

THE CULTURE COLLECTION OF ALGAE AT THE UNIVERSITY OF TEXAS AT AUSTIN^{1,2,3}

Richard C. Starr

Department of Botany, The University of Texas at Austin, Austin, Texas 78712

The Culture Collection of Algae at The University of Texas (UTEX) at Austin was formerly located at Indiana University, Bloomington. In the summer of 1976 when the writer joined the faculty of the Department of Botany at The University of Texas, plans were formulated for moving the Collection. With the cooperation of the National Science Foundation and the Administrations of Indiana University and The University of Texas at Austin, the move was made during 1976-77 without any interruption of service to the scientific community. The University of Texas has provided and equipped physical facilities for the maintenance and operation of the Collection. The continued support of the Collection as a national research resource by the National Science Foundation is gratefully acknowledged. The Foundation provides the major financial support for the actual operation of the Collection, but funds received from the sale of cultures are maintained in a special account for partial support of Collection needs such as postage, supplies, secretarial help, etc.

Interest in the study of algae expanded tremendously in the 1950's and has continued until the present. A comparison of *The Cultivation of the Algae* (Bold 1942) with its 503 references, a nearly complete listing of all papers in which algal cultures had been used up to that time, with the excellent volume on *Algal Physiology and Biochemistry* edited by W. D. P. Stewart (1974) documents the proliferation of algae as research material in a great variety of disciplines where earlier they seemingly had little potential. The late Professor Dr. E. G. Pringsheim established the first collection of algae in Prague in the 1920's and later went to Cambridge where he established the collection which is now known as the Culture Centre of Algae and Protozoa (CCAP) in Cambridge (George 1976). It was from this collection that in 1953 a nucleus of cultures provided the beginning of the collection at Indiana University. Professor Pringsheim later established a collection at the University of Göttingen (Germany), and at present there are smaller collections in Tokyo and Paris. In addition there are numerous specialized

private collections in the United States and elsewhere.

All cultures in the Collection of Algae at The University of Texas are available without any restriction as to use by all interested individuals and organizations, both academic and commercial. To academic institutions and nonprofit organizations the cost (U.S. funds) of each culture is \$4.00 postpaid; commercial organizations are charged \$10.00 per culture postpaid. Investigators using newly-isolated algal strains in their researches are invited to send their strains to the Collection at any time they may have no objection to their unrestricted distribution to other workers. The final decision on the addition of any strain to the Collection must be reserved for the Director.

INSTRUCTIONS FOR ORDERING CULTURES

Orders for cultures are accepted by letter, purchase order or telephone (Area Code 512, 471-4019). Telephone calls cannot be returned unless COLLECT calls will be accepted. After the cultures are sent, the purchaser will be sent an invoice indicating the number of cultures and the total charges (academic, nonprofit individuals and organizations, \$4 each; commercial organizations, \$10 each). No postage charges are made for either domestic or foreign delivery. Cultures are sent by U.S. postal service, but cannot be sent C.O.D. Delivery by air-freight is not possible.

Orders should be addressed as follows:

DR. RICHARD C. STARR
CULTURE COLLECTION OF ALGAE
DEPARTMENT OF BOTANY
THE UNIVERSITY OF TEXAS AT AUSTIN
AUSTIN, TEXAS 78712 USA.

Deliveries usually can be made within 10 days of receipt of the order. Purchasers are reminded that longer delays may be encountered due to the lengthy time of processing in their own purchasing departments.

LIST OF CULTURES

Explanatory notes. In contrast to the arrangement of earlier lists from Indiana University (Starr 1964, 1966, 1971d) in which genera and species were listed under their respective classes and orders, the current listing gives the genera and species in alphabetical order. It is hoped that this will facilitate the use of the list by those individuals unfamiliar with the vagaries of algal taxonomy.

¹ Accepted: 24 April 1978.

² The costs of publication of this catalog were defrayed by the National Science Foundation Grant #DES76-81979 to R. C. Starr for the operation of the Culture Collection of Algae.

³ Dedicated to Luigi Provasoli whose many contributions to the development of culture media, both freshwater and marine, are evidenced by the ever-increasing number of interesting algal strains available for research.

The name of the genus and species is usually that designated by the individual who deposited the strain in this or another collection. Some names have been changed when such alterations have been published or have been generally accepted by the scientific community. The number assigned a strain remains the same regardless of any change in the nomenclature of the strain. All strain numbers formerly used in the Indiana Collection (IUCC) have been continued unchanged in the Texas Collection (UTEX).

Unless otherwise noted, cultures are presumed to be bacteria-free and growing on agar slants. A prefix of "L" before the number indicates the culture

is maintained in liquid. A prefix of "B" indicates that the culture is unialgal but may contain bacteria or other contaminating non-algal organisms. The prefix "LB" indicates cultures in liquid and not bacteria-free.

For each strain is given information such as the isolator of the strain, identity with strains in other collections and use in published research. Investigators using strains from the Texas Collection are urged to identify their material with the UTEX number and not by name alone. For some cultures, further information regarding isolation is available; although, in many instances this is brief.

ABBREVIATIONS: L = liquid; B = unialgal, may contain bacteria; CCAP = Culture Centre for Algae and Protozoa (Cambridge, England; see George 1976)

ACETABULARIA Lamouroux

LB 1978 *A. sp.*

Bold: Gulf of Mexico

ACHNANTHES Bory

2077 *A. brevipes* (Ag.) Cl.

Watson 7; from J. Lewin (Lewin and Lewin 1960)

ACROCHAETIUM Nägeli

LB 1607 *A. pectinatum* (Kylin) Hamel

J. West: monosporangia on 16:8 LD; tetrasporangia on 8-10 light (West 1968)

LB 1692 *A. plumosum* (Drew) Smith

Ramus

LB 1945 *A. proskaueri* West

J. West (West 1972)

LB 1413 *A. sagracanum* (Mont.) Born.

Ott MO-366

LB 1504 *A. sp.*

Ott MO-331

LB 1505 *A. sp.*

Ott MO-102

LB 1506 *A. sp.*

Ott MO-133

LB 1507 *A. sp.*

Ott MO-201

LB 1608 *A. sp.*

Lewin

LB 1693 *A. sp.*

Ramus C

ACTINASTRUM Lagerheim

LB 605 *A. hantzschii* Lagerh.

Paris 152

ACTINOCHLORIS Korshikov (see RADIOSPHAERA)

AGARDHIELLA Schmitz (see NEOAGARDHIELLA)

AMPHIDINIUM Claparède & Lachmann

LB 1002 *A. carterae* Hulbert

Parke: Plymouth 127; CCAP 1102/1

LB 1561 *A. carterae* Hulbert

Guillard: from Loeblich

LB 1687 *A. carterae* Hulbert

J. West

LB 1946 *A. rhynchocephalum* Anissimowa

Grell: from Haxo as PY-4

AMPHIPRORA Ehrenberg

2048 *A. paludosa* var. *duplex* (Donk.) Cl.

Lewin 73-M (Lewin and Lewin 1960)

AMPHORA Ehrenberg

1276 *A. coffeaeformis* Ag.

Lewin 64-M

2036 *A. coffeaeformis* Ag.

Lewin 34-M (Lewin and Lewin 1960)

2038 *A. coffeaeformis* Ag.

Lewin 45-M (Lewin and Lewin 1960)

2039 *A. coffeaeformis* Ag.

Lewin 47-M (Lewin and Lewin 1960)

2040 *A. coffeaeformis* Ag.

Lewin 51-M (Lewin and Lewin 1960)

2078 *A. coffeaeformis* Ag.

Hutner; from J. Lewin (Lewin and Lewin 1960)

2079 *A. coffeaeformis* Ag.

T. Starr D2; from J. Lewin (Lewin and Lewin 1960)

2080 *A. coffeaeformis* Ag.

T. Starr D106; from J. Lewin (Lewin and Lewin 1960)

ANABAENA Bory

B 1609 *A. aequalis* Borge

Kantz 240 (Kantz and Bold 1969)

B 375 *A. catenula* (Kütz.) Born. & Flah.

Manten; Utrecht P36; CCAP B 1403/1

B 629 *A. cylindrica* Lemm.

M. B. Allen M 1-1-1

B 1611 *A. cylindrica* Lemm.

Kantz 238 (Kantz and Bold 1969)

B 2094 *A. doliolum* Bharadwaja

From R. N. Singh via P. Wolk

1444 *A. flos-aquae* (Lyng.) Bréb.

From R. G. Tischer, MSU A-37 (Tischer and Moore 1964)

LB 380 *A. inaequalis* (Kütz.) Born. & Flah.

Utrecht No. P 31; CCAP B 1446/1a

B 381 *A. inaequalis* (Kütz.) Born. & Flah.

Utrecht No. P. 32; CCAP B 1446/1c

B 1613 *A. minutissima* Lemm.

Kantz 194 (Kantz and Bold 1969)

B 1823 *A. randhawae* Venkataraman

Pant A5

B 1616 *A. sphaerica* Born. & Flah.

Kantz 242 (Kantz and Bold 1969)

1552 *A. spiroides* Klebahn

Shilo; M. M. Allen 6310

B 1617 *A. subcylindrica* Borg

Kantz 205 (Kantz and Bold 1969)

B 1618 *A. subtropica* Gardner

Kantz 45 (Kantz and Bold 1969)

ANABAENA Bory (Continued)

- B 1612 *A. utermöhl* (Uterm.) Geitler
 B 377 *A. variabilis* Kütz.
 B 1619 *A. verrucosa* Boye-Petersen
 LB 1448 *A. sp.*
 1551 *A. sp.*

Kantz 172 (Kantz and Bold 1969)
 Utrecht P 40; CCAP B1403/4
 Kantz 101 (Kantz and Bold 1969)
 NA 2 MSC 95
 M. M. Allen 6302

ANACYSTIS Meneghini

- LB 1634 *A. marina* (Hansg.) Drouet & Dailey
 625 *A. nidulans* (Richt.) Drouet

R. A. Lewin
 see *Synechococcus leopoliensis* for correct nomenclature

ANADYOMENE Lamouroux

- LB 1421 *A. stellata* (Wulfen) C. Ag.

Ott MO-91

ANKISTRODESMUS Corda

- 188 *A. angustus* Bernard
 189 *A. angustus* Bernard
 241 *A. angustus* Bernard
 LB 1379 *A. arcuatus* Korsh.
 187 *A. braunii* Brun.
 245 *A. braunii* Brun.
 244 *A. braunii* Brun.
 750 *A. braunii* Brun.
 190 *A. densus* Korsh.
 749 *A. falcatus* (Corda) Ralfs
 101 *A. falcatus* var. *acicularis* (A.Br.) G. S. West
 748 *A. falcatus* var. *acicularis* (A.Br.) G. S. West
 242 *A. falcatus* var. *stipitatus* (Chod.) Lemm.
 5243 *A. nanoselene* Skuja
 LB 1380 *A. pseudobraunii* Belcher & Swale
 LB 107 *A. spiralis* (Turn.) Lemm.

Rodhe 1631a; CCAP 202/3 (McMillan 1957)
 Vischer 9; CCAP 202/2
 Czurda; CCAP 202/4
 Hindak
 George; CCAP 202/9a
 George; CCAP 202/7b (McMillan 1957)
 Vischer 106; CCAP 202/7a
 McMillan 245-st 1.1 (McMillan 1957)
 Vischer 6; CCAP 202/1
 McMillan 188-st 2.4 (McMillan 1957)
 Starr (McMillan 1957)
 McMillan 101-E9-B2 (McMillan 1957)
 Czurda; Prague 262; CCAP 202/5a
 Rodhe 1632; CCAP 202/6
 Hindak
 Starr

ANKYRA Foit

- 2158 *A. starrii* Lee & Bold

Starr (Lee and Bold 1974)

ANTITHAMNION Nägeli

- LB 801 *A. glanduliferum*

Norris

APHANOCHAETE A. Braun

- 2123 *A. confervicola* var. *major* Tupa
 1917 *A. elegans* Tupa
 2124 *A. elegans* var. *minor* Tupa
 1909 *A. magna* Godward

Tupa DDT-11 (Tupa 1974)
 Bold-Tupa DDT-39 (Tupa 1974)
 Tupa DDT-15 (Tupa 1974)
 Tupa DDT-3 (Tupa 1974)

ASCOCHLORIS Bold & MacEntee

- 2013 *A. multinucleata* Bold & MacEntee

Bold and MacEntee (Bold and MacEntee 1974)

ASTASIA Dujardin

- LB 1279 *A. acus* Christen
 LB 497 *A. applanata* Prings.
 LB 498 *A. curvata* Klebs
 LB 499 *A. dangerdii* Lemm.
 LB 500 *A. fritschii* Pring.
 LB 511 *A. hallii* Prings.
 LB 501 *A. inflata* Klebs
 LB 502 *A. klebsii* Lemm.
 512 *A. longa* Prings.
 LB 503 *A. longa* var. *truncata* Prings.
 LB 1018 *A. sagittifera* Skuja
 LB 505 *A. torta* Pringsheim

Christen 1; Göttingen LB 1204-26a
 Pringsheim; CCAP LB 1204/1
 Pringsheim; CCAP LB 1204/5
 Pringsheim; CCAP LB 1204/7
 Pringsheim; CCAP LB 1204/8a
 Pringsheim; CCAP LB 1204/12
 Pringsheim; CCAP LB 1204/14
 Pringsheim; CCAP LB 1204/15
 Pringsheim; CCAP LB 1204/17a
 Pringsheim; CCAP LB 1204/18
 Christen; CCAP LB 1204/24
 Pringsheim; CCAP LB 1204/21

ASTEROCOCCUS Scherffel

- 88 *A. superbus* (Gien.) Scherffel

George; CCAP 3/3a

ASTEROCYTIS Gobi

- LB 1633 *A. ramosa* (Thw.) Gobi
 LB 1432 *A. sp.*

R. Lewin
 Ott MO-429

ASTEROSIPHON Dangeard

- LB 2066 *A. dichotomus* Christensen

Christensen 9401

ASTREPHOMENE Pocock (note: clones no longer sexual)

- LB 1068 *A. gubernaculifera* Pocock
 LB 1392 *A. gubernaculifera* Pocock
 LB 1397 *A. gubernaculifera* Pocock
 LB 1398 *A. gubernaculifera* Pocock
 LB 1393 *A. gubernaculifera* Pocock
 LB 1394 *A. gubernaculifera* Pocock

Starr, clone 3 from T61M
 Brooks PVM; 7 chromosomes
 Brooks LC 6210(-); 8 chromosomes
 Brooks LC624; 8 chromosomes
 Brooks SC-10; 4 chromosomes
 Brooks SCM(-); 4 chromosomes

AULOSIRA Kirchner

- B 1824 *A. terrestre* Subba Raju

Pant A1

AXILOSPHAERA Cox & Deason

- 1674 *A. vegetata* Cox & Deason

Cox 2-1 (Cox and Deason 1968)

BANGIA Lyngbye

- LB 741 *B. fusco-purpurea* (Dill.) Lyng.
 LB 1691 *B. fusco-purpurea* (Dill.) Lyng.
 LB 1955 *B. fusco-purpurea* (Dill.) Lyng.

M.A. Allen
 Ramus
 R. Lewin

BASICLADIA Hoffman & Tilden

- LB 810 *B. sp.*
 LB 811 *B. sp.*

Proctor
 Proctor

BATOPHORA Agardh

- LB 1515 *B. oerstedii* J. Ag.

Ott MO-137

BATRACHOSPERMUM Roth

- LB 1493 *B. moniliforme* Roth
 LB 1495 *B. sirodotia* Skuja
 LB 1494 *B. vagum* var. *keratophyllum* Bory
 LB 1496 *B. sp.*

Ott-097
 Ott-0353
 Ott-052
 Ott-0421

BIPEDINOMONAS Carter (see HETEROMASTIX)

BLASTOPHYSA Reinke

- LB 1029 *B. rhizopus* Reinke

Brooks

BODANELLA Zimmermann

- LB 2190 *B. lauterborni* Zimm.
 LB 2191 *B. lauterborni* Zimm.

Müller; Bodensee
 Müller; Bodensee

BORODINELLOPSIS Dykstra

- 1593 *B. texensis* Dykstra

Dykstra (Dykstra 1971)

BOTRYDIOPSIS Borzi

- 295 *B. alpina* Vischer
 71 *B. arhiza* Borzi
 87 *B. arhiza* Borzi
 296 *B. intercedens* Vischer & Pascher

Vischer 232; CCAP 806/1 (Vischer 1945)
 George; CCAP 222/1b
 Pringsheim; CCAP 806/2
 Vischer 171; Geneva 522; CCAP 806/3 (Pascher 1939)

BOTRYDIUM Wallroth

- 158 *B. becherianum* Vischer
 157 *B. cystosum* Vischer
 156 *B. stoloniferum* Mitra

Vischer 192a; CCAP 805/1 (Vischer 1938)
 Vischer 196a; CCAP 805/2 (Vischer 1938)
 Mitra; CCAP 805/5

BOTRYOCOCCUS Kützinger572 *B. braunii* Kütz.

Droop; CCAP 807/1

BRACHIOMONAS Bohlin162 *B. submarina* Bohlin

Droop 42; crosses with 163; CCAP 7/1a

163 *B. submarina* Bohlin

Droop 43; crosses with 162; CCAP 7/1b

403 *B. submarina* var. *pulsifera* Droop

Droop 44; crosses with 404; CCAP 7/2a

404 *B. submarina* var. *pulsifera* Droop

Droop 45; crosses with 403; CCAP 7/2b

BRACTEACOCCLUS Tereg1250 *B. aerius* Bischoff & Bold

Bischoff M-1 (Bischoff and Bold 1963)

56 *B. cinnabarinus* (Kol & Chod.) Starr

Vischer 162; CCAP 221/2 (Starr 1955b)

1272 *B. cohaerens* Bischoff & Bold

Bischoff C12-Ig (Bischoff and Bold 1963)

1251 *B. giganteus* Bischoff & Bold

Bischoff Wcr4-8 (Bischoff and Bold 1963)

1246 *B. grandis* Bischoff & Bold

Bischoff T-1-2-B (Bischoff and Bold 1963)

1244 *B. medionucleatus* Bischoff & Bold

Bischoff D-48-7D (Bischoff and Bold 1963)

66 *B. minor* (Chod.) Petr.

Chodat; CCAP 221/1

LB 1386 *B. minor* var. *desertorum* Friedman & Ocampo-Paus

Friedmann and Ocampo-Paus 1-111; CCAP 221/6

LB 1960 *B. minor* var. *glacialis*

(Friedmann and Ocampo-Paus 1965)

1247 *B. pseudominor* Bischoff & Bold

Ellermeier, Antarctica

58 *B. terrestris* (Kol & Chod.) Starr

Bischoff W-25-B1 (Bischoff and Bold 1963)

345 *B. sp.*

Vischer 163; CCAP 221/4 (Starr 1955b)

M. A. Allen

BRYOPSIS LamourouxLB 1409 *B. plumosa* (Huds.) Ag.

Ott MO-303

BULBOCHAETE AgardhLB 954 *B. hiloensis* (Nordst.) Tiffany

Starr; dwarf males; gynandrosporous (Cook 1962)

LB 517 *B. sp.*

Bold

BUMILLERIA Borzi467 *B. exilis* Klebs

R. Lewin; CCAP 808/2

172 *B. sicula* Borzi

George; CCAP 808/1

BUMILLERIOPSIS Printz309 *B. filiformis* Vischer

Vischer 360; CCAP 809/2 (Vischer 1945)

147 *B. peterseniana* Vischer

Vischer 38; CCAP 809/3 (Vischer 1945)

CACHONINA A. R. Loeblich IIILB 1564 *C. niei* Loeblich III

Loeblich 87

CALLITHAMNION LyngbyeLB 1950 *C. corymbosum* (J. E. Smith) C. Ag.

R. Lewin; Haxo RH-6

LB 1411 *C. halliae* Collins

Ott MO-399; male

CALOTHRIX AgardhLB 1319 *C. anomala* Mitra

Mitra; CCAP 1410/4

B 1825 *C. javanica* de Wild.

Pant J22

B 379 *C. membranacea* Schmidle

Pringsheim; CCAP B1410/1

B 1826 *C. membranacea* Schmidle

Pant J11

LB 1952 *C. parietina* Thur.

Dodson; Haxo CY-4

B 1827 *C. sp.*

Pant J19

CALYPTROSPHAERA LohmannLB 1940 *C. sphaeroidea* Schiller

Klaveness

CAPSOSIPHON GobiLB 759 *C. fulvescens* (C. Ag.) S. & G.

Bold

CARTERIA Diesing432 *C. crucifera* Korsh.

R. Lewin; CCAP 8/7a

233 *C. rugametos* Mitra

Pringsheim; CCAP 8/3

CARTERIA Diesing (Continued)

- 2161 *C. eugametos* var. *contaminans* Vandover nom. nud.
 LB 1032 *C. oliveri* G. S. West
 LB 835 *C. radiosa* Korsch.
 LB 2053 *C. turfosa* Fott
 2 *C. sp.*
 LB 762 *C. sp.*

Vandover (Vandover 1972)
 Waters; homothallic
 Wilbois
 Truncova (Fott and McCarthy 1964)
 Pringsheim; CCAP 8/5
 Starr

CENTROSPHAERA Borzi

- LB 100 *C. sp.*
 LB 145 *C. sp.*

Starr
 Starr

CERAMIVUM Roth

- LB 1420 *C. sp.*
 LB 1951 *C. sp.*

Ott MO-320
 Hayes; Haxo RH-7

CERATIVUM Schrank

- LB 2169 *C. furca* (Ehrb.) Cl. & Lachm.

Joanne Jones; Chesapeake Biol. Lab. 9-6-1

CHAETOMORPHIA Kützinger

- LB 799 *C. aerea* (Dillw.) Kütz.
 LB 1489 *C. auricoma*

Bold
 Van den Hoek 61/83

CHAETOPELTIS Berthold

- LB 422 *C. sp.*

Reynolds; CCAP LB 412/1

CHAETOPHORA Schrank

- LB 1289 *C. incrassata* (Huds.) Hazen

CCAP 413/1

CHAMAETRICHON Tupa

- 1918 *C. capsulatum* Tupa

Tupa DDT-8 (Tupa 1974)

CHARACIOCHLORIS Pascher

- 2095 *C. acuminata* Lee & Bold

Hindak 1963/19 as *Characium* (Lee and Bold 1974)

CHARACIOSIPHON Iyengar

- LB 1762 *C. rivularis* Iyengar
 LB 1763 *C. rivularis* Iyengar

Starr; plus strain (Stewart et al. 1978)
 Starr; minus strain

CHARACIUM Braun

- 2096 *C. bulgariense* Lee & Bold
 2097 *C. californicum* Lee & Bold
 2099 *C. fusiforme* Lee & Bold
 2098 *C. hindakii* Lee & Bold
 2100 *C. oviforme* Lee & Bold
 2101 *C. oviforme* Lee & Bold
 2104 *C. perforatum* Lee & Bold
 129 *C. polymorphum* Trainor & Bold
 LB 111 *C. saccatum* Filarsky
 LB 112 *C. saccatum* Filarsky
 2108 *C. typicum* Lee & Bold
 2111 *C. vacuolatum* Lee & Bold

Hindak 1964/14d (Lee and Bold 1974)
 Starr (Lee and Bold 1974)
 Bold (Lee and Bold 1974)
 Hindak 1965/46 (Lee and Bold 1974)
 Tupa (Lee and Bold 1974)
 Bold (Lee and Bold 1974)
 Hindak 1962/24 (Lee and Bold 1974)
 Trainor (Trainor and Bold 1953)
 Starr; plus strain (Starr 1953a)
 Starr, minus strain (Starr 1953a)
 Bold (Lee and Bold 1974)
 Komarek 1964/27 (Lee and Bold 1974)

CHATTONELLA Biechler

- LB 2162 *C. japonica* (Toriumi & Takano) Loeblich & Fine

Loeblich

CHLAMYDOBOTRYS Korshikov (see PYROBOTRYS Arnoldi)

CHLAMYDOMONAS Ehrenberg

- 965 *C. actinochloris* Deason & Bold
 969 *C. aggregata* Deason & Bold
 231 *C. agglomerata* Pascher

Deason C-2-14 (Deason and Bold 1960)
 Deason T-1-12 (Deason and Bold 1960)
 Mainx; CCAP 11/1

CHLAMYDOMONAS Ehrenberg (Continued)

- 967 *C. akinetos* Deason & Bold
 618 *C. angulosa* Dill
 970 *C. appendiculata* Deason & Bold
 230 *C. applanata* Prings.
 1795 *C. archibaldii* Uhlik & Bold
 450 *C. asymmetrica* Korsh.
 229 *C. brannonii* Prings.
 624 *C. callosa* Gerloff
 213 *C. callosa* Gerloff
- LB 1753 *C. capensis* Pocock
 102 *C. chlamydogama* Bold
 103 *C. chlamydogama* Bold
 LB 998 *C. coccoides* Butcher
 1341 *C. cribrum* Ettl
 344 *C. debaryana* Goros.
 407 *C. debaryana* Goros.
 1344 *C. debaryana* var. *cristata* Ettl
 228 *C. dorsoventralis* Pascher
 B 2027 *C. dysosmos* Moewus
 1059 *C. elliptica* var. *britannica* Fritsch & John
 1060 *C. elliptica* var. *britannica* Fritsch & John
 9 *C. eugametos* Moewus
 10 *C. eugametos* Moewus
 1349 *C. fimbriata* Ettl
 1908 *C. fottii* King
 1057 *C. frankii* Pascher
 1058 *C. frankii* Pascher
 1348 *C. gerloffii* Ettl
 LB 848 *C. gigantea* Dill
 227 *C. glaucopara* Rodhe & Skuja
 607 *C. glaucophila* var. *irregularis* Skuja
 1638 *C. gymnogama* Deason
 226 *C. gyrus* Pascher
 1338 *C. hindakii* Ettl
 225 *C. humicola* Lucksch
 4 *C. hydra* Ettl
 5 *C. hydra* Ettl
 6 *C. hydra* Ettl
 223 *C. indica* Mitra
 1347 *C. inepta* Ettl
 727 *C. inflexa* Prings.
 222 *C. intermedia* Chodat
 LB 1964 *C. intermedia* var. *antarctica*
 1907 *C. isabellensis* King
 221 *C. iyengarii* Mitra
 579 *C. komma* Gerloff
 LB 1492 *C. megalis* Bischoff & Bold
 2021 *C. melanospora* Lewin
 2022 *C. melanospora* Lewin
 729 *C. mexicana* Lewin
 B 730 *C. mexicana* Lewin
 1055 *C. minutissima* Korsh.
 1056 *C. minutissima* Korsh.
 1063 *C. minutissima* Korsh.
 1064 *C. minutissima* Korsh.
 96 *C. moewusii* Gerloff
 97 *C. moewusii* Gerloff
 91 *C. moewusii* Gerloff
 92 *C. moewusii* Gerloff
 94 *C. moewusii* Gerloff
 694 *C. moewusii* Gerloff
 695 *C. moewusii* Gerloff
 697 *C. moewusii* Gerloff
 699 *C. moewusii* Gerloff
 701 *C. moewusii* Gerloff
 703 *C. moewusii* Gerloff
- Deason C-1-11 (Deason and Bold 1960)
 Tsubo; CCAP 11/59
 Deason T-2-5 (Deason and Bold 1960)
 Pringsheim; CCAP 11/2 (Pringsheim 1930)
 Uhlik and Bold (Uhlik and Bold 1970)
 R. Lewin; CCAP 11/41
 Brannon; CCAP 11/3
 R. Lewin
 Pringsheim (as *C. pulchra*); CCAP 11/24 (Pringsheim 1930)
 Starr; homothallic; heterogamous
 Bold W16-2; heterothallic; CCAP 11/48b (Bold 1949)
 Bold W16-1; heterothallic; CCAP 11/48a
 Adams; Plymouth 187 (Butcher 1959)
 Ettl (Ettl 1965)
 R. Lewin
 unknown
 Ettl 129; CCAP 11/74 (Ettl 1965)
 Mainx; CCAP 11/4
 Mutant D.2075 (Neilson et al. 1972)
 G. M. Smith M-1, 358c-3 (+); Hoshaw 26; crosses with 1060 (Hoshaw 1965)
 G. M. Smith M-1, 358a (-); Hoshaw 27; crosses with 1059 (Hoshaw 1965)
 Sent to H. C. Bold by F. Moewus 1951; "male" strain
 Sent to H. C. Bold by F. Moewus 1951; "female" strain
 Ettl 139; CCAP 11/69 (Ettl 1965)
 King UT-1 (King 1972)
 G. M. Smith; crosses with 1058; Hoshaw 24
 G. M. Smith; crosses with 1057; Hoshaw 23
 Ettl 136; CCAP 11/72 (Ettl 1965)
 Stein 116
 Rodhe 1635; CCAP 11/7
 Starr; from egg membranes of *Ambystoma*
 Deason; homothallic (Deason 1967a)
 Pringsheim; CCAP 11/8
 Ettl 103 (Ettl 1965)
 Lucksch (Lucksch 1932)
 Czurda (formerly *C. eugametos*)
 Czurda (formerly *C. eugametos*)
 Czurda (formerly *C. eugametos*)
 Pringsheim; CCAP 11/11
 Ettl A35; CCAP 11/70 (Ettl 1965)
 R. Lewin DD1/72
 Pringsheim; CCAP 11/13
 Ellermeier, from Antarctica
 King B-8-3 (King 1972)
 Pringsheim; CCAP 11/14
 Tsubo T-B-3
 Bischoff WCr-3-7 (Bischoff and Bold 1963)
 Lewin C311; minus strain (Lewin 1975)
 Lewin C314; plus strain (Lewin 1975)
 Lewin J1288/7; minus strain (Lewin 1957)
 Lewin J1288/5; plus strain (Lewin 1957)
 G. M. Smith; heterothallic; Hoshaw 3
 G. M. Smith; crosses with 1055, 1063; Hoshaw 4
 G. M. Smith; heterothallic; Hoshaw 6
 G. M. Smith; crosses with 1063; Hoshaw 2
 Provasoli; minus strain; CCAP 11/16g (Gowans 1963)
 Provasoli; plus strain; CCAP 11/16f; 96,97 are wild type strains used extensively in research
 Lewin M 478W; spherical cells, slow-growing; CCAP 11/16e
 Lewin M 470; twins and monsters; CCAP 11/16d
 Lewin M 202+; monsters; Camb. 11/16b
 Lewin 1002+; paralyzed (Lewin 1954)
 Lewin 475+; paralyzed
 Lewin 1001+; paralyzed
 Lewin 1017+; paralyzed
 Lewin 1021+; paralyzed
 Lewin 1022+; paralyzed

CHLAMYDOMONAS Ehrenberg (Continued)

704	<i>C. moerwii</i> Gerloff	Lewin 336+; paralyzed; requires B ₁
705	<i>C. moerwii</i> Gerloff	Lewin 1011+; paralyzed
707	<i>C. moerwii</i> Gerloff	Lewin 1034+; paralyzed
709	<i>C. moerwii</i> Gerloff	Lewin 1038+; paralyzed
711	<i>C. moerwii</i> Gerloff	Lewin 1041+; paralyzed
713	<i>C. moerwii</i> Gerloff	Lewin 1043+; paralyzed
715	<i>C. moerwii</i> Gerloff	Lewin 1060 sterile; paralyzed
716	<i>C. moerwii</i> Gerloff	Lewin 1014+; flagella-less
751	<i>C. moerwii</i> Gerloff	Lewin; recombinant of Lewin M470 (twins) and 1002 (paralyzed, sexlinked); plus strain
812	<i>C. moerwii</i> Gerloff	Guillard S-16; vacuole-less; minus strain (Guillard 1960)
792	<i>C. moerwii</i> Gerloff	Lewin; "a" strain (Wiese and Wiese 1977)
793	<i>C. moerwii</i> Gerloff	Lewin; "b" strain (Wiese and Wiese 1977)
2018	<i>C. moerwii</i> Gerloff	Majima and Iwasa; Toyonaka 16; minus (female) strain
2019	<i>C. moerwii</i> Gerloff	Majima and Iwasa; Toyonaka 22; plus (male) strain
1053	<i>C. moerwii</i> var. <i>microstigmata</i> (Lund)Etl	G. M. Smith G-3, 671a-1 (+) (Hoshaw 1965)
1054	<i>C. moerwii</i> var. <i>microstigmata</i> (Lund)Etl	G. M. Smith G-3, 671c-1 (-); crosses with 1053 (Hoshaw 1965)
2020	<i>C. moerwii</i> var. <i>monica</i> Deason & Ratnas.	Deason and Ratnasabapathy; homothallic (Deason and Ratnasabapathy 1976)
576	<i>C. moerwii</i> var. <i>rotunda</i> Tsubo	Tsubo 24+; heterothallic (Wiese and Wiese 1977)
577	<i>C. moerwii</i> var. <i>rotunda</i> Tsubo	Tsubo 24-; heterothallic (Wiese and Wiese 1977)
1033	<i>C. moerwii</i> var. <i>tenuichloris</i> Tsubo	Tsubo; plus strain (Wiese and Wiese 1977)
1034	<i>C. moerwii</i> var. <i>tenuichloris</i> Tsubo	Tsubo; minus strain (Wiese and Wiese 1977)
LB 493	<i>C. monadina</i> Stein	Starr; homothallic
LB 760	<i>C. monadina</i> Stein	Starr; homothallic; male cells smaller than in #493
220	<i>C. monica</i> Strehlow	Pringsheim (Lucksch 1932)
578	<i>C. mutabilis</i> Gerloff	Tsubo #T-A (Tsubo 1961)
LB 1969	<i>C. nivalis</i> Wille	Sutton
114	<i>C. noctigama</i> Korsh.	Starr; homothallic
839	<i>C. oblonga</i> Prings.	R. Lewin; homothallic
219	<i>C. oblonga</i> Prings.	Pringsheim; CCAP 11/18 (Pringsheim 1930)
218	<i>C. orbicularis</i> Prings.	Pringsheim; CCAP 11/19 (Pringsheim 1930)
217	<i>C. oviformis</i> Prings.	Pringsheim; CCAP 11/20 (Pringsheim 1930)
1905	<i>C. pallidostigmatica</i> King	King 19b (King 1972)
728	<i>C. petrii</i> Gerloff	Lewin ZZ.1/D4
2024	<i>C. philotes</i> Lewin	Lewin Y-4 wild type
2025	<i>C. philotes</i> Lewin	Lewin; paralyzed mutant Y-6 from Y-4
2026	<i>C. philotes</i> Lewin	Lewin; paralyzed mutant Y-7 from Y-4
2029	<i>C. philotes</i> Lewin	Lewin; nonflagellate, clumped mutant Y-5 from Y-4
1339	<i>C. pinicola</i> Etl	Etl 108 (Etl 1965)
451	<i>C. proboscigera</i> var. <i>conferta</i> Etl	R. Lewin; CCAP 11/38
216	<i>C. proteus</i> Pringsheim	Pringsheim; CCAP 11/21 (Pringsheim 1930)
405	<i>C. pseudagloe</i> Pascher	R. Lewin; CCAP 11/22b
214	<i>C. pseudococcum</i> Lucksch	Lucksch; CCAP 11/23 (Lucksch 1932)
LB 943	<i>C. pseudogigantea</i> Korsh.	R. Lewin
1906	<i>C. pseudomicrosphaera</i> King	King B-1 (King 1972)
LB 410	<i>C. pulsatilla</i> Wollenweber	Pringsheim; CCAP 11/44 (Etl 1959)
212	<i>C. pulvinata</i> Vischer	Vischer 4; CCAP 11/25
B 968	<i>C. pyrenoidosa</i> Deason & Bold	Deason C-2-4 (Deason and Bold 1960)
966	<i>C. radiata</i> Deason & Bold	Deason C-1-10 (Deason and Bold 1960)
1342	<i>C. rapa</i> Etl	Etl 126 (Etl 1965)
89	<i>C. reinhardtii</i> Dang.	G. M. Smith; plus strain (see note)
90	<i>C. reinhardtii</i> Dang.	G. M. Smith; minus strain
(Note: Strains 89, 90 received from CCAP (Cambridge) were designated plus and minus to conform with CCAP; however, E. I. Friedmann (pers. comm.) indicates that UTEX 90 is the same mating type as 11/32a (+) and UTEX 89 is the same as 11/32b (-).)		
2172	<i>C. reinhardtii</i> Dang.	Mating type plus; R. Sager's basic strain received in spring 1977
2173	<i>C. reinhardtii</i> Dang.	Mating type minus; R. Sager's basic strain received in spring 1977
1343	<i>C. segnis</i> Etl	Etl 127 (Etl 1965)
1919	<i>C. segnis</i> Etl	Badour; used as <i>Gloeomonas</i> (Foo et al. 1971)
LB 492	<i>C. serbinowii</i> Pascher	Starr
1061	<i>C. smithii</i> Hoshaw	G. M. Smith C-3, 684c (+); Hoshaw 9; crosses with 90 <i>C. reinhardtii</i> and 1062 (Hoshaw and Etl 1966)
1062	<i>C. smithii</i> Hoshaw	G. M. Smith C-1, 136f-2 (-); Hoshaw 8; crosses with 89 <i>C. reinhardtii</i> and 1061 (Hoshaw and Etl 1966)
210	<i>C. sphaerella</i> Prings.	CCAP 11/27
293	<i>C. sphagnophila</i> Pascher	R. Lewin DD1/174; homothallic

CHLAMYDOMONAS Ehrenberg (Continued)

- 466 *C. stercoraria* Prings. nom. nud.
 209 *C. subangulosa* John
 208 *C. subglobosa* Pringsheim
 207 *C. subtilis* Pringsheim
 1796 *C. surtseyensis* Uhlik & Bold
 406 *C. terricola* Gerloff
 1904 *C. texensis* King
 1345 *C. transata* Ettl
 971 *C. typica* Deason & Bold
 724 *C. ulvaensis* Lewin
 LB 1970 *C. yellowstonensis* Kol
 608 *C. sp.*
 LB 796 *C. sp.*
 LB 1028 *C. sp.*
- Pringsheim; CCAP 11/49
 Pringsheim; CCAP 11/28
 Pringsheim; CCAP 11/29 (Pringsheim 1930)
 Pringsheim; CCAP 11/30 (Pringsheim 1930)
 Uhlik and Bold (Uhlik and Bold 1970)
 R. Lewin I.S.5; CCAP 11/37
 King CA (King 1972)
 Ettl 130 (Ettl 1965)
 Deason T-2-11 (Deason and Bold 1960)
 R. Lewin DD 1/27; CCAP 11/58 (Lewin 1957)
 Sutton
 Starr; from egg membranes of *Ambystoma*
 Stein; good for class use
 Starr; homothallic; heterogamous

CHLORANOMALA Groover & Bold

- LB 1696 *C. cupreola* Groover & Bold

Bold (Groover and Bold 1969)

CHLORELLA Beijerinck

The taxonomy of *Chlorella* has been in such confusion for years that many of the names given to various strains in culture collections are of little value. Several laboratories have attempted to bring order out of chaos, but which studies will prove the most valid cannot be determined as yet. The most notable of the studies are by Shihara and Krauss (1965), Fott and Nováková (1969) and Kessler (1976). Rather than add to the possibility of greater confusion by changing the names of strains currently in the UTEX collection, the names are listed as they were received. At the end of this listing, however, is a list of strains common to both the UTEX and CCAP Collections, with the names currently adopted by CCAP (George 1976). This information is of use in cross-referencing the holdings of the two collections. This situation regarding the taxonomy of *Chlorella* further emphasizes the importance of researchers referring to strain numbers in publications rather than specific names alone.

- 1798 *C. anitrata* S. & K.
 1799 *C. anitrata* var. *minor* S. & K.
 LB 1959 *C. antarctica* (Fritsch) Wille
 1800 *C. autotrophica* var. *atypica* S. & K.
 LB 2074 *C. capsulata* Guillard, Bold & MacEntee
 20 *C. ellipsoidea* Gerneck
 246 *C. ellipsoidea* Gerneck
 247 *C. ellipsoidea* Gerneck
 1801 *C. emersonii* var. *globosa* S. & K.
 1802 *C. glutotrophica* S. & K.
 1803 *C. infusionum* var. *actophila* S. & K.
 21 *C. luteoviridis* Chodat
 22 *C. luteoviridis* Chodat
 248 *C. luteoviridis* Chodat
 23 *C. luteoviridis* var. *lutescens* Chodat
 24 *C. miniata* (Näg.) Oltmanns
 490 *C. miniata* (Näg.) Oltmanns
 1804 *C. nocturna* S. & K.
 130 *C. paramecii* Loefer
 1805 *C. parva* S. & K.
 25 *C. protothecoides* Krüger
 249 *C. protothecoides* Krüger
 250 *C. protothecoides* Krüger
 411 *C. protothecoides* Krüger
 26 *C. pyrenoidosa* Chick
 251 *C. pyrenoidosa* Chick
 252 *C. pyrenoidosa* Chick
 343 *C. pyrenoidosa* Chick
 395 *C. pyrenoidosa* Chick
 1230 *C. pyrenoidosa* Chick
 1663 *C. pyrenoidosa* Chick
 1664 *C. pyrenoidosa* Chick
 1665 *C. pyrenoidosa* Chick
 1666 *C. pyrenoidosa* Chick
- Kraus MCC 11
 Kraus MCC 12
 Sutton; from H. Curl, Oregon State Univ. 1973
 Kraus MCC 9
 Erickson (Guillard et al. 1975)
 Pringsheim; CCAP 211/1a (Kessler and Soeder 1962; Winokur 1948)
 Brannon; CCAP 211/1b (Kessler and Soeder 1962)
 Rodhe 1633; CCAP 211/1c (Kessler and Soeder 1962)
 Kraus MCC 10
 Kraus MCC 13
 Kraus MCC 6
 Kufferath; CCAP 211/2a (Winokur 1948)
 Kluyver; CCAP 211/3 (Winokur 1948)
 From Baarn; CCAP 211/2b
 Kufferath; CCAP 211/4 (Winokur 1948)
 Pringsheim; CCAP 211/5a
 Gaffron; CCAP 211/5b
 Kraus MCC 3
 Loefer; CCAP 211/6
 Kraus MCC 14
 Krüger; original strain; CCAP 211/7a
 Kluyver; CCAP 211/7b
 Kluyver; CCAP 211/7c
 Czarda; CCAP 211/7d
 Pringsheim; CCAP 211/8a (Winokur 1948)
 Emerson; used by Emerson as *C. vulgaris*; CCAP 211/8b
 Emerson; CCAP 211/8c
 R. Lewin
 From Emerson's laboratory as his quantum yield alga
 Myers Tx-7-11-05; high temperature strain (Sorokin and Myers 1953)
 Strain of Tx-7-11-05 used by Aronoff to produce following mutants (1664-1671)
 Aronoff's AJ mutant; protoporphyne mutant (Ellsworth and Aronoff 1968b)
 Aronoff's BE mutant; vinyl pheoporphyne mutant (Ellsworth and Aronoff 1968b)
 Aronoff's CA mutant; pheophorbide mutant (Ellsworth and Aronoff 1968a)

CHLORELLA Beijerinck (Continued)

- 1667 *C. pyrenoidosa* Chick
 1668 *C. pyrenoidosa* Chick
 1669 *C. pyrenoidosa* Chick
 1670 *C. pyrenoidosa* Chick
 1671 *C. pyrenoidosa* Chick
 1806 *C. pyrenoidosa* var. *chick* S. & K.
 1807 *C. regularis* var. *minima* S. & K.
 1808 *C. regularis* var. *umbricata* S. & K.
 27 *C. saccharophila* (Krüger) Nadson
 1809 *C. salina* Butcher
 1602 *C. sorokiniana* S. & K.
 1810 *C. sorokiniana* var. *pacificensis* S. & K.
 L.B. 993 *C. stigmatophora* Butcher
 1811 *C. vanniellii* S. & K.
 28 *C. variegata* Beij.
 255 *C. variegata* Beij.
 256 *C. variegata* Beij.
 257 *C. variegata* Beij.
 258 *C. variegata* Beij.
 29 *C. vulgaris* Beij.
 259 *C. vulgaris* Beij.
 260 *C. vulgaris* Beij.
 261 *C. vulgaris* Beij.
 262 *C. vulgaris* Beij.
 263 *C. vulgaris* Beij.
 264 *C. vulgaris* Beij.
 265 *C. vulgaris* Beij.
 397 *C. vulgaris* Beij.
 398 *C. vulgaris* Beij.
 30 *C. vulgaris* var. *viridis* Chodat
 396 *C. vulgaris* var. *viridis* Chodat
 31 *C. xanthella* Beij.
 32 *C. zopfingensis* Dönn
 580 *C. sp.*
 636 *C. sp.*
 820 *C. sp.*
 838 *C. sp.*
 L.B. 1822 *C. sp.*
 L.B. 2069 *C. sp.*
 L.B. 2068 *C. sp.*
 L.B. 2070 *C. sp.*
 2168 *C. sp.*
 Aronoff's CA-AC-AZ; protoporphine submutant of CA (1666)
 Aronoff's CA-CA mutant; sub-isolate of CA mutant accumulating increased amounts of CA pigments
 Aronoff's CA-B₂C-B₂F mutant; divinyl pheoporphine submutant of CA (1666)
 Aronoff's B₁E-B₂P mutant; divinyl pheoporphine submutant of BE (1665)
 Aronoff's B₁E-B₁D-B₁N mutant; sub-isolate of BE producing increased divinyl pheoporphine
 Krauss MCC 16
 Krauss MCC 5
 Krauss MCC 4
 Krüger; CCAP 211/9a (Winokur 1948)
 Krauss Ph 86 19
 J. B. Sless (Haifa); marked heterotrophy in dark at 20–36 C
 Krauss MCC 8
 Parke; Plymouth 85; CCAP 211/20
 Krauss
 Beijerinck; CCAP 211/10a
 Beijerinck; CCAP 211/10b
 Beijerinck; CCAP 211/10c
 From Delft; CCAP 211/10d
 From Prat, Prague; CCAP 211/10e
 Pringsheim; CCAP 211/11a
 Kluyver; CCAP 211/11b
 Pringsheim; CCAP 211/11c
 Brannon; CCAP 211/11d
 From Winokur; CCAP 211/11g (Kessler and Soeder 1962)
 Pratt; CCAP 211/11h (Kessler and Soeder 1962)
 From Baarn; CCAP 211/11i (Kessler and Soeder 1962)
 Rodhe 1630; CCAP 211/11j
 From Emerson's laboratory 1953 (Craig and Trelease 1937)
 From Emerson's laboratory 1953 (Pratt 1941)
 Chodat; CCAP 211/12 (Winokur 1948)
 From Emerson's laboratory 1953 (Winokur 1948)
 Beijerinck; CCAP 211/13
 Dönn original strain; CCAP 211/14
 R. Lewin; used by Loosanoff as food for bivalve larvae origin unknown
 Guillard; Millford *Chlorella* A; toxic to young oysters
 R. Lewin; formerly *Zoochlorella parasitica*; isolated from *Spongilla fluviatilis*; CCAP 211/22
 Mathern I-4
 Erickson; Guillard S-14 (Guillard et al. 1975)
 Guillard; Guillard As-1 (Guillard et al. 1975)
 Guillard; Guillard O-17 (Guillard et al. 1975)
 Rogers; from lesion in cow (Australia)

The CCAP Collection follows the revision by Fott and Nováková (1969) in the identity of *Chlorella* strains which they maintain, and certain of these are maintained in the UTEX Collection as indicated in the preceding list. To facilitate cross-referencing of the strains in the two collections, the following list of strains in both collections is given:

CCAP Collection	
211/8a	<i>C. emersonii</i> S. & K. var. <i>emersonii</i>
211/8b	<i>C. emersonii</i> var. <i>emersonii</i>
211/8c	<i>C. emersonii</i> var. <i>emersonii</i>
211/11g	<i>C. kessleri</i> F. & N.
211/11h	<i>C. kessleri</i>
211/2a	<i>C. luteoviridis</i>
211/2b	<i>C. luteoviridis</i>
211/3	<i>C. luteoviridis</i>
211/4	<i>C. luteoviridis</i>
211/5a	<i>C. luteoviridis</i>
211/5b	<i>C. luteoviridis</i>
211/10a	<i>C. luteoviridis</i>
211/10d	<i>C. luteoviridis</i>
211/10e	<i>C. luteoviridis</i>

UTEX Collection	
26	<i>C. pyrenoidosa</i>
251	<i>C. pyrenoidosa</i>
252	<i>C. pyrenoidosa</i>
262	<i>C. vulgaris</i>
263	<i>C. vulgaris</i>
21	<i>C. luteoviridis</i>
248	<i>C. luteoviridis</i>
22	<i>C. luteoviridis</i>
23	<i>C. luteoviridis</i> var. <i>lutescens</i>
24	<i>C. miniata</i>
490	<i>C. miniata</i>
28	<i>C. variegata</i>
257	<i>C. variegata</i>
258	<i>C. variegata</i>

CCAP Collection (Continued)

211/6	<i>C. progothecoides</i>
211/7a	<i>C. protothecoides</i>
211/7b	<i>C. protothecoides</i>
211/7c	<i>C. protothecoides</i>
211/7d	<i>C. protothecoides</i>
211/10b	<i>C. protothecoides</i>
211/10c	<i>C. protothecoides</i>
211/11a	<i>C. protothecoides</i>
211/11i	<i>C. protothecoides</i>
211/13	<i>C. protothecoides</i>
211/1a	<i>C. saccharophila</i>
211/1b	<i>C. saccharophila</i>
211/20	<i>C. stigmatophora</i>
211/1c	<i>C. vulgaris</i> var. <i>vulgaris</i>
211/9a	<i>C. vulgaris</i> var. <i>vulgaris</i>
211/11b	<i>C. vulgaris</i> var. <i>vulgaris</i>
211/11c	<i>C. vulgaris</i> var. <i>vulgaris</i>
211/11j	<i>C. vulgaris</i> var. <i>vulgaris</i>
211/12	<i>C. vulgaris</i> var. <i>vulgaris</i>
211/11d	<i>C. vulgaris</i> f. <i>tertia</i> F. & N.
211/8k	<i>C. vulgaris</i> f. <i>tertia</i>
211/14	<i>C. zopfingensis</i>

UTEX Collection (Continued)

130	<i>C. paramecii</i>
25	<i>C. protothecoides</i>
249	<i>C. protothecoides</i>
250	<i>C. protothecoides</i>
411	<i>C. protothecoides</i>
255	<i>C. variegata</i>
256	<i>C. variegata</i>
29	<i>C. vulgaris</i>
264	<i>C. vulgaris</i>
31	<i>C. xanthella</i>
20	<i>C. ellipsoidea</i>
246	<i>C. ellipsoidea</i>
L.B. 993	<i>C. stigmatophora</i>
247	<i>C. ellipsoidea</i>
27	<i>C. saccharophila</i>
259	<i>C. vulgaris</i>
260	<i>C. vulgaris</i>
265	<i>C. vulgaris</i>
30	<i>C. vulgaris</i> var. <i>viridis</i>
261	<i>C. vulgaris</i>
1230	<i>C. pyrenoidosa</i>
32	<i>C. zopfingensis</i>

As the taxonomy of *Chlorella* according to Shihara and Krauss (1965) differs markedly from that of Fott and Nováková (1969), the species listed by Shihara and Krauss in the CCAP (George 1976) and UTEX Collections are as follows:

Shihara & Krauss	UTEX Collection	CCAP Collection
<i>Chlorella autotrophica</i> S. & K.	580 <i>C. sp.</i>	
<i>Chlorella candida</i> S. & K.	259 <i>C. vulgaris</i>	211/11b <i>C. vulgaris</i>
<i>Chlorella candida</i>	260 <i>C. vulgaris</i>	211/11c <i>C. vulgaris</i>
<i>Chlorella ellipsoidea</i> Gerneck	247 <i>C. ellipsoidea</i>	211/1c <i>C. vulgaris</i>
<i>Chlorella emersonii</i> var. <i>globosa</i> S. & K.	252 <i>C. pyrenoidosa</i>	211/8c <i>C. emersonii</i> var. <i>emersonii</i>
<i>Chlorella fusca</i> S. & K.	343 <i>C. pyrenoidosa</i>	
<i>Chlorella fusca</i> var. <i>vacuolata</i> S. & K.	251 <i>C. pyrenoidosa</i>	211/8b <i>C. emersonii</i> var. <i>emersonii</i>
<i>Chlorella infusionum</i> Beij.	30 <i>C. pyrenoidosa</i>	211/12 <i>C. vulgaris</i>
<i>Chlorella infusionum</i> var. <i>auxenophila</i> S. & K.	261 <i>C. vulgaris</i>	211/11d <i>C. vulgaris</i>
<i>Chlorella miniata</i> (Näg.) Oltmanns	32 <i>C. zopfingensis</i>	211/14 <i>C. zopfingensis</i>
<i>Chlorella mutabilis</i> S. & K.	24 <i>C. miniata</i>	211/5a <i>C. luteoviridis</i>
<i>Chlorella nocturna</i> S. & K.	490 <i>C. miniata</i>	211/5b <i>C. luteoviridis</i>
<i>Chlorella photophila</i> S. & K.	26 <i>C. pyrenoidosa</i>	211/8a <i>C. emersonii</i> var. <i>emersonii</i>
<i>Chlorella pringsheimii</i> S. & K.	20 <i>C. ellipsoidea</i>	211/1a <i>C. saccharophila</i>
<i>Chlorella protothecoides</i> Krüger	25 <i>C. protothecoides</i>	211/7a <i>C. protothecoides</i>
<i>C. protothecoides</i> var. <i>communis</i> S. & K.	264 <i>C. vulgaris</i>	211/11i <i>C. protothecoides</i>
<i>C. protothecoides</i> var. <i>communis</i>	28 <i>C. variegata</i>	211/10c <i>C. protothecoides</i>
<i>C. protothecoides</i> var. <i>communis</i>	255 <i>C. variegata</i>	211/10a <i>C. luteoviridis</i>
<i>C. protothecoides</i> var. <i>communis</i>	256 <i>C. variegata</i>	211/10b <i>C. protothecoides</i>
<i>C. protothecoides</i> var. <i>communis</i>	31 <i>C. xanthella</i>	211/13 <i>C. protothecoides</i>
<i>C. protothecoides</i> var. <i>communis</i>	250 <i>C. protothecoides</i>	211/7c <i>C. protothecoides</i>
<i>C. protothecoides</i> var. <i>communis</i>	249 <i>C. protothecoides</i>	211/7b <i>C. protothecoides</i>
<i>C. protothecoides</i> var. <i>communis</i>	636 <i>C. sp.</i>	

CHLORELLIDIUM Vischer & Pascher

148 *C. tetrabotrys* Vischer & Pascher

Vischer 153; CCAP 811/1a (Vischer 1937)

CHLORIDELLA Pascher

491 *C. minuta* L. Moewus

L. Moewus; CCAP 813/2

431 *C. neglecta* Pascher

Vischer 216; CCAP 813/1 (Vischer 1945)

CHLOROCLOSTER Pascher

307 *C. engadinensis* Vischer

Vischer 252; CCAP 812/1 (Vischer 1945)

CHLOROCOCCUM Meneghini

- 1766 *C. acidum* Archibald & Bold
 1767 *C. arenosum* Archibald & Bold
 1768 *C. aureum* Archibald & Bold
 1769 *C. citrifforme* Archibald & Bold
 1770 *C. croceum* Archibald & Bold
 950 *C. diplobionticum* Herndon
 1234 *C. diplobionticoides* Chantanachai & Bold
 118 *C. echinozygotum* Starr
 1772 *C. elkhartiense* Archibald & Bold
 972 *C. ellipsoideum* Deason & Bold
 1773 *C. gelatinosum* Archibald & Bold
 119 *C. hyphosporum* Starr
 1774 *C. isabellense* Archibald & Bold
 1775 *C. lacustre* Archibald & Bold
 1776 *C. loculatum* Archibald & Bold
 109 *C. macrostigmatum* Starr
 1777 *C. microstigmatum* Archibald & Bold
 117 *C. minutum* Starr
 1778 *C. novaeangliae* Archibald & Bold
 105 *C. oleofaciens* Trainor & Bold
 1782 *C. oviforme* Archibald & Bold
 1779 *C. paludosum* Archibald & Bold
 775 *C. perforatum* Arce & Bold
 1780 *C. perplexum* Archibald & Bold
 774 *C. pinguides* Arce & Bold
 1242 *C. polymorphum* Bischoff & Bold
 1781 *C. pulchrum* Archibald & Bold
 1783 *C. refringens* Archibald & Bold
 1784 *C. reticulatum* Archibald & Bold
 1785 *C. rugosum* Archibald & Bold
 1786 *C. salsugineum* Archibald & Bold
 1233 *C. scabellum* Deason & Bold
 1787 *C. sphacolum* Archibald & Bold
 1650 *C. starrii* Trainor & Verses
 1788 *C. texanum* Archibald & Bold
 1789 *C. typicum* Archibald & Bold
 1790 *C. uliginosum* Archibald & Bold
 110 *C. vacuolatum* Starr
 819 *C. sp.*
- Archibald 10K 4A (Archibald and Bold 1970)
 Archibald P.I.6-2 (Archibald and Bold 1970)
 Archibald SMB 18 (Archibald and Bold 1970)
 Archibald E6B (Archibald and Bold 1970)
 Archibald 16SF2 (Archibald and Bold 1970)
 Herndon (Herndon 1958b)
 Chantanachai Ch-9 (Chantanachai and Bold 1962)
 Starr; CCAP 213/5 (Starr 1955b)
 Archibald 15T3A (Archibald & Bold 1970)
 Deason T-1-3 (Deason and Bold 1960)
 Archibald 15K1A (Archibald and Bold 1970)
 Starr; CCAP 213/6 (Starr 1955b)
 Archibald P.I. 92 (Archibald and Bold 1970)
 Archibald 25T3A (Archibald and Bold 1970)
 Archibald 141N1A (Archibald and Bold 1970)
 Starr; CCAP 213/9 (Starr 1953b)
 Archibald 18T (Archibald and Bold 1970)
 Bold; CCAP 213/7 (Starr 1955b)
 Archibald (Archibald and Bold 1970)
 Bold FRT-2 (Trainor and Bold 1953)
 Archibald 5-2 (Archibald and Bold 1970)
 Archibald 12K1A (Archibald and Bold 1970)
 Arce 49B (Arce and Bold 1958)
 Archibald 141N2A (Archibald and Bold 1970)
 Arce 32A (Arce and Bold 1958)
 Bischoff PW1-5 (Bischoff and Bold 1963)
 Archibald 11T4A (Archibald and Bold 1970)
 Archibald 193N7B (Archibald and Bold 1970)
 Archibald 111N2C (Archibald and Bold 1970)
 Archibald P.I.7-3 (Archibald and Bold 1970)
 Archibald C7C (Archibald and Bold 1970)
 Deason T-1-8 (Deason and Bold 1960)
 Archibald W1D2 (Archibald and Bold 1970)
 Trainor and Verses (Trainor and Verses 1967)
 Mahler (Archibald and Bold 1970)
 Archibald E7B (Archibald and Bold 1970)
 Archibald 19T4A (Archibald and Bold 1970)
 Starr; CCAP 213/8 (Starr 1953b)
 Guillard; from Milford as *Chlorococcum* "C"; good food for larvae

CHLOROGONIUM Ehrenberg

- 204 *C. elongatum* Dang.
 11 *C. elongatum* Dang.
 203 *C. elongatum* Dang.
 202 *C. elongatum* Dang.
 201 *C. elongatum* Dang.
 1639 *C. elongatum* Dang.
 1643 *C. tetragamum* Bohlin
 2011 *C. sp.*
 2010 *C. sp.*
 2160 *C. sp.*
- Pringsheim; CCAP 12/1
 Hartmann; CCAP 12/2a
 George; CCAP 12/2b
 Pringsheim; CCAP 12/2c
 Meyer; CCAP 12/4
 Carefoot N-5
 Carefoot R]-3
 Müller 1 minus strain
 Müller 4 plus strain
 From Germany via J. Preer; food organism

CHLOROMONAS Gobi

- 1337 *C. rosae* Ettl
- Ettl B2

CHLOROSARCINA Gerneck emend. Vischer

- 1176 *C. brevispinosa* Chantanachai & Bold
 1183 *C. longispinosa* Chantanachai & Bold
 962 *C. stimatica* Deason
- Chantanachai and Bold (Chantanachai and Bold 1962)
 Chantanachai and Bold (Chantanachai and Bold 1962)
 Deason 100 (Deason 1959)

CHLOROSARCINOPSIS Herndon

- B 779 *C. aggregata* Arce & Bold
 1697 *C. arenicola* Groover & Bold
 722 *C. auxotrophica* Groover & Bold
 723 *C. auxotrophica* Groover & Bold
- Arce (Arce and Bold 1958)
 Bold (Groover and Bold 1969)
 Lewin DD.1/3 (Groover and Bold 1969)
 Lewin DD.1/22

CHLOROSARCINOPSIS Herndon (Continued)

- | | | |
|---------|---|--|
| 1698 | <i>C. bastropiensis</i> Groover & Bold | Milliger (Groover and Bold 1969) |
| 1699 | <i>C. communis</i> Groover & Bold | Hofstetter (Groover and Bold 1969) |
| 1700 | <i>C. deficiens</i> Groover & Bold | Bold (Groover and Bold 1969) |
| LB 948 | <i>C. dissociata</i> Herndon | Herndon (Herndon 1958a) |
| 1186 | <i>C. eremi</i> Chantanachat & Bold | Chantanachat and Bold (Chantanachat and Bold 1962) |
| 1180 | <i>C. gelatinosa</i> Chantanachat & Bold | Chantanachat and Bold (Chantanachat and Bold 1962) |
| LB 2073 | <i>C. halophila</i> Guillard, Bold & MacEntee | Guillard T-9 (Guillard et al. 1975) |
| LB 949 | <i>C. minor</i> (Gerneck) Herndon | Herndon (Herndon 1958a) |
| 1701 | <i>C. minuta</i> Groover & Bold | Bold (Groover and Bold 1969) |
| LB 1388 | <i>C. negevensis</i> f. <i>ferruginea</i> Friedmann & Ocampo-Paus | Friedmann and Ocampo-Paus 1-112; Camb. 14/1 |
| LB 1387 | <i>C. negevensis</i> Friedmann & Ocampo-Paus f. <i>negevensis</i> | Friedmann and Ocampo-Paus 1-116; Camb. 14/2 (Friedmann and Ocampo-Paus 1965) |
| 1702 | <i>C. pseudominor</i> Groover & Bold | Milliger (Groover and Bold 1969) |
| 1703 | <i>C. sempervirens</i> Groover & Bold | Pringsheim; CCAP 214/1 (Groover and Bold 1969) |
| 1599 | <i>C. variabilis</i> Trainor & Hilton | Trainor 19B (Trainor and Hilton 1966) |
| 1600 | <i>C. variabilis</i> Trainor & Hilton | Trainor 19A (Trainor and Hilton 1966) |

CHLOROSPHAEROPSIS Vischer

- | | | |
|------|-----------------------------|-------------------------|
| 1235 | <i>C. alveolata</i> Herndon | Herndon (Herndon 1958a) |
|------|-----------------------------|-------------------------|

CHLOROTETRAEDRON MacEntee, Bold & Archibald

- | | | |
|------|---|---|
| 2174 | <i>C. polymorphum</i> (M., B. & A.) M., B. & A. | Bold; formerly <i>Pseudotetraedron</i> M., B. and A. (1978) |
|------|---|---|

CHODATELLA Lemmermann

- | | | |
|---------|------------------------------|----------------------------------|
| LB 1961 | <i>C. brevispina</i> Fritsch | Ellermeier; no spines in culture |
|---------|------------------------------|----------------------------------|

CHIROCOCCUS Nägeli

- | | | |
|--------|---------------------------------|----------------------------------|
| LB 123 | <i>C. turgidus</i> (Kütz.) Näg. | Starr; Camb. 1412/10; large form |
|--------|---------------------------------|----------------------------------|

CHROOMONAS Hansgörg

- | | | |
|---------|---------------|-----------|
| LB 2000 | <i>C. sp.</i> | Ott Va-26 |
| LB 2007 | <i>C. sp.</i> | Ott Va-52 |

CHRYSOCHROMULINA Lackey

- | | | |
|--------|-------------------------------------|--|
| LB 985 | <i>C. brevifilum</i> Parke & Manton | Parke; Plymouth 39 (Parke et al. 1955) |
| LB 982 | <i>C. chiton</i> Parke & Manton | Ballantine; Plymouth 146; CCAP 910/7 (Parke et al. 1955) |
| LB 981 | <i>C. strobilus</i> Parke & Manton | Parke; Plymouth 43; CCAP 910/12 (Parke et al. 1959) |

CLADOPHORA Kützling (see Van den Hoek 1963 for information on most strains)

- | | | |
|---------|--|---------------------------------|
| LB 1476 | <i>C. albida</i> (Huds.) Kütz. | Van den Hoek 61/18 |
| LB 1477 | <i>C. albida</i> (Huds.) Kütz. | Van den Hoek 60/21 |
| LB 1474 | <i>C. coelothrix</i> Kütz. | Van den Hoek 61/55; CCAP 505/10 |
| LB 1466 | <i>C. dalmatica</i> Kütz. | Van den Hoek 61/40 |
| LB 1410 | <i>C. delicatula</i> Mont. | Ott MO-390 |
| LB 1480 | <i>C. echinus</i> (Bias.) Kütz. | Van den Hoek 60/55 |
| LB 1427 | <i>C. fascicularis</i> Kütz. | Ott MO-392 |
| LB 1487 | <i>C. fracta</i> (Müll. ex Vahl) Kütz. | Van den Hoek 60/28 |
| LB 474 | <i>C. fracta</i> var. <i>fracta</i> | George; CCAP LB 505/2 |
| LB 473 | <i>C. fracta</i> var. <i>intricata</i> (Lyngb.) Van den Hoek | George; CCAP LB 505/1a |
| LB 1484 | <i>C. glomerata</i> (L.) Kütz. | Van den Hoek 61/58 |
| LB 1486 | <i>C. glomerata</i> (L.) Kütz. | Van den Hoek 60/17 |
| LB 1488 | <i>C. glomerata</i> (L.) Kütz. | Van den Hoek 60/11 |
| LB 1481 | <i>C. hutchinsiae</i> (Dillw.) Kütz. | Van den Hoek 60/42 |
| LB 1485 | <i>C. kosterae</i> Van den Hoek | Van den Hoek 61/9; CCAP 505/6 |
| LB 1473 | <i>C. laetevirens</i> (Dillw.) Kütz. | Van den Hoek 61/40 |
| LB 1482 | <i>C. laetevirens</i> (Dillw.) Kütz. | Van den Hoek 61/30 |
| LB 1472 | <i>C. parraudii</i> Van den Hoek | Van den Hoek 60/60; CCAP 505/9 |
| LB 1479 | <i>C. pseudopellucida</i> (Huds.) Kütz. | Van den Hoek 61/72 |
| LB 1469 | <i>C. rivularis</i> L. | Van den Hoek 59/9 |
| LB 1483 | <i>C. rufingeri</i> (Ag.) Kütz. | Van den Hoek 60/4 |
| LB 1467 | <i>C. sericea</i> (Huds.) Kütz. | Van den Hoek 61/27 |
| LB 1478 | <i>C. sericea</i> (Huds.) Kütz. | Van den Hoek 61/55 |
| LB 1470 | <i>C. socialis</i> Kütz. | Van den Hoek 61/18 |

CLADOPHORA Kützinger (Continued)

- LB 1468 *C. vadorum* (Aresch) Kütz.
 LB 1475 *C. vagabunda* L.
 LB 1465 *C. vagabunda* L.

Van den Hoek 61/82
 Van den Hoek 61/51
 Van den Hoek 61/66

CLADOPHOROPSIS Børgesen

- LB 1417 *C. membranacea* (Ag.) Børg.

Ott MO-324

CLOSTERIOPSIS Lemmermann

- LB 1381 *C. acicularis* var. *africana* Hindák

Hindák

CLOSTERIUM Ralfs

- LB 1075 *C. acerosum* (Schrank) Ehr.
 LB 1076 *C. acerosum* (Schrank) Ehr.
 LB 1077 *C. acerosum* (Schrank) Ehr.
 LB 1080 *C. acerosum* (Schrank) Ehr.
 LB 1083 *C. acerosum* var. *kriegeri* Cook
 LB 1084 *C. archerianum* Cleve
 LB 1085 *C. archerianum* Cleve
 LB 1086 *C. calosporum* var. *maius* West & West
 LB 1087 *C. calosporum* var. *maius* West & West
 LB 1088 *C. costatosporum* Taft
 LB 1089 *C. costatosporum* Taft
 LB 1090 *C. costatosporum* Taft
 LB 1091 *C. costatosporum* Taft
 LB 1094 *C. cynthia* var. *jenneri* (Ralfs) Krieger
 LB 1159 *C. cynthia* var. *latum* Schmidle
 LB 1160 *C. cynthia* var. *latum* Schmidle
 LB 1097 *C. diana* var. *minus* (Wille) Schröder
 LB 1098 *C. diana* var. *minus* (Wille) Schröder
 LB 834 *C. didymotocum* Corda
 LB 1407 *C. ehrenbergii* Menegh.
 LB 1408 *C. ehrenbergii* Menegh.
 LB 1099 *C. ehrenbergii* Menegh.
 LB 1100 *C. ehrenbergii* Menegh.
 LB 735 *C. evesiculatum* Cook
 LB 1121 *C. evesiculatum* Cook
 LB 1122 *C. evesiculatum* Cook
 LB 1123 *C. evesiculatum* Cook
 LB 1158 *C. gracile* Breb.
 LB 1101 *C. groenbladii* Cook
 LB 1102 *C. groenbladii* Cook
 LB 1162 *C. groenbladii* Cook
 LB 1157 *C. idiosporum* var. *punctatum* (Skuja) Krieger
 LB 1103 *C. incurvum* Bréb.
 LB 1104 *C. incurvum* Bréb.
 LB 1105 *C. intermedium* Ralfs
 LB 1106 *C. intermedium* Ralfs
 LB 1107 *C. intermedium* var. *nilsonii* (Borge) Ruzicka
 LB 1155 *C. intermedium* var. *nilsonii* (Borge) Ruzicka
 LB 1156 *C. intermedium* var. *nilsonii* (Borge) Ruzicka
 LB 1108 *C. intermedium* var. *pygmaeum* (Starr) Cook
 LB 1109 *C. kützingeri* Bréb.
 LB 1110 *C. leibleinii* Kütz.
 LB 1111 *C. libellula* var. *intermedium* (Roy & Bisset) G. S. West
 LB 1750 *C. limneticum* var. *limneticum* Lemm.
 LB 1113 *C. lineatum* Ehr.
 LB 1154 *C. lineatum* var. *costatum* Wolle
 LB 736 *C. littorale* Gay
 LB 1115 *C. lunula* var. *minus* West & West
 LB 1116 *C. moniliferum* (Bory) Ehr.
 LB 1117 *C. moniliferum* (Bory) Ehr.
 LB 1400 *C. moniliferum* (Bory) Ehr.

Cook 3A; homothallic (Cook 1963a)
 Cook 3B; homothallic (Cook 1963a)
 Cook 3C; homothallic (Cook 1963a)
 Cook 879; homothallic (Cook 1963a)
 Cook 626; homothallic (Cook 1963a as forma γ)
 Cook 1162; heterothallic, crosses with 1085 (Cook 1963a)
 Cook 1163; crosses with 1084
 Cook 1204; homothallic (Cook 1963b)
 Cook 1440; homothallic (Cook 1963b)
 Cook 987; heterothallic; crosses with 1089 (Cook 1963a)
 Cook 1175; crosses with 1088
 Cook 1113; homothallic
 Cook 1378; homothallic
 Cook 1079
 Cook 1195; crosses with 1160
 Cook 1196; crosses with 1159
 Cook 1242; homothallic (Cook 1963b)
 Cook 1259; homothallic (Cook 1963b)
 Starr; parthenospores (Starr 1958b)
 Lippert 31; crosses with 1408 (Lippert 1967)
 Lippert 37; crosses with 1407 (Lippert 1967)
 Cook 1317; crosses with 1100 (Cook 1963a, Lippert 1967)
 Cook 1319; crosses with 1099 (Cook 1963a, Lippert 1967)
 Starr; Cook 1A; homothallic (Starr 1955a, Cook 1963b)
 Cook 1176; homothallic
 Cook 1308; crosses with 1123 (Cook 1963a,b)
 Cook 1328; crosses with 1122 (Cook 1963b)
 Cook 1095; homothallic
 Cook 1102; crosses with 1102
 Cook 1103; crosses with 1101
 Cook 675; homothallic
 Cook 1456; homothallic
 Cook 1218; homothallic (Cook 1963b)
 Cook 1434; homothallic (Cook 1963b)
 Cook 1168; crosses with 1106
 Cook 1241; crosses with 1105
 Cook 1215; homothallic
 Cook 1013; crosses with 1156
 Cook 1072; crosses with 1155
 Cook 652; forms asexual spores
 Cook 7A; homothallic
 Cook 1363; homothallic (Cook 1963a,b)
 Cook 1143; homothallic (Cook 1963a)
 Ruzicka 1968/26
 Cook 817 (Cook 1963a)
 Cook 776; homothallic
 Starr; CCAP 611/6; homothallic
 Cook 1212; homothallic (Cook 1963a)
 Cook 881; homothallic (Cook 1963a)
 Cook 1364; homothallic (Cook 1963a)
 Lippert 480; homothallic (Lippert 1967)

CLOSTERIUM Ralfs (Continued)

- LB 1401 *C. moniliferum* (Bory) Ehr.
 LB 1402 *C. moniliferum* (Bory) Ehr.
 LB 1403 *C. moniliferum* (Bory) Ehr.
 LB 1404 *C. moniliferum* (Bory) Ehr.
 LB 1405 *C. moniliferum* (Bory) Ehr.
 LB 1406 *C. moniliferum* (Bory) Ehr.
 LB 1120 *C. parvulum* var. *angustum* West & West
 LB 1153 *C. parvulum* var. *angustum* West & West
 LB 1151 *C. praelongum* Bréb.
 LB 1152 *C. praelongum* Bréb.
 LB 1128 *C. praelongum* var. *brevius* Nordst.
 LB 1161 *C. praelongum* var. *brevius* Nordst.
 LB 1131 *C. praelongum* var. *brevius* Nordst.
 LB 1132 *C. praelongum* var. *brevius* Nordst.
 LB 1134 *C. pseudolunula* Borge
 LB 1135 *C. pusillum* Hantz.
 LB 1136 *C. pusillum* Hantz.
 LB 1137 *C. setaceum* Ehr.
 LB 1138 *C. setaceum* Ehr.
 LB 1139 *C. striolatum* Ehr.
 LB 1140 *C. striolatum* Ehr.
 LB 1142 *C. toxon* W. West
 LB 1143 *C. toxon* W. West
 LB 1144 *C. toxon* W. West
 LB 1145 *C. venus* Kütz.
 LB 1147 *C. venus* Kütz.
 LB 136 *C. sp.*
- Lippert 5c; crosses with 1402 (Lippert 1967)
 Lippert 5d; crosses with 1401 (Lippert 1967)
 Lippert 370; homothallic (Lippert 1967)
 Lippert 496; crosses with 1405 (Lippert 1967)
 Lippert 497; crosses with 1404 (Lippert 1967)
 Lippert 1555c; homothallic (Lippert 1967)
 Cook 1159; homothallic (Cook 1963b)
 Cook 947; homothallic (Cook 1963b)
 Cook 6A; crosses with 1152 (Cook 1963a)
 Cook 6B; crosses with 1151 (Cook 1963a)
 Cook 857; crosses with 1161
 Cook 858; crosses with 1128 (Cook 1963a)
 Cook 1134; homothallic
 Cook 1391; homothallic
 Cook 659; homothallic (Cook 1963a)
 Fox; crosses with 1136
 Cook 1455; crosses with 1135
 Cook 1221; homothallic
 Cook 1414; homothallic
 Cook 1198; crosses with 1140 (Cook 1963a)
 Cook 1200; crosses with 1139
 Cook 795; homothallic
 Cook 988; crosses with 1144
 Cook 1023; crosses with 1143
 Cook 939; homothallic (Cook 1963b)
 Cook 784; homothallic (Cook 1963b)
 Bold

COCCOCHLORIS Sprengel

- 1548 *C. peniocystis*

Fitzgerald and Gerloff; M. M. Allen 6307

COCCOLITHOPHORA Lohmann

- LB 1321 *C. sp.*

Pringsheim; Göttingen LB 912-1

COCCOLITHUS Schwarz

- LB 1721 *C. neohelis* McIntyre & Bé

J. West (West 1969)

COCCOMYXA Schmidle

- 185 *C. arvernensis* Jaag
 266 *C. chodatii* Jaag
 267 *C. elongata* Jaag
 268 *C. elongata* Jaag
 269 *C. mucigena* Jaag
 270 *C. peltigerae* Waren
 271 *C. peltigerae* var. *variolosae* Jaag
 273 *C. rayssiae* Chodat & Jaag
 274 *C. simplex* Mainx
 275 *C. solarinae* var. *bisporae* Jaag
 276 *C. solarinae* var. *croceae* Chodat
 277 *C. solarinae* var. *saccatae* Chodat
 278 *C. subellipsoidea* Acton
 279 *C. viridis* Chodat

Jaag; CCAP 216/1 (Jaag 1933)
 Jaag; CCAP 216/2 (Jaag 1933)
 Jaag Strain 2; CCAP 216/3b (Jaag 1933)
 Jaag Strain 3; CCAP 216/3c (Jaag 1933)
 Jaag; CCAP 216/4 (Jaag 1933)
 Jaag; CCAP 216/5 (Jaag 1933)
 Jaag; CCAP 216/6 (Jaag 1933)
 Jaag; CCAP 216/8 (Jaag 1933)
 Mainx Strain 2; CCAP 216/9b (Mainx 1928)
 Jaag; CCAP 216/10 (Jaag 1933)
 Jaag 1a; CCAP 216/11a (Jaag 1933)
 Jaag; CCAP 216/12 (Jaag 1933)
 Pringsheim; CCAP 216/13
 Jaag; CCAP 216/14 (Jaag 1933)

COELASTRUM Nägeli

- 280 *C. microporum* Näg.
 281 *C. microporum* Näg.
 282 *C. proboscideum* var. *dilatatum* Vischer
 184 *C. proboscideum* var. *gracile* Vischer
 LB 1353 *C. pseudomicroporum* Korsh.
 LB 1365 *C. reticulatum* (Dang.) Lemm.
 LB 1354 *C. sphaericum* Näg.

Pringsheim; CCAP 217/1a
 Rodhe; CCAP 217/1b
 Vischer; CCAP 217/2 (Kessler and Maifarth 1960)
 Vischer; CCAP 217/3
 Ruzicka 1962/10
 Ruzicka 1962/33b
 Ruzicka 1962/26

COLACIUM Ehrenberg

- LB 1313 *C. vesiculosum* Ehr.

Pringsheim; CCAP 1211/2

COLEOCHAETE de Brébisson

- LB 1261 *C. nitellarium* Jost
LB 610 *C. scutata* Bréb.

Starr
Bold

COMPSOPOGON Montagne

- LB 1553 *C. coerules* (Balbis) Mont.

Ott 0166

CORONASTRUM Thompson

- LB 1382 *C. ellipsoideum* Fott

Hindák

COSMARIUM Ralfs

- LB 1048 *C. biretum* Bréb.
LB 1049 *C. biretum* Bréb.
175 *C. botrytis* Meneg.
301 *C. botrytis* Menegh.
302 *C. botrytis* Menegh.
LB 953 *C. botrytis* Menegh.
LB 1749 *C. connatum* Bréb.
298 *C. cucumis* Corda
LB 1751 *C. debaryi* Arch.
LB 1046 *C. formosulum* Hoff.
LB 1047 *C. formosulum* Hoff.
299 *C. impressulum* Ellv.
LB 1044 *C. smolanicum* (Corda) Bréb.
LB 1045 *C. smolanicum* (Corda) Bréb.
LB 1050 *C. subcostatum* Nordst.
LB 1051 *C. subcostatum* Nordst.
LB 1052 *C. subcostatum* Nordst.
305 *C. subtumidum* Nordst.
LB 733 *C. turpinii* Bréb.
LB 734 *C. turpinii* Bréb.
LB 852 *C. turpinii* Bréb.

LB 837 *C. turpinii* Bréb.
LB 1042 *C. turpinii* Bréb.
LB 1043 *C. turpinii* Bréb.

Starr; crosses with 1049 (Starr 1959)
Starr; crosses with 1048
Pringsheim; CCAP 612/1 (Czurda 1926)
Ondraček 1; Prague 227; CCAP 612/4
Ondraček 2; Prague 228; CCAP 612/5
Christensen; homothallic; good for class; CCAP 612/1b
Ruzicka 1968/29
Ondraček 27; Prague 239; CCAP 612/10
Ruzicka 1968/20
Starr; crosses with 1047 (Starr 1959)
Starr; crosses with 1046
Czurda; CCAP 612/2 (Czurda 1926)
Starr; crosses with 1045 (Starr 1959)
Starr; crosses with 1044
Starr; homothallic (Starr 1955a, 1959)
Starr; crosses with 1052 (Starr 1955a, 1959)
Starr; crosses with 1051
Ondraček 25; Prague 245; CCAP 612/8a
Starr 3; plus strain (Starr 1954c, 1955c, 1958a, 1959)
Starr 4; crosses with 733; carries lethal; minus strain
Starr 24; minus strain; carries lethal; crosses with 733;
grows better than 734
Diploid of 733 (Starr 1958a)
Starr 200; crosses with 1043 (Starr 1955a, 1959)
Starr 201; crosses with 1042

CRICOSPHAERA Braarud

- LB 1014 *C. carterae* (Br. & Fagerl.) Braarud
LB 2167 *C. carterae* (Br. & Fagerl.) Braarud

Parke; Plymouth 17; CCAP 961/1; formerly *Syracosphæra carterae* (Braarud and Fagerland 1946)
Loeblich-FCRG 61

CRUCIGENIA Morten

- LB 1755 *C. lauterbornii* Schmidle
63 *C. tetrapedia* (Kirch.) W. & G. S. West

Starr
Starr; CCAP 218/3

CRUCIGENIELLA Lemmermann

- 183 *C. apiculata* (Lemm.) Komarek
LB 412 *C. rectangularis* (Näg.) Komarek

Paris 89; CCAP 218/1
Pringsheim; CCAP 218/2

CRYPTHECODINIUM Biecheler

- 1649 *C. cohnii* (Seligo) Chatton

Loeblich 22-6

CRYPTOCHRYYSIS Pascher

- LB 1012 *C. rubens* Butcher nom. nud.
LB 2062 *C. sp.*

Parke; Plymouth 14
Coleman

CRYPTOGLAENA Ehrenberg

- LB 571 *C. pigra* Ehr.

Pringsheim; CCAP LB 1212/1

CRYPTOMONAS Ehrenberg

- 358 *C. ovata* var. *palustris* Prings.

Pringsheim; CCAP 979/3

CTENOCLADUS Borzi769 *C. circinnatus* Borzi

R. Lewin

CUMAGLOIA Setchell & GardnerLB 1694 *C. andersonii* (Farlow) S. & G.

Ramus; from carpospores

CYANOPHORA KorshikovLB 555 *C. paradoxa* Korsh.

Pringsheim; CCAP LB 981/1

CYCLOTELLA Kützing1269 *C. sp.*

R. Lewin T-13

CYLINDROCAPSA ReinschLB 653 *C. involuta* Reinsch

George; CCAP 341/1

CYLINDROCYSTIS Meneghini1259 *C. brebissonii* Menegh.

Biebel #2

1922 *C. brebissonii* Menegh.

Biebel 52; minus strain; crosses with 1923

1923 *C. brebissonii* Menegh.

Biebel 53b; plus strain; crosses with 1922

1258 *C. crassa* DeBary

Biebel #1

1925 *C. sp.*

Biebel 78; filamentous

CYLINDROSPERMUM KützingB 1828 *C. licheniforme* Kütz.

Pant M11

2014 *C. licheniforme* Kütz.

Purified from 1828 by P. Wolk

LB 942 *C. sp.*

Stein

CYLINDROTHECA Rabenhorst2081 *C. fusiformis* Reimann & Lewin

From J. Lewin; Rice; Beaufort (Reimann and Lewin 1964)

2083 *C. fusiformis* Reimann & Lewin

From J. Lewin; Maddux; Sandy Hook (Reimann and Lewin 1964)

2084 *C. fusiformis* Reimann & Lewin

From J. Lewin; T. Starr; Sapelo Island (Reimann and Lewin 1964)

2085 *C. fusiformis* Reimann & Lewin

From J. Lewin; T. Starr; Galveston (Reimann and Lewin 1964)

2086 *C. fusiformis* Reimann & Lewin

From J. Lewin; Texas A&M; Barataria Bay (Reimann and Lewin 1964)

2087 *C. fusiformis* Reimann & Lewin

From J. Lewin; Watson 13; Woods Hole (Reimann and Lewin 1964)

DACTYLOCOCCUS Nägeli1537 *D. dissociatus* Randar & Trainor

Hilton

DASYA C. AgardhLB 1513 *D. pedicellata* (C. Ag.) C. Ag.

Ott MO46

DERBESIA SolierLB 1260 *D. tenuissima* (DeNot.) Crouan

Starr; CCAP 706/1 (Ziegler and Kingsbury 1964)

DERMOCARPA CrouanLB 1635 *D. violaceae* Crouan

R. Lewin; CCAP 1416/1

DESMIDIUM C. Agardh ex RalfsLB 560 *D. swartzii* Ag.

George; CCAP LB 617/1

LB 612 *D. sp.*

Starr

DICHOTOMOSIPHON Ernst

LB 1036 *D. tuberosus* (A. Br.) Ernst

Korn; CCAP LB 707/1

DICRATERIA Parke

LB 988 *D. inornata* Parke

Gross; Plymouth B (Parke 1949)

DICTYOCHLORIS Vischer em. Starr

33 *D. fragrans* Vischer

Vischer 334; CCAP 220/1a (Starr 1955b)

127 *D. fragrans* VischerPringsheim as *Muriella magna*; CCAP 249/3

DICTYOCOCCUS Gerneck

LB 62 *D. varians* Gerneck

Starr; CCAP 221/5 (Starr 1955b)

DICTYOSPHAERIUM Nägeli

75 *D. ehrenbergianum* Näg.Pringsheim; CCAP 222/1a (listed as *D. pulchellum*)938 *D. planctonicum* Tiff. & Ahls.

Stein 146

731 *D. pulchellum* Wood

R. Lewin T 1/3

70 *D. pulchellum* Wood

George; CCAP 222/2a

DICTYOTA Lamouroux

Dictyota dichotoma (Huds.) Lamour. The following four strains were derived as clones from the four tetraspores from a single tetrasporangium of 1535 *D. dichotoma*, a diploid strain isolated by P. Kornmann (Helgoland) and later sent to the Collection by D. G. Müller as Müller's Dic HTO.

LB 1676 *D. dichotoma*

Male strain

LB 1677 *D. dichotoma*

Female strain

LB 1678 *D. dichotoma*

Male strain

LB 1679 *D. dichotoma*

Female strain

DIMORPHOCOCCUS A. Braun

69 *D. lunatus* A. Br.

Paris 90; CCAP 224/1

DISTIGMA Ehrenberg

LB 506 *D. curvata* var. *major* Prings.

Pringsheim; CCAP 1216/1 (Pringsheim 1936)

LB 1280 *D. levis* Prings.

Pringsheim; Göttingen LB 1216-6

LB 508 *D. proteus* Ehr.

Pringsheim; CCAP LB 1216/3a

LB 509 *D. sennii* Prings.

Pringsheim; CCAP LB 1216/4 (Pringsheim 1942)

DRAPARNALDIA Bory

LB 423 *D. plumosa* (Vauch.) Ag.

Reynolds; CCAP LB 418/1a

DUNALIELLA Teodoresco

LB 199 *D. bioculata* Butcher

Prague 281a; CCAP LB 19/4

LB 1983 *D. parva* Lerche

Ben-Amotz

LB 2192 *D. peircei* NicolaiNicolai; CCAP LB 19/2; formerly 295 *Dunaliella*; number changed because of number duplicationLB 1000 *D. primolecta* Butcher

Gross; Plymouth 81; CCAP LB 11/34 (Butcher 1959)

LB 200 *D. salina* (Dunal) Teod.

Mainx; CCAP LB 19/3

LB 1644 *D. salina* (Dunal) Teod.

Loeblich D-18-f; prefers 5-15% NaCl

LB 999 *D. tertiolecta* Butcher

Mrs. B. Føyn; Plymouth 83; CCAP LB 19/6a (Butcher 1959)

DYSMORPHOCOCCUS Takeda

LB 65 *D. globosus* Bold & Starr

Bold; CCAP 20/1 (Bold and Starr 1953)

LB 1031 *D. sp.*

Waters

LB 1760 *D. sp.*Starr; heterogamous; homothallic; *Pedinopera* zygote phase; from Zimbabwe area in RhodesiaLB 1765 *D. sp.*Starr; heterogamous; homothallic; *Pedinopera* zygote phase; from Lismore, Australia

ECTOCARPUS Lyngbye

LB 2008 *E. siliculosus* (Dillw.) Lyng.

Müller D-A2; sporophyte, genetically female (Müller 1967)

ECTOCARPUS Lyngbye (Continued)

- LB 2009 *E. siliculosus* (Dillw.) Lyng.
 LB 1636 *E. variabilis* Vickers
 LB 1433 *E. sp.*

Müller R-B1; sporophyte, genetically male (Müller 1967)
 R. Lewin; CCAP 1310/1
 Ott MO-200

ELAKATOTHRIX Wille

- 81 *E. viridis* (Snow) Printz

Paris 38; CCAP 227/1

EMILIANIA Hay & Mohler

- LB 1016 *E. huxleyi* (Lohm.) Hay & Mohler

Adams; Plymouth 92-A; formerly *Coccolithus huxleyi*

ENSICULIFERA Cox & Arnott

- LB 1595 *E. loeblichii* Cox & Arnott

Blankley; Loeblich 90 (Cox and Arnott 1971)

ENTEROMORPHA Link

- LB 830 *E. clathrata* (Roth) J. Ag.
 LB 1847 *E. clathrata* (Roth) J. Ag.
 LB 1848 *E. clathrata* (Roth) J. Ag.
 LB 2050 *E. compressa* (L.) Grev.

Starr
 Kapraun Ea-2 male (Kapraun 1970)
 Kapraun Ea-8 female (Kapraun 1970)
 Pfister; from freshwater in Oklahoma, but grows best
 in seawater media

- LB 739 *E. intestinalis* (L.) Link
 LB 1855 *E. lingulata* J. Ag.
 LB 1856 *E. lingulata* J. Ag.
 LB 740 *E. linza* (L.) J. Ag.
 LB 1849 *E. prolifera* (Müller) J. Ag.
 LB 1850 *E. prolifera* (Müller) J. Ag.
 LB 1851 *E. prolifera* (Müller) J. Ag.
 LB 1852 *E. prolifera* (Müller) J. Ag.
 LB 1853 *E. salina* Kütz.

Starr
 Kapraun L- male (Kapraun 1970)
 Kapraun L+ female (Kapraun 1970)
 M. A. Allen
 Kapraun RP-D-1 female (Kapraun 1970)
 Kapraun RP-D-2 male (Kapraun 1970)
 Kapraun RP-6-3 female (Kapraun 1970)
 Kapraun RP-6-7 male (Kapraun 1970)
 Kapraun PA-B-1 female (Kapraun 1970)

ENTOCLADIA Reinke

- LB 1430 *E. viridis* Reinke

Ott MO-371

EREMOSPHAERA DeBary

- LB 122 *E. gigas* (Archer) Fott & Kalina
 LB 34 *E. viridis* DeBary

Starr; CCAP 257/4; formerly *Oocystis eremosphaeria*
 George; CCAP LB 228/1

ERYTHROCLADIA Rosenvinge

- LB 1419 *E. sp.*
 LB 1637 *E. sp.*

Ott MO-362
 L. Loeblich at Scripps

ERYTHROTRICHIA Areschoug

- LB 1425 *E. carnea* (Dillw.) J. Ag.
 LB 1690 *E. carnea* (Dillw.) J. Ag.

Ott MO-14
 Ramus

EUASTRUM Ralfs

- LB 1748 *E. pectinatum* Bréb.

Ruzicka 1968/28

EUCAPSIS Clements & Shantz

- LB 1519 *E. sp.*

Ott 0419

EUDORINA Ehrenberg (not including PLEODORINA)

The following strains (except UTEX 12, 240) were used by M. E. Goldstein (1964) in the study on sexual isolation.

- 1216 *E. conradii* Goldstein
 1196 *E. cylindrica* Korsh.
 1197 *E. cylindrica* Korsh.
 12 *E. elegans* Ehr.
 LB 240 *E. elegans* Ehr.
 1192 *E. elegans* Ehr.
 1193 *E. elegans* Ehr.
 1194 *E. elegans* Ehr.
 1198 *E. elegans* Ehr.
 1199 *E. elegans* Ehr.

Goldstein 70hd; homothallic
 Goldstein 47sm; selfing male
 Goldstein 47f; female
 Rodhe 1637b; CCAP 24/1b
 Mainx; CCAP 24/1a
 Goldstein 56m; male
 Goldstein 56f; female
 Coleman; Goldstein 44m; male
 Coleman; Goldstein 40m; male
 Coleman; Goldstein 40f; female

EUDORINA Ehrenberg (Continued)

- 1200 *E. elegans* Ehr.
 1201 *E. elegans* Ehr.
 1202 *E. elegans* Ehr.
 1203 *E. elegans* Ehr.
 1206 *E. elegans* Ehr.
 1207 *E. elegans* Ehr.
 1208 *E. elegans* Ehr.
 1209 *E. elegans* Ehr.
 1211 *E. elegans* Ehr.
 1212 *E. elegans* var. *carteri* (Smith) Goldstein
 1219 *E. elegans* var. *carteri* (Smith) Goldstein
 1220 *E. elegans* var. *synoica* Goldstein
 1223 *E. elegans* × *Pleodorina illinoisensis*
 1226 *E. elegans* × *Pleodorina illinoisensis*
- 737 *E. unicocca* Smith
 738 *E. unicocca* Smith
 1214 *E. unicocca* Smith
 1215 *E. unicocca* Smith
 1217 *E. unicocca* var. *peripheralis* Goldstein
 1218 *E. unicocca* var. *peripheralis* Goldstein
 LB 1221 *E. unicocca* var. *peripheralis* Goldstein
- Goldstein 62m; male
 Goldstein 62f; female
 Goldstein 67sm; selfing male
 Goldstein 67f; female
 Goldstein 79m; male
 Goldstein 79f; female
 Coleman; Goldstein 34m; male
 Coleman; Goldstein 17m; male
 Goldstein 13f; female
 Goldstein 104hma; homothallic
 Goldstein 103hma; homothallic
 Goldstein 63hmr; homothallic
 Goldstein 88f; female; hybrid of 1193 × 807; polyploid
 Goldstein 84sm; selfing male; hybrid of 1193 × 807; polyploid
 Starr; Goldstein 1f; female
 Starr; Goldstein 1m; male
 Goldstein 93m; male
 Goldstein 93f; female
 Goldstein 100m; male
 Goldstein 100f; female
 Goldstein 4sm; selfing male

EUGLENA Ehrenberg

- LB 52 *E. acus* Ehr.
 LB 1304 *E. acus* var. *gracilis* Prings.
 LB 1316 *E. acus* var. *major* Prings.
 373 *E. anabaena* Mainx
 LB 1320 *E. cantabrica* Prings.
 LB 1314 *E. caudata* Hübner
 LB 365 *E. deses* Ehr.
 LB 370 *E. deses* Ehr.
 LB 452 *E. deses* var. *vermiformis* Carter
 366 *E. geniculata* var. *terricola* Dang.
 LB 367 *E. gracilis* Klebs
- LB 368 *E. gracilis* Klebs
- 369 *E. gracilis* Klebs
- 753 *E. gracilis* Klebs
- 1716 *E. gracilis* Klebs
- 1717 *E. gracilis* Klebs
- 1718 *E. gracilis* Klebs
- 1719 *E. gracilis* Klebs
- 2056 *E. gracilis* Klebs
- 2057 *E. gracilis* Klebs
- 2058 *E. gracilis* Klebs
- 2059 *E. gracilis* Klebs
1. 884 *E. gracilis* var. *bacillaris*
 1. 886 *E. gracilis* var. *bacillaris*
 1. 888 *E. gracilis* var. *bacillaris*
 1. 889 *E. gracilis* var. *bacillaris*
 1. 890 *E. gracilis* var. *bacillaris*
 1. 891 *E. gracilis* var. *bacillaris*
 1. 945 *E. gracilis* var. *bacillaris*
 160 *E. gracilis* var. *saccharophila*
- 752 *E. gracilis* var. *saccharophila*
- Pringsheim; CCAP 1224/1
 Pringsheim; CCAP 1224/1d
 Pringsheim; CCAP 1224/1b
 Pringsheim; CCAP 1224/15b
 Pringsheim; Göttingen 1224-25
 Pringsheim; Göttingen 1224-26a
 Pringsheim; CCAP LB 1224/19a
 Dusi; CCAP LB 1224/20 (Dellandre and Dusi 1935)
 Pringsheim; CCAP LB 1224/22
 Vischer 400; CCAP 1224/4c
 Mainx 1; CCAP LB 1224/5a (Pringsheim and Pringsheim 1952)
 Elmore-Sauer; CCAP LB 1224/5b (Pringsheim and Pringsheim 1952)
 Vischer 22; CCAP 1224/5c (Pringsheim and Pringsheim 1952)
 Pringsheim 25; CCAP 1224/5z; "Z" strain used widely for assay of Vitamin B₁₂ (Pringsheim and Pringsheim 1952; Hutner, Bach and Ross 1956)
 Pringsheim 11; CCAP 1224/5k (Pringsheim and Pringsheim 1952)
 Pringsheim 16; CCAP 1224/5q (Pringsheim and Pringsheim 1952)
 Pringsheim 19; CCAP 1224/5i (Pringsheim and Pringsheim 1952)
 Pringsheim 20; CCAP 1224/5v (Pringsheim and Pringsheim 1952)
 Gross mutant PR-1; derived from 753 using high pressure (Gross et al. 1975)
 Gross mutant PR-2; derived from 753 using high pressure (Gross et al. 1975)
 Gross mutant PR-3; derived from 753 using high pressure (Gross et al. 1975)
 Gross mutant PR-4; derived from 753 using high pressure (Gross et al. 1975)
 Gross normal green strain (Gross and Jahn 1958)
 Gross SM-G mutant of 884
 Gross SM-P mutant of 884
 Gross PBZ-G4 mutant of 884
 Gross PBZ-G3 mutant of 884
 Gross HB-G mutant of 884
 Gross SmLi mutant of 884; CCAP 1224/7b
 Cori; CCAP 1224/7a (Pringsheim and Pringsheim 1952; Hunter et al. 1956)
 Pringsheim 9; CCAP 1224/5t; CCAP "T" strain (Pringsheim and Pringsheim 1952; Hutner et al. 1956)

EUGLENA Ehrenberg (Continued)

- 159 *E. gracilis* var. *urophora* Chad. & Prov.
 453 *E. granulata* (Klebs) Lemm.
 LB 1312 *E. laciniata* Prings.
 LB 1302 *E. limnophila* Lemm.
 364 *E. mutabilis* Schmitz
 1989 *E. myxocylindracea* Bold & MacEntee
 1603 *E. pisciformis* var. *mucronata*
 1605 *E. pisciformis* var. *obtusa*
 1604 *E. pisciformis* var. *typica*
 LB 1308 *E. proxima* Dang.
 LB 1307 *E. spirogyra* Ehr.
 372 *E. stellata* Mainx
 LB 1310 *E. terricola* (Dang.) Lemm.
 LB 1311 *E. triptera* (Duj.) Klebs
 85 *E. viridis* Ehr.
- Provasoli; CCAP 1224/6 (Pringsheim and Pringsheim 1952)
 Provasoli from type material of *E. rostrifera* Johnson; CCAP 1224/8b
 Pringsheim; CCAP 1224/31
 Pringsheim; CCAP 1224/23
 Mainx; CCAP 1224/9b
 Bold and MacEntee (Bold and MacEntee 1973)
 Sless (Haifa)
 Sless (Haifa)
 Sless (Haifa)
 Pringsheim; Göttingen 1224-11a
 Pringsheim; CCAP 1224/13b
 Mainx; CCAP 1224/14
 Pringsheim strain 3; Göttingen 1224-34a
 Pringsheim; Göttingen 1224-16
 Pringsheim; CCAP 1224/17a

EUNOTIA Ehrenberg

- 670 *E. sp.* R. Lewin 52

EUTREPTIA Perty

- LB 1290 *E. pertyi* Prings.
 LB 2003 *E. sp.* Pringsheim; Göttingen 1226-2
 Ott Va-31

FASCICULOCYLORIS McLean & Trainor

- 1451 *F. boldii* McLean & Trainor McLean and Trainor (McLean and Trainor 1965)

FISCHERELLA Gomont

- LB 1301 *F. muscicola* (Thur.) Gom.
 1829 *F. muscicola* (Thur.) Gom. Mitra; CCAP 1427/1
 Pant A10

FLINTIELLA Ott

- LB 2060 *F. sanguinaria* Ott Ott (Bourrelly 1970)

FRAGILARIA Lyngbye

- LB 1972 *F. crotonensis* Kitton Danforth

FREMYELLA de Toni

- 481 *F. diplosiphon* (Gomont) Drouet
 B 590 *F. diplosiphon* (Gomont) Drouet Strout; CCAP 1429/1
 Dyer's *Phormidium* 25; Allen M-6.1.1.

FRIEDMANNIA Chantanachai & Bold

- 1181 *F. israeliensis* Chantanachai & Bold Chantanachai and Bold (Chantanachai and Bold 1962)

FRITSCHIELLA Iyengar

- LB 1334 *F. sp.* Milliger
 1821 *F. tuberosa* Iyengar McBride

GLAUCOCYSTIS Itzigsohn

- 64 *G. nostochinearum* Itz.
 B 1929 *G. nostochinearum* Itz. George; CCAP 229/1
 R. Lewin CY-11

GLAUCOSPHERA Korshikov

- LB 1662 *G. vacuolata* Korsh. Starr; CCAP 130/1 (Richardson and Brown 1970)

GLENODINIUM Ehrenberg

- LB 1652 *G. sp.* Wilson; Loeblich 7

GLOEOCAPSA Kützling

- B 589 *G. alpicola* (Lyng.) Born.
 LB 1598 *G. alpicola* (Lyng.) Born.
 795 *G. sp.*
 1938 *G. sp.*

M. B. Allen M-3.1.1
 M. M. Allen 6308
 Markle; Stanier 6909; fixes nitrogen (Wyatt and Silvey 1969)
 Stanier 6501; fixes nitrogen (Rippka et al. 1971)

GLOEOCOCCUS A. Braun

- 166 *G. maximus* (Mainx) Fott & Nováková
 LB 2177 *G. minutissimus* King

Mainx; CCAP 31/1
 King (King 1973)

GLOEOCYSTIS Nägeli

- LB 763 *G. ampla* Kütz.
 LB 291 *G. gigas* (Kütz.) Lager.

Wilbois
 R. Lewin DD.1/49

GLOEODENDRON Korshikov

- 513 *G. catenatum* (Thompson) Bourrelly

Bold; formerly *Schizodictyon catenatum* Thompson

GLOEOMONAS Klebs

- LB 603 *G. kupfferi* (Skuja) Gerloff

Bourrelly; CCAP 33/1

GLOEOTILOPSIS Iyengar & Philipose

- 1704 *G. sterilis* Deason

Deason BB-2 (Deason 1969)

GLOEOTRICHIA Agardh

- LB 1303 *G. echinulata* (Smith) Richt.
 LB 1920 *G. ghosei* Singh
 LB 1921 *G. ghosei* Singh
 B 583 *G. sp.*
 LB 941 *G. sp.*

George; CCAP 1432/1
 Singh; bears akinetes
 Singh; does not bear akinetes
 M. B. Allen M-11.1.1
 Stein

GOLENKINIA Chodat

- 929 *G. minutissima* Iyengar & Balak.
 930 *G. minutissima* Iyengar & Balak.
 931 *G. sp.*
 932 *G. sp.*

Starr 5-3; homothallic, oogamous (Starr 1963)
 Starr 8; forms sperm only (Starr 1963)
 Starr
 Starr; large form

GONATOZYGON de Bary

- LB 1253 *G. monotaenium* de Bary
 LB 1254 *G. monotaenium* de Bary

Biebel 3; homothallic
 Biebel 1; homothallic

GONGROSIRA Kützling

- 1916 *G. papuasica* (Borzi) Tupa
 1915 *G. papuasica* var. *viridis* Tupa
 1446 *G. sp.*

Tupa DDT-5 (Tupa 1974)
 Tupa DDT-44 (Tupa 1974)
 Darley

GONIOTRICHOPSIS Smith

- LB 1689 *G. sublittoralis*

Ramus

GONIOTRICHIUM Kützling

- LB 1424 *G. alsidii* (Zanardini) Howe
 LB 1957 *G. elegans* (Chauv.) Le Jol.

Ott MO-110
 R. Lewin; Haxo RH-22

GONIUM Müller

- 783 *G. multicoecum* Pocock
 LB 842 *G. octonarium* Pocock
 LB 843 *G. octonarium* Pocock
 LB 805 *G. pectorale* Müller

J. Stein
 J. Stein; minus strain
 J. Stein; plus strain
 Wilbois 5; minus strain (Stein 1958)

GONIUM Müller (Continued)

- LB 806 *G. pectorale* Müller
 LB 826 *G. pectorale* Müller
 LB 827 *G. pectorale* Müller
 LB 2075 *G. pectorale* Müller
 13 *G. pectorale* Müller
 956 *G. quadratum* Pringsh.
 LB 822 *G. sacculiferum* Scherffel
 LB 823 *G. sacculiferum* Scherffel
 LB 935 *G. sacculiferum* Scherffel
 14 *G. sociale* (Duj.) Warming
 15 *G. sociale* (Duj.) Warming
 936 *G. sociale* var. *sacculum* J. Stein
 937 *G. sociale* var. *sacculum* J. Stein
 197 *G. sociale* var. *sociale*
- Wilbois 1; plus strain (Stein 1958)
 J. Stein 56-057.1; plus strain (Stein 1958)
 J. Stein 56-057.17; minus strain (Stein 1958)
 Starr
 Pringsheim; CCAP 32/1a
 Pringsheim (Pringsheim 1959)
 J. Stein 70.7; minus strain (Stein 1959)
 J. Stein 70.13; plus strain (Stein 1959)
 J. Stein 123; homothallic (Stein 1959)
 Starr; CCAP 32/2b; homothallic (Starr 1955d)
 Pringsheim; CCAP 32/2a
 J. Stein 122.4; plus strain (Stein 1959)
 J. Stein 122.6; minus strain (Stein 1959)
 Hartmann; CCAP 32/3 (Stein 1959)

GONYAULAX Diesing em. Kofoid

- LB 1992 *G. diegensis* Kofoid
 LB 2165 *G. excavata* (Braarud) Balech
 LB 1947 *G. sphaeroudea* Kofoid
- Ott Va-1; CCAP 1119/2
 Loeblich 429
 Haxo PY-12

GYMNODINIUM Stein

- LB 2076 *G. splendens* Lebour
 LB 1653 *G. sp.*
 LB 1654 *G. sp.*
- Ott Va-6
 Wilson; Loeblich 18
 Loeblich 116

GYRODINIUM Kofoid & Swezy

- LB 1655 *G. resplendens* Hulburt
- Loeblich 13

HAEMATOCOCCUS Flowtow

- LB 1022 *H. capensis* Pocock
 LB 1023 *H. capensis* Pocock
 LB 55 *H. droebakensis* Wollenw.
 16 *H. lacustris* (Gir.) Rost.
 294 *H. lacustris* (Gir.) Rost.
 LB 1758 *H. zimbabweensis* Pocock
- Starr; plus strain
 Starr; minus strain
 Pringsheim; CCAP 34/2
 Pringsheim; CCAP 34/1b
 R. Lewin DD.1/73; CCAP 34/1j
 Starr

HALOCHLOROCOCCUM Dangeard

- LB 1490 *H. marinum* Dang.
 LB 2072 *H. sacatum* Guillard, Bold & MacEntee
- Izard; CCAP 233/1 (Dangeard 1965)
 Erickson; Guillard FLA 9 (Guillard et al. 1975)

HAPALOSIPHON Nägeli

- 1830 *H. welwitschii* W. & G. S. West
- Pant A21

HAZENIA Bold

- LB 846 *H. mirabilis* Bold
- Bold (Bold 1958)

HELICODICTYON Whitford

- LB 1570 *H. planctonicum* (Whitf.) Whitf. & Schumacher
- Biebel 5 (Biebel 1968)

HEMISELMIS Parke

- LB 1011 *H. virescens* Droop
 LB 2002 *H. sp.*
- Adams; Plymouth 157; CCAP 984/5 (O'Heocha and Rafferty 1959)
 Ott Va-30

HETEROCHLAMYDOMONAS Cox & Deason

- B 1705 *H. inaequalis* Cox & Deason
- Cox (Cox 1969)

HETEROCOCCUS Chodat

- 154 *H. brevicellularis* Vischer
 313 *H. caespitosus* Vischer
 385 *H. caespitosus* Vischer
 346 *H. chodati* Vischer
- Vischer 351; CCAP 835/1 (Vischer 1945)
 Vischer 116; CCAP 835/2a (Vischer 1937)
 Vischer 131; CCAP 835/2b (Vischer 1937)
 Vischer 161; CCAP 835/3 (Vischer 1937)

HETEROCOCCUS Chodat (Continued)

- 348 *H. fuornensis* Vischer
 349 *H. mainxii* Vischer
 350 *H. marietanii* Vischer
 351 *H. moniliformis* Vischer
 352 *H. protonematoides* Vischer
 LB 1963 *H. sp.*

Vischer 279; CCAP 835/5 (Vischer 1945)
 Mainx; Vischer 160; CCAP 835/6 (Vischer 1937)
 Vischer 167; CCAP 835/7 (Vischer 1937)
 Vischer 157; CCAP 835/8 (Vischer 1937)
 Vischer 369; CCAP 835/9 (Vischer 1945)
 Ellermeier; from Antarctica; formerly *Monocilia*

HETEROMASTIX Korshikov

- LB 1026 *H. angulata* Korsh.
 LB 996 *H. rotunda* (Carter) Manton
 LB 2001 *H. sp.*

Starr
 Butcher; Plymouth 210; CCAP 1960/1; formerly *Ripidinomonas rotunda* Carter
 Ott Va-27 as *Pedinomonas sp.*

HETEROTETRACYSTIS Cox & Deason

- 1675 *H. akinetos* Cox & Deason
 1673 *H. intermedia* Cox & Deason
 1672 *H. macrogranulosa* Cox & Deason

Cox 36-2 (Cox and Deason 1968)
 Cox 35-2 (Cox and Deason 1968)
 Cox 33-1; CCAP 136/1 (Cox and Deason 1968)

HETEROTHRIX Pascher

- 155 *H. debilis* Vischer
 353 *H. hormidioides* Vischer
 354 *H. montana* Vischer
 355 *H. solida* Vischer

Vischer 50; CCAP 836/1 (Vischer 1936)
 Vischer 358; CCAP 836/2 (Vischer 1945)
 Vischer 288; CCAP 836/3 (Vischer 1945)
 Vischer 214; CCAP 836/4 (Vischer 1945)

HORMIDIUM Kützing em. Klebs (see KLEBSORMIDIUM)

HORMOTILA Borzi

- 1239 *H. blennista* Trainor & Hilton

Hilton and Trainor

HORMOTILOPSIS Trainor & Bold

- 104 *H. gelatinosa* Trainor & Bold
 946 *H. tetravacuolaris* Arce & Bold

Bold and Trainor FRT-1 (Trainor and Bold 1953)
 Arce 25C (Arce and Bold 1958)

HYALOCOCCUS H. Waren

- 908 *H. dermatocarponis* Waren

Ahmadjian 1 from *Dermatocarpon fluvialtis*

HYALOTHECA Ehrenberg ex Ralfs

- LB 476 *H. dissiliens* (Sm.) Bréb.

Pringsheim; CCAP LB 637/1

HYDRODICTYON Roth

- LB 782 *H. africanum* Yamamouchi
 LB 515 *H. reticulatum* (L.) Lagerh.

George; CCAP 236/2
 Bold

HYPNOMONAS Korshikov

- LB 1376 *H. ellipsoidea* Korsh.

Hindák

IGNATIUS Bold & MacEntee

- 2012 *I. tetrasporus* Bold & MacEntee

Bold and MacEntee (Bold and MacEntee 1974)

INTERFILUM Chodat

- 177 *I. paradoxum* Chodat

Pringsheim; CCAP 338/1

ISOCHRYDIS Parke

- LB 987 *I. galbana* Parke
 LB 1292 *I. sp.*

Parke; Plymouth "1"; CCAP 927/1 (Parke 1949)
 Butcher; Plymouth 8; CCAP 927/2

KENTROSPHAERA (see CENTROSPHAERA)

KERATOCOCCUS Pascher

- LB 1378 *K. bicaudatus* (A. Br.) Boye-Petersen

Hindák

KIRCHNERIELLA Schmidle

- LB 1355 *K. cornuta* Korsh.
 LB 1357 *K. irregularis* (Smith) Korsh.
 285 *K. lunaris* (Kirch.) Moebius

Komarék 1962/9
 Ruzicka 1962/39
 Pringsheim; CCAP 243/1

KLEBSORMIDIUM Silva, Mattox & Blackwell

- 321 *K. flaccidum* (Kütz.) S., M. & Bl.
 322 *K. flaccidum* (Kütz.) S., M. & Bl.
 323 *K. flaccidum* (Kütz.) S., M. & Bl.
 623 *K. flaccidum* (Kütz.) S., M. & Bl.
 LB 2017 *K. flaccidum* (Kütz.) S., M. & Bl.
 LB 1958 *K. flaccidum* var. *cryophila*
 1706 *K. marinum* (Deason) S., M. & Bl.
 978 *K. sterile* (Deason & Bold) S., M. & Bl.
 462 *K. subtilissima* (Rabenh.) S., M. & Bl.

Pringsheim; CCAP 335/1a; formerly *Hormidium barlowi* (Mattox and Bold 1962)
 Pringsheim; CCAP 335/2a; formerly *Hormidium flaccidum* (Mattox and Bold 1962)
 Pringsheim; CCAP 335/4; formerly *Hormidium* sp. (Mattox and Bold 1962)
 R. Lewin; formerly *Hormidium* sp. (Mattox and Bold 1962)
 Mattox; Little F 41
 Ellermeier from Antarctica; formerly *Hormidium flaccidum* var. *cryophila*
 Deason 5-3-12; formerly *Hormidium marinum*
 Deason C-1-26; formerly *Hormidium sterile* (Deason and Bold 1960)
 Lewin; CCAP 384/1

LEPOCINCLIS Perty

- LB 523 *L. buetschlii* Lemm.
 LB 1305 *L. ovata* var. *deflandriana* Cour.

Pringsheim; CCAP LB 1244/1
 Pringsheim; Göttingen 1244-5

LEPTOSIRA Borzi

- 319 *L. obovata* Vischer
 LB 1521 *L.* sp.

Vischer 46; CCAP 445/1 (Vischer 1933)
 Ott 0354

LLOYDIELLA Ahmad & Goldstein

- LB 1736 *L. kankensis* Ahmad & Goldstein

Goldstein 304; homothallic (Ahmad and Goldstein 1971)

LOBOMONAS Dangeard

- 17 *L. piriformis* Prings.

Pringsheim; CCAP 45/1

LOLA Setchell & Gardner

- LB 1491 *L. lubrica* S. & G.

J. West

LYNGBYA Agardh

- 1547 *L. kuetzingii* Schmidle
 1930 *L. lagerheimii* (Möb.) Gom.
 B 1831 *L. spiralis* Geitler
 B 386 *L.* sp.
 B 1546 *L.* sp.
 621 *L.* sp.
 622 *L.* sp.

Pringsheim; M. M. Allen 6506
 Strout; Haxo CY-13
 Pant N9
 Manton; CCAP B 1459/2; formerly *Oscillatoria chalybea* Mertens
 M. M. Allen 6412
 R. Lewin
 R. Lewin

MANTONIELLA Desikachary

- LB 990 *M. squamata* (Manton & Parke) Desikachary

George; Plymouth 189; formerly *Micromonas squamata* (Manton and Parke 1960)

MASTIGOCLADUS Kirchner

- B 1931 *M. laminosus* Cohn

R. Lewin; Haxo CY-15; grows best at 35 C

MENOIDIUM Perty

- LB 528 *M. cultellus* Prings.

Pringsheim; CCAP LB 1247/2 (Pringsheim 1942)

MERISMOPEDIA Meyen

- LB 550 *M. glauca* f. *insignis* (Schkorb.) Geitler
 LB 1902 *M.* sp.

Pringsheim; not typical
 Hoffman; typical flat colonies

MESOTAENIUM Nägeli

- 41 *M. caldarium* (Lagerh.) Hansg.
 283 *M. caldarium* (Lagerh.) Hansg.
 LB 1024 *M. kramstai* Lemm.
 LB 1025 *M. kramstai* Lemm.

Czurda (Czurda 1926)
 van Overbeek as *Gyrodffiana humicola*; CCAP 230/1
 Starr; plus strain (Starr and Rayburn 1964)
 Starr; minus strain (Starr and Rayburn 1964)

MICRASTERIAS C. Agardh ex Ralfs

- LB 651 *M. americana* (Ehr.) Ralfs
 LB 545 *M. angulosa* Hantz.
 LB 133 *M. decedentata*
 LB 558 *M. denticulata* Bréb.
 LB 766 *M. fimbriata* Ralfs
 LB 768 *M. fimbriata* Ralfs
 LB 577 *M. fimbriata* var. *caudata* Cedergrén
 LB 1943 *M. radiata* Hassall
 LB 650 *M. radiata* var. *gracillima* f. *brevis* Pres. & Scott
 LB 1941 *M. rotata* (Grev.) Ralfs
 LB 1942 *M. rotata* (Grev.) Ralfs
 LB 649 *M. sol* var. *extensa*
 LB 543 *M. thomasi* Arch.
 LB 544 *M. thomasi* Arch.
 LB 549 *M. thomasi* Arch.
 LB 546 *M. thomasi* Arch. (fac. *triradiata*)

 LB 548 *M. thomasi* (fac. *uniradiata*)

 LB 794 *M. torreyi* Bail.
 LB 765 *M. torreyi* Bail.
 LB 519 *M. truncata* var. *semiradiata* (Näg.) Cleve

Kallio; haploid (Kallio 1960)
 Kallio; haploid (Kallio 1951)
 Starr (Cook 1963a)
 Kallio; CCAP 649/1b (Kallio 1951)
 Kallio Strain B diploid (Kallio 1957)
 Kallio; natural clone (Kallio 1957)
 Kallio (Kallio 1953)
 From Lacalli; pygmy strain
 Kallio; natural haploid clone (Cook 1963a)
 Lacalli; natural biradiate clone
 Lacalli; triradiate from 1941
 Kallio; natural haploid clone (Cook 1963a)
 Kallio "type form"; haploid, biradiate (Kallio 1951)
 Kallio "var. notata"; haploid (Kallio 1951)
 Kallio Mic. B; diploid (Kallio 1951)
 Kallio; diploid triradiate produced by Kallio from LB 543
 Kallio's "defect mutation cell"; haploid uniradiate (Kallio 1951)
 Kallio; haploid (Kallio 1963)
 Kallio; diploid derived from 794 (Kallio 1963)
 Starr (Cook 1963a)

MICROCOLEUS Gomont

- 1815 *M. vaginatus* var. *ciano-viridis* Baker & Bold

Kantz; Baker and Bold K 27 (Baker and Bold 1970)

MICROCYSTIS Lemmermann

- 1937 *M. aeruginosa* Kütz.
 2061 *M. aeruginosa* Kütz.
 LB 2063 *M. aeruginosa* Kütz.

NRC-1M₁III
 Patterson 1036AX (Gerloff et al. 1950)
 Patterson

MICROMONAS Manton & Parke

- LB 991 *M. pusilla* (Butcher) Manton & Parke

Parke; Plymouth 27; CCAP 1965/4 (Manton and Parke 1960)

MICROSPORA Thuret

- LB 472 *M. sp.*

George; CCAP LB 348/1

MICROTHAMNION Nägeli

- 317 *M. kützianum* Næg.
 318 *M. kützianum* Næg.
 1914 *M. kützianum* Næg.
 LB 237 *M. sp.*

Christensen; CCAP 450/1a
 Pringsheim; CCAP 450/1b
 Tupa M-Lud
 Starr

MISCHOCOCCUS Nägeli

- 150 *M. sphaerocephalus* Vischer

Vischer 61; CCAP 847/1 (Vischer 1932)

MONOCHRYYSIS Skuja (see PAVLOVA)

MONOCILIA (see HETEROCOCCUS)

MONODUS Chodat

- 151 *M. subterraneus* Petersen

R. Lewin; CCAP 848/1

MOUGEOTIA C. Agardh

- LB 758 *M. sp.*

Wilbois

MURIELLA Petersen

- 36 *M. aurantiaca* Vischer
126 *M. decolor* Vischer

Vischer 108; CCAP 249/1
Vischer 29; CCAP 249/2

MYRMECIA Printz

- 907 *M. biatorellae* (Tschermak-Woess & Plesal) Petersen

Ahmadjian 1 from *Dermatocarpon tuckermanni*

NANNOCHLORIS Naumann

- LB 1998 *N. oculata* Droop

Ott Va-19; CCAP 251/6; used in combination with 1977
Pyramimonas and 1988 *Pseudoisochrysis* as excellent food
for oyster larvae

- LB 2164 *N. oculata* Droop

Millport 66

- LB 1999 *N. sp.*

Ott Va-23

- LB 2055 *N. sp.*

R. Lewin; from Singapore

NAUTOCOCCUS Korshikov

- LB 1383 *N. pyriformis* Korsh.
125 *N. pyriformis* Korsh.
B 1793 *N. soluta* Archibald
1794 *N. terrestris* Archibald

Hindák
Starr; Camb. 53/1 (Starr 1955b)
Archibald; CCAP 53/2
Archibald; CCAP 53/3

NAVICULA Bory

- 2043 *N. incerta* Grun.
2044 *N. incerta* Grun.
2046 *N. incerta* Grun.
656 *N. minima* Grun.
391 *N. minima* var. *atomoides* Grun.
661 *N. pelliculosa* (Bréb.) Hilse
664 *N. pelliculosa* (Bréb.) Hilse
667 *N. pelliculosa* (Bréb.) Hilse
668 *N. pelliculosa* (Bréb.) Hilse
671 *N. pelliculosa* (Bréb.) Hilse
674 *N. pelliculosa* (Bréb.) Hilse
2030 *N. pelliculosa* (Bréb.) Hilse
682 *N. salinarum* Grunow

J. Lewin 65-M (Lewin and Lewin 1960)
J. Lewin 66-M (Lewin and Lewin 1960)
J. Lewin 69-M (Lewin and Lewin 1960)
R. Lewin 15
From Emerson's laboratory (Tanada 1951)
R. Lewin 22
R. Lewin 38
R. Lewin 48
R. Lewin 50
R. Lewin 60
R. Lewin 65
R. Lewin 80
R. Lewin 41-M

NEMALION Targioni-Tozzetti

- LB 743 *N. multifidum* (Weber & Mohr) J. Ag.

Bold; develops only Chantansia stage

NEOAGARDHIELLA Wynne & Taylor

- LB 1414 *N. baileyi* (Harv. ex Kütz.) Wynne & Taylor
LB 1431 *N. baileyi* (Harv. ex Kütz.) Wynne & Taylor

Ott MO-375
Ott MO-326

NEOCHLORIS Starr

- 836 *N. alveolaris* Bold
138 *N. aquatica* Starr
1707 *N. cohaerens* Groover & Bold
1979 *N. conjuncta* Archibald
778 *N. fusispora* Arce & Bold
754 *N. gelatinosa* Herndon
776 *N. minuta* Arce & Bold
1185 *N. oleoabundans* Chantanachai & Bold
975 *N. pseudoalveolaris* Deason & Bold
LB 1797 *N. pseudoalveolaris* Deason & Bold
1249 *N. pseudostigmatica* Bischoff & Bold
777 *N. pyrenoidosa* Arce & Bold
947 *N. terrestris* Herndon
LB 1980 *N. texensis* Archibald
1981 *N. vigenis* Archibald
113 *N. wimmeri* (Rabenh.) Archibald & Bold
1445 *N. sp.*

Bold (Bold 1958)
Norby (Starr 1955b)
Milliger (Groover and Bold 1969)
Archibald; CCAP 254/1 (Archibald 1973)
Arce 39A (Arce and Bold 1958)
Herndon (Herndon 1958b)
Arce 31 (Arce and Bold 1958)
Chantanachai and Bold (Chantanachai and Bold 1962)
Deason T-1-2-A (Deason and Bold 1960)
Easley
Bischoff E6-41 (Bischoff and Bold 1963)
Arce 36 (Arce and Bold 1958)
Herndon (Herndon 1958b)
Archibald; CCAP 254/2 (Archibald 1973)
Archibald; CCAP 254/3 (Archibald 1973)
Mainx; CCAP 213/4; formerly *Chlorococcum wimmeri*
(Archibald and Bold 1970)
Grigg; from R. Lewin; marine

NEOSPONGIOCOCCUM Deason

- 960 *N. alabamense* (Deason) Deason
2115 *N. bisporum* Deason

Deason 304 (Deason 1959, Deason et al. 1977)
Hofstetter; Deason 16 (Deason 1976)

NEOSPONGIOCOCCUM Deason (Continued)

- 1840 *N. butyrasum* Deason & Cox
 1842 *N. cohaerens* Deason
 1646 *N. concentricum* (Anderson & Nichols) Deason
 2116 *N. commatifforme* Deason
 1232 *N. excentricum* (Deason & Bold) Deason & Cox
 1845 *N. giganticum* Deason
 116 *N. granatum* Deason
 2118 *N. irregulare* Deason
 2121 *N. longisporum* Deason
 1839 *N. macrophyrenoidasum* Deason & Cox
 2119 *N. mahleri* Deason
 1841 *N. mobile* Deason & Cox
 976 *N. multinucleatum* (Deason & Bold) Deason
 1844 *N. ovatum* Deason
 1647 *N. polymorphum* (Anderson & Nichols) Deason
 1837 *N. perforatum* Deason & Cox
 1846 *N. proliferum* Deason
 786 *N. punctatum* (Arce & Bold) Deason
 2120 *N. rugosum* Deason
 1843 *N. saccatum* Deason
 2117 *N. sphaericum* Deason
 2114 *N. solitarium* Deason
 1838 *N. vacuolatum* Deason & Cox
 2122 *N. variable* Deason

Deason and Cox (Deason and Cox 1971)
 Deason (Deason 1971)
 From Nichols
 Hofstetter; Deason 17 (Deason 1976)
 Deason and Bold (Deason and Cox 1971)
 Deason (Deason 1971)
 Pringsheim; formerly *Chlorococcum multinucleatum*
 Starr (Starr 1955b, Deason 1971)
 Hofstetter; Deason 19 (Deason 1976)
 Hofstetter; Deason 24 (Deason 1976)
 Deason and Cox (Deason and Cox 1971)
 Mahler; Deason 20 (Deason 1976)
 Deason and Cox (Deason and Cox 1971)
 Deason T-1-5 (Deason and Bold 1960)
 Deason (Deason 1971)
 From Nichols
 Deason and Cox (Deason and Cox 1971)
 Deason (Deason 1971)
 Arce 46 (Arce and Bold 1958)
 Hofstetter; Deason 23 (Deason 1976)
 Deason (Deason 1971)
 Hofstetter; Deason 18 (Deason 1976)
 Hofstetter; Deason 15 (Deason 1976)
 Deason and Cox (Deason and Cox 1971)
 Hofstetter; Deason 25 (Deason 1976)

NEPHROCHLAMYS Korshikov

- LB 1356 *N. rotunda* Korsh.
 82 *N. subsolitaria* (West) Korsh.

Komarék 1962/16
 George; CCAP 243/2a; formerly *Kirchnerella subsolitaria*

NEPHROCYTIUM Nägeli

- LB 1362 *N. alantoides* Bohl.

Ruzicka 1962/7

NEPHRODIELLA Pascher

- 152 *N. brevis* Vischer

Vischer 267; CCAP 850/1 (Vischer 1945)

NETRIUM Itzigsohn & Rothe

- LB 561 *N. digitus* (Ehr.) Itz. & Rothe
 LB 599 *N. digitus* (Ehr.) Itz. & Rothe
 1257 *N. digitus* (Ehr.) Itz. & Rothe var. *digitus*
 1255 *N. digitus* var. *lamellosum* (Bréb.) Grun.
 1256 *N. digitus* var. *lamellosum* (Bréb.) Grun.

George; CCAP LB 652/1
 Paris 2
 Biebel 1; homothallic
 Biebel 2; crosses with 1256
 Biebel 3; crosses with 1255

NITZSCHIA Hassall

- 2037 *N. angularis* var. *affinis* (Grun.) Perag.
 1265 *N. curvilineata* Husted
 2033 *N. curvilineata* Husted
 2034 *N. frustulum* (Kütz.) Grun.
 2035 *N. frustulum* (Kütz.) Grun.
 2042 *N. frustulum* (Kütz.) Grun.
 2045 *N. frustulum* (Kütz.) Grun.
 1277 *N. frustulum* (Kütz.) Grun.
 2047 *N. laevis* Hust.
 1266 *N. marginata*
 1813 *N. palea* (Kütz.) W. Sm.
 2041 *N. punctata* (W. Sm.) Grun.
 2088 *N. sp.*

Lewin 35-M (Lewin and Lewin 1960)
 Lewin 5-3
 Lewin 5-M (Lewin and Lewin 1960)
 Lewin 8-M (Lewin and Lewin 1960)
 Lewin 13-M (Lewin and Lewin 1960)
 Lewin 53-M (Lewin and Lewin 1960)
 Lewin 68-M (Lewin and Lewin 1960)
 Lewin 39-M
 Lewin 72-M (Lewin and Lewin 1960)
 Watson 10; from R. Lewin
 Manny
 Lewin 52-M (Lewin and Lewin 1960)
 Watson 18; from J. Lewin (Lewin and Lewin 1960)

NODULARIA [Mertens in Juergens] Bornet & Flahault

- B 2093 *N. harveyana* (Thw.) Thuret
 B 2091 *N. spumigena* [Mertens in Juergens] B. & F.
 B 2092 *N. spumigena* [Mertens in Juergens] B. & F.

Nordin 15; from J. Stein
 Nordin 1; from J. Stein; CCAP 1452/4
 Nordin 2; from J. Stein

NOSTOC Vaucher ex Bornet & Flahault

- B 382 *N. calcicola* Bréb.
 584 *N. commune* Vaucher

Manton; CCAP B1453/1
 Gibson 4; Allen M-12.1.1

NOSTOC Vaucher ex Bornet & Flahault (Continued)

- B 1621 *N. commune* Vaucher
 B 1623 *N. ellipso sporum* Rabenh.
 B 383 *N. ellipso sporum* (Desmaz.) Rabenh.
 1624 *N. foliaceum* Moug.
 B 1932 *N. linckia* (Roth) B. & F.
 B 1626 *N. longstaffi* Fritsch
 B 1037 *N. muscorum* Kütz.
 1545 *N. muscorum* Kütz.
 387 *N. muscorum* Kütz.
 389 *N. muscorum* Kütz.
 486 *N. muscorum* Kütz.
 B 1832 *N. muscorum* Kütz.
 B 1933 *N. muscorum* Kütz.
 1627 *N. parmehoides* Kütz.
 B 1628 *N. puscinale* Kütz.
 B 384 *N. punctiforme* (Kütz.) Hariot
 1629 *N. punctiforme* (Kütz.) Hariot
 B 1833 *N. punctiforme* (Kütz.) Hariot
 B 1632 *N. zetterstedtii* Areschoug
 LB 756 *N. sp.*
 1544 *N. sp.*
- Kantz 40 (Kantz and Bold 1969)
 Kantz 79 (Kantz and Bold 1969)
 Manten; CCAP B1453/2
 Kantz 86 (Kantz and Bold 1969)
 Singh; from P. Wolk
 Kantz 30 (Kantz and Bold 1969)
 From N. Lazaroff as Myer's *N. muscorum* A strain (Lazaroff and Vishniac 1962)
 M. M. Allen 6314
 Gibson as *Anabaena* 30; CCAP 1453/8
 Gibson as *Anabaena* 2; CCAP 1453/9
 Allison; CCAP 1453/12
 Pant M5
 Haxo CY-38
 Kantz 100 (Kantz and Bold 1969)
 Kantz 37 (Kantz and Bold 1969)
 Wassink; CCAP 1453/3
 Kantz 130 (Kantz and Bold 1969)
 Pant M1
 Kantz 85 (Kantz and Bold 1969)
 Biebel; forms large spheres
 M. B. Allen; M. M. Allen 6305

OCHROMONAS Wyssotzki

- L 1298 *O. danica* Prings.
 L 1297 *O. malhamensis* Prings.
 L 1300 *O. minuta* Prings.
- Pringsheim; CCAP 933/2 (Pringsheim 1955)
 Now known as *Poterioochromonas* 1297
 Göttingen 933-10

OCHROSPHAERA Schussnig

- LB 1015 *O. neapolitana* Schus.
 LB 1722 *O. verrucosa* Schus.
- Adams; Plymouth 162
 J. West (West 1969)

OEDOCLADIUM Stahl

- LB 1686 *O. carolinianum* Beane & Hoffman
 LB 1532 *O. cirratum* Beane & Hoffman
- Hoffman (Beane and Hoffman 1968)
 Milliger (Beane and Hoffman 1968)

OEDOGONIUM Wittrock

- LB 1557 *O. angustistomum* Hoffman
 LB 1558 *O. angustistomum* Hoffman
 LB 1554 *O. calliandrum* Hoffman
 LB 1555 *O. calliandrum* Hoffman
 LB 39 *O. cardiacum* Witr.
 LB 40 *O. cardiacum* Witr.
 LB 847 *O. cardiacum* Witr.
 LB 933 *O. foveolatum* Witr.
 LB 828 *O. geniculatum* Hirn
 LB 849 *O. sp.*
 LB 1229 *O. sp.*
- Hoffman; antheridial strain (Hoffman 1967)
 Hoffman; oogonial strain (Hoffman 1967)
 Hoffman; oogonial strain (Hoffman 1967)
 Hoffman; antheridial strain (Hoffman 1967)
 Christensen; male strain; CCAP LB 575/1a (Hoffman and Manton 1963, Machlis 1962)
 Christensen; female strain; CCAP LB 575/1b
 Starr; spontaneous diploid from 40 female (Machlis 1962)
 Bold; macrandrous, monoecious; CCAP 575/2 (Machlis 1962, Hoffman 1965)
 Stein 57.064.1; macrandrous, monoecious (Machlis Stein 114; gyandrosporous
 Cook 1655; hexagonal oögonia

OLISTHODISCUS Carter

- LB 2005 *O. luteus* Carter
- Ott Va-36

ONYCHONEMA Wallisch

- LB 832 *O. sp.*
- Starr

OOCYSTIS Nägeli

- B 418 *O. apiculata* W. West
 287 *O. marssonii* Lemm.
 LB 2071 *O. minuta* Guillard, Bold & MacEntee
 1645 *O. polymorpha* Groover & Bold
 80 *O. sp.*
- Wurtz 24; CCAP B257/3
 From Baarn; CCAP 257/1
 Guillard 0-15 (Guillard et al. 1975)
 Richardson (Groover and Bold 1968)
 Vischer; CCAP 257/2

OPHIOCYTIUM Nägeli

48 *O. maius* Näg.

Pringsheim; CCAP 885/1

OSCILLATORIA Vaucher ex Gomont

LB 1306 *O. amoena* (Kütz.) GomontLB 1309 *O. animalis* Ag.LB 143 *O. bornetii* ZukalB 1567 *O. brevis* (Kütz.) GomontLB 1953 *O. lud*1814 *O. lutea* Ag.LB 390 *O. lutea* var. *contorta* Baker & Bold1270 *O. prolifera*B 428 *O. tenuis* Ag.1566 *O. tenuis* Ag.

Göttingen LB 1459-7

CCAP 1459/6; from University College London

Starr

From M. Krauss

Haxo CY-43; marine

Baker 23 (Baker and Bold 1970)

Pringsheim; CCAP LB 1459/3; formerly *O. formosa* Perty

R. Lewin

Manton; CCAP B 1459/4

From M. Krauss

OUROCOCCUS Groberty

1240 *O. multisporus* Bischoff & Bold

Bischoff E-9 (Bischoff and Bold 1963)

OXYRRHIS Dujardin

LB 1974 *O. marina* Duj.R. Lewin; Haxo PY-21; growing with *Phaeodactylum*

PALMELLA Lyngbye

1708 *P. texensis* Groover & Bold

Bold (Groover and Bold 1969)

PANDORINA Bory

165 *P. charkowiensis* Korsh.840 *P. charkowiensis* Korsh.841 *P. charkowiensis* Korsh.18 *P. morum* Bory

Droop; CCAP 24/2

Wilbois 64-3 plus

Wilbois 64-4 minus

Chu; Camb. 60/1b

The following strains were used by Annette Wilbois Coleman in studies of sexual isolation (Coleman 1959, 1963) and cytogenetic polymorphism (Coleman and Zollner 1977).

788 *P. morum* Bory

Wilbois Ind 50-3 (Palmer and Starr 1971; Palmer and Togasaki 1971)

789 *P. morum* Bory

Wilbois Ind 50-11

853 *P. morum* Bory

Wilbois In-B1 1-1

854 *P. morum* Bory

Wilbois In-B1 1-3

855 *P. morum* Bory

Wilbois In-B1 11-5

856 *P. morum* Bory

Wilbois In-B1 11-9

857 *P. morum* Bory

Wilbois In-D-1

858 *P. morum* Bory

Wilbois In-D-9

862 *P. morum* Bory

Wilbois In-53-8

863 *P. morum* Bory

Wilbois In-58-4

864 *P. morum* Bory

Wilbois In-58-7

866 *P. morum* Bory

Wilbois In-59-7

867 *P. morum* Bory

Wilbois In-62-4

868 *P. morum* Bory

Wilbois In-62-7

869 *P. morum* Bory

Wilbois Io-75-2

870 *P. morum* Bory

Wilbois Io-75-3

LB 871 *P. morum* Bory

Wilbois NH-NH-8; homothallic

872 *P. morum* Bory

Wilbois Mas-2-4

873 *P. morum* Bory

Wilbois Mas-2-5

874 *P. morum* Bory

Wilbois Mas-4-4

875 *P. morum* Bory

Wilbois Mas-4-7

876 *P. morum* Bory

Wilbois Mas-5-2

877 *P. morum* Bory

Wilbois Mas-5-9

878 *P. morum* Bory

Wilbois Min-Min-12

879 *P. morum* Bory

Wilbois Min-Min-17

880 *P. morum* Bory

Wilbois Cal-68-8 (Palmer and Starr 1971; Palmer and Togasaki 1971)

881 *P. morum* Bory

Wilbois Cal-68-10

883 *P. morum* Bory

Wilbois Cal-80-8

885 *P. morum* Bory

Wilbois T.Siam-4

1040 *P. morum* Bory

Wilbois Iowa 72-8

1724 *P. morum* Bory

Palmer K35-7

1725 *P. morum* Bory

Palmer K35-12

PANDORINA Bory (Continued)

- LB 1726 *P. morum* Bory
 1727 *P. morum* Bory
 1728 *P. morum* Bory
 1729 *P. morum* Bory
 LB 1731 *P. morum* Bory
 1732 *P. morum* Bory
 LB 1735 *P. morum* Bory
 2031 *P. unicocca* Rayburn & Starr
 2032 *P. unicocca* Rayburn & Starr
 2127 *P. unicocca* Rayburn & Starr
 2128 *P. unicocca* Rayburn & Starr
- Palmer K36-8
 Palmer K36-10
 Palmer N8-1
 Palmer N8-2
 Palmer N12-15
 Palmer N76-6 (Palmer and Starr 1971; Palmer and Togasaki 1971)
 Palmer T3A-3
 Goldstein; Rayburn strain 105 (Rayburn and Starr 1974)
 Goldstein; Rayburn strain 106 (Rayburn 1974)
 Rayburn strain 103
 Rayburn strain 104

PAULSCHULZIA Skuja

- 167 *P. pseudovolvox* Skuja

Droop; CCAP 58/1

PAVLOVA Butcher

- LB 992 *P. gyans* Butcher
 LB 1293 *P. lutheri* (Droop) Green

Knight-Jones; Plymouth 93; CCAP 940/1b (Butcher 1952)
 Millport 60; CCAP 931/1; formerly *Monochrysis lutheri*

PECTODICTYON Taft

- LB 944 *P. cubicum* Taft

Starr

PEDIASTRUM Meyen

- LB 1366 *P. angulosum* (Ehr.) Menegh.
 LB 1370 *P. angulosum* (Ehr.) Menegh.
 37 *P. bivadatum* Meyen
 LB 471 *P. boryanum* (Turp.) Menegh.
 LB 470 *P. boryanum* var. *cornutum* (Racib.) Salek
 LB 1372 *P. boryanum* var. *longicorne* Reinsch
 LB 1363 *P. clathratum* (Schrott.) Lemm.
 LB 1364 *P. duplex* var. *asperum* Braun
 LB 1373 *P. duplex* var. *rugulosum* Racib.
 LB 1601 *P. simplex* (Meyen) Lemm.
 84 *P. tetras* (Ehr.) Ralfs
 38 *P. tetras* (Ehr.) Ralfs
 LB 144 *P. sp.*

Ruzicka 1962/36
 Ruzicka 1962/20
 Rodhe; CCAP 261/1
 Rodhe; CCAP LB 261/2
 Pringsheim as *P. duplex*; CCAP LB 261/3a
 Ruzicka 1962/12
 Ruzicka 1962/8d
 Ruzicka 1962/13
 Ruzicka 1962/6
 Davis (Davis 1967)
 Prague 216; CCAP 261/6
 Czarda; CCAP 261/5
 Bold

PEDINOMONAS Korshikov

- LB 1350 *P. minor* Korsh.
 LB 1539 *P. tuberculata* (Vischer) Gams
 LB 1027 *P. sp.*

Eutl 117; CCAP 1965/3b
 Vischer 274; CCAP 1965/2
 Starr

PENIUM de Brébisson

- LB 600 *P. margaritaceum* (Ehr.) Bréb.

Bourtelly; Paris 4

PERCURSARIA Bory

- LB 1423 *P. percursa* (C. Ag.) J. Ag.

Ott MO-3

PERIDINIUM Ehrenberg em. Stein

- LB 1563 *P. balticum* (Lev.) Lemm.
 LB 1336 *P. cinctum* f. *ovoplanum* Lindemann
 LB 1688 *P. foliaceum* (Stein) Biecheler
 LB 2051 *P. gatunense* Nyg.
 LB 1948 *P. sociale* (Henneguy ex Labbé) Biecheler
 LB 1017 *P. trochoideum* (Stein) Lemm.
 LB 2175 *P. volzii* Lemm.
 LB 2176 *P. volzii* Lemm.
 LB 2028 *P. willei* Hunt-Kass.

Loeblich 82A (Tomas and Cox 1973)
 Kochert (Carefoot 1968)
 Loeblich 129
 Pfister; homothallic (Pfister 1977)
 Loeblich; type culture of *P. gregarium* (Lombard and Capon 1971)
 Parke; Plymouth 104; CCAP 1134/1
 Pfister; plus strain
 Pfister; minus strain
 Pfister; homothallic (Pfister 1976)

PHACOTUS Perty

- LB 142 *P. lenticularis* Ehr.
LB 236 *P. sp.*

Pringsheim; CCAP LB 61/1
Starr

PHACUS Dujardin

- LB 1288 *P. acuminata* Klebs
LB 1317 *P. brachykentron* Pockmann
LB 1285 *P. caudata* Hübner
LB 1284 *P. megalopsis* Pochmann
LB 54 *P. pleuronectes* (O.F.M.) Duj.
LB 533 *P. pleuronectes* (O.F.M.) Duj.
LB 1282 *P. pusillus* Lemm.
LB 1286 *P. triquetus* (Ehr.) Duj.

Pringsheim; CCAP 1261/1
Pringsheim; Göttingen 1261-7
Pringsheim; CCAP 1261/5
Droop; CCAP 1261/9
Pringsheim
Pringsheim; CCAP LB 1261/3b
Pringsheim; CCAP 1261/6
DeBussy; CCAP 1261/8

PHAEODACTYLUM Bohlin

- 640 *P. tricornutum* Bohlin
642 *P. tricornutum* Bohlin
646 *P. tricornutum* Bohlin
2089 *P. tricornutum* Bohlin
2090 *P. tricornutum* Bohlin

Allen; CCAP 1052/1b; formerly *Nitzschia closterium* (Lewin et al. 1958, J. Lewin 1958)
Pringsheim; CCAP 1052/1a; formerly *Nitzschia closterium* f. *minutissima* (Lewin et al. 1958)
Droop; "I" form; CCAP 1052/6; formerly *Nitzschia closterium* f. *minutissima* (Lewin et al. 1958)
Millport (Droop) 14; from J. Lewin.
Millport (Droop) 15; from J. Lewin

PHORMIDIUM Kützinger

- 1580 *P. autumnale* (Ag.) Gom.
B 427 *P. favolarum* Gom.
426 *P. luridum* var. *olivace* Boresch
1540 *P. sp.*

From M. Krauss
CCAP B1462/1 (Safferman and Morris 1963)
Boresch; CCAP 1462/2 (Safferman and Morris 1963)
M. M. Allen 6409

PHYSOCYTIUM Borzi

- LB 1752 *P. sp.*

Starr

PILINIA Kützinger

- LB 2178 *P. sp.*

Humm

PINNULARIA Ehrenberg

- 679 *P. sp.*

R. Lewin 11-M

PITHOPHORA Wittrock

- LB 787 *P. sp.*
LB 1333 *P. sp.*

Kelly/Starr
Milliger

PLANKTOSPHAERIA G. M. Smith

- B 951 *P. botryoides* Herndon
LB 124 *P. gelatinosa* G. M. Smith
1248 *P. maxima* Bischoff & Bold
1241 *P. texensis* Bischoff & Bold

Herndon (Herndon 1958b)
Starr (Starr 1954b)
Bischoff X2-9 (Bischoff and Bold 1963)
Bischoff E6-25 (Bischoff and Bold 1963)

PLANOPHILA Gerneck

- 1709 *P. terrestris* Groover & Hofstetter

Hofstetter (Groover and Hofstetter 1969)

PLATYDORINA Kofoid

- LB 850 *P. caudata* Kofoid
LB 851 *P. caudata* Kofoid
LB 1658 *P. caudata* Kofoid
LB 1659 *P. caudata* Kofoid
LB 1660 *P. caudata* Kofoid
LB 1661 *P. caudata* Kofoid

Wilbois; female (Lang 1963b)
Wilbois; male
Harris Kan-1A male (Harris and Starr 1969)
Harris Kan-1E female (Harris and Starr 1969)
Harris Kan-3D male (Harris and Starr 1969)
Harris Kan-3H female (Harris and Starr 1969)

PLATYMONAS West

- 171 *P. subcordiformis* (Wille) Hazen
LB 634 *P. sp.*
817 *P. sp.*
818 *P. sp.*

R. Lewin; CCAP 161/1a (R. Lewin 1958)
Gibor; from Leslie salt ponds
Guillard; Millford *Platymonas* 30
Guillard; Millford *Platymonas* 1

PLECTONEMA Thuret ex Gomont

- B 482 *P. boryanum* Gom.
485 *P. boryanum* Gom.
487 *P. boryanum* Gom.
B 488 *P. boryanum* Gom.
581 *P. boryanum* Gom.
594 *P. boryanum* Gom.
B 595 *P. boryanum* Gom.
B 596 *P. boryanum* Gom.
597 *P. boryanum* Gom.
790 *P. boryanum* Gom.
1542 *P. boryanum* Gom.
598 *P. calothricoides* Gom.
1541 *P. sp.*

Dyer; CCAP B1463/1; formerly *P. notatum* (Safferman and Morris 1963)
M. B. Allen 76; CCAP 1462/4; formerly *Phormidium* sp. (Safferman and Morris 1963)
Dyer; CCAP 1446/3; formerly *Lyngbya* sp. (Safferman and Morris 1963)
Dyer; CCAP 1446/2; formerly *Lyngbya* sp. (Safferman and Morris 1963)
Dyer; M. B. Allen M-9.2.6 (Safferman and Morris 1963)
Dyer 3; M. B. Allen M-9.2.1 (Safferman and Morris 1963)
Dyer 55; M. B. Allen M-9.2.2; CCAP 1446/2
Dyer 6; M. B. Allen M-9.2.3
Dyer 76; M. B. Allen M-9.2.4 (Safferman and Morris 1963)
M. B. Allen M-9.2.5 (Safferman and Morris 1963)
M. B. Allen; M. M. Allen 6306
M. B. Allen M-9.3.1 (Safferman and Morris 1963)
M. M. Allen 6402

PLEODORINA Shaw

- LB 198 *P. californica* Shaw
LB 809 *P. californica* Shaw
807 *P. illinoisensis* Kofoed
808 *P. illinoisensis* Kofoed
LB 2182 *P. illinoisensis* Kofoed
LB 2183 *P. illinoisensis* Kofoed
1225 *P. illinoisensis* × *Eudorina elegans*
1224 *P. illinoisensis* × *Eudorina elegans*
LB 1990 *P. indica* Iyengar
LB 1991 *P. indica* Iyengar

Starr; homothallic; CCAP 162/1; formerly *Eudorina* (Gerisch 1959, Goldstein 1964)
Starr; homothallic; formerly *Eudorina* (Goldstein 1964)
J. Stein; CCAP 162/2a; male (Goldstein 1964)
J. Stein; CCAP 162/2b; female
Starr Camden 3 female
Starr Camden 5 male
Goldstein; polyploid hybrid of 808 × 1192 (Goldstein 1964)
Goldstein; polyploid hybrid of 808 × 1192 (Goldstein 1964)
Morro; male strain
Morro; female strain

PLEURASTRUM Chodat

- 979 *P. erumpens* Deason & Bold
332 *P. paucicellulare* Vischer
1710 *P. sarcinoideum* Groover & Bold
333 *P. terrestre* Fritsch & John
334 *P. terrestre* var. *indica* Mitra

Deason C-1-4 (Deason and Bold 1960)
Vischer 68; CCAP 463/1 (Vischer 1933)
Groover (Groover and Bold 1969)
Pringsheim; CCAP 463/2
Pringsheim; CCAP 463/3

PLEUROCHLORIS Pascher

- 310 *P. commutata* Vischer
311 *P. meiringensis* Vischer

Vischer 241; CCAP 860/1 (Vischer 1945)
Vischer 368; CCAP 860/3 (Vischer 1945)

PLEUROTAENIUM Nägeli

- 489 *P. trabecula* (Ehr.) Näg.
LB 134 *P. sp.*

unknown
Bold

POLYEDRIELLA Pascher

- 49 *P. helvetica* Vischer & Pascher

Vischer 170; CCAP 861/1 (Pascher 1939)

POLYNEURA Kylin

- LB 1900 *P. latissima* (Harvey) Kylin

Ramus

POLYSIPHONIA Greville

- LB 2187 *P. boldii* Wynne & Edwards
 LB 2188 *P. boldii* Wynne & Edwards
 LB 1695 *P. californica* Harvey

Wynne and Edwards; male strain (Wynne and Edwards 1970)
 Wynne and Edwards; female strain (Wynne and Edwards 1970)
 Ramus

POLYTOMA Ehrenberg

- 19 *P. uvella* Ehr.
 964 *P. uvella* Ehr.

Pringsheim; CCAP 62/2 (Lang 1963)
 Moewus; homothallic (Moewus 1959)

POLYTOMELLA Aragao

- L. 963 *P. papillata* Prings.
 L. 193 *P. parva* Prings.
 L. 1296 *P. piriformis* Prings.

From D. Wise; formerly *P. caeca*
 Pringsheim; CCAP 63/1; formerly *P. agilis*
 Göttingen 63-10

PORPHYRA C. Agardh

- LB 1415 *P. leucosticta* Thuret

Ott MO-12

PORPHYRIDIUM Nägeli

- 755 *P. aerugineum* Geitler
 161 *P. cruentum* (Ag.) Näg.
 637 *P. sp.*

Starr; CCAP 1380/2
 Vischer 107; CCAP 1380/1 (Vischer 1935, Pringsheim and Pringsheim 1956)
 R. Lewin (Pringsheim and Pringsheim 1956)

PORPHYROSIPHON Kützling

- B 1816 *P. notarisii* (Menegh.) Kütz.

Baker 5 (Baker and Bold 1970)

POTERIOCHROMONAS Scherffel

- L. 1297 *P. malhamensis* (Prings.) Peterfi

CCAP 933/1a; formerly *Ochromonas malhamensis*

PRASINOCALDUS Kuckuck

- 732 *P. sp.*
 1579 *P. sp.*

R. Lewin
 Robertson; Lewin JR #1

PROROCENTRUM Ehrenberg em. Dodge

- LB 1596 *P. cassubicum* (Wol.) Dodge
 LB 1993 *P. micans* Ehr.
 LB 1003 *P. micans* Ehr.
 LB 1995 *P. minimum* (Pavillard) Schiller
 LB 1008 *P. nanum* Schiller
 LB 1657 *P. triestinum* Schiller

Robertson; formerly *Exuviella cassubica* Woloszyńska
 Ott Va-5
 Adams; Plymouth 97; CCAP 1136/1
 Ott Va-13; CCAP 1136/7
 Adams; Plymouth 184; CCAP 1114/2
 Loeblich 91

PROTOSIPHON Klebs

- 47 *P. botryoides* (Kütz.) Klebs
 99 *P. botryoides* (Kütz.) Klebs
 461 *P. botryoides* (Kütz.) Klebs
 46 *P. botryoides* f. *parieticola* Iyengar

Pringsheim; homothallic; CCAP 731/1a
 Bold (Bold 1933)
 Cowan; from R. Lewin; homothallic; CCAP 731/1b
 Mitra; CCAP 731/3

PROTOTHECA Krüger

- 178 *P. chlorellioides* Beij.
 329 *P. krügeri*
 288 *P. moriformis* Krüger
 1434 *P. moriformis* Krüger
 1435 *P. moriformis* Krüger
 1436 *P. moriformis* Krüger
 1437 *P. moriformis* Krüger
 1439 *P. moriformis* Krüger
 1441 *P. moriformis* Krüger
 289 *P. portoricensis* Ciferri & Ashford

From Delft; CCAP 263/1
 From Delft; CCAP 263/6
 From Delft; CCAP 263/2
 Cooke PR-5; CCAP 263/5
 Cooke PR-9; van Niel IV.7.3.2.1
 Cooke PR-11; van Niel IV.7.3.6.1
 Cooke PR-28; NRRL Y2464
 Cooke PR-31; NRRL YB-4121
 Cooke PR-53; Tubaki and Soneda, Osaka
 From Delft; CCAP 263/3a; pathogenic? (Ashford et al. 1930)

PROTOTHECA Krüger (Continued)

- 327 *P. portoricensis* var. *trispurus* Ciferri & Ashford From Delft; CCAP 263/4 (Ashford et al. 1930)
 1442 *P. stagnora* Cooke Cooke 62-344
 1443 *P. stagnora* Cooke Cooke L-1690
 1440 *P. wickerhamii* Soneda & Tubaki Cooke PR-51
 1533 *P. wickerhamii* Soneda & Tubaki NRRL YB-4330; from Cooke
 1438 *P. zoffii* Krüger Cooke PR-30; NRRL YB-833

PRYMNESIUM Massart

- LB 995 *P. parvum* Carter Butcher; Plymouth 94; CCAP 946/1b

PSEUDENDOCLONIOPSIS Vischer

- 335 *P. botryoides* Vischer Vischer 21; CCAP 465/1 (Vischer 1933)

PSEUDENDOCLONIUM Wille

- 1912 *P. akinetum* Tupa Tupa DDT-4 (Tupa 1974)
 336 *P. basiliense* Vischer Vischer 3; CCAP 466/1 (Vischer 1933)
 337 *P. basiliense* var. *brandii* Vischer Vischer 52; CCAP 466/2 (Vischer 1933)
 1913 *P. basiliense* var. *brandii* Vischer Tupa DDT-25 (Tupa 1974)
 1911 *P. prostratum* Tupa Tupa DDT-9 (Tupa 1974)

PSEUDOBUMILLERIOPSIS Deason & Bold

- 980 *P. pyrenoidosa* Deason & Bold Deason C-1-19 (Deason and Bold 1960)

PSEUDOCHARACIOPSIS Lee & Bold

- 2113 *P. texensis* Lee & Bold Tupa; CCAP 864/1 (Lee and Bold 1973)

PSEUDOCHARACIUM Korshikov

- 2112 *P. americanum* Lee & Bold Lee (Lee and Bold 1974)

PSEUDOCHLOROCOCCUM Archibald

- 1791 *P. polymorphum* Archibald Archibald; CCAP 265/2 (Archibald 1970)
 1792 *P. typicum* Archibald Archibald; CCAP 265/1 (Archibald 1970)

PSEUDOCOCCOMYXA Korshikov

- LB 1377 *P. adhaerens* Korsh. Hindák

PSEUDOISOCHRYSIS (F. Ott, nom. nud.)

- LB 1988 *P. paradoxa* (Ott, nom. nud.) Ott Va-12; CCAP 949/1; used in combination with other algae as food for oyster larvae; see 1998 *Nannochloris*

PSEUDOPLEUROCOCCUS Snow

- 338 *P. printzii* Vischer Vischer 10; CCAP 467/1 (Vischer 1933)

PSEUDOSCHIZOMERIS Deason & Bold

- LB 1271 *P. caudata* Deason & Bold Deason and Bold (Deason and Bold 1960)

PSEUDOTETRACYSTIS Arneson

- 1927 *P. terrestris* Arneson Arneson (Arneson 1973)

PSEUDOTREBOUXIA Archibald

- 180 *P. aggregata* Archibald Quispel; CCAP 219/1d (Archibald 1975)
 909 *P. corticola* Archibald Ahmadjian; formerly *Trebouxia arboricola* (Archibald 1975)
 901 *P. decolorans* (Ahmadj.) Archibald Ahmadjian; from *Xanthoria* (Archibald 1975)
 781 *P. decolorans* (Ahmadj.) Archibald Ahmadjian; from *Buellia* (Archibald 1975)
 784 *P. incrustata* (Ahmadj.) Archibald Ahmadjian; from *Lecanora* (Archibald 1975)
 892 *P. impressa* (Ahmadj.) Archibald Ahmadjian; from *Physcia* (Archibald 1975)
 893 *P. impressa* (Ahmadj.) Archibald Ahmadjian; from *Physcia* (Archibald 1975)
 900 *P. potteri* (Ahmadj.) Archibald Ahmadjian; from *Lecanora* (Archibald 1975)

PTEROCLADIA J. AgardhLB 1512 *P. americana* Taylor

Ott MO-350

PTEROMONAS SeligoLB 647 *P. protracta* (Stein) Lemm.

Pringsheim; CCAP 64/1

PULCHRASPHAERA Deason1578 *P. macronucleata* Deason

Deason (Deason 1967b)

PYRAMIMONAS SchmardaLB 1997 *P. virginica* (Ott, nom. nud.)Ott Va-17; used as food for oyster spat, see 1998 *Nannochloris*; Camb. 67/16**PYROBOTRYS** ArnoldiLB 140 *P. stellata* Korsh.

Pringsheim; CCAP 10/1a

PYROCYSTIS Thomson in J. MurrayLB 2166 *P. lunula* (Schütt) Schütt

Loeblich 167

RADIOFILUM SchmidleLB 609 *R. conjunctivum* SchmidleLB 1252 *R. transversale* (Bréb.) ChristensenM. A. Allen
Cook**RADIOSPHAERA** SnowLB 121 *R. dissecta* (Korsh.) StarrLB 460 *R. dissecta* (Korsh.) Starr1187 *R. dissecta* (Korsh.) Starr1188 *R. dissecta* (Korsh.) StarrLB 1385 *R. negevensis* f. *minor* Ocampo-Paus & FriedmannLB 1384 *R. negevensis* f. *negevensis* Ocampo-Paus & Friedmann

Starr; CCAP 247/1 (Starr 1955b)

Vischer 321; CCAP 3/2b

Chantanachai K-9 (Chantanachai and Bold 1962)

Chantanachai CH-14 (Chantanachai and Bold 1962)

Ocampo-Paus and Friedmann (Ocampo-Paus and Friedmann 1966)

Ocampo-Paus and Friedmann (Ocampo-Paus and Friedmann 1966)

RAPHIDONEMA Lagerheim339 *R. longiseta* Vischer

Marz; Prague 165; CCAP 470/1a; Vischer 97 (Vischer 1933)

340 *R. spiculiforme* Vischer

Vischer 208; CCAP 470/2a (Vischer 1941)

RAPHIDONEMOPSIS Deason1711 *R. sessilis* Deason

Deason 5-3-B

RHABDOMONAS FreseniusLB 1278 *R. costata* (Korsh.) Prings.LB 536 *R. gibba* (Skuja) Prings.LB 537 *R. incurva* var. *major* Prings.LB 538 *R. spiralis* Prings.

Pringsheim; CCAP 1271/1

Pringsheim; CCAP LB 1271/2

Pringsheim; CCAP LB 1271/4

Pringsheim (Pringsheim 1942)

RHIZOCLONIUM KützingerLB 1523 *R. sp.*

Ott 036

RHODOCHORTON NägeliLB 1975 *R. purpureum* (Lightf.) Rosenv.LB 1901 *R. tenue* Kylin

J. West (West 1969)

J. West

RHODOMONAS KarstenLB 2163 *R. sp.*

Loeblich 481

RHODOSORUS Geitler

- LB 1538 *R. marinus* Geitler
LB 1723 *R. marinus* Geitler

Ott MO-364
J. West (West 1969)

RHODYMENIA Greville

- LB 1418 *R. pseudopalmata* (Lamour.) Silva

Ott MO-400

RHOPALOSOLEN Fott

- 2159 *R. saccatus* (Filars.) Fott

Bailey

ROYA W. & G. S. West

- LB 934 *R. anglica* G. S. West

Fox

SARCINOCHRYSIS Geitler

- LB 1720 *S. marina* Geitler

J. West (West 1969)

SCENEDESMUS Meyen

- LB 1358 *S. abundans* (Kirchn.) Chodat
415 *S. acuminatus* (Lagerh.) Chodat
416 *S. acutiformis* Schroeder
72 *S. acutus* f. *alternans* Hortobagyi
79 *S. basiliensis* Vischer
83 *S. basiliensis* Vischer
413 *S. biyugatus* var. *seriatus* Chodat
417 *S. dimorphus* Kütz.
746 *S. dimorphus* Kütz.
1237 *S. dimorphus* Kütz.
414 *S. dispar* Bréb.
LB 1359 *S. eornus* (Ralfs) Chodat
1236 *S. longus* Meyen
74 *S. naegelii* Chodat
78 *S. obliquus* (Turp.) Kütz.
393 *S. obliquus* (Turp.) Kütz.
1450 *S. obliquus* (Turp.) Kütz.

2015 *S. obliquus* (Turp.) Kütz.
2016 *S. obliquus* (Turp.) Kütz.

Komarek 1962/29
Algeus; CCAP 276/12
Algeus; CCAP 276/11
Pringsheim; CCAP 276/3a
Chodat; Vischer 2; CCAP 276/1b
Chodat; Vischer 1; CCAP 276/1a
L. Moewus; CAP 276/14
Algeus; CCAP 276/10
McMillan 5 (McMillan 1957)
Hopkins and Trainor 62 H (Trainor 1963)
George; CCAP 276/13
Ruzicka 1962/44
Hilton (Trainor and Hilton 1963)
Rodhe 1598:1; CCAP 276/2
Algeus; CCAP 276/3b
Gaffron's D-3 strain; from Emerson's laboratory
Krauss WH50; from F. Trainor (Trainor and Burg
1965)
Bishop's PS-8 mutant of 393; blocked in photosystem I
Bishop's PS-11 mutant of 393; blocked in photosystem
II
Prague 1; CCAP 276/4a
Paris; Trainor 406C
Paris; Trainor 405B
Paris; Trainor 404A
Paris; Trainor 278D
Pringsheim; CCAP 276/4b
Trainor (Bisalputra and Weier 1963)
Starr; cell wall spiny
Trainor N16
Trainor N46
Trainor N56
Hilton; Trainor SS15
Hilton; Trainor SS16

- 77 *S. pannonicus* Hortobagyi
1583 *S. parisiensis* Chodat
1584 *S. parisiensis* Chodat
1585 *S. parisiensis* Chodat
1586 *S. parisiensis* Chodat
76 *S. quadricauda* (Turp.) Bréb.
LB 614 *S. quadricauda* (Turp.) Bréb.
831 *S. sp.*
1587 *S. sp.*
1588 *S. sp.*
1589 *S. sp.*
1590 *S. sp.*
1591 *S. sp.*

SCHIZOMERIS Kützing

- LB 1228 *S. leibleinii* Kütz.

Cook 1603

SCHIZOTHRIX Kützing ex Gomont

- B 1817 *S. calcicola* (Ag.) Gom.
LB 1934 *S. calcicola* (Ag.) Gom.
1935 *S. calcicola* (Ag.) Gom.
LB 1936 *S. calcicola* (Ag.) Gom.
B 1819 *S. calcicola* v. *radiata* Baker & Bold
B 1818 *S. calcicola* v. *vermiformis* Baker & Bold

Kantz; Baker K44 (Baker and Bold 1970)
Healey; Haxo CY-19
Bonnett; Haxo CY-27
Dodson; Haxo CY-29
Baker 10 (Baker and Bold 1970)
Baker 1 (Baker and Bold 1970)

SCYTONEMA Agardh ex Bornet & Flahault

- LB 1556 *S. crispum* (Ag.) Born.
B 1581 *S. hofmanni* Ag.

Hoffman
From M. Krauss

SCYTONEMA Agardh ex Bornet & Flahault (Continued)

B 1834 *S. hofmanni* Ag.
LB 1163 *S. sp.*
B 1835 *S. sp.*

Pant M7
Bold
Pant A17

SEIROSPORA Harvey

LB 1510 *S. griffithsiana* Harvey

Ott MO-2

SELENASTRUM Reinsch

324 *S. bibrainum* Reinsch
1648 *S. capricornutum* Printz
B 325 *S. gracile* Reinsch
326 *S. minutum* (Näg.) Collins
235 *S. sp.*
747 *S. sp.*

Pringsheim; CCAP 278/1
From Norwegian Inst. for Water Research
George; CCAP 278/2a (Kessler and Maifarth 1960)
Myers Tx 1; CCAP 278/3
Starr (McMillan 1957)
McMillan 9 (McMillan 1957)

SIRODOTIA Kylin

LB 1498 *S. suecica* Kylin
LB 1497 *S. suecica* Kylin
LB 1499 *S. tenuissima* (Holden) Skuja
LB 1500 *S. sp.*

Ott 0142
Ott 098
Ott 0338
Ott 0450

SIROGONIUM Kützinger

LB 1984 *S. sticticum* (J. E. Smith) Kütz.
LB 1985 *S. sticticum* (J. E. Smith) Kütz.

Wells; Hoshaw 714
Waer; Hoshaw 707

SORASTRUM Kützinger

LB 785 *S. sp.*

Starr

SOROCARPUS Pringsheim

LB 1534 *S. uvaeformis* (Lyng.) Prings.

Müller Soro-A; Helgoland

SPERMOTHAMNION Aresc. & Dougl.

LB 1412 *S. turneri* (Mertens) Aresc.

Ott MO-15

SPHACELARIA Lyngbye

LB 1426 *S. cirrosa* (Roth) C. Ag.
LB 800 *S. sp.*

Ott MO-5
Norris

SPHAEROBLEPHARIS Agardh

LB 59 *S. wilmanae* Fritsch & Rich

George; Cape Flats; CCAP LB 377/1d

SPIROGYRA Link

LB 1680 *S. chunkingensis* Jao
LB 1744 *S. condensata* (Vaucher) Kütz.

LB 1273 *S. crassispina* Jao
LB 1743 *S. gracilis* (Hass.) Kütz.

LB 477 *S. grevilleana* (Hass.) Kütz.
LB 1742 *S. jurgensii* Kütz.

LB 1745 *S. liana* Transeau

LB 1681 *S. merriamensis* Li
LB 1682 *S. notabilis* Taft

LB 1683 *S. occidentalis* (Transeau) Czarda
LB 926 *S. pratensis* Transeau
LB 927 *S. pratensis* Transeau
LB 928 *S. pratensis* Transeau
LB 1746 *S. pratensis* Transeau

Rickert; homothallic; scalariform conjugation
Goldstein 202; homothallic; scalariform, lateral conjugation; parthenospores
Hoshaw; homothallic
Goldstein 203; homothallic, scalariform conjugation; anisogamous; aplanospores
George; CCAP LB 678/1
Goldstein 211; homothallic; scalariform conjugation; anisogamous
Goldstein 209; homothallic; scalariform conjugation; anisogamous
Rickert; homothallic; scalariform conjugation
Rickert; homothallic; scalariform conjugation; ornamented spores
Rickert; homothallic; scalariform conjugation
M. A. Allen 100; CCAP 678/7b (Allen 1958)
M. A. Allen 103; CCAP 678/7c (Allen 1958)
M. A. Allen 104 (Allen 1958)
Goldstein 210; homothallic; scalariform conjugation; anisogamous

SPIROGYRA Link (Continued)

- LB 1684 *S. quadrilaminata* Jao
 LB 1685 *S. rhizobrachialis* Jao
 LB 479 *S. varians* (Hass.) Kütz.
 LB 913 *S. sp.*
 LB 914 *S. sp.*
 LB 916 *S. sp.*
 LB 917 *S. sp.*
 LB 918 *S. sp.*

Rickert; homothallic; scalariform conjugation; many haptera on agar
 Rickert; homothallic; scalariform conjugation; haptera
 George; CCAP LB 678/3
 M. A. Allen; crosses with 914
 M. A. Allen; crosses with 913
 M. A. Allen; many plastids; filament 90 μ m wide
 M. A. Allen; homothallic; lateral conjugation
 M. A. Allen; 4 plastids; good nucleus; rhizoids

SPIROTAENIA de Brébisson

- LB 1520 *S. obscura* Ralfs

Out O-58

SPIRULINA Gomont

- LB 552 *S. major* Kütz.
 LB 1926 *S. platensis* (Nord.) Geitler
 LB 1928 *S. platensis* (Nord.) Geitler
 LB 1954 *S. subsalsa* Oerst.
 LB 1318 *S. subsalsa* f. *versicola* (Cohn) Koster
 LB 770 *S. sp.*
 LB 2179 *S. sp.*

George; CCAP LB 1475/3; brackish
 R. Lewin; Haxo CY-42; brackish
 R. Lewin; brackish
 Bennett; Haxo CY-34, marine
 Pringsheim; CCAP 1475/2; brackish
 Wilbois; freshwater
 Bold; freshwater

SPONGIOCHLORIS Starr

- 108 *S. excentrica* Starr
 1243 *S. gigantea* Bischoff & Bold
 B 1182 *S. incrassata* Chantanachai & Bold
 977 *S. lamellata* Deason & Bold
 1245 *S. llanoensis* Bischoff & Bold
 1184 *S. minor* Chantanachai & Bold
 1 *S. spongiosa* Starr
 98 *S. spongiosa* Starr
 1238 *S. typica* Trainor & McLean

Bold; CCAP 280/1 (Starr 1955b)
 Bischoff Wcr-2-10 (Bischoff and Bold 1963)
 Chantanachai and Bold (Chantanachai and Bold 1962)
 Deason C-9-7 (Deason and Bold 1960)
 Bischoff E6-47 (Bischoff and Bold 1963)
 C. and B. (Chantanachai and Bold 1962)
 Vischer 318 as *Asterococcus*; CCAP 3/1 (Starr 1955b)
 Pringsheim as *Asterococcus*; CCAP 3/2a (Starr 1955b)
 Trainor

SPONGIOCOCCUM Deason

- 961 *S. tetrasporum* Deason

Deason 706 (Deason 1959)

SPYRIDIA Harvey

- LB 1508 *S. filamentosa* (Wulf.) Harvey

Out MO-50

STARRIA Lang

- LB 1754 *S. zimbabweensis* Lang

Starr (Lang 1977)

STAURASTRUM Ralfs

- LB 402 *S. cristatum* (Näg.) Arch.
 LB 1568 *S. gladiusum* Turner
 LB 1569 *S. gladiusum* Turner
 LB 562 *S. gracile* Ralfs
 LB 401 *S. manfeldtii* Delp.
 430 *S. orbiculare* var. *ralfsii* W. & G. S. West
 LB 1606 *S. pingue* Teiling
 173 *S. punctulatum* Bréb.

Starr
 Winter; plus strain (Winter and Biebel 1967)
 Winter; minus strain (Winter and Biebel 1967)
 Rodhe; CCAP LB 679/3
 Starr
 Ondraček 4; Prague 230; CCAP 679/2
 Soeder
 Czurda; Prague 226; CCAP 679/1

STAURONEIS Ehrenberg

- 2049 *S. amphoroidea* Grun.

J. Lewin 11-M (Lewin and Lewin 1960)

STEPHANOPTERA Dangeard

- LB 635 *S. sp.*

Gibor

STEPHANOSPHAERA Cohn

- LB 771 *S. pluvialis* Cohn

Droop

STICHOCOCCUS Nägeli

- 314 *S. bacillaris* Näg.
 419 *S. bacillaris* Näg.
 176 *S. bacillaris* Näg.
 LB 1962 *S. bacillaris* Näg.
 315 *S. chloranthus* Krüger
 1177 *S. chodati* (Bial.) Herring
 316 *S. mirabilis* Lageron
 LB 1820 *S. sequoieti* Arce

Vischer 1; CCAP 379/1b (Mattox and Bold 1962)
 Algeus; CCAP 379/1c (Mattox and Bold 1962)
 Pringsheim; CCAP 335/3 (Mattox and Bold 1962)
 Ellermeier from Antarctica
 Krüger; CCAP 379/2 (Mattox and Bold 1962)
 Mattox and Bold (Mattox and Bold 1962)
 Pringsheim; CCAP 379/3 (Mattox and Bold 1962)
 Arce

STIGEOCLONIUM Kützing (see Cox and Bold 1966)

- LB 1573 *S. aestivale* (Hazen) Collins
 LB 1575 *S. farctum* Berthold
 LB 1576 *S. farctum* Berthold
 441 *S. helveticum* Vischer
 320 *S. pascheri* (Vischer) Cox & Bold
 421 *S. pascheri* (Vischer) Cox & Bold
 LB 1571 *S. pascheri* (Vischer) Cox & Bold
 LB 1574 *S. subsecundum* Kütz.
 LB 1572 *S. tenue* (Ag.) Kütz.
 LB 1577 *S. variable* Näg.
 LB 439 *S. sp.*

Cox 8-3
 Cox 19-5-V
 Cox 5-3c
 Vischer 24; CCAP 477/1
 Vischer 45 as *Caesputella*; CCAP 410/1
 Lewin as *Caesputella*; CCAP 410/2
 Cox 18-3
 Cox 19-11-V
 Cox Var 1
 Cox J0
 Butcher as *S. farctum*; CCAP 477/10b

SYMPHYONEMOPSIS Tiwari & Mitra

- B 1836 *S. katniensis*

Pant K15

SYMPLOCA Kützing

- B 617 *S. muscorum* (Ag.) Gomont

Hughes (Pankratz and Bowen 1963)

SYNECHOCOCCUS Nägeli

- LB 1191 *S. cedrorum* Sauvg.
 LB 563 *S. elongatus* Näg.
 625 *S. leopoldensis* (Racib.) Komárek

From Gassner (Gassner 1962)
 Pringsheim; CCAP LB 1479/1a
 Myers Tx20; in literature as *Anacystis nidulans* high temperature strain (Komárek 1970)

SYNEDRA Ehrenberg

- LB 1968 *S. delicatissima* var. *angustissima* Grun.
 LB 1966 *S. ulna* var. *chaseana* Thomas

Danforth
 Danforth

SYNURA Ehrenberg

- LB 239 *S. petersenii* Korsh.
 LB 845 *S. petersenii* Korsh.

Burrows
 Starr

TETRACYSTIS Brown & Bold

- 1452 *T. aerea* Brown & Bold
 1453 *T. aerea* Brown & Bold
 1454 *T. aggregata* Brown & Bold
 773 *T. aplanosporum* (Arce & Bold) Brown & Bold
 128 *T. dissociata* Brown & Bold
 1456 *T. excentrica* Brown & Bold
 1457 *T. illinoisensis* Brown & Bold
 974 *T. intermedium* (Deason & Bold) Brown & Bold
 1459 *T. isohilateralis* Brown & Bold
 1460 *T. pampae* Brown & Bold
 1461 *T. pulchra* Brown & Bold
 780 *T. tetrasporum* (Arce & Bold) Brown & Bold
 1463 *T. texensis* Brown & Bold

Brown C-6; CCAP 181/1a (Brown and Bold 1964)
 Brown Pa-3; CCAP 181/1b (Brown and Bold 1964)
 Brown Pc-1; CCAP 181/2 (Brown and Bold 1964)
 Arce 64; CCAP 181/9; formerly *Chlorococcum aplanosporum* (Arce and Bold 1958, Brown and Bold 1964)
 Vischer 304 as *Borodinella* sp.; CCAP 207/1b (Brown and Bold 1964)
 Brown's Opera; CCAP 181/3 (Brown and Bold 1964)
 Brown R-3-3; CCAP 181/4 (Brown and Bold 1964)
 Deason C-1-13; formerly *Chlorococcum* Camb. 181/10 (Deason and Bold 1960, Brown and Bold 1964)
 Brown A-6-2-3; CCAP 181/5 (Brown and Bold 1964)
 Brown's Pampa; CCAP 181/6 (Brown and Bold 1964)
 Brown's Sweet; CCAP 181/7 (Brown and Bold 1964)
 Arce 59A; formerly *Chlorococcum*; CCAP 181/11 (Arce and Bold 1958, Brown and Bold 1964)
 Brown Mx-2-c; CCAP 181/8 (Brown and Bold 1964)

TETRADESMUS G. M. Smith

- LB 1361 *T. cumbicus* G. S. West

Komárek 1962/35

TETRAEDRON Kützing

- 120 *T. butridens* Beck
 LB 1360 *T. caudatum* (Corda) Hans.
 LB 1371 *T. minimum* var. *scrobiculatum* Lagerh.
 LB 1367 *T. minimum* var. *scrobiculatum* Lagerh.
 LB 798 *T. sp.*

Starr; zoospores; CCAP 282/1 (Starr 1954a as *Polyedriopus* see Kováčik 1975)
 Ruzicka 1962/18 (Kováčik 1975)
 Ruzicka 1962/46 (Kováčik 1975)
 Ruzicka 1962/43 (Kováčik 1975)
 Fox

TETRALANTOS Teiling

- 1582 *T. lagerheimii* Teil.

Haines (Haines 1966)

TETRASELMIS Stein

- LB 232 *T. chuü* Butcher
 LB 557 *T. tetrahele* (West) Butcher

From Millport; CCAP LB 8/6; formerly *Carteria*
 Droop; formerly *Platymonas* (Droop 1961)

TETRASPORA Link

- LB 234 *T. sp.*

Starr

THALASSIOSIRA Cleve

- LB 2054 *T. sp.*

R. Lewin 207-M

THOREA Bory

- LB 1501 *T. rieki* Bischoff

Ott 0399

TOLYPOTHRIX Kützing

- LB 424 *T. distorta* var. *symplocides* Hans.

Manten; CCAP B1482/2

TRACHELOMONAS Ehrenberg

- LB 959 *T. grandis* Singh
 LB 1326 *T. hispida* (Perty) Stein em. Defl.
 LB 1330 *T. hispida* var. *acuminata* Defl.
 LB 539 *T. hispida* var. *coronata* Lemm.
 LB 1325 *T. oblonga* var. *punctata* Prings.
 LB 1323 *T. similis* Stokes
 LB 1327 *T. volvocina* Ehr.
 LB 1313 *T. volvocinopsis* var. *spiralis* Prings.
 LB 1331 *T. zorensis* Defl.

Singh; CCAP 1283/20 (Singh 1956)
 Pringsheim; CCAP 1283/8
 Pringsheim; Göttingen 1283-1
 Pringsheim; CCAP LB 1283/2
 Pringsheim; CCAP 1283/12
 Pringsheim; Göttingen 1283-14
 Pringsheim; Göttingen LB 1283-4
 Pringsheim; CCAP 1283/17
 Pringsheim; CCAP 1283/18

TRAILIELLA Batters

- LB 1511 *T. intricata* (J. Ag.) Batters

Ott MO-104

TREBOUXIA de Puymaly (see Archibald 1975)

- 903 *T. anticipata* (Ahmadj. in Ed.) Archibald
 904 *T. anticipata* (Ahmadj. in Ed.) Archibald
 910 *T. erici* Ahmadj.
 911 *T. erici* Ahmadj.
 912 *T. erici* Ahmadj.
 1714 *T. excentrica* Archibald
 181 *T. flava* Archibald
 905 *T. gelatinosa* (Ahmadj. in Ed.) Archibald
 906 *T. gelatinosa* (Ahmadj. in Ed.) Archibald
 894 *T. glomerata* (Waren) Ahmadj.
 895 *T. glomerata* (Waren) Ahmadj.
 896 *T. glomerata* (Waren) Ahmadj.
 897 *T. glomerata* (Waren) Ahmadj.
 67 *T. magna* Archibald
 902 *T. magna* Archibald
 1712 *T. pyriformis* Archibald
 1713 *T. pyriformis* Archibald

Ahmadjian 1 from *Parmelia rudecta*; CCAP 219/3
 Ahmadjian 2 from *Parmelia rudecta*
 Ahmadjian 4 from *Cladonia cristatella*
 Ahmadjian 7 from *Cladonia cristatella*
 Ahmadjian 1 from *Cladonia cristatella*
 Hutchinson H536; from *Stereocaulon dactylophyllum*
 Quispel; CCAP 219/1c
 Ahmadjian 2 from *Parmelia caperata*
 Ahmadjian 3 from *Parmelia caperata*
 Ahmadjian 1 from *Stereocaulon evolutoides*
 Ahmadjian 2 from *Stereocaulon evolutoides*
 Ahmadjian 1 from *Stereocaulon pileatum*
 Ahmadjian 8 from *Stereocaulon pileatum*
 Beijerinck from *Cladonia* sp.; CCAP 213/3
 Ahmadjian 2 from *Pilophorus acicularis*
 Hutchinson; from *Cladonia squamosa*
 Hutchinson; from *Stereocaulon pileatum*

TRENTEPOHLIA Martius

- LB 429 *T. aurea* Martius
 1227 *T. sp.*

George; CCAP B483/1
 Ahmadjian from *Pyrenula nitida*

TRIBONEMA Derbes & Solier

- 50 *T. aequale* Pascher
639 *T. sp.*

Pringsheim; CCAP 880/1
Christensen; CCAP 880/2

TRICHOSARCINA Nichols & Bold

- LB 1335 *T. polymorpha* Nichols & Bold

Nichols (Nichols and Bold 1965)

TROCHISCIA Kützinger

- LB 606 *T. hystrix* (Reinsch) Hans.

Paris 167

TUOMEYA Harvey

- LB 1502 *T. fluvialis* Harvey

Ott 0359

ULOTHRIX Kützinger (see Mattox and Bold 1962)

- 1178 *U. acuminata* Mattox & Bold
1179 *U. belkæ* Mattox & Bold
331 *U. confervicola* (Lagerh.) Mattox & Bold
LB 638 *U. fimbriata* Bold
174 *U. gigas* (Vischer) Mattox & Bold
330 *U. minuta* Mattox & Bold
LB 745 *U. zonata* (Weber & Mohr) Kütz.
420 *U. sp.*

Mattox and Bold (Mattox and Bold 1962)
Mattox (Mattox and Bold 1962)
Pringsheim; CCAP 386/2a (Mattox and Bold 1962)
Bold; CCAP 384/2 (Bold 1958)
Vischer 69 as *Uronema*; CCAP 386/3 (Mattox and Bold 1962)
Pringsheim as *Uronema barlowi* nom. nud.; CCAP 386/1 (Mattox and Bold 1962)
Starr
Pringsheim as *Uronema terrestre* Mitra; CCAP 386/4

ULVA Linnaeus

- LB 1422 *U. fasciata* Delile
LB 1859 *U. fasciata* Delile
LB 1860 *U. fasciata* Delile
LB 1857 *U. lactuca* L.
LB 1858 *U. lactuca* L.
LB 1428 *U. lactuca* var. *latissima* (L.) D.C.
LB 1429 *U. lactuca* var. *rigida* (C. Ag.) Le Jol.
LB 829 *U. tueniana* (Setch.) S. & G.

Ott MO-373
Kapaun UF female (Kapaun 1970)
Kapaun UF male
Kapaun 1-MS-2 male (Kapaun 1970)
Kapaun 1-MS-2 female
Ott MO-16
Ott MO-17
Norris

VALONIA Ginnani

- LB 1977 *V. macrophysa* Kütz.

From R. Cleland via D. James

VAUCHERIA de Candolle

- LB 2067 *V. bursata* (O.F.M.) C. Ag.
LB 1035 *V. geminata* (Vauch.) D.C.
LB 2064 *V. prona* Christensen
LB 761 *V. sessilis* (Vauch.) D.C.
LB 146 *V. sessilis* (Vauch.) D.C.
LB 2065 *V. terrestris* (Vauch.) D.C.

Christensen 10301
Bold
Christensen 9891
Biebel
Christensen; CCAP LB 745/1b
Christensen 9393

VISCHERIA Pascher

- 153 *V. punctata* Vischer
86 *V. punctata* Vischer
312 *V. stellata* Pascher

Vischer 266; CCAP 887/1 (Vischer 1945)
Vischer 316 as *Pleurochloris magna*; CCAP 860/2 (Vischer 1945)
Vischer 169; CCAP 887/2 (Pascher 1939)

VITREOCHILAMYS Batko

- 224 *V. incisa* (Prings.) Batko

Pringsheim as *Chlamydomonas incisa*; CCAP 11/10

VOLVOX Linnaeus

- LB 1889 *V. africanus* G. S. West
LB 1890 *V. africanus* G. S. West
LB 1891 *V. africanus* G. S. West
LB 1892 *V. africanus* G. S. West
LB 1893 *V. africanus* G. S. West

Starr MO; homothallic; dioecious (Starr 1971a)
Starr Darra 4 male; heterothallic; dioecious (Starr 1971a)
Starr Darra 6 female; heterothallic; dioecious
Starr Ecce Pass; monoecious; homothallic (Starr 1971a)
Starr 65-26; monoecious and males (Starr 1971a)

VOLVOX Linnaeus (Continued)

LB 106 *V. aureus* Ehr.
 LB 772 *V. aureus* Ehr.
 LB 1887 *V. aureus* Ehr.
 LB 1888 *V. aureus* Ehr.
 LB 1899 *V. aureus* Ehr.
 LB 804 *V. barberi* Shaw
 LB 1877 *V. carteri* f. *nagariensis* Iyengar

LB 1878 *V. carteri* f. *nagariensis* Iyengar
 LB 1879 *V. carteri* f. *nagariensis* Iyengar
 LB 1880 *V. carteri* f. *nagariensis* Iyengar

LB 1881 *V. carteri* f. *nagariensis* Iyengar

LB 1882 *V. carteri* f. *nagariensis* Iyengar

LB 1883 *V. carteri* f. *nagariensis* Iyengar

LB 1884 *V. carteri* f. *nagariensis* Iyengar

LB 1885 *V. carteri* f. *nagariensis* Iyengar

LB 1886 *V. carteri* f. *nagariensis* Iyengar

LB 1874 *V. carteri* f. *weismannia* (Powers) Iyengar
 LB 1875 *V. carteri* f. *weismannia* (Powers) Iyengar
 LB 1876 *V. carteri* f. *weismannia* (Powers) Iyengar
 LB 2171 *V. carteri* f. *weismannia* (Powers) Iyengar
 LB 2170 *V. carteri* f. *weismannia* (Powers) Iyengar
 LB 2180 *V. carteri* f. *weismannia* (Powers) Iyengar
 LB 2181 *V. carteri* f. *weismannia* (Powers) Iyengar
 LB 1871 *V. dissipatrix* (Shaw) Printz
 LB 1869 *V. dissipatrix* (Shaw) Printz

LB 2184 *V. dissipatrix* (Shaw) Printz
 LB 1894 *V. gigas* Pocock
 LB 1895 *V. gigas* Pocock
 LB 955 *V. globator* L.
 LB 821 *V. globator* L.
 LB 1865 *V. obversus* (Shaw) Printz

LB 1866 *V. obversus* (Shaw) Printz
 LB 1872 *V. pocockiae* Starr
 LB 1863 *V. powersii* (Shaw) Printz

LB 1864 *V. powersii* (Shaw) Printz

LB 1861 *V. rousselletii* G. S. West

LB 1862 *V. rousselletii* G. S. West
 LB 1868 *V. spermatotheca* Powers

LB 132 *V. tertius* Meyer

VOLVULINA Playfair

LB 1761 *V. boldii* O'Neil & Starr
 LB 2185 *V. boldii* O'Neil & Starr
 LB 2186 *V. boldii* O'Neil & Starr
 LB 1020 *V. pringsheimii* Starr
 LB 1021 *V. pringsheimii* Starr
 LB 1525 *V. steinii* Playfair
 LB 1527 *V. steinii* Playfair
 LB 1531 *V. steinii* Playfair

WISLOUCHIELLA Skvortzow

LB 1030 *W. sp.*

Starr
 Starr; parthenospores (Darden and Sayers 1969)
 Starr Peach Creek; males and parthenospores
 Starr 65-98; parthenospore; few, if any, males
 Darden M-5 (Darden 1966)
 Stein; homothallic; monoecious (Starr 1968)
 Starr 70-10; male recombinant of 1878 x 1886 carrying somatic regenerator locus (Starr 1971b)
 Starr 70-4; somatic regenerator; female (Starr 1971b)
 Starr 70-5; multigonidiate mutant; female (Starr 1971b)
 Starr 70-17; spontaneous female; mutant locus not linked to sex (Starr 1971b, 1972a)
 Starr 70-7; spontaneous female; mutant locus linked to sex (Starr 1971b, 1972a)
 Starr 70-3; non-inducibility mutant (formerly termed sterile) (Starr 1971b)
 Starr R1; male mutant in which differentiation of androgonidia occurs prior to last division (Starr 1971b)
 Starr R2; male mutant in which only a few cells differentiate at last division (Starr 1971b)
 Starr HK10; female (Starr 1969, 1971b)
 Starr 69-1b; male recombinant of HK10 and HK9 with greater potency than original HK9 male (Starr 1969, Starr and Jaenicke 1974)
 Kochert NB female (Kochert 1968)
 Starr Wf 4 male; Australia (Starr 1971b)
 Starr Wf 3 female; Australia (Starr 1971b)
 Starr 65-30(12) male; India (Starr 1971b)
 Starr 65-30(2) female; India (Starr 1971b)
 Kochert KA-1 male (Kochert and Yates 1974)
 Kochert 4-D female (Kochert 1975)
 Starr Marburg 2; monoecious; homothallic (Starr 1968)
 Starr 65-26(5) male; dioecious; heterothallic (Starr 1972b)
 Starr 65-26 new female; dioecious
 Starr K29 male (Vande Berg and Starr 1971)
 Starr K29 female
 Goldstein; monoecious; homothallic
 Starr; needs Vit. B₁₂ in excess
 Starr Wd 7 male; dioecious; heterothallic (Karn et al. 1974)
 Starr Wd 3 female; dioecious; heterothallic
 Starr 64-11; homothallic; dwarf males (Starr 1970)
 Starr 71-51; mutant with all fertile cells in posterior; derived from 1864 (Vande Berg and Starr 1971)
 Starr 17-10; homothallic; dioecious (Starr 1968, Vande Berg and Starr 1971)
 Starr K32 male; dioecious; heterothallic (McCracken and Starr 1970)
 Starr K32 female; dioecious; heterothallic
 Starr 17-14-4; dioecious; dwarf males; homothallic (Starr 1968)
 George; CCAP LB 88/3; homothallic; dioecious

Starr; plus strain crosses with 2186; multipyrenoid
 O'Neil; plus strain; multipyrenoid
 O'Neil; minus strain; multipyrenoid
 Starr; plus strain (Starr 1962)
 Starr; minus strain; one pyrenoid
 Carefoot Fa-4
 Carefoot SC-22
 Carefoot C2-13

Waters; does not form typical lorica

ZYGNEMA C. Agardh

- 42 *Z. circumcarinatum* Czurda
43 *Z. circumcarinatum* Czurda
LB 306 *Z. cylindricum* Transeau
LB 1740 *Z. extenua* Jao
LB 45 *Z. peliosporum* Wittrock
LB 1738 *Z. ramosum* Goldstein
LB 1739 *Z. spontaneum* Nords.
LB 1737 *Z. sterile* Transeau
LB 921 *Z. sp.*
LB 922 *Z. sp.*
LB 923 *Z. sp.*
Czurda; plus strain; Prague 208; CCAP 698/1a
Czurda; minus strain; Prague 209; CCAP 698/1b (Czurda 1930)
Czurda; Prague 211; CCAP 698/2
Goldstein; homothallic; scalariform conjugation; anisogamous
Czurda; male strain; Prague 206; CCAP 698/3a (Czurda 1930)
Goldstein 101; aplanospores only
Goldstein 103; aplanospores only
Goldstein 107; akinetes only
M. A. Allen; possibly heterothallic with 922
M. A. Allen; possibly heterothallic with 921
M. A. Allen; 36 μ m wide

MAINTENANCE MEDIA

At the time cultures are sent to investigators, the name of the medium on which the culture is maintained is indicated. It must be emphasized that the maintenance medium is not always the best medium for the cultivation of the alga. At the Collection

some cultures are maintained on media which are adequate, but not necessarily the best for growth, in order to reduce the number of different media required for the entire operation.

ALLEN'S MEDIUM

(modified from M. M. Allen 1968)

For each 1000 ml of medium required, add the following to 966 ml of glass-distilled water:

		stock: g/200 ml H ₂ O
NaNO ₃	1.5 g	—
K ₂ HPO ₄	5 ml	1.5
MgSO ₄ ·7H ₂ O	5 ml	1.5
Na ₂ CO ₃	5 ml	0.8
CaCl ₂	10 ml	0.5
Na ₂ SiO ₃ ·H ₂ O	10 ml	1.16
citric acid	1 ml	1.2
PIV metals	1 ml	(Volvox stock, p. 96)

Adjust pH to 7.8. Solidify, if desired, with agar (10 g/l). See p. 95 for special preparation and use.

BOLD'S 3N BRISTOL'S

(H. C. Bold, pers. comm.—modified)

To 1000 ml of regular Bristol's solution (following), add:

Bristol's NaNO ₃ stock soln	20 ml
PIV metals (Volvox stock—p. 96)	6 ml
vitamin B ₁₂ (Volvox stock—p. 96)	1 ml
soil extract	40 ml

(supernatant from soil-water medium, p. 94)

BRACHIOMONAS AGAR

(M. R. Droop pers. comm.)

For each 500 ml of medium required:

pyrex-distilled water	455.0 ml
proteose peptone (Difco)	0.5 g
sodium acetate	0.05 g
seawater	20.0 ml
agar	7.5 g

The addition of 25 ml of supernatant from soil-water medium (p. 94) has been found to stimulate growth of the organisms.

BRISTOL'S SOLUTION

(modified by H. C. Bold 1949)

Six stock solutions, 400 ml in volume each, are employed. Each solution contains one of the following:

NaNO ₃	10.0 g
CaCl ₂	1.0 g
MgSO ₄ ·7H ₂ O	3.0 g
K ₂ HPO ₄	3.0 g
KH ₂ PO ₄	7.0 g
NaCl	1.0 g

10 ml of each stock soln is added to 940 ml of pyrex-distilled water. To this add a drop of 1.0% FeCl₃ soln. If desired, 2 ml of minor (trace) element soln may be added (Trelease and Trelase, *American Journal of Botany* 22:540-2, 1935). Solidify with 15 g/l agar, if desired.

CYANOPHYCEAN AGAR

(CCAP Culture Collection, Cambridge)

For each 1000 ml medium required:

KNO ₃	5.0 g
K ₂ HPO ₄	0.1 g
MgSO ₄ ·7H ₂ O	0.05 g
Fe-ammonium citrate	10 drops of 1% soln
pyrex-distilled water	1000 ml
agar	15 g

DESMID AGAR

(E. G. Pringsheim, Culture Collection, Göttingen)

To 1000 ml pyrex-distilled water add 10 ml of each of:

MgSO ₄ ·7H ₂ O	0.1% soln
K ₂ HPO ₄	0.1% soln
KNO ₃	1.0% soln
agar	7.5 g

Some desmid strains grow better with the addition of 50 ml/l of supernatant from soil-water medium (p. 94).

DOUBLE STRENGTH SEAWATER

For a few forms soil-water medium (see p. 94) is made using double strength seawater compounded as follows:

natural seawater	1000 ml
MgCl ₂	5 g
NaCl	23 g
Na ₂ SO ₄	4 g

ERDSCHREIBER SOLUTION

(Mary Parke, Plymouth Marine Station, England)

filtered seawater	1000 ml
soil extract	50 ml
(supernatant from soil-water medium, p. 94)	

NaNO ₃	0.2 g
Na ₂ HPO ₄ ·12H ₂ O	0.03 g
vitamin B ₁₂	1.0 ml (15 µg/100 ml)

1st day: Filter seawater through No. 1 filter paper; heat water to 73 C.

2nd day: Again heat seawater to 73 C.

Autoclave separate salt and vitamin soln made in distilled water so that 1 ml of each soln gives required amount for 1 liter culture soln.

3rd day: Add 1 ml of each cold salt soln to cold soil extract; then, add soil extract soln to cold seawater; add vitamin soln.

Dispense in sterile tubes and flasks, as desired.

ES ENRICHMENT FOR SEAWATER

(from L. Provasoli)

glass distilled water	100 ml
NaNO ₃	350 mg
Na ₂ glycerophosphate	50 mg
Fe (as EDTA—1:1 molar*)	2.5 mg
P II metals ^b	25 ml

vitamin B ₁₂	10 µg
thiamine	0.5 mg
biotin	5 µg
Tris buffer (Sigma Co.)	500 mg

Adjust pH to 7.8. Add 2 ml of ES enrichment for 100 ml of filtered seawater. For bacteria-free cultures: sterilize enrichment in tubes, add aseptically to filter-sterilized or autoclaved seawater (for more information see reprints in Rosowski, J. R. & Parker, B. C. *Selected Papers in Phycology*, 1971).

* Dissolve 351 mg of $\text{Fe}(\text{NH}_4)_2(\text{SO}_4)_2 \cdot 6\text{H}_2\text{O}$ and 300 mg Na_2EDTA in 500 ml H_2O ; 1 ml of this soln = 0.1 mg Fe.

^b PII metal mix: to 100 ml distilled water add:

H_3BO_3	114 mg
$\text{FeCl}_3 \cdot 6\text{H}_2\text{O}$	4.9 mg
$\text{MnSO}_4 \cdot 4\text{H}_2\text{O}$	16.4 mg
$\text{ZnSO}_4 \cdot 7\text{H}_2\text{O}$	2.2 mg
$\text{CoSO}_4 \cdot 7\text{H}_2\text{O}$	0.48 mg
Na_2EDTA	100 mg

EUGLENA MEDIUM

(CCAP Culture Collection, Cambridge)

To 1000 ml of pyrex-distilled water add:

sodium acetate	1.0 g
beef extract	1.0 g
tryptone	2.0 g
yeast extract	2.0 g
CaCl_2	0.01 g

If desired, may be solidified by adding 15 g agar.

KNOP'S AGAR

(modified from L. Wiese 1965)

For each 1000 ml of medium required, add the following to 1000 ml of glass-distilled water:

$\text{Ca}(\text{NO}_3)_2$	0.6 g
KNO_3	0.15 g
$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$	0.15 g
$\text{KH}_2\text{SO}_4 \cdot 7\text{H}_2\text{O}$	0.15 g
KH_2PO_4	0.15 g
PIV metals (Volvox stock) (see p. 96)	6 ml

Adjust pH to 7 and then add 15 g agar.

LDM AGAR

(J. C. Lewin, pers. comm.)

For each 1000 ml of medium required, add the following to 900 ml of seawater:

Bristol's solution (p. 92)	100 ml
biotin (Volvox stock)	1 ml
vitamin B ₁₂ (Volvox stock)*	1 ml
PIV metals (Volvox stock)*	6 ml
tryptone	1 g
agar	12 g

* see p. 96.

MALT AGAR

For each 500 ml of medium required:

pyrex-distilled water	500 ml
malt extract	15.0 g
agar	7.5 g

NaCl BRISTOL'S AGAR

Bristol's soln (p. 92)	1000 ml
NaCl	3.6 g
agar	15.0 g

NBB AGAR

(CCAP Culture Collection, Cambridge)

For each 500 ml of medium required:

pyrex-distilled water	500.0 ml
sodium acetate	0.25 g
beef extract	0.25 g
tryptone	0.25 g
agar	7.5 g

It has been found that adding 50 ml of the supernatant from soil-water medium (p. 94) stimulates growth in certain species.

OCHROMONAS MEDIUM

(from W. Koch, Göttingen)

For 1000 ml of medium:

glass-distilled water	960 ml
glucose	1.0 g
tryptone	1.0 g
yeast extract	1.0 g
liver extract (infusion)	40 ml

P49 MEDIUM

(T. Ichimura, pers. comm.)

To 990 ml of Volvox medium (see p. 96), minus $\text{Ca}(\text{NO}_3)_2$, add the following:

NH_4NO_3	0.1 g
sodium acetate $\cdot 3\text{H}_2\text{O}$	0.5 g
$\text{CaCl}_2 \cdot 2\text{H}_2\text{O}$	0.074 g
yeast extract	0.2 g
tryptone	0.4 g

Adjust pH to 7.0 using 1 N NaOH.

POLYTOMELLA MEDIUM

(E. G. Pringsheim, pers. comm.)

For each 1000 ml of medium required:

pyrex-distilled water	1000 ml
sodium acetate	2.0 g
yeast extract	1.0 g
tryptone	1.0 g

PORPHYRIDIIUM AGAR

(E. G. Pringsheim, pers. comm.)

For each 500 ml of medium required:

pyrex-distilled water	200 ml
natural seawater	250 ml
soil extract (soil-water supernatant, p. 94)	50 ml
yeast extract	0.5 g
tryptone	0.5 g
agar	7.5 g

PROTEOSE AGAR

For each 1000 ml of medium required:

Bristol's soln (see p. 92)	1000 ml
proteose peptone	1.0 g
agar	15.0 g

SOIL EXTRACT AGAR

For each 1000 ml of medium required:

Bristol's soln (see p. 92)	960 ml
soil extract (soil-water supernatant, p. 94)	40 ml
agar	15 g

SOIL-WATER MEDIUM

(E. G. Pringsheim 1946)

Variations of this medium are for nonsterile culture, especially for isolation purposes and for growing algae to secure "normal" growth forms. Success with soil-water medium depends on selection of a suitable garden soil. This soil should be of medium, but not too great, humus content and should not have been recently fertilized with commercial fertilizers. Soils with high clay content are usually not the most suitable for most organisms.

A variety of soil-water media can be made using a basic formula to which are added additional materials. The basic soil-water medium is made as follows:

garden soil ¼ to ½ inch

place soil in the bottom of a test tube (or bottle); cover with pyrex-distilled water until container is ¾ full; cover container. STEAM (not autoclave) for 1 h on at least 2 consecutive days.

A few algae, such as *Spirogyra*, grow well in the basic medium. For most presumptively phototrophic algae which thrive in an alkaline medium, a small pinch of powdered CaCO_3 is placed in the bottom of the container BEFORE the soil and water are added.

Some algae (e. g., *Euglena*, *Pyrobotrys*, *Polytomella*, *Polytoma*, *As-tasia*, etc.) require additional complex nitrogen or carbon compounds not present in the basic formula. For *Euglena* and *Pyro-botrys* the best results are obtained by adding ½ of a garden pea cotyledon to the basic medium (including CaCO_3) BEFORE steaming. For the colorless forms, the addition of a barley grain BEFORE steaming supplies the necessary carbon source. A few strains, as *Botryococcus*, grow best when a pinch of sterile $\text{NH}_4\text{MgPO}_4 \cdot 6\text{H}_2\text{O}$ is added AFTER steaming the basic medium (including CaCO_3).

TREBOUXIA AGAR

(V. Ahmadjian, pers. comm.)

For each 1000 ml of medium required:

Bristol's soln (see p. 92)	850 ml
soil extract (soil-water supernatant, p. 94)	140 ml
proteose peptone	10 g
glucose	20 g
agar	15 g

VOLVOCEAN AGAR

(E. G. Pringsheim, pers. comm.)

Waris soln (see following)	800 ml
(do not adjust pH)	
Euglena medium (see p. 93)	200 ml
agar	10 g

WARIS SOLUTION

(H. Waris 1953)

To 1000 ml of pyrex-distilled water add 1 ml of the following:

KNO_3	10% soln
$\text{MgSO}_4 \cdot 7\text{H}_2\text{O}$	2% soln
$(\text{NH}_4)_2\text{HPO}_4$	2% soln
CaSO_4	5% soln

Fe sequestrene soln: sequestrene AA 2.61 g;

$\text{FeSO}_4 \cdot 7\text{H}_2\text{O}$ 2.49 g; 1 N KOH 27 ml;

pyrex-distilled water 500 ml

Adjust pH to 6.0 using 0.01 N HCl and 0.01 M KOH.

YT20 MEDIUM

To 1000 ml of Volvox medium (see p. 96), add:

yeast extract	0.02 g
tryptone	0.02 g

Solidify with agar (12 g/l), if desired.

SPECIAL GROWTH MEDIA

Each of the following media is identified by a genus for whose cultivation it has been used successfully. Each medium is not restricted to the cultivation of this single genus nor is it necessarily the best me-

dium for the genus mentioned. A larger list of representative genera and useful media has been compiled by Starr (1971c).

Anacystis nidulans (*Synechococcus leopoliensis*)—Medium C of Kratz and Myers (1955) is a favorite medium used by investigators working with this species and other bluegreen algae.

	g/liter
MgSO ₄ ·7H ₂ O	0.25
K ₂ HPO ₄	1.00
Ca(NO ₃) ₂ ·4H ₂ O	0.025
KNO ₃	1.0
Na ₃ citrate·2H ₂ O	0.165
Fe ₂ (SO ₄) ₃ ·6H ₂ O	0.004
A ₃ microelements soln	1.0 ml
H ₃ BO ₃	2.86
MnCl ₂ ·4H ₂ O	1.81
ZnSO ₄ ·7H ₂ O	0.222
MoO ₃ (85%)	0.0177
CuSO ₄ ·5H ₂ O	0.079

The optimal temperature for growth of *Anacystis nidulans* UTEX625 is 39 C.

Van Baalen's C₉-10 medium (Van Baalen 1967) is a modification of Medium C as follows:

1. K₂HPO₄ lowered to 0.050 g/l;
2. Glycylglycine added to 1.0 g/l;
3. Na₂EDTA (0.010 g/l) in place of Na citrate.

This modified medium does not precipitate after autoclaving, but Van Baalen points out that the medium gives good results only when the *Anacystis* is grown at 39 C.

Some investigators have encountered problems in growing *Anacystis* and other unicellular bluegreen algae on the surface of agar plates from single cells, but Allen (1968) was successful by using a modified medium of Hughes et al. (1958) solidified with 1.5% agar which had been sterilized separately from the other components of the medium (see p. 92).

The pH of the medium is 7.8. To prepare the solid medium, equal volumes of double-strength mineral base and double-strength Difco Bacto-agar were separately sterilized and combined after cooling to 48 C. When the algae were grown in liquid culture, the medium was continuously bubbled with a 0.5% CO₂-air mixture.

Chlamydomonas reinhardtii—For genetic studies this alga is grown in the following media by Sueoka (1960) and Levine's group at Harvard:

	Minimal medium (g)	High salt minimal medium (g)
NH ₄ Cl	0.05	0.50
MgSO ₄ ·7H ₂ O	0.02	0.02
CaCl ₂ ·2H ₂ O	0.01	0.01
K ₂ HPO ₄	0.72	1.44
KH ₂ PO ₄	0.36	0.72
Hutner's trace elements*	1 ml	1 ml
Distilled water	1 liter	1 liter

* Hutner's trace elements solution

	(g)
EDTA	50.0
ZnSO ₄ ·7H ₂ O	22.0
H ₃ BO ₃	11.4

MnCl ₂ ·4H ₂ O	5.1
FeSO ₄ ·7H ₂ O	5.0
CoCl ₂ ·6H ₂ O	1.6
CuSO ₄ ·5H ₂ O	1.6
(NH ₄) ₆ Mo ₇ O ₂₄ ·4H ₂ O	1.1
Distilled water	750 ml

Boil, cool slightly, and bring to pH 6.5–6.8 with KOH (do not use NaOH). The clear solution is diluted to 1000 ml with distilled water and should have a green color which changes to purple on standing. It is stable for at least one year.

For heterotrophic acetate mutants the media may be supplemented with sodium acetate at a concentration in the medium of 0.20%.

Chlorella—There are many formulae for the successful cultivation of this genus. This one by Sorokin and Krauss (1958) was used in their work on the effects of light intensity on the growth rates of green algae:

	g/liter
KNO ₃	1.25
KH ₂ PO ₄	1.25
MgSO ₄ ·7H ₂ O	1.00
CaCl ₂	0.0835
H ₃ BO ₃	0.1142
FeSO ₄ ·7H ₂ O	0.0498
ZnSO ₄ ·7H ₂ O	0.0882
MnCl ₂ ·4H ₂ O	0.0144
MoO ₃	0.0071
CuSO ₄ ·5H ₂ O	0.0157
Co(NO ₃) ₂ ·6H ₂ O	0.0049
EDTA	0.5

The pH of the medium is 6.8.

Euglena gracilis—The stocks of this species are maintained on the undefined medium given in the list of maintenance media, but for experimental purposes Böger and San Pietro (1967) used the following defined medium:

	mg/l	Stock solution mg/100 ml	ml
(NH ₄) ₂ SO ₄	0.135 × 10 ³	1.35 × 10 ³	10
NH ₄ Cl	0.90 × 10 ³	9.0 × 10 ³	10
KH ₂ PO ₄	1.0 × 10 ³	10 × 10 ³	10
Na citrate·2H ₂ O	0.51 × 10 ³	5.0 × 10 ³	10
MgCl ₂ ·6H ₂ O	0.35 × 10 ³	3.5 × 10 ³	10
FeCl ₂ ·4H ₂ O	4.72		1
NH ₄ molybdate	0.20	20	1
NaVO ₃ ·16H ₂ O	0.10	10	1
H ₃ BO ₃	0.50	50	1
ZnCO ₃ (ZnSO ₄ ·6H ₂ O)	0.18 (0.38)	18 mg (38 mg)	1
CaCl ₂	0.20	20	1
MnCl ₂ ·4H ₂ O	1.8	180	1
Co(NO ₃) ₂ ·6H ₂ O(CoCl ₂)	1.3 (1.35)	130 mg (135 mg)	1
CuSO ₄ ·5H ₂ O	0.02	2	1
Thiamine	1	1 (mg/ml)	1
Vitamin B ₁₂	0005	50 (mg/l)	1

The pH is 4.4.

(dil. 1:10)

Phaeodactylum—This alga, known for many years as *Nitzschia clatterum*, has been used extensively. Mann and Myers (1968) used UTEX646 *P. tricornutum* for a study of its pigments, growth and photosynthesis. They grew this strain in the following modification of the ASP-2 medium of Provasoli et al. (1957):

NaCl	g/l
MgSO ₄ ·7H ₂ O	5.0
NaNO ₃	1.2
KCl	1.0
CaCl ₂	1.60
K ₂ HPO ₄	0.30
Tris	0.10
Micronutrient stock (added at 10 ml/l)	1.0
Na ₂ EDTA	3.0
H ₃ BO ₃	0.60
FeSO ₄ ·7H ₂ O	0.20
MnCl ₂	0.14
ZnSO ₄ ·H ₂ O	0.033
Co(NO ₃) ₂ ·6H ₂ O	0.0007
CuSO ₄ ·5H ₂ O	0.0002

Optimum growth was obtained at 18 C, aeration with 1–2% CO₂, and a moderate light intensity (one 20-W fluorescent lamp on each side, 15 cm from the test tube cultures).

Volvox—In 1959 Provasoli and Pintner devised a medium for growing *Volvox globator*. More recently this medium has proved to be excellent for growing many species of *Volvox*, other colonial green algae, and various other algae. It is absolutely necessary that cultures be axenic when using this medium. The medium is

dilute, and the glycylglycine does not buffer the medium sufficiently to permit aeration with air containing added CO₂. Aeration with sterile air is permissible. The medium is prepared in the following manner:

For each 1000 ml of medium required, stock solutions in the amounts indicated are added to 978 ml of glass-distilled water:

ml	Stock solution	g/100 ml
1	Ca(NO ₃) ₂ ·4H ₂ O	11.8
1	MgSO ₄ ·7H ₂ O	4.0
1	Na ₂ glycerophosphate	5.0
1	KCl	5.0
10	glycylglycine	5.0
1	biotin	25.0 × 10 ⁻⁶
1	B ₁₂	15.0 × 10 ⁻⁶
6	PIV metal solution	

PIV Metal Solution. To 1000 ml of glass-distilled water, add 0.750 g of Na₂-EDTA. After this chelating agent is dissolved, add the following salts in the amount indicated:

	g/l
FeCl ₃ ·6H ₂ O	0.097
MnCl ₂ ·4H ₂ O	0.041
ZnCl ₂	0.005
CoCl ₂ ·6H ₂ O	0.002
Na ₂ MoO ₄	0.004

Adjust final *Volvox* solution to pH 8.0 using 1 N NaOH. For some strains of *Volvox* and other algae, thiamine is added to an amount equal to 1 mg/l.

LITERATURE CITED

- Ahmad, A. & Goldstein, M. E. 1971. *Lloydia*, a new genus of the Zygnemaceae. *Phycologia* 10:1–6.
- Allen, M. A. 1958. The Biology of a Species Complex in *Spirogyra*. Ph.D. Dissertation, Indiana University, Bloomington.
- Allen, M. M. 1968. Simple conditions for growth of unicellular blue-green algae on plates. *J. Phycol.* 4:1–4.
- Arce, G. & Bold, H. C. 1958. Some Chlorophyceae from Cuban soils. *Am. J. Bot.* 45:492–503.
- Archibald, P. A. 1970. *Pseudochlorococcum*, a new chlorococcalean genus. *J. Phycol.* 6:127–32.
- . 1973. The genus *Neochloris* Starr (Chlorophyceae, Chlorococcales). *Phycologia* 12:187–93.
- . 1975. *Trebouxia* de Puymaly and *Pseudotrebouxia* gen. nov. *Phycologia* 14:125–37.
- & Bold, H. C. 1970. Phycological studies XI. The genus *Chlorococcum* Meneghini. *University of Texas Publication No.* 7015. 115 pp.
- Arneson, R. D. 1973. *Pseudotetracytis*, a new chlorosarcinacean alga. *J. Phycol.* 9:10–4.
- Ashford, B. K., Ciferri, R. & Dalman, L. M. 1930. A new species of *Prototheca* and a variety of the same isolated from the human intestine. *Arch. Protistenk.* 70:619–38.
- Baker, A. F. & Bold, H. C. 1970. Phycological studies X. Taxonomic studies in the Oscillatoriaceae. *University of Texas Publication No.* 7004. 105 pp.
- Beane, W. D. & Hoffman, L. R. 1968. Two new species of *Ordocladium*. *J. Phycol.* 4:221–9.
- Biebel, P. 1968. Reproduction in *Helicodictyon planctonicum*. *J. Phycol.* 4:55–8.
- Bisalputra, T. & Weier, T. E. 1963. The cell wall of *Scenedesmus quadricauda*. *Am. J. Bot.* 50:1011–19.
- Bischoff, H. & Bold, H. C. 1963. Phycological studies IV. Some soil algae from Enchanted Rock and related algal species. *University of Texas Publication No.* 6318.
- Böger, P. & San Pietro, A. 1967. Ferredoxin and cytochrome f in *Euglena gracilis*. *Z. Pflanzenphysiol.* 58:70–5.
- Bold, H. C. 1933. The life history and cytology of *Protosiphon botryoides*. *Bull. Torrey Bot. Club* 60:241–99.
- . 1942. The cultivation of the algae. *Bot. Rev.* 8:69–138.
- . 1949. The morphology of *Chlamydomonas chlamydogama*, sp. nov. *Bull. Torrey Bot. Club* 76:101–8.
- . 1958. Three new chlorophycean algae. *Am. J. Bot.* 45:737–43.
- & MacEntee, F. J. 1973. Phycological notes. II. *Euglena myxocylindracea* sp. nov. *J. Phycol.* 9:152–6.
- . 1974. Phycological notes. III. Two new saccate unicellular Chlorophyceae. *J. Phycol.* 10:189–93.
- Bold, H. C. & Starr, R. C. 1953. A new member of the Phacotaceae. *Bull. Torrey Bot. Club* 80:178–86.
- Bourrelly, P. 1970. *Les Algues d'Eau Douce III*. N. Boubée & Cie. Paris. 512 pp.
- Braarud, T. & Fagerland, E. 1946. A coccolithophoride in laboratory culture, *Syracosphaera carterae* n. sp. *Avh. Nor. Vidensk. Akad. Oslo Mat. Naturvidensk. Kl.* 1, No. 2.
- Brown, R. M. & Bold, H. C. 1964. Phycological Studies V. Comparative studies of the algal genera *Tetracytis* and *Chlorococcum*. *University of Texas Publication No.* 6417.
- Butcher, R. W. 1952. Contributions to our knowledge of the smaller marine algae. *J. Mar. Biol. Assoc. U.K.* 31:175–91.
- . 1959. *An Introductory Account of the Smaller Algae of British Coastal Waters. Part I. Introduction and Chlorophyceae*. Fishery Investigations, London, series 4. 74 pp.
- Carefoot, R. J. 1968. Culture and heterotrophy of the freshwater dinoflagellate *Peridinium cinctum* (a. *ovoplanum* Lindeman). *J. Phycol.* 4:129–31.
- Chantanachai, S. & Bold, H. C. 1962. Phycological studies. II. Some algae from arid soils. *University of Texas Publication No.* 6218.

- Coleman, A. W. 1959. Sexual isolation in *Pandorina morum*. *J. Protozool.* 6:249-64.
- . 1963. Immobilization, agglutination and agar precipitin effects of antibodies to flagella of *Pandorina* mating types. *J. Protozool.* 10:141-8.
- & Zollner, J. 1977. Cytogenetic polymorphism within the species *Pandorina morum* Bory de St. Vincent (Volvocaceae). *Arch. Protistenk.* 119:224-32.
- Cook, P. W. 1962. Growth and reproduction of *Bulbochaete hilsenii* in unialgal culture. *Trans. Am. Microsc. Soc.* 81:384-95.
- . 1963a. Host range studies of certain phycomycetes parasitic on desmids. *Am. J. Bot.* 50:580-8.
- . 1963b. Variation in vegetative and sexual morphology among the small curved species of *Closterium*. *Phycologia* 3:1-18.
- Cox, Edmund R. 1966. *Heterochlamydomonas*, a new alga from Tennessee. *J. Tenn. Acad. Sci.* 44:105-7.
- & Deason, T. R. 1968. *Axilosphaera* and *Heterotetrastis*, new chlorosphaeracean genera from Tennessee soil. *J. Phycol.* 4:240-9.
- Cox, Elenor R. & Arnott, H. J. 1971. The ultrastructure of the theca of the marine dinoflagellate *Eusculifera loeblichii* sp. nov. In Parker, B. C. & Brown, R. M., Jr. [Eds.] *Contributions in Phycology*, Allen Press, Lawrence, Kansas, 121-36.
- Cox, Elenor R. & Bold, H. C. 1966. *Phycological Studies. VII. Taxonomic investigations of Stigeoclonium*. University of Texas Publication No. 6618.
- Craig, F. N. & Trelease, S. F. 1937. Photosynthesis of *Chlorella* in heavy water. *Am. J. Bot.* 24:232-42.
- Czurda, V. 1926. Die Reinkultur von Conjugaten. *Beih. Bot. Centralbl.* 53:213-42.
- . 1930. Experimentelle Untersuchungen über die Sexualitätsverhältnisse der Zygnemalen. *Beih. Bot. Centralbl.* 47:15-68.
- Dangeard, P. 1965. Sur deux Chlorococcales marines. *Botaniste* 48:65-74.
- Darden, W. H., Jr. 1966. Sexual differentiation in *Volvox aureus*. *J. Protozool.* 13:239-55.
- & Sayers, E. R. 1969. Parthenospore induction in *Volvox aureus* DS. *Microbios* 2:171-6.
- Davis, J. S. 1967. The life cycle of *Pediastrum simplex*. *J. Phycol.* 3:95-103.
- Deason, T. R. 1959. Three new Chlorophyceae from Alabama soil. *Am. J. Bot.* 46:572-8.
- . 1967a. *Chlamydomonas gymnogama*, a new homothallic species with naked gametes. *J. Phycol.* 3:109-12.
- . 1967b. *Pulchrasphaera*, a new chlorococcalean genus. *J. Phycol.* 3:19-21.
- . 1969. Filamentous and colonial soil algae from Dauphin Island, Alabama. *Trans. Am. Microsc. Soc.* 88:240-6.
- . 1971. The genera *Spongiococcum* and *Neospongiococcum*. I. The genus *Spongiococcum* and the multinucleate species of the genus *Neospongiococcum*. *Phycologia* 10:17-27.
- . 1976. The genera *Spongiococcum* and *Neospongiococcum*. III. New species, biochemical characteristics, and a summary key. *Phycologia* 15:197-213.
- & Bold, H. C. 1960. *Phycological studies. I. Exploratory studies of Texas soil algae*. University of Texas Publication No. 6022.
- Deason, T. R. & Cox, E. R. 1971. The genera *Spongiococcum* and *Neospongiococcum*. II. Species of *Neospongiococcum* with labile walls. *Phycologia* 10:255-62.
- Deason, T. R., Czygan, F.-C. & Soeder, C. J. 1977. Taxonomic significance of secondary carotenoid formation in *Neospongiococcum* (Chlorococcales, Chlorophyta). *J. Phycol.* 13:176-80.
- Deason, T. R. & Ratnasabapathy, M. 1976. A new homothallic variety of *Chlamydomonas moewusii* Gerloff. *J. Phycol.* 12: 82-5.
- Deflandre, G. & Dusi, H. 1935. Description d'une euglene nouvelle, *Euglena mesnili* nov. spec. *Arch. Zool. Exp. Gen. Notes Rev.* 77:12-4.
- Droop, M. R. 1953. On the ecology of flagellates from some brackish and fresh water rockpools of Finland. *Acta Bot. Fenn.* 51:1-52.
- . 1961. *Haemotococcus pluvialis* and its allies; III: Organic nutrition. *Rev. Algol.* n.s. 4:247-59.
- Dykstra, R. F. 1971. *Borodinelopsis texensis*: gen. et sp. nov. A new alga from the Texas Gulf Coast. In Parker, B. C. & Brown, R. M., Jr. [Eds.] *Contributions in Phycology*, Allen Press, Lawrence, Kansas, 1-8.
- Ellsworth, R. K. & Aronoff, S. 1968a. Investigations on the biogenesis of chlorophyll a. II. Chlorophyllide a accumulation by a *Chlorella* mutant. *Arch. Biochem. Biophys.* 125:35-9.
- . 1968b. Investigations on the biogenesis of chlorophyll a. III. Biosynthesis of Mg-vinylpheophorbide a₃ methylester from Mg-protoporphyrin IX monomethylester as observed in *Chlorella* mutants. *Arch. Biochem. Biophys.* 125:269-77.
- Ettl, H. 1959. Bemerkung zur Artabgrenzung einiger Chlamydomonaden. (Zur Kenntnis der Klasse Volvophyceae V.) *Nova Hedwigia* 1:167-93.
- . 1961. Zwei neue Chlamydomonaden. *Arch. Protistenk.* 105:273-80.
- . 1965. Beitrag zur Kenntnis der Morphologie der Gattung *Chlamydomonas* Ehrenberg. *Arch. Protistenk.* 108:271-430.
- Foo, S. K., Badour, S. S. & Waygood, E. R. 1971. Regulation of isocitrate lyase from autotrophic and photoheterotrophic cultures of *Gloeomonas* sp. *Can. J. Bot.* 49:1647-53.
- Fott, B. & McCarthy, A. J. 1964. Three acidophilic volvocine flagellates in pure culture. *J. Protozool.* 11:116-20.
- Fott, B. & Nováková, M. 1969. A monograph of the genus *Chlorella*. The fresh water species. In Fott, B. [Ed.] *Studies in Phycology*, Academia, Prague, 10-74.
- Friedmann, I. & Ocampo-Paus, R. 1965. A new *Chlorosarcinopsis* from the Negev Desert. *J. Phycol.* 1:185-91.
- Gassner, E. B. 1962. On the pigment absorbing at 750 mμ occurring in some blue-green algae. *Plant Physiol.* 37:637-9.
- George, E. A. [Ed.] 1976. *Culture Centre of Algae and Protozoa List of Strains 1976*. (3rd ed.) Institute of Terrestrial Ecology, Natural Environment Research Council, Cambridge. mimeographed. 120 pp.
- Gerisch, G. 1959. Die Zelldifferenzierung bei *Pleodorina californica* Shaw und die Organisation der Phytomonadenkolonien. *Arch. Protistenk.* 104:292-358.
- Gerloff, G. C., Fitzgerald, G. P. & Skoog, F. 1950. The isolation, purification, and culture of blue-green algae. *Am. J. Bot.* 37:216-8.
- Goldstein, M. 1964. Speciation and mating behavior in *Eudorina*. *J. Protozool.* 11:317-44.
- Gowans, C. S. 1963. The conspecificity of *Chlamydomonas eugametos* and *Chlamydomonas moewusii*: an experimental approach. *Phycologia* 3:37-44.
- Groover, R. D. & Bold, H. C. 1968. *Phycological notes. I. Oocystis polymorpha* sp. nov. *Southwest. Nat.* 13:129-35.
- . 1969. *Phycological Studies, VIII. The taxonomy and comparative physiology of the Chlorosarcinales and certain other edaphic algae*. University of Texas Publication No. 6907.
- Groover, R. D. & Hofstetter, A. M. 1969. *Planophila terrestris*, a new green alga from Tennessee soil. *Tulane Stud. Zool. Bot.* 15:75-80.
- Gross, J. A. & Jahn, T. L. 1958. Some biological characteristics of chlorotic substrains of *Euglena gracilis*. *J. Protozool.* 5:126-33.
- Gross, J. A., Stroz, R. J. & Britton, G. 1975. The carotenoid hydrocarbons of *Euglena gracilis* and derived mutants. *Plant Physiol.* 55:175-7.
- Guillard, R. R. L. 1960. A mutant of *Chlamydomonas moewusii* lacking contractile vacuoles. *J. Protozool.* 7:262-8.
- , Bold, H. C. & MacEntee, F. J. 1975. Four new unicel-

- lular chlorophycean algae from mixohaline habitats. *Phycologia* 14:13-24.
- Haines, K. C. 1966. The Inorganic Carbon and pH Requirements of *Tetralantus lagerheimii* Teiling. M.S. Thesis, Rutgers University, New Brunswick, New Jersey.
- Harris, D. O. & Starr, R. C. 1969. Life history and physiology of reproduction of *Platydorina caudata* Kofoid. *Arch. Protistenk.* 111:138-55.
- Herndon, W. 1958a. Studies on chlorosphaeracean algae from soil. *Am. J. Bot.* 45:298-308.
- . 1958b. Some new species of chlorococcacean algae. *Am. J. Bot.* 45: 308-23.
- Hoffman, L. R. 1965. Cytological studies of *Oedogonium*. I. Oospore germination in *O. foveolatum*. *Am. J. Bot.* 52:173-81.
- . 1967. Four new species of *Oedogonium*. *Can. J. Bot.* 45:405-10.
- & Manton, I. 1963. Observations on the fine structure of *Oedogonium*. II. The spermatozoid of *O. cardiacum*. *Am. J. Bot.* 50:455-63.
- Hoshaw, R. W. 1965. Mating types of *Chlamydomonas* from the collection of Gilbert M. Smith. *J. Phycol.* 1:194-6.
- & Ettl, H. 1966. *Chlamydomonas smithii* sp. nov.—a chlamydomonad interfertile with *Chlamydomonas reinhardtii*. *J. Phycol.* 2:93-6.
- Hughes, E. O., Gorham, P. R. & Zehnder, A. 1958. Toxicity of a unialgal culture of *Microcystis aeruginosa*. *Can. J. Microbiol.* 4:225-36.
- Hutner, S. H., Bach, M. K. & Ross, G. I. 1956. A sugar-containing basal medium for vitamin B₁₂-assay with *Euglena*; application to body fluids. *J. Protozool.* 3:101-12.
- Jaag, O. 1933. *Coccomyxa* Schmidle. Monographie einer Algen-gattung. *Beitr. Kryptogamenflora Schweiz* 8(1):1-132.
- Kallio, P. 1951. The significance of nuclear quantity in the genus *Microsterias*. *Ann. Bot. Soc. Zool. Bot. Fenn. Vanamo* 24(2):1-122.
- . 1953. The effect of continued illumination on the desmids. *Arch. Soc. Zool. Bot. Fenn. Vanamo* 8(1):58-74.
- . 1957. Studies on artificially produced diploid forms of some *Microsterias* species (Desmidiaceae). *Arch. Soc. Zool. Bot. Fenn. Vanamo* 11(2):193-204.
- . 1960. Morphogenetics of *Microsterias americana* in clone culture. *Nature London* 187:164-6.
- . 1963. The effects of ultraviolet radiation and some chemicals on morphogenesis in *Microsterias*. *Ann. Acad. Sci. Fenn. Ser. A4* 70:1-39.
- Kantz, T. & Bold, H. C. 1969. Phycological studies IX. Morphological and taxonomic investigations of *Nostoc* and *Anabaena* in culture. *University of Texas Publication* No. 6924. 67 pp.
- Kapraun, D. F. 1970. Field and cultural studies of *Ulva* and *Enteromorpha* in the vicinity of Port Aransas, Texas. *Contrib. Mar. Sci.* 15:205-85.
- Karn, R. C., Starr, R. C. & Hudock, G. A. 1974. Sexual and asexual differentiation in *Volvox obversus* (Shaw) Printz, strains Wd3 and Wd7. *Arch. Protistenk.* 116:142-8.
- Kessler, E. 1976. Comparative physiology, biochemistry, and the taxonomy of *Chlorella* (Chlorophyceae). *Plant Syst. Evol.* 125:129-38.
- & Maifarth, H. 1960. Vorkommen und Leistungsfähigkeit von Hydrogenase bei einigen Grünalgen. *Arch. Mikrobiol.* 37:215-25.
- Kessler, E. & Soeder, C. J. 1962. Biochemical contributions to the taxonomy of the genus *Chlorella*. *Nature London* 194:1096-7.
- King, J. M. 1972. Five new species of *Chlamydomonas*. *J. Phycol.* 8:120-6.
- . 1973. *Gloeococcus minutissimus* sp. nov. isolated from soil. *J. Phycol.* 9:349-52.
- Kochert, G. 1968. Differentiation of reproductive cells in *Volvox carteri*. *J. Protozool.* 15:438-52.
- . 1975. Developmental mechanisms in *Volvox* reproduction. *Symp. Soc. Study Dev. Growth* 33:59-90.
- & Yates, I. 1974. Purification and partial characterization of a glycoprotein sexual inducer from *Volvox carteri*. *Proc. Nat. Acad. Sci. USA* 71:1211-4.
- Komarek, J. 1970. Generic identity of the *Anacystis nidulans* strain Kratz-Allen/Bloom. 625 with *Synechococcus* Näg. 1849. *Arch. Protistenk.* 112:343-64.
- Kováčik, L. 1975. Taxonomic review of the genus *Tetradron* (Chlorococcales). *Arch. Hydrobiol. Suppl.* 46:354-91.
- Kratz, W. A. & Myers, J. 1955. Nutrition and growth of several blue-green algae. *Am. J. Bot.* 42:282-7.
- Lang, N. J. 1963a. Electron-microscopic demonstration of plastids in *Polytoma*. *J. Protozool.* 10:333-9.
- . 1963b. Electron microscopy of the Volvocaceae and Astrephomenaceae. *Am. J. Bot.* 50:280-300.
- . 1977. *Starria zimbabweensis* (Cyanophyceae) gen. nov. et sp. nov.; a filament triradiate in transverse section. *J. Phycol.* 13:288-96.
- Lazaroff, N. & Vishniac, W. 1962. The participation of filament anastomosis in the developmental cycle of *Nostoc muscorum*, a blue-green alga. *J. Gen. Microbiol.* 28:203-10.
- Lee, K. W. & Bold, H. C. 1973. *Pseudocharaciopsis texensis* gen. et sp. nov., a new member of the Eustigmatophyceae. *Br. Phycol. J.* 8:31-7.
- . 1974. Phycological Studies XII. *Characium* and some *Characium*-like algae. *University of Texas Publication* No. 7403.
- Lewin, J. C. 1958. The taxonomic position of *Phaeodactylum tricornutum*. *J. Gen. Microbiol.* 18:427-32.
- & Lewin, R. A. 1960. Auxotrophy and heterotrophy in marine littoral diatoms. *Can. J. Microbiol.* 6:127-34.
- & Philpott, D. E. 1958. Observations on *Phaeodactylum tricornutum*. *J. Gen. Microbiol.* 18:418-26.
- Lewin, R. A. 1954. Mutants of *Chlamydomonas moewusii* with impaired motility. *J. Gen. Microbiol.* 11:358-63.
- . 1957. Four new species of *Chlamydomonas*. *Can. J. Bot.* 35:321-6.
- . 1958. The cell walls of *Platymonas*. *J. Gen. Microbiol.* 19:87-90.
- . 1975. A *Chlamydomonas* with black zygospores. *Phycologia* 14:71-4.
- Lippert, B. E. 1967. Sexual reproduction in *Closterium moniliferum* and *Closterium ehrenbergii*. *J. Phycol.* 3:182-98.
- Lombard, E. H. & Capon, B. 1971. *Peridinium gregarium*, a new species of dinoflagellate. *J. Phycol.* 7:184-7.
- Lucksch, I. 1932. Ernährungsphysiologische Untersuchungen an *Chlamydomonaden*. *Beih. Bot. Centralbl.* 50:64-94.
- MacEntee, F. J., Bold, H. C. & Archibald, P. A. 1978. Correction of the name *Pseudotetradron polymorphum* (Chlorophyceae). *J. Phycol.* 14:234.
- Machlis, L. 1962. The nutrition of certain species of the green alga *Oedogonium*. *Am. J. Bot.* 49:171-7.
- Mainx, F. 1928. Einige neue Chlorophyceen (Tetrasporales und Protococcales). *Arch. Protistenk.* 64:93-5.
- Mann, J. E. & Myers, J. 1968. On pigments, growth, and photosynthesis of *Phaeodactylum tricornutum*. *J. Phycol.* 4:349-55.
- Manton, I. & Parke, M. 1960. Further observations on small green flagellates with special reference to possible relatives of *Chromulina pusilla* Butcher. *J. Mar. Biol. Assoc. U.K.* 39:275-98.
- Mattox, K. R. & Bold, H. C. 1962. Phycological studies. III. The taxonomy of certain ulotrichacean algae. *University of Texas Publication* No. 6222.
- McCracken, M. D. & Starr, R. C. 1970. Induction and development of reproductive cells in the K-32 strains of *Volvox roussletii*. *Arch. Protistenk.* 112:262-82.
- McLaughlin, J. J. A. 1958. Euryhaline chrysomonads; nutrition and toxigenesis in *Prymnesium parvum*, with notes on *Isochrysis galbana* and *Monochrysis lutheri*. *J. Protozool.* 5:75-81.
- McLean, R. J. & Trainor, F. R. 1965. *Fasciculochloris*, a new chloro-

- rosphaeracean alga from a Connecticut soil. *Phycologia* 4:145-8.
- McMillan, R. 1957. Morphogenesis and polymorphism of *Ankistrodesmus* spp. *J. Gen. Microbiol.* 17:658-77.
- Moewus, F. 1959. Stimulation of mitotic activity by benzidine and kinetin in *Polytoma uvella*. *Trans. Am. Microsc. Soc.* 78:295-304.
- Müller, D. G. 1967. Generationswechsel, Kernphasenwechsel und Sexualität der Braunalge *Ectocarpus siliculosus* im Kulturversuch. *Planta Berlin* 75:39-54.
- Neilson, A. H., Holm-Hansen, O. & Lewin, R. A. 1972. An obligately autotrophic mutant of *Chlamydomonas dysosmos*: a biochemical elucidation. *J. Gen. Microbiol.* 71:141-8.
- Nichols, H. W. & Bold, H. C. 1965. *Trichosarcina polymorpha* gen. et sp. nov. *J. Phycol.* 1:34-8.
- Ocampo-Paus, R. & Friedmann, I. 1966. *Radiosphaera negevensis* sp. n., a new chlorococcalean desert alga. *Am. J. Bot.* 53:663-71.
- O'h Eocha, C. & Rafferty, M. 1959. Phycoerythrins and phycocyanins of cryptomonads. *Nature London* 184:1049-51.
- Palmer, E. G. & Starr, R. C. 1971. Nutrition of *Pandorina morum*. *J. Phycol.* 7:85-9.
- Palmer, E. G. & Togasaki, R. K. 1971. Acetate metabolism by an obligate phototrophic strain of *Pandorina morum*. *J. Protozool.* 18:640-4.
- Pankratz, H. S. & Bowen, C. C. 1963. Cytology of blue-green algae. I. The cells of *Sympleca muscorum*. *Am. J. Bot.* 50:387-99.
- Parke, M. 1949. Studies on marine flagellates. *J. Mar. Biol. Assoc. U.K.* 28:255-86.
- , Manton, I. & Clarke, B. 1955. Studies on marine flagellates. II. Three new species of *Chrysochromulina*. *J. Mar. Biol. Assoc. U.K.* 34:579-609.
- 1959. Studies on marine flagellates. V. Morphology and microanatomy of *Chrysochromulina strobilus* sp. nov. *J. Mar. Biol. Assoc. U.K.* 38:169-88.
- Pascher, A. 1939. Heterokonten. In: *Rabenhorst's Kryptogamen-Flora*. Akademische Verlagsgesellschaft M. B. H., Leipzig. Vol. 11. 1092 pp.
- Pfiester, L. A. 1976. Sexual reproduction of *Peridinium williei*. *J. Phycol.* 12:234-8.
- 1977. Sexual reproduction of *Peridinium gatunense*. *J. Phycol.* 13:92-5.
- Pratt, R. 1941. Studies on *Chlorella vulgaris*. IV. Influence of the molecular proportions of KNO_3 , KH_2PO_4 , and MgSO_4 in the nutrient solution on the growth of *Chlorella*. *Am. J. Bot.* 28:492-7.
- Pringsheim, E. G. 1930. Neue Chlamydomonadaceen, welche in Reinkultur gewonnen wurden. *Arch. Protistenk.* 69:95-102.
- 1936. Zur Kenntnis saprotropher Algen und Flagellaten. I. Mitteilung. Über Anhaufungskulturen polysapropher Flagellaten. *Arch. Protistenk.* 87:96.
- 1942. Contributions to our knowledge of saprophytic algae and flagellata. III. *Astasia*, *Distigma*, *Menoidium*, and *Rhabdomonas*. *New Phytol.* 41:171-205.
- 1946. The biphasic or soil-water culture method for growing algae and flagellata. *J. Ecol.* 33:193-204.
- 1955. Über *Ochromonas danica* n. sp. und andere Arten der Gattung. *Arch. Mikrobiol.* 23:181-92.
- 1959. Kleine Mitteilungen über Flagellaten und Algen. V. *Gonium quadratum* nov. sp. *Arch. Mikrobiol.* 32:429-36.
- & Pringsheim, O. 1952. Experimental elimination of chromatophores and eye-spot in *Euglena gracilis*. *New Phytol.* 51:65-76.
- 1956. Kleine Mitteilungen über Flagellaten und Algen. IV. *Porphyridium cruentum* und *Porphyridium marinum*. *Arch. Mikrobiol.* 24:169-73.
- Provasoli, L., McLaughlin, J. J. A. & Droop, M. R. 1957. The development of artificial media for marine algae. *Arch. Mikrobiol.* 25:392-428.
- Provasoli, L. & Pintner, I. J. 1959. Artificial media for freshwater algae: problems and suggestions. In: Tryon, C. A. & Hartman, R. T. [Eds.] *The Ecology of Algae*. Special Publication No. 2. Pymatuning Laboratory of Field Biol. University Pittsburgh, 84-96.
- Rayburn, W. R. 1974. Sexual reproduction in *Pandorina unicocca*. *J. Phycol.* 10:258-65.
- & Starr, R. C. 1974. Morphology and nutrition of *Pandorina unicocca* sp. nov. *J. Phycol.* 10:42-9.
- Reimann, B. E. F. & Lewin, J. C. 1964. The diatom genus *Cylindrotheca* Rabenhorst (with a reconsideration of *Nitzschia closterium*). *J. Roy. Microsc. Soc.* 83:283-96.
- Richardson, F. L. & Brown, T. E. 1970. *Glaucosphaera vacuolata*, its ultrastructure and physiology. *J. Phycol.* 6:165-71.
- Rippka, R., Neilson, A., Kunisaua, R. & Cohen-Bazire, G. 1971. Nitrogen fixation by unicellular blue-green algae. *Arch. Mikrobiol.* 76:341-8.
- Rosowski, J. R. & Parker, B. C. [Eds.] 1971. *Selected Papers in Phycology*. Department of Botany, University of Nebraska, Lincoln. 876 pp.
- Safferman, R. S. & Morris, M. 1963. Algal virus: isolation. *Science* 140:679-80.
- Shihira, I. & Krauss, R. W. 1965. *Chlorella: physiology and taxonomy of forty-one isolates*. University of Maryland, College Park. 97 pp.
- Singh, K. P. 1956. Studies in the genus *Trachelomonas*. I. Description of six organisms in cultivation. *Am. J. Bot.* 43:258-66.
- Sorokin, C. & Myers, J. 1953. A high-temperature strain of *Chlorella*. *Science* 117:330-1.
- Sorokin, C. & Krauss, R. W. 1958. The effects of light intensity on the growth rates of green algae. *Plant Physiol.* 33:109-13.
- Starr, R. C. 1953a. On the morphology and reproduction of *Characium saccatum* Filarsky. *Bull. Torrey Bot. Club* 80:308-13.
- 1953b. Further studies in the genus *Chlorococcum* Meneghini. *Lloydia* 16:142-8.
- 1954a. Reproduction by zoospores in *Tetradron bitridens*. *Am. J. Bot.* 41:17-20.
- 1954b. Reproduction by zoospores in *Planktosphaeria gelatinosa* G. M. Smith. *Hydrobiologia* 6:392-7.
- 1954c. Inheritance of mating type and a lethal factor in *Cosmarium botrytis* var. *subtimum* Wütr. *Proc. Nat. Acad. Sci. USA* 40:1060-3.
- 1955a. Isolation of sexual strains of placoderm desmids. *Bull. Torrey Bot. Club* 82:261-5.
- 1955b. A comparative study of *Chlorococcum* Meneghini and other spherical, zoospore-producing genera of the Chlorococcales. *Indiana University Science Series* No. 20. 111 pp.
- 1955c. Zygospor germination in *Cosmarium botrytis* var. *subtimum*. *Am. J. Bot.* 42:577-81.
- 1955d. Sexuality in *Gonium sociale* (Dujardin) Warming. *J. Tenn. Acad. Sci.* 30:90-3.
- 1958a. The production and inheritance of the triradiate form in *Cosmarium turpinii*. *Am. J. Bot.* 45:243-8.
- 1958b. Asexual spores in *Closterium didymotocum* Ralfs. *New Phytol.* 57:187-90.
- 1959. Sexual reproduction in certain species of *Cosmarium*. *Arch. Protistenk.* 104:155-64.
- 1962. A new species of *Volvulina* Playfair. *Arch. Mikrobiol.* 42:130-7.
- 1963. Homothallism in *Golenkinia minutissima*. In: *Studies on Microalgae and Photosynthetic Bacteria*, University of Tokyo Press, Tokyo, 3-6.
- 1964. The Culture Collection of Algae at Indiana University. *Am. J. Bot.* 51:1013-44.
- 1966. Culture Collection of Algae—additions to the collection July 1, 1963–July 1, 1966. Privately printed. 8 pp.
- 1968. Cellular differentiation in *Volvax*. *Proc. Nat. Acad. Sci. USA* 59:1082-8.
- 1969. Structure, reproduction, and differentiation in

- Volvox carteri* f. *nagariensis* Iyengar, strains HK 9 & 10. *Arch. Protistenk.* 111:204-22.
- . 1970. *Volvox poockiae*, a new species with dwarf males. *J. Phycol.* 6:234-9.
- . 1971a. Sexual reproduction in *Volvox africanus*. In Parker, B. C. & Brown, R. M. [Eds.] *Contributions to Phycology*, Allen Press, Lawrence, Kansas, 59-66.
- . 1971b. Control of differentiation in *Volvox*. *Symp. Soc. Study Dev. Growth* 29:59-100.
- . 1971c. Algal cultures, sources and methods of cultivation. In San Pietro, A. [Ed.] *Methods in Enzymology*, Academic Press, New York, 23(A):29-53.
- . 1971d. The Culture Collection of Algae at Indiana University—additions to the Collection July 1966–July 1971. *J. Phycol.* 7:350-62.
- . 1972a. A working model for the control of differentiation in *Volvox carteri* f. *nagariensis* Iyengar. *Mem. Soc. Bot. Fr.* 1972:175-82.
- . 1972b. Sexual reproduction in *Volvox dissipatrix* (abst.). *Br. Phycol. J.* 7:284.
- & Jaenicke, L. 1974. Purification and characterization of the hormone initiating sexual morphogenesis in *Volvox carteri* f. *nagariensis* Iyengar. *Proc. Nat. Acad. Sci. USA* 71:1050-4.
- Starr, R. C. & Rayburn, W. R. 1964. Sexual reproduction in *Mesotaenium kramstai*. *Phycologia* 4:23-6.
- Stein, J. R. 1958. A morphologic and genetic study of *Gonium pectorale*. *Am. J. Bot.* 45:664-72.
- . 1959. The four-celled species of *Gonium*. *Am. J. Bot.* 46:366-71.
- Stewart, J. K., Stewart, J. R. & Bold, H. C. 1978. Morphology and life history of *Characiosiphon rivularis* Iyengar (Chlorophyta-Characiosiphoniaceae)—light and electron-microscopic study. *Arch. Protistenk.* 120:312-40.
- Stewart, W. P. D. 1974. *Algal Physiology and Biochemistry*. Blackwell Scientific Publ., Oxford. 989 pp.
- Sueoka, N. 1960. Mitotic replication of deoxyribonucleic acid in *Chlamydomonas reinhardtii*. *Proc. Nat. Acad. Sci. USA* 46:83-91.
- Tanada, T. 1951. The photosynthetic efficiency of carotenoid pigments in *Navicula minima*. *Am. J. Bot.* 38:276-83.
- Tischer, R. G. & Moore, B. G. 1964. Extracellular polysaccharides of algae: effects on life-support systems. *Science* 145:586-7.
- Tomas, R. N. & Cox, E. R. 1973. Observation on the symbiosis of *Peridinium balticum* and its intracellular alga. I. Ultrastructure. *J. Phycol.* 9:304-23.
- Trainor, F. R. 1963. The occurrence of a *Dactylococcus*-like stage in an axenic culture of a *Scenedesmus*. *Can. J. Bot.* 41:967-8.
- & Bold, H. C. 1953. Three new unicellular Chlorophyceae from soil. *Am. J. Bot.* 40:758-67.
- Trainor, F. R. & Burg, C. A. 1965. Motility in *Scenedesmus dimorphus*, *Scenedesmus obliquus*, and *Coelastrum microporum*. *J. Phycol.* 1:15-8.
- Trainor, F. R. & Hilton, R. L., Jr. 1963. Culture of *Scenedesmus longus*. *Bull. Torrey Bot. Club* 90:407-12.
- . 1966. *Chlorosarcinopsis variabilis* sp. nov. from a Connecticut cornfield soil. *J. Phycol.* 2:156-9.
- Trainor, F. R. & Verses, P. A. 1967. A new *Chlorococcum* from a Connecticut cornfield soil. *Phycologia* 6:237-9.
- Tsubo, Y. 1961. Chemotaxis and sexual behavior in *Chlamydomonas*. *J. Protozool.* 8:114-21.
- Tupa, D. D. 1974. An investigation of certain chaetophorean algae. *Nova Hedwigia Beihefte* 46:1-155.
- Uhlik, D. J. & Bold, H. C. 1970. Two new species of *Chlamydomonas*. *J. Phycol.* 6:106-10.
- Van Baalen, C. 1967. Further observations on growth of single cells of coccoid blue-green algae. *J. Phycol.* 3:154-7.
- Vande Berg, W. J. & Starr, R. C. 1971. Structure, reproduction and differentiation in *Volvox gigas* and *Volvox perversi*. *Arch. Protistenk.* 113:195-219.
- Van den Hoek, C. 1963. Revision of the European species of *Gladophora*. E. J. Brill, Leiden. 248 pp. 55 pl.
- Vandover, B. 1972. Studies of the Ultrastructure and Reproduction of Several Species of *Chlamydomonas* and *Carteria*. Ph.D. Dissertation, University of Texas at Austin. 198 pp.
- Vischer, W. 1932. Experimentelle Untersuchungen (Gallertbildung) mit *Mischococcus sphaerocephalus* Vischer. *Arch. Protistenk.* 76:257-73.
- . 1933. Über einige kritisch Gattungen und die Systematik der Chaetophorales. *Brh. Bot. Centralbl.* 51:1-100.
- . 1935. Zur Morphologie, Physiologie und Systematik der Blutalge, *Porphyridium cruentum* Naegeli. *Verh. Naturforsch. Ges. Basel* 46:66-103.
- . 1936. Über Heterokonten und Heterokonten-ähnliche Grünalgen (*Bumilleriopsis*, *Heterothrix*, *Heterococcus*, *Dictyococcus*, *Muriella*). *Ber. Schweiz. Bot. Ges.* 45:372-410.
- . 1937. Über einige Heterokonten (*Heterococcus*, *Chlorellidium*) und ihren Polymorphismus. *Ber. Schweiz. Bot. Ges.* 47:225-50.
- . 1938. Zur Kenntnis der Gattung *Botrydium*. *Ber. Schweiz. Bot. Ges.* 48:538-61.
- . 1941. Über eine durch *Raphidoneura spiculiforme* nov. spec. verursachte Wasserblute und ihre experimentelle Untersuchung. *Zeitschrift für Hydrologie der Hydrobiologischen Kommission der Schweizerischen Naturforschungs Gesellschaft* 9:108-27.
- . 1945. Heterokonten aus Alpinen Boden, speziell dem Schweizerischen Nationalpark. *Ergebnisse der wissenschaftlichen Untersuchung des schweizerischen Nationalparks* 1 n.F.(12):481-512.
- Waris, H. 1953. The significance for algae of chelating substances in the nutrient solutions. *Physiol. Plant.* 6:538-43.
- West, J. A. 1967. *Pylaiella littoralis* f. *rupicola* from Washington: the life history in culture. *J. Phycol.* 3:150-3.
- . 1968. Morphology and reproduction of the red alga *Acrochaetium pectinatum* in culture. *J. Phycol.* 4:89-99.
- . 1969. Observations on four rare marine micro-algae from Hawaii. *Phycologia* 8:187-92.
- . 1972. Environmental control of hair and sporangial formation in the marine red alga *Acrochaetium proskaueri* sp. nov. *Proc. Int. Seaweed Symp.* 7:377-84.
- Weise, L. 1965. On sexual agglutination and mating-type substances (gamones) in isogamous heterothallic chlamydomonads. I. Evidence of the identity of the gamones with the surface components responsible for sexual flagellar contact. *J. Phycol.* 1:46-54.
- & Wiese, W. 1977. On speciation by evolution of gametic incompatibility: a model case in *Chlamydomonas*. *Am. Nat.* 111:733-42.
- Winokur, M. 1948. Growth relationships of *Chlorella* species. *Am. J. Bot.* 35:118-29.
- Winter, P. A. & Biebel, P. 1967. Conjugation in a heterothallic *Staurastrum*. *Proc. Pa. Acad. Sci.* 40:76-9.
- Wyatt, J. T. & Silvey, J. K. G. 1969. Nitrogen fixation by *Gloerocapsa*. *Science* 165:908-9.
- Wynne, M. J. & Edwards, P. 1970. *Polysiphonia boldii* sp. nov. from Texas. *Phycologia* 9:11-6.
- Ziegler, J. R. & Kingsbury, J. M. 1964. Cultural studies on the marine green alga *Halcyx parvula*-*Derbesia tenuissima*. I. Normal and abnormal sexual and asexual reproduction. *Phycologia* 4:105-16.

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.

This document is a scanned copy of a printed document. No warranty is given about the accuracy of the copy. Users should refer to the original published version of the material.