer

Gomphonema commutatum Grun.

Gomphonema commutatum -- in Curtis (1901)

Van Landingham (1967-1979) listed *Gomphonema*
montanum var. *commutatum* (Grun.) Grun. as
the recommended name for this taxon.

- * *Gomphonema subclavatum* var. *mexicanum* (Grun.)
Patr.

in Wujek et al. (1980)

Gomphonema mexicanum Grun. -- in Curtis (1901)

Van Landingham (1967-1979) listed *Gomphonema*
mexicanum Grun. as the recommended name
for this taxon.

- * *Gomphonema subtile* Ehr. var. *subtile*
Gomphonema subtile Ehr. -- in Wujek (1965)
- * *Gomphonema tackei* Hust. var. *tackei*
in Selva (1976)
- * *Gomphonema truncatum* Ehr. var. *truncatum*
in Wujek et al. (1980)
Gomphonema constrictum Ehr. -- in Wolle (1889)
Gomphonema constrictum -- in Curtis (1901)
Van Landingham (1967-1979) listed *Gomphonema constrictum* Ehr. as the recommended name for this taxon.
- * *Gomphonema truncatum* var. *capitatum* (Ehr.) Patr.
Gomphonema capitatum Ehr.
Gomphonema capitatum -- in Curtis (1901)
Van Landingham (1967-1979) listed *Gomphonema constrictum* var. *capitatum* (Ehr.) V.H. as the recommended name for this taxon.
- * *Gomphonema ventricosum* Greg. var. *ventricosum*
Gomphonema ventricosum -- in Curtis (1901)

? Uncertain *Gomphonema*

Gomphonema commutatum var. *subracemosum*
-- in Curtis (1901)

Van Landingham (1967-1979) did not list
this name. Patrick and Reimer (1975)
listed other varieties of this
species as synonyms of varieties of
Gomphonema subclavatum (Grun.) Grun.

Gomphonema montanum Schum. -- in Elmore
(1921)

See Patrick and Reimer (1975:122). It
was apparently misidentified.

Gomphonema olivaceum var. *vulgaris* -- in
Curtis (1901)

Patrick and Reimer (1975:152) stated that
this was misidentified.

GYROSIGMA

* *Gyrosigma acuminatum* (Kütz.) Rabh. var.
acuminatum

in Reinke (1979a) and Wujek et al. (1980)

* *Gyrosigma eximium* (Thw.) Boyer var. *eximium*

in Patrick and Reimer (1966); they included
Kansas in the distribution of this
species with a question mark

Pleurosigma eximium (Thw.) Cl. et Grun.

Pleurosigma eximium -- in Curtis (1901)

- * *Gyrosigma fasciola* (Ehr.) Griff. et Henfr. var.
fasciola

Gyrosigma fasciola -- in Powers (1969)

- * *Gyrosigma scalproides* (Rabh.) Cl. var.
scalproides

Gyrosigma scalproides (Rabh.) Cl. -- in
ANSP (1958)

Gyrosigma scalproides -- in Powers (1969)

- * *Gyrosigma sciotense* (Sulliv. et Wormley) Cl.
var. *sciotense*

Pleurosigma sciotensis Sulliv. et Wormley

Pleurosigma sciotense -- in Curtis (1901)

- * *Gyrosigma spencerii* (Quek.) Griff. et Henfr.
var. *spencerii*

in Wujek et al. (1980)

Gyrosigma spencerii (W. Sm.) Cl. -- in
Elmore (1921)

According to Patrick and Reimer (1966:

315), this is the incorrect authority.

Pleurosigma spencerii (Quek.) W. Sm.

Pleurosigma spencerii (fig. 18, pl. III)
-- in Curtis (1901)

Pleurosigma spencerii -- in Curtis (1901)

Continued on the next page.

Gyrosigma spencerii (Quek.) Griff. et Henfr.
cont.

Gyrosigma kuetzingii (Grun.) Cl.

Gyrosigma kuetzingii [sic] -- in ANSP (1958)

Gyrosigma kuetzingiana [sic] -- in ANSP
(1958)

This was not listed by Van Landingham
(1967-1979) or Patrick and Reimer
(1966) and might not be a synonym
of *Gyrosigma kuetzingii* (Grun.) Cl.

Pleurosigma kuetzingii Grun.

Pleurosigma kuetzingii [sic] -- in
Curtis (1901)

Pleurosigma gracilentum Rabh. -- in Curtis
(1901)

Van Landingham (1967-1979) listed both
Gyrosigma spencerii (Quek.) Griff. et
Henfr. and *Gyrosigma kuetzingii* (Grun.)
Cl. as valid taxa.

* *Gyrosigma spencerii* var. *curvula* (Grun.) Reim.
in Czarnecki and Reinke (1981)

Van Landingham (1967-1979) listed this as a
synonym of the nominate variety.

? Uncertain *Gyrosigma*

Pleurosigma hippocampus (?) -- in Curtis
(1901)

According to Van Landingham (1967-1979),

P. hippocampus (Ehr.) W. Sm. =

Gyrosigma hippocampus (Ehr.) Hass.

See Patrick and Reimer (1966:330).

HANTZSCHIA

- * *Hantzschia amphioxys* (Ehr.) Grun. var. *amphioxys*
in Selva (1976)

Hantzschia amphioxys -- in ANSP (1958) and
Williams et al. (1978 and 1979)

Nitzschia amphioxys (Ehr.) W. Sm.

Nitzschia amphioxys W. Sm. -- in Wolle
(1889)

Nitzschia amphioxys -- in Curtis (1901)

- * *Hantzschia amphioxys* f. *capitata* O. Müll.
in Selva (1976)

Hantzschia amphioxys var. *capitata* O. Müll.
-- in Wujek et al. (1980)

Van Landingham (1967-1979) listed

Hantzschia amphioxys var. *capitata*

Pant. as a valid name which is distinct

from *Hantzschia amphioxys* f. *capitata*

O. Müll. Hustedt (1930) included only

H. amphioxys f. *capitata* O. Müll.

- * *Hantzschia amphioxys* var. *vivax* Grun.
in Selva (1976)
Nitzschia amphioxys var. *vivax* (fig. 2
pl. II) -- in Curtis (1901); the proper
authority for this name was not listed
by Van Landingham (1967-1979)
- * *Hantzschia uticensis* (Grun.) Hust. var.
uticensis
in Selva (1976)
- * *Hantzschia vivax* (W. Sm.) M. Perag. var. *vivax*
in Selva (1976)

MASTOGLOIA

- * *Mastogloia elliptica* var. *danseii* (Thw.) Cl.
in Selva (1976)
Mastogloia elliptica var. *danseii* (Thw.) Cl.
sensu Patrick and Reimer (1966) -- in
Czarnecki and Reinke (1981)
- * *Mastogloia pumila* (Grun.) Cl. var. *pumila*
in Wujek et al. (1980)
- * *Mastogloia smithii* Thw. ex W. Sm. var. *smithii*
Mastogloia smithii Thw. ex W. Sm. -- in
Czarnecki and Reinke (1981)
- * *Mastogloia smithii* var. *amphicephala* Grun.
in Patrick and Reimer (1966)
Mastogloia smithii var. *amphicephala* -- in
ANSP (1958)

* *Mastogloia smithii* var. *lacustris* Grun.

in Patrick and Reimer (1966) and Czarnecki
and Reinke (1981)

Mastogloia smithii Thw. var. *lacustris* Grun.
(fig. 20, pl. III) -- in Curtis (1901)

MELOSIRA

* *Melosira distans* (Ehr.) Kütz. var. *distans*

in Selva (1976)

Melosira distans -- in Powers (1969) and
Williams et al. (1978 and 1979)

* *Melosira distans* var. *alpigena* Grun.

in ANSP (1958)

Melosira distans var. *alpigena* -- in Powers
(1969)

* *Melosira distans* var. *decipiens* (Grove) Cl.-Euler

in Selva (1976)

* *Melosira granulata* (Ehr.) Ralfs var. *granulata*

Melosira granulata (Ehr.) Ralfs -- in ANSP
(1958) and Reinke (1979a)

Melosira granulata -- in Williams (1964),
Powers (1969), Williams (1972), and
Williams et al. (1978 and 1979)

* *Melosira granulata* var. *angustissima* O. Müll.

in ANSP (1958) and Wujek et al. (1980)

Melosira granulata var. *angustissima* -- in
Powers (1969) and Williams et al. (1978
and 1979)

- * *Melosira granulata* var. *angustissima* f. *spiralis*
Hust.
Melosira granulata var. *angustissima* f.
spiralis -- in Williams et al. (1978 and
1979)
- * *Melosira granulata* var. *muzzanensis* (Meist.)
Hust.
Melosira granulata var. *muzzanensis* -- in
ANSP (1958)
- * *Melosira italica* (Ehr.) Kütz. var. *italica*
in Selva (1976)
Melosira italica -- in ANSP (1958) and
Williams et al. (1978 and 1979)
Melosira crenulata (Ehr.) Kütz.
Melosira crenulata -- in Curtis (1901)
- * *Melosira italica* var. *multistriata* Patr.
Melosira italica var. *multistriata* -- in
ANSP (1958)
- * *Melosira italica* var. *tenuissima* (Grun.) O. Müll.
Melosira italica var. *tenuissima* -- in
Williams et al. (1978 and 1979)
- * *Melosira varians* Ag. var. *varians*
Melosira varians Ag. (also as *Lysigonium*
varians (Ag.) DeT.) -- in McFarland et al.
(1964)
Melosira varians Ag. -- in Wujek et al. (1980)
Melosira varians -- in Curtis (1901), ANSP
(1958), and Williams et al. (1978 and 1979)

? Uncertain *Melosira*

Melosira lyrata var. (?) -- in Curtis (1901)

This is possibly a variety of *Melosira*
lyrata (Ehr.) Kütz. [V.L.]

Melosira roseana -- in ANSP (1958)

Van Landingham (1967-1979) listed
Melosira roseana Rabh. as a valid
taxon, but he also listed *M. roseana*
sensu A.S. as a synonym of "*Melosira*
italica (Ehr.) Kütz."

MERIDION

* *Meridion circulare* (Grev.) Ag. var. *circulare*
in Selva (1976)

Meridion circulare Ag. -- in Wolle (1889)
and ANSP (1958)

Meridion circulare -- in Curtis (1901) and
Powers (1969)

? Uncertain *Meridion*

Meridiones radialis [sic] -- in Cragin
(1886)

This might be *Meridion radians* Ag.

According to Van Landingham (1967-
1979), this might be a synonym of
Licmophora flabellata (Carmichael
mscr. according to Ag.) Ag.

NAVICULA

- * *Navicula absoluta* Hust. var. *absoluta*
in Selva (1976)

- * *Navicula accomoda* Hust. var. *accomoda*
in Wujek et al. (1980)
Navicula accomoda Hust. -- in ANSP (1958)
Navicula accomoda -- in Powers (1969)

- * *Navicula ammophila* var. *flanatica* (Grun.) Cl.
Navicula flanatica Grun.
Navicula flanatica -- in Curtis (1901)

- * *Navicula amphibola* Cl. var. *amphibola*
in Selva (1976)

- * *Navicula ancisa* Hust. var. *ancisa*
Navicula ancisa -- in ANSP (1958)

- * *Navicula anglica* var. *subsalsa* (Grun.) Cl.
in Selva (1976) and Wujek et al. (1980)

- * *Navicula arenaria* Donk. var. *arenaria*
in Patrick and Reimer (1966)
Navicula arenaria Donk. -- in Curtis (1901)

- * *Navicula arvensis* Hust. var. *arvensis*
in Wujek et al. (1980)

- * *Navicula asellus* Weigold ex Hust. var. *asellus*
Navicula aszellus [sic] Weing. -- in ANSP
 (1958)
Navicula aszellus [sic] -- in Powers (1969)

This spelling (*N. aszellus*) was not
 listed in Van Landingham (1967-1979).

- * *Navicula atomus* (Kütz.) Grun. var. *atomus*
 in Wujek et al. (1980)
Navicula caduca Hust. -- in ANSP (1958)
Navicula caduca -- in Powers (1969)

- * *Navicula bacillum* Ehr. var. *bacillum*
Navicula bacillum -- in Curtis (1901)

Van Landingham (1967-1979) also listed
Navicula bacillum sensu Greg. (nec al.)
 = *Navicula bacillum* var. *gregoryana*
 Cl. et Grun. According to Van
 Landingham (loc. cit.) this appeared
 in only two additional references,
 whereas *N. bacillum* Ehr. appeared in
 21 references.

Navicula bacillum f. *minor* Grun.

Navicula bacillum forma *minor* -- in
 Curtis (1901)

Navicula pseudobacillum Grun.

Navicula pseudobacillum -- in Curtis (1901)

- * *Navicula biconica* Patr. var. *biconica*
in Wujek et al. (1980)
- * *Navicula canalis* Patr. var. *canalis*
Navicula canalis -- in Powers (1969)
- * *Navicula cancellata* var. *retusa* (Bréb.) Cl.
Navicula retusa Bréb.
Navicula retusa -- in Curtis (1901)
- Navicula cancellata* var. *retusa* (Bréb.) Cl.
was listed by Patrick and Reimer (1966: 571) for Curtis' specimen among their unverified names of taxa. According to Van Landingham (1967-1979), *Navicula retusa* Bréb. appeared in 13 references, whereas the following taxa appeared in only two references each:
- N. retusa* sensu Cl. et Grun. (nec al.)
= *Pinnularia ambigua* Cl.
- N. retusa* sensu V.H. = *Navicula pseudoretusa* H. & M. Perag.
- * *Navicula capitata* var. *hungarica* (Grun.) Ross
in Wujek et al. (1980)
Navicula hungarica Grun.
Navicula hungarica -- in Powers (1969)

- * *Navicula cincta* (Ehr.) Ralfs var. *cincta*
in Selva (1976)
Navicula cincta (Ehr.) V.H. -- in Boyer
(1927b)
- * *Navicula cincta* var. *minuta* Skv.
Navicula cincta var. *minuta* -- in ANSP (1958)
Patrick and Reimer (1966) listed *Navicula*
cincta var. *minuta* Grun. as reported from
the United States. Skvortzow was the
only authority listed by Van Landingham
(1967-1979).
- * *Navicula circumtexta* Meist. ex Hust. var.
circumtexta
Navicula circumtexta Meist. ex Hust. -- in
Czarnecki and Reinke (1981)
- * *Navicula confervacea* (Kütz.) Grun. var.
confervacea
in Wujek et al. (1980)
- * *Navicula confervacea* var. *peregrina* (W. Sm.)
Grun.
in Patrick and Reimer (1966) and Selva (1976)
Navicula confervacea var. *peregrina* Grun.
(fig. 17, pl. III) -- in Curtis (1901)
Navicula confervacea var. *hungarica* Grun.
Navicula confervacea Kg. var. *hungarica*
(fig. 5, pl. II) -- in Curtis (1901)

* *Navicula crucicula* (W. Sm.) Donk. var. *crucicula*
in Wujek et al. (1980)

* *Navicula cryptocephala* Kütz. var. *cryptocephala*
in Selva (1976) and Wujek et al. (1980)
Navicula cryptocephala Kütz. -- in ANSP (1958)
Navicula cryptocephala -- in Curtis (1901)
and Powers (1969)
Navicula cryptocephala (?) -- in Williams
et al. (1978 and 1979)

Van Landingham (1967-1979) also listed
Navicula cryptocephala sensu W. Sm.
(nec al.) = *Navicula gregaria* Donk.

* *Navicula cryptocephala* var. *exilis* (Kütz.) Grun.
Navicula cryptocephala var. *exilis* -- in
ANSP (1958) and Powers (1969)

* *Navicula cryptocephala* var. *veneta* (Kütz.) Rabh.
in Wujek et al. (1980)
Navicula cryptocephala var. *veneta* (Kütz.)
Grun. -- in ANSP (1958)
Navicula cryptocephala var. *veneta* -- in
Powers (1969)
Navicula veneta Kütz.

Navicula veneta -- in Curtis (1901)
Van Landingham (1967-1979) also listed
Navicula veneta Schum. = *Navicula*
gregaria Donk., but this did not

Continued on the next page.

Navicula cryptocephala var. *veneta* (Kütz.) Rabh.
cont.

appear in any additional references.

Navicula pumila Grun. -- in Curtis (1901)

* *Navicula cuspidata* (Kütz.) Kütz. var. *cuspidata*

in Selva (1976) and Wujek et al. (1980)

Navicula cuspidata Kütz. (also as *Navicula
fulva* (Nitz.) Ehr.) -- in McFarland et al.
(1964)

Navicula cuspidata Kütz. -- in ANSP (1958)

Navicula cuspidata -- in Curtis (1901) and
Williams et al. (1978 and 1979)

Navicula cuspidata var. *ambigua* (Ehr.) Cl.
(also as *Navicula ambigua* Ehr.) -- in
McFarland et al. (1964)

Navicula cuspidata var. *ambigua* (Ehr.) Cl.
-- in ANSP (1958)

Navicula cuspidata var. *ambigua* -- in
Powers (1969)

Navicula ambigua Ehr.

Navicula ambigua -- in Curtis (1901)

Van Landingham (1967-1979) listed *Navicula
cuspidata* var. *ambigua* (Ehr.) Cl. as a
valid taxon.

* *Navicula cuspidata* var. *heribaudi* M. Perag.

in Selva (1976)

- * *Navicula cuspidata* var. *major* Meist.

in Selva (1976)

Van Landingham (1967-1979) included this with
the nominate variety.

- * *Navicula decussis* Østr. var. *decussis*

in Wujek et al. (1980)

- * *Navicula dicephala* Ehr. var. *dicephala*

Navicula dicephala (Ehr.) W. Sm. -- in
Wujek (1965)

Navicula dicephala W.S. -- in Curtis (1901)

Neither Patrick and Reimer (1966) nor Van
Landingham (1967-1979) associated W. Smith
with the name of this taxon.

- * *Navicula dicephala* var. *abiskoensis* (Hust.)

Cl.-Euler

in Selva (1976)

Van Landingham (1967-1979) listed *Navicula*
abiskoensis Hust. as the recommended name
for *Navicula dicephala* var. *genuina* f.
abiskoensis (Hust.) Cl.-Euler.

- * *Navicula elginensis* (Greg.) Ralfs var.
elginensis

in Wujek et al. (1980)

Continued on the next page.

Navicula elginensis (Greg.) Ralfs cont.

Navicula dicephala f. *minor* Grun.

Navicula dicephala W.S. forma *minor* Grun.
-- in Curtis (1901)

Van Landingham (1967-1979) listed *Navicula elginensis* (Greg.) Ralfs as a synonym of *Navicula dicephala* var. *elginensis* (Greg.) Cl. and listed *Navicula dicephala* f. *minor* Grun. as a synonym of *Navicula dicephala* var. *minor* (Grun.) A. Mayer.

* *Navicula excelsa* Krasske var. *excelsa*

Navicula vaucheriae var. *densistriata* Lund.
-- in ANSP (1958)

Navicula vancheriae [sic] var. *densistriata*
-- in Powers (1969)

* *Navicula exigua* var. *capitata* Patr.

in Wujek et al. (1980)

Van Landingham (1967-1979) included this
as a synonym of *Navicula exigua* (Greg.)
Grun.

* *Navicula gibbula* Cl. var. *gibbula*

Navicula gibbula Cl. -- in Hanna (1932)

* *Navicula gottlandica* Grun. var. *gottlandica*

Navicula gottlandica Grun. -- in Czarnecki
and Reinke (1981)

- * *Navicula graciloides* A. Mayer var. *graciloides*
in Wujek et al. (1980)

- * *Navicula gregaria* Donk. var. *gregaria*
in Selva (1976)
Navicula gregaria Donk. -- in Curtis (1901)

- * *Navicula grimmei* Krasske var. *grimmei*
in Patrick and Reimer (1966)

- * *Navicula gysingensis* Foged var. *gysingensis*
in Wujek et al. (1980)

- * *Navicula halophila* (Grun.) Cl. var. *halophila*
in Wujek et al. (1980)

- * *Navicula halophila* f. *robusta* Hust.
in Czarnecki and Reinke (1981)

- * *Navicula halophila* f. *tenuirostris* Hust.
in Selva (1976) and Wujek et al. (1980)

This was not listed in Van Landingham
(1967-1979).

- * *Navicula heufleri* Grun. var. *heufleri*
in Wujek et al. (1980)
Navicula heufleri -- in Williams et al.
(1978 and 1979)

Continued on the next page.

Navicula heufleri Grun. cont.

Van Landingham (1967-1979) listed *Navicula cincta* var. *heufleri* (Grun.) Grun. as the recommended name for this taxon.

* *Navicula integra* (W. Sm.) Ralfs var. *integra*
in Wujek et al. (1980)

* *Navicula laevissima* Kütz. var. *laevissima*
in Wujek et al. (1980)

Navicula bacillariformis Grun.

Navicula bacillariformis -- in Curtis
(1901)

Van Landingham (1967-1979) listed *Navicula bacillariformis* Grun. as a synonym of *Navicula wittrockii* (Lagerst.) Temp. et Perag. which Patrick and Reimer (1966) listed as a synonym of *Navicula laevissima* Kütz.

* *Navicula lanceolata* (Ag.) Kütz. var. *lanceolata*
in Selva (1976) and Wujek et al. (1980)

Navicula lanceolata (Ag.) Kütz. -- in
ANSP (1958)

Navicula lanceolata Kütz. -- in Curtis
(1901) and Elmore (1921)

Continued on the next page.

Navicula lanceolata (Ag.) Kütz. cont.

Navicula lanceolata -- in Curtis (1901) and Powers (1969)

Navicula lanceolatum [sic] -- in Curtis (1901)

Van Landingham (1967-1979) also listed

Navicula lanceolata sensu Ehr. =
Navicula viridula var. *ehrenbergii*
(Kütz.) Brun.

* *Navicula lanceolata* var. *cymbula* (Donk.) Cl.

Navicula cymbula Donk. -- in Curtis (1901)

Van Landingham (1967-1979) listed *Navicula cymbula* Donk. as the recommended name for this taxon.

* *Navicula longa* (Greg.) Ralfs var. *longa*

Navicula longa -- in Curtis (1901)

* *Navicula mediocris* Krasske var. *mediocris*

in Selva (1976)

* *Navicula menisculus* Schum. var. *menisculus*

Navicula menisculus Schum. -- in ANSP (1958) and Wujek (1965)

Navicula menisculus -- in Powers (1969)

Van Landingham (1967-1979) also listed

Navicula menisculus sensu Pant. =

Continued on the next page.

Navicula menisculus Schum. cont.

Navicula rhyncocephala var. *amphiceros*
(Kütz.) Grun.

* *Navicula menisculus* var. *obtusa* Hust.

in ANSP (1958)

Navicula menisculus var. *obtusa* -- in
Powers (1969)

Van Landingham (1967-1979) listed no
recommended name for this taxon.

* *Navicula menisculus* var. *upsaliensis* (Grun.)
Grun.

in Wujek et al. (1980)

Van Landingham (1967-1979) included this
with the nominate variety.

* *Navicula miniscula* Grun. var. *miniscula*

Navicula miniscula Grun. -- in Wujek et al.
(1980)

* *Navicula mutica* Kütz. var. *mutica*

Navicula mutica Kütz. -- in ANSP (1958)

Navicula mutica -- in Powers (1969)

Van Landingham (1967-1979) also listed

Navicula mutica sensu Rabh. = *Navicula*
cryptocephala Kütz.

Continued on the next page.

Navicula mutica Kütz. cont.

Navicula mutica var. *goeppertiana* (Bleisch ex Rabh.) Grun.

Navicula mutica var. *goeppertiana* -- in Curtis (1901)

Van Landingham (1967-1979) listed

Navicula mutica var. *goeppertiana*
(Bleisch ex Rabh.) Grun. as a valid
taxon.

* *Navicula mutica* var. *cohnii* (Hisle) Grun.

in ANSP (1958) and Wujek et al. (1980)

Navicula mutica var. *cohnii* -- in Powers
(1969)

* *Navicula notha* Wallace var. *notha*

in Wujek et al. (1980)

* *Navicula oblonga* (Kütz.) Kütz. var. *oblonga*

Navicula oblonga -- in Curtis (1901) and
ANSP (1958)

Van Landingham (1967-1979) listed two other
possible valid names:

N. oblonga Ehr. (non Kütz.?) =

?*Navicula velox* Kütz.

N. oblonga Neup. (nec al.) =

Pinnularia stauroptera (Grun.)

Rabh.

Continued on the next page.

Navicula oblonga (Kütz.) Kütz. cont.

Curtis (1901) used Schmidt et al. (1874-1959) to identify many of his specimens, and the latter listed only *Navicula oblonga* (Kütz.) Kütz., as did Wolle (1894) and Van Heurck (1896). Patrick and Reimer (1966:534) listed *N. oblonga* (Kütz.) Kütz. from the "Plains States," but included no record of *Navicula velox* Kütz. or *Pinnularia stauroptera* (Grun.) Rabh. from the United States. Curtis (1901), however, appears to have reported *P. stauroptera* (Grun.) Rabh. from Kansas as *Navicula stauroptera*.

* *Navicula paucivisitata* Patr. var. *paucivisitata*
in Wujek et al. (1980)

Van Landingham (1967-1979) listed this as a synonym of *Navicula miniscula* Grun. See Patrick and Reimer (1966:485).

* *Navicula pauper* Mann var. *pauper*

Navicula pauper Mann -- in Hanna (1932)

- * *Navicula pelliculosa* (Bréb. ex Kütz.) Hisle
var. *pelliculosa*
Navicula pelliculosa (Bréb.) Hisle -- in
ANSP (1958)
Navicula pelliculosa -- in Powers (1969)
Van Landingham (1967-1979) listed the
authority as *N. pelliculosa* Hisle.

- * *Navicula peregrina* (Ehr.) Kütz. var. *peregrina*
in Wujek et al. (1980)
Navicula peregrina -- in Curtis (1901)

- * *Navicula platensis* (Freng.) Choln. var.
platensis
in Selva (1976)

- * *Navicula protracta* Grun. var. *protracta*
Navicula protracta Grun. -- in Czarnecki
and Reinke (1981)
Van Landingham (1967-1979) listed the
authority as *N. protracta* (Grun.) Cl.

- * *Navicula pupula* Kütz. var. *pupula*
Navicula pupula Kütz. -- in Boyer (1927b)
Navicula pupula -- in Powers (1969)
Navicula pupula (?) -- in Curtis (1901)

* *Navicula pupula* f. *minutula* Choln.

in ANSP (1958)

Navicula pupula f. *minutula* -- in Powers
(1969)

Van Landingham (1967-1979) included this
with the nominate variety.

* *Navicula pupula* var. *capitata* Skv. et Meyer
in Wujek et al. (1980)

Van Landingham (1967-1979) listed this as
Navicula pupula f. *capitata* (Hust.) Hust.

* *Navicula pupula* var. *rectangularis* (Greg.) Grun.
in Selva (1976) and Wujek et al. (1980)

* *Navicula pygmaea* Kütz. var. *pygmaea*

in Selva (1976) and Wujek et al. (1980)

Navicula phgmaea [sic] -- in Powers (1969)

Van Landingham (1967-1979) also listed
the following:

N. pygmaea (Ehr.) Pant. = *Navicula*
cineta (Ehr.) Ralfs

N. pygmaea (Ehr.) Pant. = ?*Navicula*
capitata var. *hungarica* (Grun.)

Ross

Continued on the next page.

Navicula pygmaea Kütz. cont.

According to Van Landingham (loc. cit.), *Navicula pygmaea* Kütz. appeared in the literature 32 times, and is the taxon included in Boyer (1927b), Elmore (1921), Hustedt (1930), Hustedt (1927-1966), Schmidt et al. (1874-1959), Van Heurck (1896), and Wolle (1894). Van Landingham (1967-1979) listed only the original reference by Pantoscek for *Navicula pygmaea* (Ehr.) Pant.

* *Navicula radiosa* Kütz. var. *radiosa*

in Selva (1976) and Wujek et al. (1980)

Navicula radiosa Kütz. -- in Curtis (1901), Elmore (1921), and Hanna (1932)

Navicula radiosa -- in Curtis (1901)

Navicula radiosa var. *acuta* (W. Sm.) Grun.

Navicula radiosa var. *acuta* -- in Curtis (1901)

Van Landingham (1967-1979) listed

Navicula radiosa var. *acuta* (W. Sm.)

Grun. as a valid taxon.

- * *Navicula radiosa* var. *tenella* (Bréb. ex Kütz.)
Grun.
in Selva (1976) and Wujek et al. (1980)
Navicula tenella Bréb. ex Kütz.
Navicula tenella Bréb. -- in Curtis (1901)
Navicula tenella -- in Curtis (1901)
- Van Landingham (1967-1979) also listed
Navicula tenella sensu A.S. =
Navicula lanceolata var. *tenella*
(A.S.) Cl.
- Van Landingham (1967-1979) listed the
authority as *N. radiosa* var. *tenella*
(Bréb. ex Kütz.) Cl. et Möll.
- * *Navicula rhyncocephala* Kütz. var. *rhyncocephala*
Navicula rhyncocephala Kütz. -- in Wujek
(1965)
Navicula rhyncocephala -- in Curtis (1901)
- * *Navicula rhyncocephala* var. *amphiceros* (Kütz.)
Grun.
in Patrick and Reimer (1966)
Navicula amphiceros Kütz.
Navicula amphiceros ? (fig. 6, pl. II)
-- in Curtis (1901)
- * *Navicula salinarum* Grun. var. *salinarum*
Navicula salinarum Grun. -- in Czarnecki
and Reinke (1981)

- * *Navicula salinarum* var. *intermedia* (Grun.) Cl.
in Wujek et al. (1980)
Navicula salinarium [sic] var. *intermedia*
-- in Williams et al. (1978 and 1979)

- * *Navicula salincola* Hust. var. *salincola*
Navicula salincola -- in ANSP (1958)

- * *Navicula semen* Ehr. emend Donk. var. *semen*
in Selva (1976)

- * *Navicula simplex* Krasske var. *simplex*
in Selva (1976)

- * *Navicula symmetrica* Patr. var. *symmetrica*
Navicula symmetrica Patr. -- in ANSP (1958)
Navicula syonmetrica [sic] -- in Powers
(1969)

- * *Navicula tantula* Hust. var. *tantula*
Navicula tantula Hust. -- in ANSP (1958)
Navicula tantula -- in Powers (1969)

- * *Navicula tenera* Hust. var. *tenera*
in Wujek et al. (1980)

- * *Navicula tripunctata* (O. Müll.) Bory var.
tripunctata

in Wujek et al. (1980)

Navicula gracilis Ehr.

Navicula gracilis (Kg.) Grun. -- in
Curtis (1901)

Van Landingham (1967-1979) did not list
Navicula gracilis (Kütz.) Grun., and
listed *Navicula gracilis* Ehr. as a
valid taxon.

- * *Navicula tripunctata* var. *schizonemoides* (V.H.)
Patr.

Navicula tripunctata var. *schizonemoides*
-- in Powers (1969)

Navicula gracilis var. *schizonemoides* V.H.
-- in ANSP (1958)

Navicula gracilis var. *schizonemoides*
-- in Powers (1969)

Navicula gracile [sic] var. *schizonemoides*
V.H. -- in ANSP (1958)

Van Landingham (1967-1979) listed these
names as synonyms of *Navicula gracilis*
var. *neglecta* (Thw.) Grun.

- * *Navicula tuscula* Ehr. var. *tuscula*

Navicula tuscula Ehr. -- in Hanna (1932)

Navicula tuscula -- in Curtis (1901)

- * *Navicula vaucheriae* Peters. var. *vaucheriae*
Navicula vaucheriae -- in Powers (1969)

- * *Navicula viridula* (Kütz.) Kütz. emend V.H. var.
viridula
Navicula viridula Kütz. -- in Wujek (1965)

Van Landingham (1967-1979) listed the
authority as *N. viridula* (Kütz.) Ehr.

- * *Navicula viridula* var. *argunensis* Skv.

in ANSP (1958)

Navicula viridula var. *argunensis* -- in
Powers (1969)

- * *Navicula viridula* var. *avenacea* (Bréb. ex Grun.)
V.H.

in Czarnecki and Reinke (1981)

Van Landingham (1967-1979) listed *Navicula*
avenacea (Bréb.) Cl. et Grun. as the
recommended name for this taxon.

- * *Navicula viridula* var. *linearis* Hust.

in ANSP (1958)

Navicula viridula var. *linearis* -- in
Powers (1969)

* *Navicula viridula* var. *rostellata* (?Kütz.) Cl.

Navicula rostellata Kütz.

Navicula rostellata -- in Curtis (1901)

Van Landingham (1967-1979) also listed

Navicula rostellata (Greg.) A.S.

(combination implied) = *Navicula*

crucifera Grun. See Patrick and

Reimer (1966:508).

Van Landingham (1967-1979) listed *Navicula*

rostellata Kütz. as the recommended name

for this taxon.

* *Navicula viridula* var. *rostrata* Skv.

in ANSP (1958)

Navicula viridula var. *rostrata* [sic] -- in

Powers (1969)

* *Navicula vulpina* Kütz. var. *vulpina*

in Selva (1976)

? Uncertain *Navicula*

Navicula cryptocephala var. *intermedia*

-- in ANSP (1958)

N. cryptocephala var. *intermedia* V.H.

is valid according to Van Landingham
(1967-1979).

N. cryptocephala var. *intermedia* Grun.

(nec al.) = *Navicula salinarum* var.

intermedia (Grun.) Cl. [V.L.]

? Uncertain *Navicula* cont.

Navicula cryptocephala var. *minuta* -- in ANSP (1958)

N. cryptocephala f. *minuta* Cl. et Möll. and *N. cryptocephala* f. *minuta* Peters. were listed in Van Landingham (1967-1979), but neither was a recommended name. No record of *N. cryptocephala* var. *minuta* was found.

Navicula dirhynchus -- in Curtis (1901)

N. dirhynchus Ehr. = ?*Navicula rhyncocephala* var. *brevis* Grun. [V.L.]

N. dirhynchus sensu Donk. = *Frustulia vulgaris* (Thw.) DeT. [V.L.]

Navicula inflata -- in Curtis (1901)

N. inflata (Kütz.) Kütz. is valid according to Van Landingham (1967-1979).

N. inflata sensu Donk. = *Navicula laterostrata* Hust. [V.L.]

N. inflata Donk. = *Navicula mournei* Patr. [P & R]

Navicula lanceolata (Kg.) var. and *Navicula lanceolata* var. "much smaller" -- in Curtis (1901)

These might or might not be varieties of *Navicula lanceolata* (Ag.) Kütz.

? Uncertain *Navicula* cont.

Navicula radians -- in Curtis (1901)

N. radians Herib. (1903) = *Navicula radiosa* var. *acuta* (W. Sm.) Grun.

N. radians (Østr.) Cl.-Euler (1922) = ?

These are the only two entries in Van Landingham (1967-1979), and both were erected after Curtis (1901) made his identification.

Navicula subinflata and *Navicula subinflata* (fig. 25, pl. III) -- in Curtis (1901)

N. subinflata Grun. was listed as a valid taxon in Van Landingham (1967-1979). Patrick and Reimer (1966: 572) listed this with their unverified taxa.

N. subinflata (Grun.) H. & M. Perag. = *Navicula complanta* (Grun.) Cl. [V.L.]

Navicula viridula Kg. forma *minor* -- in Curtis (1901)

N. viridula f. *minor* A.S. = *Navicula viridula* var. *slesvicensis* (Grun.) Grun. [V.L.]

N. viridula f. *minor* sensu Grun. (nec al.) = *Navicula viridula* (Kütz.) Kütz. emend V.H. [V.L.]

Navicula (No. 11, of Schmidt's 47, not named) -- in Curtis (1901)

Navicula (No. 13, of Schmidt's 47, not named) -- in Curtis (1901)

Navicula (No. 15, of Schmidt's 47, not named) -- in Curtis (1901)

NEIDIUM

- * *Neidium affine* (Ehr.) Pfitz. var. *affine*
in Selva (1976)

Navicula affinis Ehr.

Navicula affinis -- in Curtis (1901)

According to Van Landingham (1967-1979),
Navicula affinis Ehr. is a synonym
of either *Neidium affine* (Ehr.) Pfitz.
or *Neidium affine* var. *amphirhynchus*
(Ehr.) Cl. and he also listed the
two following entries:

Navicula affinis sensu Greg. =

Neidium affine (Ehr.) Pfitz.

Navicula affinis sensu W. Sm. =

Neidium iridis var. *ampliatum*

(Ehr.) Cl.

Van Landingham (1967-1979) cited no
other references than that by W. Smith
for that entry listed above.

- * *Neidium affine* var. *amphirhynchus* (Ehr.) Cl.
in Selva (1976)

Navicula amphirhynchus Ehr. -- in Curtis
(1901)

Navicula columnaris Ehr.

Navicula columnaris -- in Curtis (1901)

Continued on the next page.

Neidium affine var. *amphirhynchus* (Ehr.) Cl.
cont.

Patrick and Reimer (1966:407) listed
Navicula columnaris Ehr. as "of un-
certain application." Van Landingham
(1967-1979) placed it in synonymy here.

* *Neidium affine* var. *longiceps* (Greg.) Cl.
in Selva (1976)

* *Neidium decens* (Pant.) Stoerm. var. *decens*
in Selva (1976)

* *Neidium distincte-punctatum* Hust. var.
distincte-punctatum
in Selva (1976)

* *Neidium dubium* (Ehr.) Cl. var. *dubium*
Navicula dubia Ehr.
Navicula dubia Greg. -- in Curtis (1901)

Van Landingham (1967-1979) did not
list *Navicula dubia* Greg.

* *Neidium iridis* (Ehr.) Cl. var. *iridis*
in Wujek et al. (1980)
Navicula firma Kg. -- in Curtis (1901)

* *Neidium iridis* var. *amphigomphus* (Ehr.) A. Mayer
Navicula amphigomphus Ehr. -- in Wolle (1889)

* *Neidium iridis* var. *ampliatus* (Ehr.) Cl.
Navicula ampliata Ehr.
Navicula ampliata -- in Curtis (1901)

* *Neidium kozlowii* var. *amphicephala* Meresch.
in Selva (1976)

* *Neidium munckii* Foged var. *munckii*
in Selva (1976)

* *Neidium productum* (W. Sm.) Cl. var. *productum*
in Selva (1976)
Navicula producta W.S. -- in Curtis (1901)
Navicula producta -- in Curtis (1901)

? Uncertain *Neidium*

Navicula dilatata -- in Curtis (1901)

Patrick and Reimer (1966:407) listed
this name as "of uncertain
application."

Van Landingham (1967-1979) listed the
following:

N. dilatata Ehr. = *Neidium*
dilatatum (Ehr.) Cl.

Continued on the next page.

? Uncertain *Neidium* cont.

N. dilatata sensu A.S. (nec al.) =
Neidium iridis var.

amphigomphus (Ehr.) A. Mayer.

Navicula firma var. *subampliata* -- in
Curtis (1901)

According to Van Landingham (1967-1979),
Navicula firma var. *subampliata* Grun.
is a synonym of *Neidium affine* (Ehr.)
Pfitz. According to Patrick and
Reimer (1966:401), *N. firma* var.
subampliata Grun. might be a shorter
form of *Neidium maximum* (Cl.) Meist.

Navicula (No. 22, Schmidt's Atlas, pl. 49,
not named) -- in Curtis (1901)

Schmidt et al. (1874-1959) included
this drawing with "*N. affinis* E. &
varr."

Navicula (No. 40, Schmidt's Atlas, pl. 49,
not named) -- in Curtis (1901)

NITZSCHIA

* *Nitzschia acicularis* (Kütz.) W. Sm. var.
acicularis

Nitzschia acicularis W. Sm. -- in ANSP
(1958) and Wujek et al. (1980)

Nitzschia acicularis -- in Powers (1969),
Williams (1972), and Williams et al.
(1978 and 1979)

Homoeocladia acicularis (Kütz.) Kuntze
-- in Elmore (1921)

- * *Nitzschia amphibia* Grun. var. *amphibia*
in Selva (1976)
Nitzschia amphibia Grun. -- in ANSP (1958)
and Wujek et al. (1980)
Nitzschia amphibia -- in Powers (1969)
- * *Nitzschia amphibia* f. *rostrata* Hust.
in Selva (1976)
- * *Nitzschia amphioxoides* Hust. var. *amphioxoides*
Nitzschia amphioxoides [sic] -- in ANSP
(1958)
- * *Nitzschia angustata* (W. Sm.) Grun. var.
angustata
in Selva (1976)
Nitzschia angustata (W. Sm.) Grun. -- in
Wujek et al. (1980)
Nitzschia angustata -- in Curtis (1901)
Van Landingham (1967-1979) listed the
authority as *N. angustata* Grun.
- * *Nitzschia apiculata* (Greg.) Grun. var. *apiculata*
Nitzschia apiculata (Greg.) Grun. -- in
ANSP (1958) and Wujek et al. (1980)
Nitzschia apiculata -- in Curtis (1901) and
Powers (1969)
Nitzschia apiculata (?) -- in Williams et al.
(1978 and 1979)

Continued on the next page.

Nitzschia apiculata (Greg.) Grun. cont.

Van Landingham (1967-1979) listed *Nitzschia constricta* (Kütz.) Ralfs as the recommended name for this taxon.

- * *Nitzschia capitellata* Hust. var. *capitellata*
Nitzschia capitellata Hust. -- in ANSP (1958)
Nitzschia capitellata -- in Powers (1969)

Van Landingham (1967-1979) also listed
Nitzschia capitellata sensu Cl.-Euler
(nec al.) = *Nitzschia capitellata* var.
lapponica Cl.-Euler. Powers (1969)
and ANSP (1958) both surveyed the
Kansas River and listed many of the
same taxa; therefore, these were
assumed to be the same variety.

- * *Nitzschia clausii* Hantz. var. *clausii*
Nitzschia clausii Hantz. -- in ANSP (1958)
and Wujek et al. (1980)
Nitzschia clausii -- in Powers (1969)

- * *Nitzschia communis* Rabh. var. *communis*
Nitzschia communis -- in Curtis (1901)

- * *Nitzschia commutata* Grun. var. *commutata*
Nitzschia commutata Grun. -- in Wujek et al.
(1980)

- * *Nitzschia denticula* Grun. var. *denticula*
Nitzschia denticula Grun. -- in Wujek et al.
(1980)
Nitzschia denticula -- in ANSP (1958)
- * *Nitzschia dissipata* (Kütz.) Grun. var. *dissipata*
Nitzschia dissipata (Kütz.) Grun. -- in
ANSP (1958) and Wujek et al. (1980)
Nitzschia dissipata -- in Curtis (1901),
Powers (1969), and Williams et al.
(1978 and 1979)
- * *Nitzschia dubia* W. Sm. var. *dubia*
in Selva (1976)
Nitzschia dubia W. Sm. -- in Hanna (1932)
- * *Nitzschia fasciculata* (Grun.) Grun. var.
fasciculata
Nitzschia fasciculata -- in ANSP (1958) and
Powers (1969)
Homoeocladia sigmoidea W. Sm.
Homoeocladia sigmoidea -- in Curtis (1901)
Hustedt (1930) listed the authority as
N. fasciculata Grun.
- * *Nitzschia filiformis* (W. Sm.) V.H. var.
filiformis
Nitzschia filiformis (W. Sm.) Hust. -- in
ANSP (1958) and Wujek et al. (1980)
Nitzschia filiformis -- in Powers (1969)

- * *Nitzschia flexa* Schum. var. *flexa*
Nitzschia flexa Schum. -- in Wujek et al.
(1980)
- * *Nitzschia fonticola* Grun. var. *fonticola*
in Selva (1976)
Nitzschia fonticola Grun. -- in ANSP (1958)
- * *Nitzschia frustulum* (Kütz.) Grun. var.
frustulum
Nitzschia frustulum Kütz. -- in ANSP (1958)
Nitzschia frustulum -- in Curtis (1901) and
Powers (1969)
- * *Nitzschia frustulum* var. *perpusilla* (Rabh.)
Grun.
in Wujek et al. (1980)
- * *Nitzschia gracilis* Hantz. var. *gracilis*
Nitzschia gracilis Hantz. -- in ANSP (1958)
Nitzschia gracilis -- in Powers (1969)
- Van Landingham (1967-1979) also listed
the following:
Nitzschia gracilis Bréb. ex Kütz.
(according to Mills) =
Cylindrotheca gracilis (Bréb.)
Grun.

- * *Nitzschia heufleriana* Grun. var. *heufleriana*
Nitzschia heufleriana -- in Curtis (1901)
- * *Nitzschia holsatica* Hust. var. *holsatica*
Nitzschia holsatica Hust. -- in Wujek et al.
(1980)
Nitzschia holsatica -- in Powers (1969) and
Williams et al. (1978 and 1979)
Van Landingham (1967-1979) listed *Nitzschia*
actinastroides (Lemmerm.) Van Goor as the
recommended name for this taxon.
- * *Nitzschia hungarica* Grun. var. *hungarica*
Nitzschia hungarica Grun. -- in ANSP (1958)
and Wujek et al. (1980)
Nitzschia hungarica -- in Curtis (1901),
Powers (1969), and Williams et al. (1978
and 1979)
Nitzschia hungaricum [sic] -- in Curtis
(1901)
- * *Nitzschia invicta* f. *lanceolata* Hust.
Nitzschia invicta var. *lanceolata* Hust.
-- in ANSP (1958)
Nitzschia invicta var. *lanceolata* -- in
Powers (1969)
Nitzschia invicta var. *lanceolata* Hust. was
not listed in Van Landingham (1967-1979)
or Hustedt (1930)

- * *Nitzschia kuetzingiana* Hisle var. *kuetzingiana*
Nitzschia kuetzingiana [sic] Hisle -- in
 Wujek et al. (1980)
Nitzschia (*palea* var. ?) *kuetzingiana*
 (Hisle) Grun.
Nitzschia palea var. *kuetzingiana*
 (Hisle) Patr. -- in ANSP (1958)
Nitzschia palea var. *kuetzingiana* -- in
 Powers (1969)
- * *Nitzschia lanceolata* W. Sm. var. *lanceolata*
Nitzschia lanceolata -- in Curtis (1901)
 and Williams (1964)
Homoeocladia lanceolata (W. Sm.) Kuntze
 -- in Elmore (1921)
- * *Nitzschia linearis* W. Sm. var. *linearis*
Nitzschia linearis W. Sm. -- in ANSP (1958)
 and Wujek (1965)
Nitzschia linearis -- in Williams (1964) and
 Powers (1969)
- * *Nitzschia longissima* f. *parva* Grun.
Nitzschia longissima f. *parva* V.H. -- in
 Reinke (1979a)
 Van Landingham (1967-1979) listed the
 authority as *N. longissima* f. *parva*
 Grun. in V.H.
- * *Nitzschia microcephala* Grun. var. *microcephala*
Nitzschia microcephala Grun. -- in Wujek
 et al. (1980)

- * *Nitzschia obtusa* W. Sm. var. *obtusa*
Nitzschia obtusa W. Sm. -- in Czarnecki and
Reinke (1981)
- * *Nitzschia obtusa* var. *scapelliformis* Grun.
in Czarnecki and Reinke (1981)
- * *Nitzschia palea* (Kütz.) W. Sm. var. *palea*
Nitzschia palea (Kütz.) W. Sm. -- in ANSP
(1958) and Wujek et al. (1980)
Nitzschia palea -- in Curtis (1901),
Williams and Scott (1962), and Powers (1969)
Nitzschia (palea) -- in Powers (1969)
- * *Nitzschia pseudoamphioxys* Hust. var.
pseudoamphioxys
Nitzschia pseudoamphioxys Hust. -- in ANSP
(1958)
Nitzschia pseudoamphioxys -- in Powers (1969)
- * *Nitzschia recta* Hantz. ex Rabh. var. *recta*
Nitzschia recta Hantz. -- in Wujek et al.
(1980)
- * *Nitzschia reversa* W. Sm. var. *reversa*
Nitzschia reversa W. Sm. (also as *Nitzschia*
longissima Ralfs var. *reversa* (W. Sm.)
V.H.) -- in McFarland et al. (1964)

Continued on the next page.

Nitzschia reversa W. Sm. cont.

Nitzschia longissima var. *reversa* -- in
Williams et al. (1978 and 1979)

Van Landingham (1967-1979) also listed
Nitzschia longissima var. *reversa* Grun.
as a valid taxon.

* *Nitzschia romana* Grun. var. *romana*

Nitzschia romana Grun. -- in ANSP (1958)

Nitzschia romana -- in Powers (1969)

* *Nitzschia sigma* (Kütz.) W. Sm. var. *sigma*

Nitzschia sigma (Kütz.) W. Sm. -- in ANSP
(1958) and Wujek et al. (1980)

Nitzschia sigma -- in Curtis (1901) and
Powers (1969)

* *Nitzschia sigmoidea* (Nitzsch) W. Sm. var.
sigmoidea

Nitzschia sigmoidea [sic] (Ehr.) W. Sm.
-- in Wujek et al. (1980)

Nitzschia sigmoidea -- in Curtis (1901) and
Williams et al. (1978 and 1979)

* *Nitzschia sinuata* var. *tabellaria* (Grun.) Grun.

Nitzschia sinuata var. *tabellaria* Grun.
-- in Wujek (1965) and Wujek et al. (1980)

- * *Nitzschia stagnorum* (Rabh.) Grun. var. *stagnorum*
Nitzschia stagnorum Rabh. -- in ANSP (1958)
Nitzschia stagnorum -- in Powers (1969)
Nitzschia stagnarum [sic] Rabh. -- in
Curtis (1901)

- * *Nitzschia subcapitellata* Hust. var.
subcapitellata
Nitzschia subcapitellata Hust. -- in ANSP
(1958)
Nitzschia subcapitellata -- in Powers (1969)

- * *Nitzschia subregula* Hust. var. *subregula*
in Selva (1976)

- * *Nitzschia tarda* Hust. var. *tarda*
Nitzschia tarda Hust. -- in ANSP (1958)
Nitzschia tarda -- in Powers (1969)

- * *Nitzschia thermalis* (Ehr.) Auersw. var.
thermalis
Nitzschia thermalis Kütz. -- in Wujek et al.
(1980)

Van Landingham (1967-1979) listed

Surirella thermalis Kütz. as a synonym
of *Nitzschia thermalis* (Ehr.) Auersw.
The former was published three years
after Ehrenberg's account. This
might explain the different authori-
ties.

- * *Nitzschia tropica* Hust. var. *tropica*
in Selva (1976)
- * *Nitzschia tryblionella* Hantz. var. *tryblionella*
in Wujek et al. (1980)
Nitzschia tryblionella -- in Powers (1969)
and Williams et al. (1978 and 1979)
Nitzschia triblionella [sic] -- in Curtis
(1901)
- * *Nitzschia tryblionella* var. *debilis* (Arnott)
A. Mayer
in Wujek et al. (1980)
Nitzschia tryblionella var. *debilis* (?) -- in
Williams et al. (1978 and 1979)
Van Landingham (1967-1979) listed the re-
commended name for this taxon as *Nitzschia*
debilis (Arnott) Grun.
- * *Nitzschia tryblionella* var. *levidensis* (W. Sm.)
Grun.
Nitzschia tryblionella var. *levidensis* -- in
ANSP (1958)
- * *Nitzschia tryblionella* var. *victoriae* (Grun.)
Grun.
Nitzschia tryblionella var. *victoriae* Grun.
-- in ANSP (1958)
Nitzschia tryblionella var. *victoriae* -- in
Curtis (1901)

- * *Nitzschia umblicata* Hust. var. *umblicata*
Nitzschia umblicata Hust. -- in ANSP (1958)
Nitzschia umblicata -- in Powers (1969)
- * *Nitzschia valdestriata* Aleem et Hust. var. *valdestriata*
Nitzschia valdestriata Hust. -- in ANSP (1958)
Nitzschia valdestriata -- in Powers (1969)
- * *Nitzschia vermicularis* (Kütz.) Hantz. var. *vermicularis*
Nitzschia vermicularis (Kütz.) Hantz. -- in ANSP (1958)
Nitzschia vermicularis -- in Williams et al. (1978 and 1979)
Homoeocladia vermicularis (Kütz.) Kuntze -- in Elmore (1921)
- * *Nitzschia vitrea* var. *salinarum* Grun.
in Czarnecki and Reinke (1981)
Van Landingham (1967-1979) did not list a recommended name for this taxon.

? Uncertain *Nitzschia*

- Nitzschia closterium* -- in ANSP (1958) and Powers (1969)
- N. closterium* (Ehr.) W. Sm. =
Cylindrotheca closterium (Ehr.)
Reimann et Lewin [V.L.]
- N. closterium* Eulenz. = *Nitzschia reversa* W. Sm. [V.L.]

? Uncertain *Nitzschia* cont.

Nitzschia laevis -- in ANSP (1958)

According to Van Landingham (1967-1979),

N. laevis Freng. is valid, but he
also listed the following:

N. laevis Hust. = ?

Nitzschia spectabilis -- in Curtis (1901)

N. spectabilis W. Sm. = ?*Nitzschia*
insignis var. *smithii* (Ralfs) Grun.
[V.L.]

N. spectabilis (Ehr.) Ralfs = *Hantzschia*
spectabilis (Ehr.) Hust. [V.L.]

Nitzschia subtile var. *lorenziana* -- in
ANSP (1958)

This name was not listed by either Van
Landingham (1967-1979) or Hustedt
(1930); however, *Nitzschia lorenziana*
var. *subtilis* Grun. was listed by
both.

Nitzschia tryblionella forma *minor* -- in
Curtis (1901)

This name was not listed by Hustedt
(1930). Van Landingham (1967-1979)
did not list a recommended name for
N. tryblionella f. *minor* Schaarsch.

Nitzschia tryblionella forma *densus striatae*
-- in Curtis (1901)

This name was not listed by Hustedt
(1930) or Van Landingham (1967-1979).

OPEPHORA

- * *Opephora martyi* Herib. var. *martyi*
 in Selva (1976) and Wujek et al. (1980)
Opephora martyi Herib. -- in ANSP (1958)

PINNULARIA

- * *Pinnularia acrosphaeria* W. Sm. var. *acrosphaeria*
 in Selva (1976) and Wujek et al. (1980)
 Van Landingham (1967-1979) listed the author-
 ity as *P. acrosphaeria* (Bréb.?) W. Sm.

- * *Pinnularia aestuarii* Cl. var. *aestuarii*
 in Selva (1976)

- * *Pinnularia biceps* Greg. var. *biceps*
 in Wujek et al. (1980)

Navicula interrupta (W. Sm.) A.S.

Navicula interrupta (Pinn.) S.W. -- in
 Curtis (1901)

Curtis appears to have cited the
 incorrect authority and reversed
 W. Smith's initials.

Navicula interrupta (Pinn.) -- in Curtis
 (1901)

Navicula interrupta -- in Curtis (1901)

Van Landingham (1967-1979) also listed
Navicula interrupta Kütz. =
Diploneis interrupta (Kütz.) Cl.

Continued on the next page.

Pinnularia biceps Greg. cont.

Van Landingham (1967-1979) listed *Pinnularia interrupta* W. Sm. as the recommended name for *Navicula interrupta* (W. Sm.) A.S. and listed *Pinnularia interrupta* f. *biceps* (Greg.) Cl. as the recommended name for *Pinnularia biceps* Greg.

- * *Pinnularia biceps* f. *petersenii* Ross
in Selva (1976)

Van Landingham (1967-1979) listed *Pinnularia interrupta* W. Sm. as the recommended name for this taxon.

- * *Pinnularia borealis* Ehr. var. *borealis*
Pinnularia borealis -- in ANSP (1958)
Navicula borealis (Ehr.) Kütz.
Navicula borealis (type form) -- in
Curtis (1901)

- * *Pinnularia braunii* (Grun.) Cl. var. *braunii*
Pinnularia braunii -- in Powers (1969)

- * *Pinnularia braunii* var. *amphicephala* (A. Mayer)
Hust.
in Wujek et al. (1980)

- * *Pinnularia brebissonii* (Kütz.) Rabh. var.
brebissonii
in Selva (1976)

- * *Pinnularia conspicua* (A.S.) Cl. var. *conspicua*
Navicula conspicua A.S.
Navicula conspicua -- in Curtis (1901)
- * *Pinnularia divergentissima* (Grun.) Cl. var.
divergentissima
Pinnularia divergentissima (Grun.) -- in
Hanna (1932)
- * *Pinnularia maior* (Kütz.) Rabh. var. *maior*
Pinnularia maior Kütz. -- in Wujek (1965)
Pinnularia maior -- in ANSP (1958)
- Van Landingham (1967-1979) also listed
Pinnularia maior sensu W. Sm. =
Pinnularia maior var. *linearis* Cl.
- Navicula maior* (Kütz.) Kütz.
Navicula maior Kg. -- in Wolle (1889)
- See "Uncertain *Pinnularia*" for *Navicula*
maior (Pinn.) ex re Grun. -- in Curtis
(1901).
- * *Pinnularia mesolepta* (Ehr.) W. Sm. var.
mesolepta
in Selva (1976)
- * *Pinnularia mesostyla* (Ehr.) W. Sm. var.
mesostyla
Navicula mesostyla (Pinn.) Ehr. -- in
Curtis (1901)

- * *Pinnularia microstauron* (Ehr.) Cl. var.
microstauron
in Selva (1976)
Pinnularia microstauron (Ehr.) -- in Hanna
(1932)
Pinnularia microstauron -- in ANSP (1958)
and Powers (1969)
- Van Landingham (1967-1979) also listed
Pinnularia microstauron sensu Skv. =
Pinnularia subcapitata var. *lata* Skv.
- Navicula divergens* f. *minor* A.S.
Navicula divergens forma *minor* -- in
Curtis (1901)
- Navicula bicapitata* var. *hybrida* Grun.
Navicula bicapitata Lag. var. *hybrida*
(fig. 3, pl. II) -- in Curtis (1901)
- Van Landingham (1967-1979) listed
Navicula bicapitata var. *hybrida*
Grun. as a synonym of *Pinnularia*
microstauron var. *subproducta* (Grun.)
Mills.
- * *Pinnularia molaris* (Grun.) Cl. var. *molaris*
Navicula macra Grun.
Navicula macra -- in Curtis (1901)
- * *Pinnularia nobilis* (Ehr.) Ehr. var. *nobilis*
Pinnularia nobilis Ehr. -- in Hanna (1932)

- * *Pinnularia nodosa* (Ehr.) W. Sm. var. *nodosa*
 in Selva (1976)
Pinnularia nodosa -- in ANSP (1958)

- * *Pinnularia parvula* (Ralfs) Cl.-Euler var.
parvula

Navicula stauroparva Grun.

Navicula stauroparva -- in Curtis (1901)

Navicula stauroptera var. *parva* Grun. or *N.*
stauroptera f. *parva* (Ehr.) Grun.

Navicula stauroptera parva Grun. -- in
 Curtis (1901)

Curtis (1901) did not indicate
 whether this was the form or
 variety, but Van Landingham
 (1967-1979) listed both as syno-
 nyms of *Pinnularia parvula*
 (Ralfs) Cl.-Euler.

- * *Pinnularia rupestris* Hantz. var. *rupestris*

in Patrick and Reimer (1966); They included
 Kansas in the distribution of this taxon
 with a question mark.

Navicula rupestris (Hantz.) A.S.

Navicula rupestris (*Pinn.*) Hautsch [sic]
 -- in Curtis (1901)

Navicula rupestris (*Pinn.*) Grun. -- in
 Curtis (1901)

Van Landingham (1967-1979) listed *Pinnularia*
viridis var. *rupestris* (Hantz.) Cl. as the
 recommended name for this taxon.

- * *Pinnularia socialis* (T.C. Palm.) Hust. var. *socialis*
in Wujek et al. (1980)
- * *Pinnularia stauroptera* (Grun.) Rabh. var. *stauroptera*
Navicula stauroptera Grun.
Navicula stauroptera -- in Curtis (1901)
- * *Pinnularia stomatophora* (Grun.) Cl. var. *stomatophora*
in Wujek et al. (1980)
Navicula stomatophora Grun. -- in Curtis (1901)
- * *Pinnularia subcapitata* Greg. var. *subcapitata*
Navicula subcapitata var. *stauroneiformis* V.H.
Navicula subcapitata var. *stauroneiformis*
(fig. 22, pl. III) -- in Curtis (1901)
Van Landingham (1967-1979) listed
Navicula subcapitata var. *stauroneiformis*
V.H. as a synonym of *Pinnularia*
subcapitata var. *stauroneiformis* (V.H.)
A. Mayer.
- * *Pinnularia viridis* (Nitz.) Ehr. var. *viridis*
Pinnularia viridis (Nitz.) Ehr. (also as
Pinnularia viridis Nitz., *Pinnularia*
viridis Kütz., and *Navicula viridis*
(Nitz.) Kütz.) -- in McFarland et al.
(1964)

Continued on the next page.

Pinnularia viridis var. *minor* Cl. cont.

Van Landingham (1967-1979) listed *Pinnularia streptoraphe* var. *minor* (Cl.) Cl. as the recommended name for *Pinnularia viridis* var. *minor* Cl.

? Uncertain *Pinnularia*

Navicula acrosphaeria [sic] -- in Curtis (1901)

N. acrosphaeria Kütz. = *Pinnularia abaujensis* (Pant.) Ross [P & R]

N. acrosphaeria (Bréb.) Kütz. = *Pinnularia acrosphaeria* (Bréb.) Rabh. [V.L.] See Patrick and Reimer (1966:623).

Navicula acrosphaeria [sic] var. (?) -- in Curtis (1901)

Navicula borealis var. (No. 16, Schmidt's Atlas, fig. 45); *Navicula borealis* var. (larger, more coarsely marked); and *Navicula borealis* (var. small, with nine coarse striae) -- in Curtis (1901)

These might be varieties of *Pinnularia borealis* (Ehr.) Kütz.

Navicula brebissonii and *Navicula brebissonii* [sic] -- in Curtis (1901)

N. brebissonii Kütz. = *Pinnularia brebissonii* (Kütz.) Rabh. [V.L. and P & R] This is listed above in the list as a fossil form.

Continued on the next page.

? Uncertain *Pinnularia* cont.

N. brebissonii sensu Lag. = *Pinnularia microstauron* var. *subproducta* (Grun.) Mills [V.L.]

N. brebissonii sensu A.S. = *Pinnularia brebissonii* var. *notata* (M. Perag. et Herib.) Cl. [V.L.] Curtis (1901) used Schmidt et al. (1874-1959) to identify some of his taxa.

Navicula commutata -- in Curtis (1901)

According to Van Landingham (1967-1979), *Navicula commutata* Grun. is a synonym of *Pinnularia viridis* var. *sudetica* (Hisle) Hust. See Patrick and Reimer (1966:611-612).

Navicula decurrens (Pinn.) -- in Curtis (1901)

N. decurrens (Ehr.) Kütz. = *Pinnularia decurrens* Ehr. [V.L. and P & R]

N. decurrens Cl. = *Pinnularia mesogongyla* Ehr. (nec al.) [V.L.]

Navicula gibba (Pinn.) -- in Curtis (1901)

N. gibba (Ehr.) Kütz. = *Pinnularia gibba* Ehr. [V.L.]

N. gibba sensu V.H. = *Pinnularia mesogongyla* Ehr. (nec al.) [V.L.]

Navicula hemiptera -- in Curtis (1901)

N. hemiptera Kütz. = *Pinnularia hemiptera* (Kütz.) Rabh. [V.L.]

N. hemiptera sensu A.S. = *Pinnularia brevicostata* Cl. [V.L.]

See Patrick and Reimer (1966:621).

? Uncertain *Pinnularia* cont.

Navicula macra var. (?) (fig. 8, pl. II)
-- in Curtis (1901)

N. macra Grun. var. = ?*Pinnularia*
molaris (Grun.) Cl. var.

Navicula major (Pinn.) ex re Grun. -- in
Curtis (1901)

N. major sensu Grun. (nec al.) =
? *Pinnularia maior* (Kütz.) Rabh.
[V.L.]

N. major sensu Grun. (nec al.) =
Pinnularia viridis var. *intermedia*
Cl. [V.L.]

Navicula mesolepta -- in Curtis (1901)

N. mesolepta Ehr. = *Pinnularia mesolepta*
(Ehr.) W. Sm. [V.L. and P & R]

N. mesolepta sensu A.S. = *Pinnularia*
interrupta var. *biceps* (Greg.) Cl.
[V.L.] See *Pinnularia biceps* Greg.
in the list above (pages 106-107).

Navicula nobilis Ehr. var. (No 3, Schmidt's
Atlas, pl. 43) -- in Curtis (1901)

N. nobilis Ehr. var. = ?*Pinnularia*
nobilis (Ehr.) Ehr. var.

Navicula nodosa var. -- in Curtis (1901)

N. nodosa Ehr. = *Pinnularia nodosa*
(Ehr.) W. Sm. [V.L. and P & R]

N. nodosa sensu Neup. (nec al.) =
Navicula parallelstriata Pant. [V.L.]

? Uncertain *Pinnularia* cont.

Navicula tabellaria Grun. and *Navicula tabellaria* -- in Curtis (1901)

N. tabellaria (Ehr.) Kütz. = *Pinnularia tabellaria* Ehr. [V.L.] See Patrick and Reimer (1966:613).

N. tabellaria sensu Donk. = ?*Pinnularia viridis* var. *leptogongyla* Cl. [V.L.]

Van Landingham (1967-1979) did not list

Navicula tabellaria Grun.

Navicula (No. 15, Schmidt's Atlas, pl. 44) -- in Curtis (1901)

Navicula (No. 22, Schmidt's Atlas, pl. 44, not named) -- in Curtis (1901)

Navicula (No. 23, Schmidt's Atlas, pl. 44, but rather coarser) -- in Curtis (1901)

Navicula (No. 32, Schmidt's Atlas, pl. 44, with some reserve) -- in Curtis (1901)

Navicula (No. 44, Schmidt's Atlas, pl. 44, not named) -- in Curtis (1901)

Navicula (No. 44, Schmidt's Atlas, pl. 45) -- in Curtis (1901)

Navicula (No. 45, Schmidt's Atlas, pl. 44) -- in Curtis (1901)

Navicula (No. 75, Schmidt's Atlas, pl. 45, not named) -- in Curtis (1901)

Navicula (small, elliptical, coarsely marked, fig. 10, pl. II) -- in Curtis (1901)

Navicula (unknown, perhaps *naveana*?) -- in Curtis (1901)

N. naveana Grun. = *Pinnularia appendiculata* (Ag.) Cl. [V.L.]

? Uncertain *Pinnularia* cont.

Pinnularia acuminata W. Sm. var. *acuminata*
-- in Patrick and Reimer (1966)

Their distribution for this species
included "Kansas (?)."

PLAGIOTROPIS

* *Plagiotropis arizonica* Czarn. et Blinn var.
arizonica

Plagiotropis arizonica Czarn. et Blinn -- in
Czarnecki and Reinke (1981)

This was not listed by either Patrick and
Reimer (1975) or Van Landingham (1967-
1979).

* *Plagiotropis lepidoptera* var. *proboscidea* (Cl.)
Reim.

Tropidoneis lepidoptera (Greg.) Cl. -- in
Reinke (1979a)

Reinke (1979b) placed the taxon he iden-
tified with the variety listed here
rather than the nominate variety.

Van Landingham (1967-1979) listed *Tropidoneis*
as the recommended name for this genus.

PLEUROSIGMA

* *Pleurosigma delicatulum* W. Sm. var. *delicatulum*
in Wujek et al. (1980)

Continued on the next page.

Pleurosigma delicatulum W. Sm. cont.

Pleurosigma delicatulum W. Sm. (also as
Gyrosigma delicatulum (W. Sm.) Elm.)
-- in McFarland et al. (1964)

Pleurosigma delicatulum -- in Curtis (1901)
and Williams (1964)

* *Pleurosigma elongatum* W. Sm. var. *elongatum*

Pleurosigma elongatum W. Sm. -- in Czarnecki
and Reinke (1981)

RHOICOSPHENIA

* *Rhoicosphenia curvata* (Kütz.) Grun. ex Rabh.
var. *curvata*

in Selva (1976) and Wujek et al. (1980)

Rhoicosphenia curvata (Kütz.) Grun. ex Rabh.
-- in Reinke (1979a)

Rhoicosphenia curvata -- in ANSP (1958)

RHOPALODIA

* *Rhopalodia gibba* (Ehr.) O. Müll. var. *gibba*

in Selva (1976) and Wujek et al. (1980)

Rhopalodia gibba (Ehr.) O. Müll. -- in Wujek
(1965), Reinke (1979a), and Reinke (1981)

Rhopalodia gibba (Ehr.) -- in Hanna (1932)

Epithemia gibba (Ehr.) Kütz.

Epithemia gibba Ktz. -- in Wolle (1889)

Epithemia gibba -- in Curtis (1901)

Navicula gibba Ehr. -- in Wolle (1889)

- * *Rhopalodia gibba* var. *ventricosa* (Kütz.)
H. & M. Perag.
Rhopalodia gibba var. *ventricosa* -- in ANSP
(1958)
Epithemia gibba var. *ventricosa* (Kütz.) Grun.
Epithemia gibba var. *ventricosum* [sic]
-- in Curtis (1901)
- * *Rhopalodia gibberula* (Ehr.) O. Müll. var.
gibberula
Epithemia gibberula Ehr.
Epithemia gibberula -- in Curtis (1901)
- * *Rhopalodia gibberula* var. *vanheurekii* O. Müll.
in Selva (1976)
Rhopalodia gibberula var. *vanheurekii* [sic]
O. Müll. -- in Czarnecki and Reinke (1981)
- * *Rhopalodia musculus* (Kütz.) O. Müll. var.
musculus
Rhopalodia musculus -- in ANSP (1958)
- * *Rhopalodia parallela* (Grun.) O. Müll. var.
parallela
Rhopalodia parallela (Grun.) O. Müll. -- in
Czarnecki and Reinke (1981)
- ? Uncertain *Rhopalodia*
Epithemia (like *musculus*, but ends not so
sharp) -- in Curtis (1901)
This might be *Rhopalodia musculus* (Kütz.)
O. Müll.

? Uncertain *Rhopalodia* cont.

Epithemia (uncertain, fig. 21, pl. III)
-- in Curtis (1901)

SCOLIOPLEURA

? Uncertain *Scoliopleura*

Navicula alternans -- in Curtis (1901)

N. alternans Schum. = ?*Scoliopleura*
alternans (Schum.) DeT.; see Patrick
and Reimer (1966:644).

SKELETONEMA

? Uncertain *Skeletonema*

Skeletonema potamos -- in Williams et al.
(1978 and 1979)

This was not listed by Hustedt (1930)
or Van Landingham (1967-1979).

Reinke (1979b) listed *Skeletonema*
potamos (Weber) Hasle for this taxon.

STAURONEIS

* *Stauroneis anceps* Ehr. var. *anceps*

in Wujek et al. (1980)

Stauroneis anceps W. Sm. -- in Wolle (1889)

Stauroneis anceps -- in Curtis (1901)

* *Stauroneis anceps* var. *americana* Reim.

in Wujek et al. (1980)

* *Stauroneis kriegeri* Patr. var. *kriegeri*

in Selva (1976)

- * *Stauroneis lauenburgiana* Hust. var. *lauenburgiana*
in Selva (1976)
- * *Stauroneis phoenicenteron* (Nitz.) Ehr. var.
phoenicenteron
in Selva (1976)
Stauroneis phoenicenteron Ehr. -- in Wolle
(1889) and Wujek (1965)
Stauroneis phoenicenteron -- in Curtis (1901)
and ANSP (1958)
- * *Stauroneis phoenicenteron* f. *gracilis* (Ehr.)
Hust.
in Czarnecki and Reinke (1981)
Van Landingham (1967-1979) listed *Stauroneis*
gracilis Ehr. as the recommended name
for this taxon.
- * *Stauroneis producta* Grun. var. *producta*
Stauroneis producta Grun. -- in Wolle (1889)
- * *Stauroneis smithii* Grun. var. *smithii*
in Selva (1976)
Stauroneis smithii Grun. -- in Wujek (1965)
- * *Stauroneis wislouchii* Poret. et Anis. var.
wislouchii
Stauroneis wislouchii Poretzky et Anisimowa
-- in Czarnecki and Reinke (1981)

STENOPTEROBIA

- * *Stenopterobia intermedia* (Lewis) V.H. var.
intermedia

Surirella intermedia Lewis

Surirella intermedia -- in Curtis (1901)

STEPHANODISCUS

- * *Stephanodiscus astraea* (Ehr.) Grun. var. *astraea*

Stephanodiscus astraea (Ehr.) Grun. -- in
Wujek et al. (1980)

Stephanodiscus astraea Ehr. -- in Reinke
(1979a)

- * *Stephanodiscus astraea* var. *minutula* (Kütz.)
Grun.

in ANSP (1958)

Stephanodiscus astraea var. *minutula* -- in
Williams et al. (1978 and 1979)

Stephanodiscus astraea minutula -- in
Williams (1964)

Stephanodiscus asterea [sic] var. *minutula*
-- in Powers (1969)

Stephanodiscus alpinus Hust. -- in ANSP (1958)

Stephanodiscus alpinus -- in Powers (1969)

- * *Stephanodiscus dubius* (Fricke) Hust. var. *dubius*

Stephanodiscus dubius (Fricke) Hust. -- in
Wujek et al. (1980)

* *Stephanodiscus hantzschii* Grun. var. *hantzschii*

Stephanodiscus hantzschii Grun. -- in
Williams and Scott (1962) and Wujek (1965)

Stephanodiscus hantzschii -- in Williams
(1964) and Powers (1969)

Stephanodiscus hantzschia [sic] -- in
Williams et al. (1978 and 1979)

* *Stephanodiscus invisitatus* Hohn et Hellerm. var.
invisitatus

Stephanodiscus invisitatus -- in Powers (1969)

Stephanodiscus invisitatus [sic] -- in
Williams et al. (1978 and 1979)

* *Stephanodiscus tenuis* Hust. var. *tenuis*

Stephanodiscus tenuis -- in Williams et al.
(1978 and 1979)

? Uncertain *Stephanodiscus*

Stephanodiscus astreae [sic] var. *minuta*
-- in ANSP (1958)

This was not listed by Van Landingham
(1967-1979). It might be

Stephanodiscus astraea var. *minutula*
(Kütz.) Grun.

SURIRELLA

* *Surirella angustata* Kütz. var. *angustata*

in Wujek et al. (1980)

Continued on the next page.

Surirella angustata Kütz. cont.*Surirella angustata* Kütz. -- in ANSP (1958)*Surirella angustata* -- in Powers (1969)*Surirella angusta* -- in ANSP (1958) and
Williams et al. (1978 and 1979)*Surirella apiculata* W. Sm.*Surirella apiculata* -- in Curtis (1901)* *Surirella delicatissima* Lewis var. *delicatissima**Surirella delicatissima* of Lewis -- in
Curtis (1901)* *Surirella linearis* W. Sm. var. *linearis**Surirella linearis* W. Sm. -- in Wujek (1965)
and Wujek et al. (1980)* *Surirella moelleriana* Grun. ex Möll. var.
*moelleriana**Surirella molleriana* [sic] -- in Curtis
(1901)* *Surirella nervosa* (A.S.) A. Mayer var. *nervosa**Surirella tenera* var. *nervosa* A.S. -- in
Curtis (1901)* *Surirella ovalis* Bréb. var. *ovalis**Surirella ovalis* Bréb. -- in McFarland et al.
(1964) and Selva (1981)*Surirella ovalis* Breg. [sic] -- in Wujek
(1965)

- * *Surirella ovalis* var. *brightwellii* (W. Sm.)
H. & M. Perag.
Surirella brightwellii W. Sm. -- in Wujek
et al. (1980)
Surirella brightwellii -- in ANSP (1958)
- * *Surirella ovata* Kütz. var. *ovata*
in Wujek et al. (1980)
Surirella ovata Kütz. -- in ANSP (1958)
Surirella ovata -- in Curtis (1901) and
Williams et al. (1978 and 1979)

Van Landingham (1967-1979) also listed
Surirella ovata Ehr. = ?*Surirella*
limosa J.W. Bail. et Brightw.
- * *Surirella ovata* var. *crumena* (Bréb. ex Kütz.)
Hust.
Surirella ovata var. *crumena* (Bréb. ex Kütz.)
V.H. -- in Wujek et al. (1980)

Van Heurck (1880-1885) listed the species
as *Surirella ovalis* var. *crumena*
(Bréb. ex Kütz.) V.H.
- * *Surirella ovata* var. *pinnata* (W. Sm.) Brun
Surirella ovata var. *pinnata* (W. Sm.) Kütz.
-- in Wujek et al. (1980)

Hustedt (1930) listed the authority as
S. ovata var. *pinnata* (W. Sm.) Hust.

Continued on the next page.

Surirella ovata var. *pinnata* (W. Sm.) Brun cont.

Van Landingham (1967-1979) listed

Surirella ovalis var. *pinnata* (W. Sm.)

V.H. as the recommended name for this
taxon.

* *Surirella ovata* var. *salina* (W. Sm.) Rabh.

Surirella ovata var. *salina* (W. Sm.) Hust.
-- in ANSP (1958)

Surirella ovata var. *salina* -- in Powers
(1969)

Hustedt (1930) listed the authority as *S.*
ovata var. *salina* (W. Sm.) Hust. Van
Landingham (1967-1979) listed *Surirella*
ovalis var. *salina* (W. Sm.) V.H. as the
recommended name for this taxon.

* *Surirella ovata* var. *suevica* (Zeller ex Grun.)
M. Perag.

Surirella suevica Zeller ex Grun.

Surirella suevica -- in Curtis (1901)

* *Surirella robusta* Ehr. var. *robusta*

Surirella robusta Ehr. -- in Wujek (1965)

Surirella robusta Ehr. (fig. 1, pl. II)
-- in Curtis (1901)

Surirella nobilis W. Sm.

Surirella nobilis Grun. -- in Curtis
(1901)

* *Surirella robusta* var. *splendida* (Ehr.) V.H.

Surirella robusta var. *splendida* (Ehr.)
van Heurck (also as *Surirella splendida*
(Ehr.) Kütz.) -- in McFarland et al.
(1964)

Surirella splendida (Ehr.) Kütz.

Surirella splendida Ehr. -- in Wolle
(1889)

Surirella splendida -- in Curtis (1901)

* *Surirella spiralis* Kütz. var. *spiralis*

Surirella (*Campylodiscus*) *spiralis* Kg.
-- in Wolle (1889)

* *Surirella striatula* Turp. var. *striatula*

in Selva (1976)

Surirella striatula -- in Williams (1964)

Van Landingham (1967-1979) also listed

Surirella striatella (*striatula*) sensu
A.S. = *Surirella testudo* Ehr. Schmidt
et al. (1874-1959) has six figures
listed as *S. striatula* Turp. and,
according to Van Landingham (loc. cit.),
only one of these is *S. testudo* Ehr.
Williams and Scott (1962) recorded
S. striatula Turp. at locations outside
of Kansas.

* *Surirella tenera* Greg. var. *tenera*

Surirella tenera Greg. -- in Curtis (1901)

* *Surirella tenera* var. *palmeri* (Boyer) Hust.

Surirella palmeri Boyer

Surirella palmeri -- in ANSP (1958) and Powers (1969)

* *Surirella tenera* var. *splendidula* A.S.

Surirella tenera var. *splendidula* -- in Curtis (1901)

? Uncertain *Surirella*

Surirella linearis var. *helvetica* (?)

-- in Williams et al. (1978 and 1979)

Surirella linearis var. *helvetica*

(Brun) Meist. [V.L.]

Surirella moelleriana [sic] var. -- in

Curtis (1901)

This might be a variety of *Surirella*

moelleriana Grun. ex Möll. [V.L.]

Surirella ovata var. -- in Curtis (1901)

This might be a variety of *Surirella*

ovata Kütz. [V.L.]

Surirella panduriformis -- in Curtis (1901)

S. panduriformis W. Sm. = *Surirella*

ovata var. *pinnata* (W. Sm.) Brun

[V.L.]

S. panduriformis Rabh. = *Surirella*

didyma Kütz. [V.L.]

? Uncertain *Surirella* cont.

Surirella striatula var. 1 -- in ANSP
(1958) and Powers (1969)

Surirella (like *saxonica*, but very coarsely
marked) -- in Curtis (1901)

Surirella (like 64 of Schmidt's Atlas,
fig. 23) -- in Curtis (1901)

SYNEDRA

* *Synedra acus* Kütz. var. *acus*

in Selva (1976) and Wujek et al. (1980)

Synedra acus -- in Curtis (1901), ANSP (1958),
and Williams et al. (1978 and 1979)

* *Synedra capitata* Ehr. var. *capitata*

Synedra capitata Ehr. -- in Czarnecki and
Reinke (1981)

* *Synedra delicatissima* W. Sm. var. *delicatissima*

in Wujek et al. (1980)

Van Landingham (1967-1979) listed this as a
synonym of *Synedra acus* var. *radians*
(Kütz.) Hust.

* *Synedra delicatissima* var. *angustissima* Grun.

in Selva (1976)

Van Landingham (1967-1979) listed this as a
synonym of *Synedra acus* var. *angustissima*
Grun.

- * *Synedra fasciculata* (Ag.) Kütz. var. *fasciculata*
in Wujek et al. (1980)

Van Landingham (1967-1979) listed *Synedra fasciculata* Kütz. = *Synedra tabulata* var. *fasciculata* (Kütz.) Hust. See Patrick and Reimer (1966:141) for a discussion of the synonymy of this taxon.

- * *Synedra fasciculata* var. *truncata* (Grev.) Patr.
in Selva (1976) and Wujek et al. (1980)

This was not listed by Van Landingham (1967-1979).

- * *Synedra gaillonii* (Bory) Ehr. var. *gaillonii*
Synedra gaillonii [sic] (Bory) Ehr. -- in
Czarnecki and Reinke (1981)

- * *Synedra minuscula* Grun. var. *minuscula*
Synedra minuscula -- in Williams et al.
(1978 and 1979)

- * *Synedra monodi* Guerm. var. *monodi*
in Selva (1976)

- * *Synedra parasitica* (W. Sm.) Hust. var. *parasitica*
in Selva (1976) and Wujek et al. (1980)

- * *Synedra parasitica* var. *subconstricta* (Grun.)
Hust.
in Wujek et al. (1980)

* *Synedra pulchella* Ralfs ex Kütz. var. *pulchella*

Synedra pulchella -- in Curtis (1901) and
ANSP (1958)

Synedra pulchella f. *major* Grun.

Synedra pulchella forma *major* -- in
Curtis (1901)

* *Synedra pulchella* var. *lanceolata* O'Meara

Synedra pulchella var. *lacerata* O'Meara
-- in Czarnecki and Reinke (1981)

Apparently the wrong authority was listed
by Czarnecki and Reinke (1981). They
cited Patrick and Reimer's (1966)
figures for *Synedra pulchella* var.
lanceolata O'Meara. *Synedra pulchella*
var. *lacerata* Hust. was included on
the same page in Patrick and Reimer
(loc. cit.).

* *Synedra radians* Kütz. var. *radians*

in Selva (1976)

Van Landingham (1967-1979) listed *Synedra*
acus var. *radians* (Kütz.) Hust. as the
recommended name for this taxon.

* *Synedra rumpens* Kütz. var. *rumpens*

in Selva (1976)

Synedra rumpens -- in Williams et al.
(1978 and 1979)

- * *Synedra rumpens* var. *familiaris* (Kütz.) Hust.

Synedra familiaris Kütz.

Synedra familiaris -- in Curtis (1901)

Van Landingham (1967-1979) listed the authority as *S. rumpens* var. *familiaris* (Kütz.) Grun.

- * *Synedra superba* Kütz. var. *superba*

Synedra superba -- in Curtis (1901)

Synedra superba H. & M. Perag. was described in 1901 after Curtis reported this species in 1899.

- * *Synedra ulna* (Nitz.) Ehr. var. *ulna*

in Wujek et al. (1980)

Synedra ulna (Nitz.) Ehr. -- in ANSP (1958), Williams and Scott (1962), and McFarland et al. (1964)

Synedra ulna (Nitz.) -- in Hanna (1932)

Synedra ulna Ehr. -- in Wolle (1889)

Synedra ulna -- in Curtis (1901), Williams (1964), Powers (1969), Williams (1972), and Williams et al. (1978 and 1979)

Van Landingham (1967-1979) also listed *Synedra ulna* sensu Hust. = *Synedra ulna* var. *abiskoensis* Foged.

Continued on the next page.

Synedra ulna (Nitz.) Ehr. cont.

Synedra lanceolata Kütz.

Synedra lanceolata -- in Curtis (1901)

Van Landingham (1967-1979) also listed

Synedra lanceolata Castr., but did

not give a recommended name.

* *Synedra ulna* var. *aequalis* (Kütz.) Brun

Synedra ulna var. *aequalis* (Kütz.) Hust.

-- in Selva (1976)

* *Synedra ulna* var. *amphirhynchus* (Ehr.) Grun.

Synedra ulna var. *vitrea* (Bory ex Kütz.) V.H.

Synedra ulna var. *vitrea* -- in Curtis
(1901)

Van Landingham (1967-1979) listed *Synedra*

ulna var. *vitrea* (Bory ex Kütz.) V.H.

as a synonym of *Synedra ulna* (Nitz.)

Ehr.

* *Synedra ulna* var. *biceps* (Kütz.) Kirchn.

Synedra ulna var. *longissima* (W. Sm.) Brun

Synedra ulna var. *longissima* -- in
Curtis (1901)

Van Landingham (1967-1979) listed the

authority as *Synedra ulna* var. *biceps*

(Kütz.) Schönf.

* *Synedra ulna* var. *danica* (Kütz.) V.H.

Synedra ulna var. *danica* (Kütz.) Grun. -- in
Wujek (1965)

Synedra danica Kütz.

Synedra danica -- in Curtis (1901)

Van Landingham (1967-1979) listed the author-
ity as *S. ulna* var. *danica* (Kütz.)

Grun. in V.H.

* *Synedra ulna* var. *oxyrhynchus* (Kütz.) V.H.

Synedra ulna var. *oxyrhynchus* -- in ANSP
(1958)

* *Synedra ulna* var. *spathulata* Hust.

in Selva (1976)

Van Landingham (1967-1979) listed this as a
synonym of *Synedra ulna* var. *spathulifera*

(Grun.) V.H.

* *Synedra ulna* var. *spathulifera* (Grun.) V.H.

in Wujek et al. (1980)

? Uncertain *Synedra*

Synedra (an end of, perhaps, *chaseii*?)

-- in Curtis (1901)

TABELLARIA

- * *Tabellaria flocculosa* (Roth) Kütz. var.
flocculosa
in Selva (1976)

THALASSIOSIRA

- * *Thalassiosira fluviatilis* Hust. var. *fluviatilis*
in Wujek et al. (1980)
Thalassiosira fluviatilis Hust. -- in
ANSP (1958)

UNCERTAIN GENERA

Cyclotella rotula -- in Curtis (1901)

C. rotula Kütz. (1844) = *Stephanodiscus rotula* (Kütz.) Hendey [V.L.]

C. rotula Kütz. (1849) = *Stictodiscus rotula* (Ehr.) Grev. [V.L.]

Navicula gibba Ehr. -- in Wolle (1889)

N. gibba Ehr. = *Rhopalodia gibba* (Ehr.) O. Mull. [V.L.]

N. gibba (Ehr.) Kütz. = *Pinnularia gibba* Ehr. [V.L.]

Wolle (1889) seems to have cited authorities incorrectly for a number of taxa (see *Surirella robusta* var. *splendida* (Ehr.) V.H.), so it was unclear which of these two taxa he identified.

Navicula stauroneiformis -- in Curtis (1901)

N. stauroneiformis Wolle = *Mastogloia elegans* Lewis [V.L.]

N. stauroneiformis Leud.-Fortm. = *Trachyneis aspera* (Ehr.) Cl. [V.L.]

Navicula trinodis -- in Curtis (1901)

N. ?trinodis Ehr. = *Tabellaria flocculosa* (Roth) Kütz. [V.L.]

N. trinodis sensu Grun. = *Navicula contenta* Grun. and *Navicula contenta* var. *biceps* (Grun.) Cl. [V.L.]

N. trinodis W. Sm. = *Achmanthes trinodis* (W. Sm.) Grun. [V.L.]

Continued on the next page.

UNCERTAIN GENERA cont.

N. trinodis? A.S. = *Caloneis lewisii* Patr.
[V.L.]

N. trinodis sensu Lewis = *Caloneis lewisii*
Patr. [P & R]

Navicula undulata -- in Curtis (1901)

N. undulata? Ehr. = ?*Cymatopleura elliptica*
(Bréb.) W. Sm. [V.L.]

N. undulata Ralfs (nec al.) = *Pinnularia*
polyonca (Bréb.) W. Sm. [V.L.]

N. undulata O'Meara (nec al.) = ? [V.L.]

N. undulata (Grun.) Wolle = *Caloneis silica*
var. *undulata* (Grun.) Cl. [V.L.]

ADDENDUM

The taxa listed below were inadvertently omitted from the annotated list.

* *Achnanthes breviceps* var. *intermedia* (Kütz.) Cl.
in Czarnecki and Reinke (1981) [page 12]

* *Cyclotella pseudostelligera* Hust. var.
pseudostelligera [page 27]

Cyclotella pseudostelligera Hust. -- in
ANSP (1958)

Cyclotella pseudostelligera -- in Powers
(1969)

* *Navicula spicula* (Hickie) Cl. var. *spicula*

Stauroneis spicula (Hickie) Grun. (= *Navicula*
spicula (Hickie) Cl. in Patrick and
Reimer, 1966) fide Hendey (1977) -- in
Czarnecki and Reinke (1981)

[page 84]

SUMMARY

This list has been compiled solely from the literature and no slides from those studies were examined to verify the taxa reported. Although this means a number of assumptions had to be made, it is currently the most comprehensive and detailed account of the information that has been published on the diatoms of Kansas. Though some recent changes in diatom systematics have not been incorporated into this account, it has been based on three references that should be available to most diatomologists and, hopefully, this will make it useful as a base reference for those wanting to know about the diatoms reported from Kansas.

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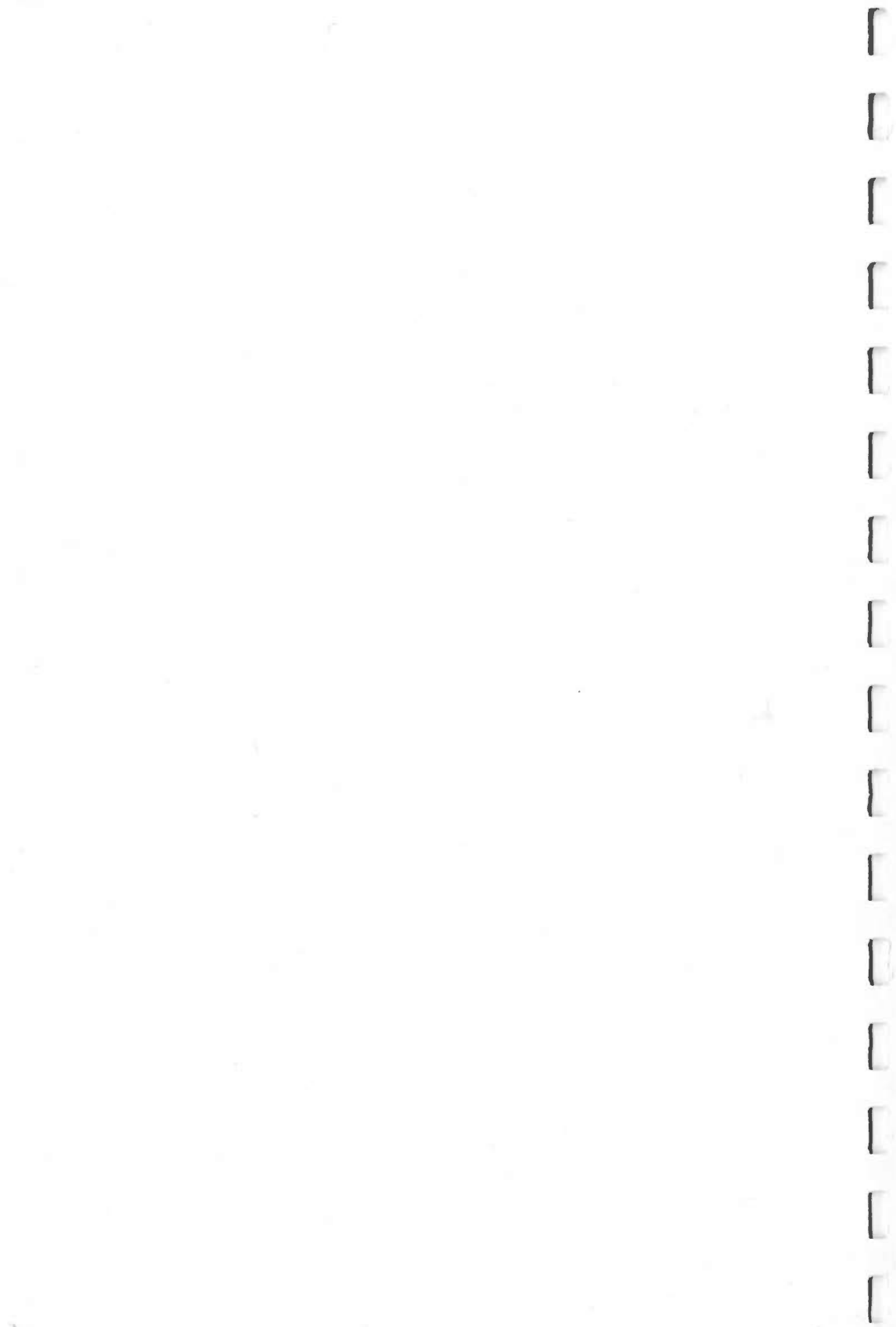
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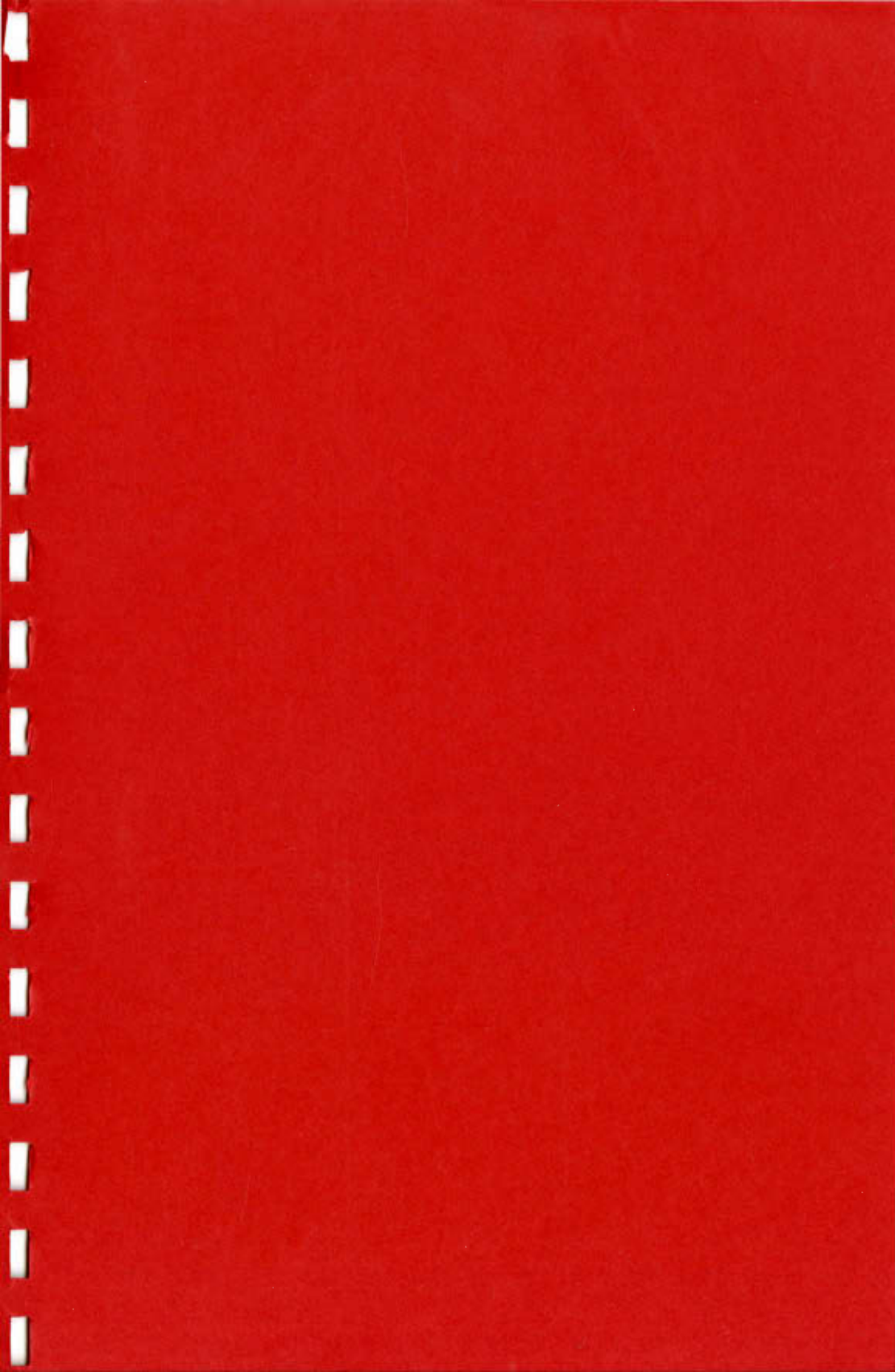
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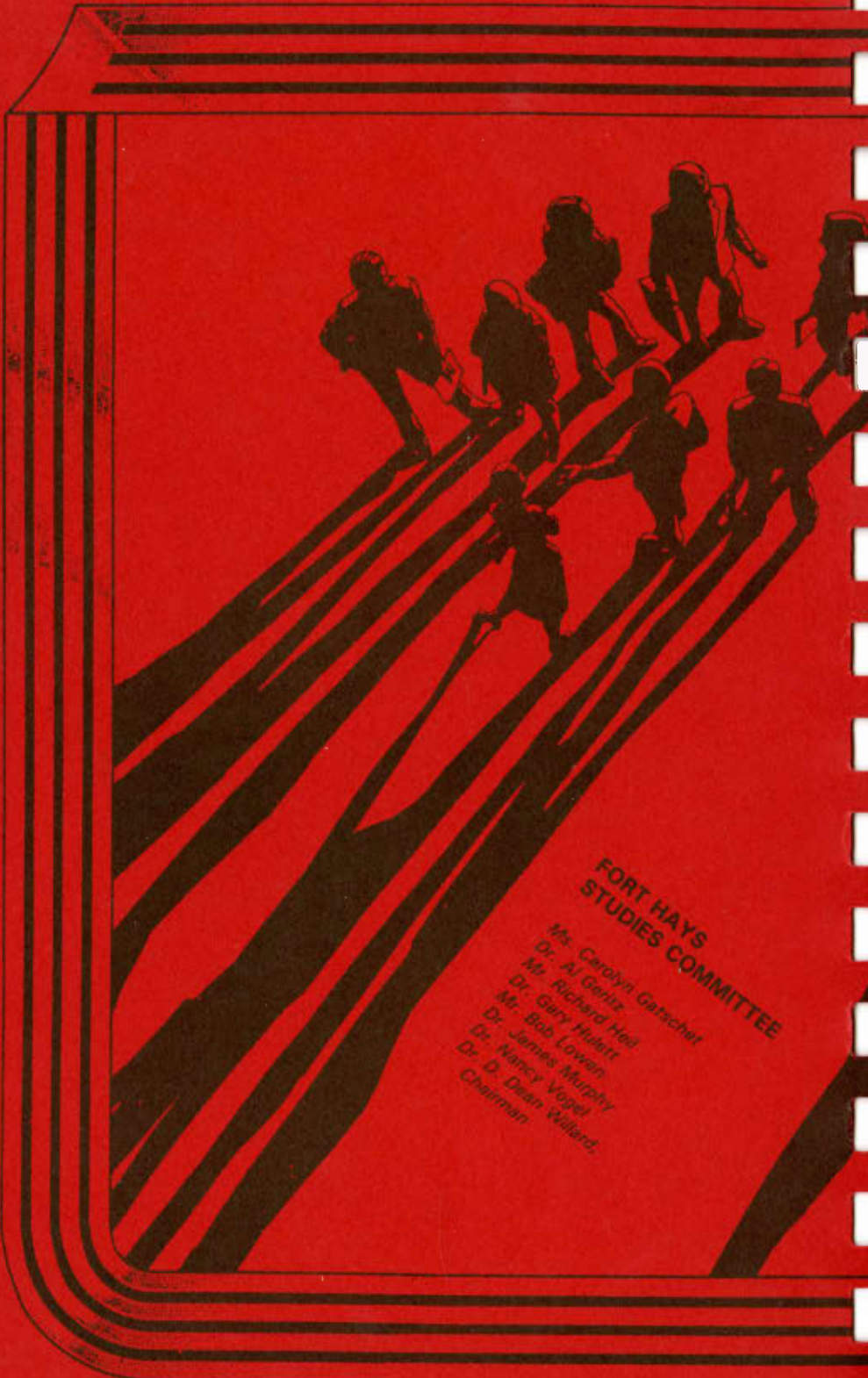
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