REMARKS ON ALGAL NOMENCLATURE. III.

Paul C. Silva (Urbana, Illinois)*

XII. *Flagellates.*

Eight generic names of flagellates were proposed for conservation by Senn (in Briquet, Rec. Syn. Ve Congr. Int. Bot. 128. 1930), but these proposals have not been acted upon by any Congress. They are herein reviewed, together with certain other problematical generic names.

(64) *Nomen conservandum propositum:* **Phacus** Dujardin, Hist. Nat. Zooph. 334. 1841. Euglenaceae (Euglenophyta). Species lectotypica: *P. longicauda* (Ehrenb.) Dujardin (*Euglena longicauda* Ehrenberg, Abh. K. Akad. Wiss. Berlin, Phys. Kl. 1830: 83. 1830; *ibid.* 1831: 72, pl. I, fig. VI. 1832; Infusionsthierchen 111, pl. VII, fig. XIII. 1838).

Nomen rejiciendum propositum: Phacus Nitzsch in Ersch et Gruber, Allg. Encycl. Wiss. Künste, sect. 1. 16: 69. 1827. Species lectotypica: *Cercaria pleuronectes* O. F. Mueller.

The genus *Cercaria* was established by O. F. Mueller (1773, p. 64) on the basis of eight species, namely, *C. gyrinus, C. catellus, C. podura, C. lupus, C. lemna, C. cyclidium, C. tenax,* and *C. pleuronectes.* Mueller later (1776, 1786) added fourteen species, including *C. discus, C. tripos, C. turbo,* and *C. viridis.* The first attempt to divide the species of *Cercaria* among several smaller genera was made by Nitzsch. In a footnote on page 4 of his paper, "Beitrag zur Infusorienkunde oder Naturbeschreibung der Zerkarien und Bazillarien," published in Neue Schriften der naturforschenden Gesellschaft zu Halle, Dritter Band, Heft I, 1817 **), Nitzsch proposed the recognition of twelve genera, mentioning included species but failing to give names or diagnoses for new genera. In 1823 Bory de Saint-Vincent (pp. 355, 356) named and characterized six genera, which he grouped into the new family Cercariées. These genera were treated individually and assigned species in various articles in the Dictionnaire Classique and in the Encyclopédie Méthodique during the years 1823 and 1824. In 1827 (in the article entitled "Cercaria" in Ersch and Gruber's encyclopedia) Nitzsch validated his previously suggested taxonomic treatment with names and diagnoses. Thus originated two partially competitive systems. Bory's *Tripos* (1823, p. 356; 1824, pp. 526, 753) was based on *Cercaria tripos* Mueller, which had previously (and correctly) been assigned to *Ceratium* Schrank (1793) by Nitzsch (1816). Bory's *Turbinilla* (1823, p. 356; 1824, pp. 525, 760, '*Turbinella*') was based on *Cercaria turbo* Mueller, which is also the type of *Urocentrum* Nitzsch (1827), currently recognized as a genus of holotrichous ciliates. To his genus *Virgulina,* Bory (1823, p. 356) first assigned (1824, p. 526) *Cercaria pleuronectes* Mueller and *C. cyclidium* Mueller, later (1824, p. 781) adding *C. discus* Mueller and *C. tenax* Mueller. Nitzsch (1827) referred *C. cyclidium* and *C. discus* to the genus *Cyclidium* Mueller (1773) and established the genus *Phacus* on the basis of *C. pleuronectes* and *C. tenax.* Thus *Phacus* is an illegitimate name inasmuch as it was superfluous at the time it was proposed, Nitzsch being obliged to retain *Virgulina* in some circumscription. While there is undoubtedly strong sentiment for conserving the name *Phacus,* there are certain technical difficulties which should be carefully considered. In determining the type of *Phacus,* we should note that of the two original species, *Cercaria tenax* is believed by Dobell (1939) to be referable to *Trichomonas* Donné (1836). The identity of *Cercaria pleuronectes* seems to be much in doubt. The description "... albida ... Mortua complanata virentem colorem induit" is puzzling and suggests that if Mueller really had *Phacus* in hand, it was a hyaline form. The taxonomic disposition of these colorless forms of *Phacus,* many of which have the general cell form of *P. pleuronectes,* varies. In the boldest treatment, Pringsheim (1936, p. 58) refers them to a separate genus, *Hyalophycus.* Ehrenberg (1838) doubted that either Mueller, Bory, or Nitzsch had in hand what he called *Euglena pleuronectes* (and what today perhaps most taxonomists consider to be *P. pleuronectes*). Ehrenberg did not recognize *Phacus,* however, and the first worker after Nitzsch to employ the name was Dujardin (1841), who expressed no doubt that his

*) I am grateful to Professor G. F. Papenfuss for critically reading this manuscript.

**) In a footnote on page 67 of volume 16 of the first section of Ersch and Gruber, Allgemeine Encyclopädie der Wissenschaften und Künste, Nitzsch states that this paper appeared in 1816, despite the 1817 date on the title page.

material (obviously *Phacus*, to judge from his figures) was at least in part the same species as Mueller's and Nitzsch's *Cercaria pleuronectes* and Bory's *Virgulina pleuronectes*. Thus, while it seems safer to propose *Phacus* for conservation as of Dujardin rather than as of Nitzsch, there is still the question of the type. Inasmuch as Dujardin cited *Cercaria pleuronectes* Mueller as a synonym of *Phacus pleuronectes*, retention of this historically correct type would argue for conservation of *Phacus* as of Nitzsch. A solution to the dilemma, which I hereby propose, would be to select as the type of the conserved genus *P. longicauda* (Ehrenb.) Dujardin (*Euglena longicauda* Ehrenberg), whose identity as a species of *Phacus* is beyond reasonable doubt. It should be noted that *Phacus* is almost always attributed to Dujardin, even though Dujardin himself attributed it to Nitzsch.

Phacus is a large genus (at least 150 species) abundantly distributed throughout the world. The firm establishment of this name in literature gives strong support to conservation. Arguments against conservation, in addition to opposition to legislating exceptions to the rule of priority, might include unwillingness to conserve a name with altered circumscription and type.

Euglena (Euglenaceae, Euglenophyta). This genus was established by Ehrenberg (1830a, p. 508) to accommodate those euglenoid organisms that have eyespots. Five species were originally assigned to *Euglena*, namely, *Cercaria viridis* Mueller, *C. pleuronectes* Mueller, *Vibrio acus* Mueller, *Euglena spirogyra* Ehrenb. (*nomen nudum*), and *E. sanguinea* Ehrenb. (*nomen nudum*, non *E. sanguinea* (Nees et Goldf.) Ehrenb.). Dujardin (1841, pp. 349, 358) lectotypified *Euglena* with *Cercaria viridis*.

Other generic names to be considered in connection with *Euglena* include *Haematococcus* C. Ag., *Amblyophis* Ehrenb., *Lacrimatoria* Bory, *Furcocerca* Lamarck, and *Raphanella* Bory.

Haematococcus C. Agardh (Icon. Alg. Eur. no. XXII. 1828) originally comprised three species: *H. noltii* C. Ag., usually considered representative of *Euglena; H. grevillii* C. Ag., of controversial identity; and *H. sanguinea* (C. Ag.) C. Ag. (*Palmella sanguinea* C. Ag.), usually referred to *Gloeocapsa* Kuetzing 1843. Wille (Nyt Mag. Naturv. 41: 97. 1903), in accordance with the principle of residue, regarded as lectotype *H. grevillii*, which he considered conspecific with *H. pluvialis* Flotow. This lectotypification overlooks an earlier one by Trevisan (Alg. Coccot. 38. 1848), who selected *H. noltii*. *Euglena* is thus seen to be in need of conservation; but if Droop's proposal (Rev. Alg. n.s. 2: 182-192. 1956) for the conservation of *Haematococcus* Flotow 1844 vs. *Haematococcus* C. Agardh 1828 is accepted, *Euglena* will remain the correct name for its genus. *)

Amblyophis was established by Ehrenberg (1832, p. 73) to accommodate those euglenoid organisms with an eyespot but without a tail. The single species, *A. viridis*, was referred to *Euglena* by Klebs in 1883 (as *E. ehrenbergii*, the binomial *E. viridis* being preoccupied).

Lacrimatoria Bory (1824, p. 479; 1826, p. 158, '*Lacrymatoria*') originally comprised six species of diverse relationships, including *Vibrio acus* Mueller, which was referred to *Euglena* by Ehrenberg in his original treatment of that genus. Ehrenberg (1830b, p. 42) changed the spelling to *Lacrymaria*, later (1838, p. 309) commenting that this name was "sprachlich vorzuziehende." Previously (1832, p. 105) he had indirectly lectotypified the genus by retaining in it only *Vibrio olor* Mueller (a ciliate) of the six original species. In 1834 (p. 316) he established the genus *Trachelocerca* to encompass three species, including *Vibrio olor*. Protozoologists currently refer this species to either *Lacrymaria* or *Trachelocerca*, both of which names would be illegitimate in accordance with the Botanical Code. It is sufficient for our purpose, however, to note that *Lacrymatoria* applies to a genus of ciliates rather than to euglenids.

Furcocerca Lamarck (1815, p. 446) originally comprised eight species, including *Cercaria viridis* Mueller. It was emended with the exclusion of *C. viridis* by Bory in 1824 (p. 424), who (1824, p. 665) included this species together with six other species of diverse relationships in his new genus *Rapha-*

*) On the basis of the inclusion of *Cercaria pleuronectes* Mueller in the original treatment of *Euglena*, it could be contended that this generic name, like *Phacus*, is a superfluous substitute for *Virgulina*. However, Ehrenberg's (1838, p. 111) expression of doubt as to the identity of both *Virgulina pleuronectes* Bory and *Phacus pleuronectes* Nitzsch (as distinguished from *Cercaria pleuronectes* Mueller) would seem to weaken, if not nullify, this argument.

nella. Cercaria viridis was soon afterward removed to *Euglena* by Ehrenberg (1830a, p. 508). Neither *Furcocerca* nor *Raphanella* appears in recent protozoological literature; for our purpose, however, it is sufficient to note that with the removal of *Cercaria viridis* to *Euglena* these generic names remain to apply to presumably non-algal organisms, probably ciliates.

(65) *Nomen conservandum propositum:* **Lepocinclis** Perty, Mitt. Naturf. Ges. Bern 1849: 28, adnot. 1849. Euglenaceae (Euglenophyta). Species lectotypica: *L. globulus* Perty, loc. cit.

Nomen rejiciendum propositum: Crumenula Dujardin, Ann. Sc. Nat. Zool. ser. 2. 5: 204 ('*Crumenule*'); 205, explanation to plate ('*Crumenula*'). Species typica: *C. texta* Dujardin, Hist. Nat. Zooph. 339, pl. V, fig. 8. 1841.

This proposal was made by Senn. There is considerable doubt, however, that the two names apply to the same genus. Skuja (1948, p. 193) gives several reasons for considering *Crumenula texta* a species of *Euglena,* but one which approaches *Lepocinclis.* This opinion is shared by Pringsheim (1956, p. 139), although not by Gojdics (1953, p. 187). Even if the two names were considered to apply to the same genus, *Lepocinclis* would not be universally accepted as its name. Cunha (1914, p. 170), Deflandre (1928, p. 138), and others have chosen to use *Crumenula* rather than *Lepocinclis.* Thus conservation would appear to be inadvisable.

(66) *Nomen conservandum propositum:* **Astasia** Dujardin, Hist. Nat. Zooph. 356. 1841. Astasiaceae (Euglenophyta). Species lectotypica: *A. limpida* Dujardin, op cit. 357, pl. V, fig. 12.

Nomen rejiciendum propositum: Astasia Ehrenberg, Annalen der Physik 94: 508. 1830. Species lectotypica: *A. haematodes* Ehrenberg.

Astasia was established by Ehrenberg to include those euglenoid organisms that lack an eyespot. Three species were originally assigned to the genus, namely, *A. haematodes* Ehrenb., *Enchelys sanguinea* Nees et Goldfuss, and *Volvox lacustris* Girod Chantrans (the latter with a query). Ehrenberg (1838, pp. 101, 105) lectotypified *Astasia* with *A. haematodes* by removing the other two species to the synonymy of *Euglena sanguinea* (Nees et Goldf.) Ehrenb. But *A. haematodes* is also referable to *Euglena.* The first circumscription to include the character of apochlorosis was that of Dujardin, and it should be noted that *Astasia* is often ascribed to that author.

Astasia would seem to meet the requirements of Article 14 for conservation. It is a moderately large genus (at least 30 species) and is widespread. It is the type of a currently accepted family. Arguments against conservation, in addition to reluctance to legislating exceptions to the rule of priority, might include unwillingness to conserve a name with altered circumscription and type.

(67) *Nomen conservandum propositum:* **Anisonema** Dujardin, Hist. Nat. Zooph. 344. 1841. Peranemataceae (Euglenophyta). Species lectotypica: *A. acinus* Dujardin, op. cit. 345, pl. 4, fig. 27.

Nomen rejiciendum propositum: Anisonema A. Jussieu, Euphorb. 19. 1824. Euphorbiaceae (Spermatophyta). Species holotypica: *A. reticulatum* (Poiret) A. Jussieu (*Phyllanthus reticulatus* Poiret).

Dujardin originally included two species in *Anisonema, A. acinus* and *A. sulcata* Dujardin (op. cit. 344, pl. 4, fig. 28). He indicated that the latter species should probably constitute a distinct genus, and Stein (1878, pl. XXIV, figs. 17-25) established *Entosiphon* to accommodate it, thus lectotypifying *Anisonema* with *A. acinus.*

The earlier homonym for the past century has been considered a taxonomic synonym of *Phyllanthus* Linnaeus (1753).

Anisonema Duj. is a widespread genus of about eighteen species. Throughout its long history it has gone solely under its present name. Arguments against conservation, in addition to the undesirability of legislating exceptions to the rule of priority, might include unwillingness to preclude the possible future use of this name in the Euphorbiaceae. *Metanema* (Klebs) Senn (1900, p. 184) is a taxonomic synonym of *Anisonema* Duj.

Dinematomonas nom. nov. *Dinema* Perty, Kenntn. Kleinst. Lebensf. 169. 1852. Peranemataceae (Euglenophyta). Non *Dinema* Lindley, Orch. Scel. 16. 1826. Orchidaceae (Spermatophyta). Lectotype species: **Dinematomonas griseola** (Perty) comb. nov. (*Dinema griseolum* Perty, loc. cit.). Other species: **Dinematomonas litoralis** (Skuja) comb. nov. (*Dinema litorale* Skuja, Acta Horti Bot. Univ. Latv. 11/12: 145. 1939).

The holotype of *Dinema* Lindley, *Epidendrum polybulbon* Swartz, is usually retained in *Epidendrum* Linnaeus (1753). *Dinema* is

also preoccupied in the animal kingdom by a genus of Coleoptera (*Dinema* Fairmaire, Rev. Mag. Zool. ser. 2. 1: 457. 1849).

Dinema Perty seems too small and not sufficiently widespread in literature to warrant conservation.

(68) *Nomen conservandum propositum:* **Notosolenus** A. C. Stokes, Am. Journ. Sc. 128(164): 158. Aug. 1884. Peranemataceae (Euglenophyta). Species typica: *N. apocamptus* (Stokes) Stokes (*Solenotus apocamptus* Stokes).

Nomen rejiciendum propositum: Solenotus A. C. Stokes, Am. Journ. Sc. 128(163): 48. July 1884. Species typica: S. *apocamptus* Stokes, loc. cit. (type indicated by author).

Immediately after establishing the genus *Solenotus,* Stokes realized that this name was preoccupied (in the animal kingdom) and substituted the name *Notosolenus.* According to the Botanical Code, the correct name is *Solenotus.* However, inasmuch as this widespread genus of about thirteen species has exclusively gone under the name *Notosolenus* for 74 years and has been treated in numerous monographs and texts, it would seem appropriate to conserve this name. The proposal was made by Senn. Arguments against conservation would include the undesirability of legislating exceptions to the rule of priority.

Peranema (Peranemataceae, Euglenophyta). This genus was originally named Pyronème by Dujardin (1836, p. 203), but the question whether this should be considered valid publication in view of the French form of the name is obviated by the existence of an earlier *Pyronema,* applied to a genus of fungi by Carus in 1835. Dujardin (1841, p. 353) changed the name to *Peranema* for etymological reasons, but this name had been applied previously by Don (1825, p. 12) to a genus of ferns which is still considered autonomous. Conservation thus being precluded, an awkward situation arises in that protozoologists will continue to apply the name *Peranema* to this small, though widespread and well-known, genus, while phycologists must seek another name. In searching for legitimate synonyms, *Peranemopsis* comes into consideration. This genus was established by Lackey (1940, p. 467) to receive a *Peranema*-like marine organism, but one with only one flagellum and one pharyngeal rod. Skuja (1948, p. 231) believes that the species which is usually considered to be the type of *Peranema, P. trichophorum* (Ehrenb.) Stein, may normally have only one flagellum, despite several reports to the contrary by other investigators. Skuja therefore reduces *Peranemopsis* to the synonymy of *Peranema.* Any decision regarding the correct name of this genus obviously must await further taxonomic study.

Petalomonas (Peranemataceae, Euglenophyta). This genus was established by Stein (1859, p. 76, adnot.) on the basis of *Cyclidium abscissum* Dujardin. Conservation of *Petalomonas* against "*Cyclidium* Dujardin" has been proposed by Senn, but this proposal is groundless inasmuch as *Cyclidium* was founded by O. F. Mueller (1773) and as used by Dujardin was accredited to that author. It is the accepted name for a genus of holotrichous ciliates.

Monas (Monadaceae, Ochromonadales, Chrysophyceae). This genus as attributed to "Ehrenberg emend. Stein" (1878) was proposed for conservation against *Spumella* Cienkowsky (1870, p. 432) by Senn. *Monas* was established by O. F. Mueller (1773, p. 25) and originally included three species, namely, *M. termo, M. lens,* and *M. mica.* The first two species are considered by some workers to be conspecific with the organisms now usually known as *Oikomonas termo* (Oikomonadaceae) and *Bodo lens* (Bodonaceae), respectively. Kent (1880) removed these two species from *Monas* (to *Oikomonas* and *Heteromita,* respectively), thereby lectotypifying the genus with *M. mica.* The identity of this species is problematical. Ehrenberg in various publications added 24 species to *Monas,* including two, *M. guttula* and *M. vivipara,* which Stein (1878, pl. I, Abt. VI; pl. II, Abt. I) illustrated to the exclusion of all other species of the genus. Stein's treatment was considered an emendation by Senn (1900, p. 131), who attributed the genus directly to Stein. It was this circumscription that Senn had in mind when he proposed *Monas* for conservation against *Spumella,* whose type species, *S. vulgaris,* is usually considered congeneric with *Monas vivipara.* Upon these two species Pascher (1912, p. 190) established the genus *Heterochromonas,* which he considered a colorless counterpart of *Ochromonas.* Bourrelly (1957, p. 142) designated *H. vivipara* as lectotype.

Considering the facts that the identity of *Monas mica,* the lectotype of its genus as originally established, is not known and that the name *Monas* has been applied to a diverse

array of organisms, there seems little if any justification for conserving it, regardless of the circumscription selected for conservation. There also seems little justification for retaining the name *Heterochromonas* in view of the availability of *Spumella*. Bourrelly restricts the genus to those organisms which reveal their relationship to *Ochromonas* by the formation of endogenous cysts, among other criteria. This circumscription includes three species: *Spumella vulgaris* Cienk., *S. vivipara* (Ehrenb.) Kent, and **S. beauchampii** (Hovasse) comb. nov. (*Oicomonas beauchampi* Hovasse, Arch. Zool. Expér. Génér. 83 (Notes et Revue): 47. 1943).

Oikomonas (Oikomonadaceae, Protomastigineae). This genus was established by Kent (1880, p. 250) to receive six species of uniflagellate *Monas*-like organisms, of which *O. mutabilis* Kent was designated the type. It is retained in current protozoological literature largely on the basis of *O. termo* (O. F. Mueller) Clark, one of the original species. Senn proposed the conservation of *Oikomonas* (as *Oicomonas*) against *Cercomonas* Dujardin (1841, p. 287) *pro parte*, but this proposal is groundless inasmuch as *Cercomonas* is accepted by many workers as the name of a genus of biflagellate organisms in the Bodonaceae (Protomastigineae) which includes at least two of the original Dujardin species (*C. crassicauda* and *C. longicauda*). Some authors refer these two species to *Cercobodo* Krassilstschik (1886). Certain species referred to *Oikomonas* by authors other than Kent are now generally believed to be colorless counterparts of *Chromulina* Cienkowsky (1870), and for these species Pascher (1912, p. 190) erected the genus *Heterochromulina* (type: *Oikomonas ocellata* Scherffel), which Bourrelly (1957, p. 252) places in the Chromulinaceae. It is possible that one or more of the original species of *Oikomonas* may prove to lie within Pascher's circumscription of *Heterochromulina*.

Desmarella (Craspedomonadaceae, Protomastigineae). Senn proposed *Desmarella* Kent (1878a, p. 130, pl. III, fig. 23; 1878b, p. 147, pl. VII, fig. 9) for conservation against "? *Hirmidium* Perty" (1852, p. 178) and *Codonodesmus* Stein (1878, pl. IX, figs. 10-12). Elsewhere, Senn (1900, p. 126) admits that the identification of *Desmarella* with *Hirmidium* "ist zu hypothetisch", and inasmuch as Kent's papers appeared several months before Stein's work (April and August compared with November), there is no need for conservation.

Bodo (Bodonaceae, Protomastigineae). This genus as attributed to "Ehrenberg emend. Stein" (1878) was proposed for conservation against *Heteromita* Dujardin (1841, p. 297) by Senn. *Bodo* was described by Ehrenberg (1830b, p. 38) and assigned three species, namely, *B. didymus*, *B. viridis*, and *B. vorticellaris*, all *nomina nuda*. These were validated together with two additional species, *B. saltans* and *B. socialis*, in 1832 (p. 65). Dujardin (1841, p. 298, adnot.) did not adopt the genus inasmuch as he considered the various species of Ehrenberg to be poorly observed members of three of his new genera, *Amphimonas*, *Cercomonas*, and *Heteromita*. Stein (1878, pl. II) illustrated five species of *Bodo*, of which only *B. saltans* is an original Ehrenberg species. Stein's treatment was considered an emendation by Senn (1900, p. 134), who had this circumscription in mind when he proposed *Bodo* for conservation against *Heteromita*, *H. ovata* having been referred to *Bodo* by Stein. Senn might have cited *Amphimonas* Dujardin as a *nomen rejiciendum* equally well, inasmuch as *A. caudata* was also referred to *Bodo* by Stein. However, so long as *B. saltans* is retained in the genus, *Bodo* is attributable to Ehrenberg (1830) and therefore has priority over Dujardin's genera.

Diplomitella nom. nov. *Diplomita* Kent, Man. Infus. 1: 289. 1881. Amphimonadaceae (Protomastigineae). Non *Diplomita* Fromentel, Étud. Microz. 209. 1874. Peranemataceae? Type (and only) species: **Diplomitella socialis** (Kent) comb. nov. (*Bicosæca socialis* Kent, Monthly Micr. Journ. 6: 263. 1871).

Fromentel described under the name *Diplomita insignis* a biflagellate colorless monad which Bütschli (1884, p. 829) referred to *Anisonema* Dujardin (1841).

Megastoma (Distomataceae, Distomatineae). Senn proposed "*Megastoma* Grassi, Atti Soc. ital. Sc. nat. (1881) 167" for conservation against "*Cercomonas* Lambl, Prager Vierteljahrsschr. f. d. prakt. Heilkunde (1859) 51 *p[ro]p[arte]*" and "*Lamblia* Blanchard Zoologie médicale (1886)." The nomenclatural (as well as taxonomic) history of this group of intestinal parasites is complicated. One such organism was described by Grassi in 1879 from various species of mice and placed in its own genus *Dimorphus* (as *D. muris*). Awkwardly, Grassi first erected the subgenus

Dimorphus in the genus *Dicercomonas* (p. 446) and later (p. 448) considered it of generic rank. Because this generic name „potrebbe dar luogo ad un equivoco" and the epithet "è diventata insufficente," Grassi (1881a, 1881b, 1882) changed the binomial to *Megastoma entericum*. Bütschli (1884, p. 843, legend to pl. XLVI, fig. 3), believing that this organism was the same as one described in 1859 by Lambl (p. 51, pl. I, fig. 2 *z*) under the name *Cercomonas intestinalis*, made the combination *Megastoma intestinalis*. Blanchard (in Railliet 1886, p. 1004; Blanchard 1888), realizing that both *Dimorphus* and *Megastoma* were preoccupied (in the animal kingdom), changed the name to *Lamblia* (*L. intestinalis*). In the meanwhile, Künstler (1882) proposed a new genus of intestinal parasites, *Giardia* (*G. agilis*), which is now generally considered to be congeneric with *Lamblia*. A further consideration was introduced by Hartmann (1909, p. 302), who believes that *Lamblia* is the sexual phase of *Hexamita intestinalis* Dujardin (1841). In any case, Senn's proposal is technically incorrect: there is no such genus as *"Cercomonas Lambl,"* Lambl correctly having attributed *Cercomonas* to Dujardin without excluding the original species; Blanchard proposed *Lamblia* not in his Traité de zoologie médicale, but rather in Railliet's Éléments de zoologie médicale et agricole; and, most important, *Dimorphus* does not have an earlier homonym among plants and thus this name, rather than *Lamblia*, which is an illegitimate substitute name in botanical nomenclature, should be cited as the *nomen rejiciendum* of *Megastoma*. However, the fact that *Megastoma* has all but disappeared from the literature of the past half century would disqualify it from consideration as a *nomen conservandum*.

Porotheca nom. nov. *Porella* Schiller, Arch. Protistenk. 61: 54. 1928. Prorocentraceae (Pyrrophyta). Non *Porella* Linnaeus, Sp. Pl. 2: 1106. 1753. Porellaceae (Hepaticae). Lectotype species: **Porotheca globulus** (Schiller) comb. nov. (*Porella globulus* Schiller, op. cit. 56). Other species: **Porotheca adriatica** (Schiller) comb. nov. (*Porella adriatica* Schiller, loc. cit.). **Porotheca asymmetrica** (Schiller) comb. nov. (*Porella asymmetrica* Schiller in Rabenhorst, Krypt.-Fl. 10(3[1]): 29. 1931). **Porotheca bisimpressa** (Schiller) comb. nov. (*Exuviella bisimpressa* Schiller, Arch. Protistenk. 38: 258. 1918). **Porotheca perforata** (Gran) comb. nov. (*Exuviaella perforata* Gran, Cons. Perm. Int. Explor. Mer, Bull. Plankt. 1912: 99. 1915).

Erythropsidinium nom. nov. *Erythropsis* Hertwig, Morph. Jahrb. 10: 204. 1884. Warnowiaceae (Pyrrophyta). Non *Erythropsis* Lindley, Quart. Journ. Sc. Lit. Art, ser. 2. 2: 111. 1827. Sterculiaceae (Spermatophyta). Type species: **Erythropsidinium agile** (Hertwig) comb. nov. (*Erythropsis agilis* Hertwig, loc. cit.). Other species: **Erythropsidinium cochlea** (Schuett) comb. nov. (*Pouchetia cochlea* Schuett, Ergebnisse der Plankton-Expedition der Humboldt-Stiftung IV (M.a.A.): 169, pl. 26, fig. 95. 1895). **Erythropsidinium cornutum** (Schuett) comb. nov. (*Pouchetia cornuta* Schuett, op. cit. 169, pl. 26, fig. 96). **Erythropsidinium extrudens** (Kofoid et Swezy) comb. nov. (*Erythropsis extrudens* Kofoid et Swezy, Mem. Univ. Calif. 5: 494. 1921). **Erythropsidinium hispidum** (Kofoid et Swezy) comb. nov. (*Erythropsis hispida* Kofoid et Swezy, op. cit. 499). **Erythropsidinium labrum** (Kofoid et Swezy) comb. nov. (*Erythropsis labrum* Kofoid et Swezy, op. cit. 501). **Erythropsidinium minor** (Kofoid et Swezy) comb. nov. (*Erythropsis minor* Kofoid et Swezy, op. cit. 503). **Erythropsidinium pavillardii** (Kofoid et Swezy) comb. nov. (*Erythropsis pavillardi* Kofoid et Swezy, op. cit. 505). **Erythropsidinium richardii** (Kofoid et Swezy) comb. nov. (*Erythropsis richardi* Kofoid et Swezy, op. cit. 508).

Erythropsidinium scarlatinum (Kofoid et Swezy) comb. nov. (*Erythropsis scarlatina* Kofoid et Swezy, op. cit. 510).

Erythropsis Lindley is a currently accepted genus of flowering plants.

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THE STATUS OF AGYNEIA AND GLOCHIDION (EUPHORBIACEAE)*

Grady L. Webster (Lafayette, Ind.)

In their extensive revisions of the family Euphorbiaceae in the 'Pflanzenreich', Pax and Hoffmann treated most of the genera except those in the *Phyllanthus*-complex. For *Phyllanthus* and its allies, which include at least 1,000 species, no general revision has been made since that of Mueller Argoviensis in De Candolle's 'Prodromus' (1866). A survey of the taxa in the subtribe Phyllanthinae (s. lat.), made in connection with a revision of the West Indian species of *Phyllanthus* (Jour. Arnold Arb., 1956-58), has shown that extensive taxonomic and nomenclatural changes are needed to bring the classification up to date. It is the aim of the present article to review the nomenclatural problems in the Phyllanthinae which may affect students of the flora of the Old World tropics.

St. John (Taxon 6: 198-199. 1957) has already pointed out that the genus *Breynia* Forst. is a latter homonym of the Capparidaceous *Breynia* L.; he has consequently proposed that *Breynia* be placed on the list of concerned generic names. Although *Breynia* is a relatively small genus of about 30 species and is only weakly differentiated from *Sauropus*, its conservation appears warranted, as a cultivar of the type species *B. disticha* is rather well known as an ornamental, and several species are common in southern and eastern Asia.

However, the most urgent nomenclatural problem in the Phyllanthinae relates not to *Breynia* but rather to the large genus *Glochidion* Forst. (Char. Gen. Pl. 113. *pl.* 57. 1776), which is represented by more than 200 species in the tropics of Asia and Oceania. *Glochidion* has been generally accepted as generically distinct from *Phyllanthus* since the dispositions of Hooker (Fl. Br. Ind. 5: 306. 1887) and Pax (Naturl. Pflanzenfam. ed. 1, 3(5): 23. 1890), and will surely be so treated in the future. Unfortunately, all recent workers appear to have overlooked the fact that *Glochidion* Forst. is a taxonomic synonym of the earlier *Agyneia* L. (Mant. Alt. 161. 1771). Linnaeus based his genus on two Chinese plants which are now considered a single species, *Glochidion puberum* (L.) Hutch. The type species of *Glochidion*, *G. ramiflorum* Forst. f., belongs in the same sect. (*Hemiglochidion*) as *G. puberum*, and there seems no doubt that they are in fact congeneric. Mueller (in DC. Prodr. 15[2]: 238. 1866) pointed out that *Agyneia* L. is synonymous with *Glochidion*, but upheld *Agyneia* in the completely different application given that name by Ventenat. This latter author (Descr. pl. nouv. jard. Cels. 23. *pl.* 23. 1800) mistook for Linnaeus's *Agyneia impubes* an entirely different plant already described by Linnaeus (Syst. ed. 13. 707. 1774) as *Phyllanthus bacciformis*. This completely altered usage of the name *Agyneia* has been perpetrated by Mueller and later authors up to the present time, although it is of course indefensible under current rules of nomenclature.

Since less than 10 of the species of *Glochidion* have received valid names in *Agyneia*, failure to conserve the former would necessitate at least 200 new combinations. In view

*) Studies in the Euphorbiaceae, Phyllanthoideae, V.