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George F. Edmunds Jr.

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No. 8

University of Utah, Salt Lake City

February 15, 1967

We dedicate this issue of EATONIA to two Ephemeropterists who have passed from our ranks, Ann H. Morgan, a true pioneer in the taxonomy and biology of mayflies, and Willis.C. Day, an astute amateur of western North American Ephemeroptera.

The new heading on this issue is the creation of S. L. Jensen. The assistant editor, W. L. Peters, has now joined the staff of Florida A and M University, and he and that university join in the effort to produce EATONIA.

ANN HAVEN MORGAN 1882 - 1966

Doctor Ann Haven Morgan, distinguished conservationist and authority on many branches of aquatic ecology, was born May 6, 1882, in Waterford, Connecticut, daughter of Stanley.Griswold and Julia Alice (Douglas) Morgan. She died on June 5, 1966 in South Hadley, Massachusetts, at the age of 84 and is buried in Cedar Grove Cemetery, New London, Connecticut.

Although much of her work was in general zoology and biology, her earlier studies, including her doctor's thesis, were in entomology with special interest in the mayflies whereon she published four papers, in addition to a joint report with Margaret C. Grierson. These papers are cited at the conclusion of this account.

Her first two college years were spent at Wellesley College (Massachu-

setts), the remainder at Cornell University, from 1904 to 1906, when she received the B. S. degree. She was appointed to the staff of Mount Holyoke College, South Hadley, Massachusetts, as an assistant in zoology, in 1906-1907, and instructor 1907-1909. She then secured leave to return to Cornell for her advanced work, being a graduate assistant in general biology from 1909 to 1912, when she received the Ph.D. degree. Her doctor's thesis was "A contribution to the biology of may-flies," cited in the list of papers. Following the completion of this work, she returned to Mount Holyoke where she spent the remainder of her teaching career, retiring in 1947 after 41 years of service. She was an instructor from 1912 to 1914, associate professor from 1914 to 1918, and professor from 1918 to 1947, being chairman of the department from 1916 to 1947. At Mount Holyoke she became one of their outstanding teachers and attracted many students to the field of zoology. During the summers she spent much time at various laboratories, such as the Marine Biological Laboratory at Woods Hole, Massachusetts, and in British Gulana in 1926.

Her three principal textbooks are listed in the bibliography. The two Putnam Field Books are especially popular and have made her name well known to a host of general students and nature lovers.

! first became acquainted with Ann Morgan in 1909 when I entered Cornell in order to study entomology under James G. Needham who had been appointed to the Cornell faculty in 1907, retiring in 1936

as departmental head. In 1908 he instituted the work in limnology, and in 1909 presented the new course in General Biology, in which I was a freshman student. Dr. Needham presented the lectures, while Miss Morgan and John Thomas Lloyd (later a co-author with Needham on an important work on limnology) were the laboratory assistants. The course was most inspiring and attracted many students, being required by all students in the large College of Agriculture wherein it was taught. During this period Miss Morgan was deeply involved in her may fly studies and was associated with another young lady of somewhat similar appearance, Miss Lucy Wright Smith (later Mrs. Wilbert A. Clemens), who worked on the Plecoptera or stone flies. The students early. nicknamed these two enthusiastic workers "Mayfly Morgan and Stonefly Smith," from their respective fields of study. Each was a striking individualist and tireless field worker, and their devotion to their work attracted many other students to the field of entomology.

In concluding this short account of the career and accomplishments of Doctor Morgan, I would like to recount a story that was told to me last summer while visiting Grand Manan Island in New Brunswick. There I met an officer of the Massachusetts Audubon Society and he gave me the following account of what transpired at the bookstore of the Society in Lincoln, Massachusetts the year before. The young lady at the desk was approached by an elderly woman who inquired as to what books were available on the subject of aquatic insects. The young clerk brought out a copy of Morgan's "Field Book of Ponds and Streams" and handed it to the visitor for examination, explaining its special qualities and the like. After thumbing through this the visitor remarked that it appeared to be a fairly decent account and asked the price of the volume. Upon being told that this was five dollars she said, "What! Five dollars for that little book! Why it isn't worth anything like that," and so on. The clerk waxed indignant and went into great detail telling the visitor of the unique qualities and value of this volume and emphasizing the fact that actually it was worth a great deal more than the price asked.

Thereupon, the little lady laughed and patted the girl on the shoulder, saying "I am Ann Morgan. Thanks for the nice recommendation of my little book."

- Bibliography of Morgan books and papers relating to may flies
- Field Book of Ponds and Streams (G. P. Putnam, New York), 448 pp., 23 pls., 314 figs.; 1930.
- Field Book of Animals in Winter (G. P. Putnam, New York), 528 pp., 26 pls., 257 figs.; 1939.
- Kinships of Animals and Man (McGraw-Hill, New York), 839 pp., numerous figs.; 1955.

May fly papers

- May-flies of Fall Creek. Ann. Ent. Soc. America, 4: 93-119, 7 pls. 1911
- Homologies in the wing-veins of may-flies. Ibid., 5: 89-106, 5 pls.; 1912
- A contribution to the biology of may-flies. Ibid., 6: 371-413, 3 figs., 13 pls.; 1913 (Ph.D. Thesis).
- The mating flight and the vestigial structures of the stump-legged mayfly, <u>Campsurus sequis</u> Needham. Ibid., 22: 61-68, 1 pl. (with 7 figs.); 1929
- (With Margaret C. Grierson) The functions of the gills in burrowing mayflies (<u>Hexagenia recurvata</u>). Physiological Zoology, 5: 230-245, 1 pl. (with 7 figs.); 1932.

Charles P. Alexander Amherst, Mass.

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WILLIS C. DAY 1894 - 1965

Willis Cyrus Day was born in Los Angeles, California, a son of Margaret Sharpe Day and Albert Cyrus Day on November 18, 1894. He lived most of his adult title in the San Francisco bay area. He died on October 9, 1965. He is survived by his wife, Helen Leete Day, and two daughters, Helen Day Bromfield and Margaret Day McKibbin. Helen

EATONIA

A Newsletter for Ephemeropterists

Prepared and Multilithed by

Department of Zoology and Entomology, University of Utah

and

School of Agriculture and Home Economics, Florida A & M University

George F. Edmunds, Jr. - - - Editor William L. Peters - - Asst. Editor

was his field companion and a skilled and industrious collector. She was honored by Bill in his naming of <u>Paraleptophlebia helena</u> Day.

Bill, as he was known to his friends, was a remarkable man who will be long remembered. He was a self taught amateur entomologist in the finest sense of the word, being a prominent San Francisco advertising executive by profession.

Bill was led into the study of mayflies by an interest in tying artificial fly patterns for trout fishing. His studies resulted in six papers in Pan-Pacific Entomologist and the Ephemeroptera chapter in the <u>Aquatic Insects of California</u> (R. L. Usinger, Ed.). He established three new genera, described 16 new species, significantly clarified the taxonomy of at least 19 more species, and placed five names as junior synonyms. His publications total over 100 pages with approximately 125 original figures. All of these papers are cited in <u>Eatonia</u>.

Bill was keenly interested in entomology and served in various offices of the Pacific Coast Entomological Society, being the president in 1955. He was a regular visitor to the Entomology Department of the California Academy of Sciences and was made a fellow of the Academy in 1960. His superb collection of mayfiles, his entomological library and his microscopes and other scientific equipment were willed to the California Academy of Sciences. He also gave a valuable library on angling to the academy. For those who knew him well, he will be remembered for his intense devotion to his adopted field, his remarkable ability to innovate special collecting, rearing and curating techniques and especially for his generosity, his keen mind and warm, gentle humor.

I first started corresponding with Bill in 1948 and our letters now occupy a folder 2 inches thick. From among my fond memories, I like to recall "the Ephoron case." Bill and I were collecting together near Salt Lake City in 1950 in an attempt to get <u>Ephoron album</u>, which he wished to see. We were successful in getting a good series of nymphs but a long evening of collecting yielded only three adults. About 2 weeks later the imagos appeared in dense swarms. In jest, I sent Bill a pint jar full of them with a carefully prepared commercialtype label on the outside of the jar SELECT CHOICE EPHORON ALBUM, with the typical claims of a commercial label. His response was to top my joke by sending me without other comment a testimonial as to the excellence and superiority of my "product" and with genuine legal releases allowing me to use his testimonial in advertising my preserved mayflies.

Willis C. Day played a significant role in starting EATONIA by partially financing the first few issues. Additional information about his life, and a fine portrait of him, were published in the Pan-Pacific Entomologist of July, 1966. I have reprints of this account available.

George F. Edmunds, Jr.

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News and Notes

Dr. Jay R. Traver visited the Laboratory of Aquatic Zoology, to confer with George F. Edmunds, Jr. on their joint research. Drs. Traver and Edmunds have a National Science Foundation research grant for revision of certain Neotropical mayfly genera. While in Utah, she visited several. scenic National Parks and Monuments in Utah and Arizona.

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During August, 1966, Dr. J. Illies, Schlitz, Germany, visited the University of Utah, Salt Lake City, to confer with

specialists on Plecoptera and Ephemeroptera. Dr. Illies then proceeded on a collecting expedition to Hawaii, Fiji, New Caledonia, New Guinea, Australia and New Zealand. He has successfully completed his journey and is now in Schlitz.

Dr. William L. Peters recently moved to Florida A & M University, Tallahassee, Florida, where he has established a Laboratory of Aquatic Entomology. He plans to continue his research on the higher classification of the Leptophlebiidae. Dr. Peters invites all Ephemeropterists to visit the new laboratory.

A section was devoted to aquatic insists during the national meetings of the Entomological Society of America held in Portland, Oregon, November 28 to December 1, 1966. The extent of cooperation among all persons interested in aquatic insects was discussed and it was concluded that in North America and elsewhere, various interests (taxonomy, limnology, water pollution, etc.) do not fully cooperate. In future meetings of this section, various ways to produce such cooperation will be further discussed and initiated. A symposium on aquatic insects included a paper by G. F. Edmunds entitled Studies on the aquatic stages of the Ephemeroptera. J. W. Leonard summarized this symposium including additional data on Ephemeroptera. Submitted papers on Ephemeroptera at least in part included: The upper Mississippi River as a changing habitat for aquatic insects, by C. R. Fremling; Evaluation of aquatic insect emergence traps, by R. A. Kimerle and N. H. Anderson; Catastrophic drift of insects in a woodland stream, by N. H. Anderson and D. M. Lehmkuhl; and the faunal affinities of the mayflies of Idaho, by S. L. Jensen and G. F. Edmunds. W. L. Peters and G. F. Edmunds gave a paper in another section entitled Phylogeny and relationships of the Eastern Hemisphere genera of Leptophlebiidae (Ephemeroptera).

A. E. Eaton's A Revisional Monograph of Recent Ephemeridae or Mayflies (1883-88) has been reprinted (1965) by Johnson Reprint Corporation, 111 Fifth Ave., New York, N. Y. 10003 and Berkeley Square House, London WI, England. Price U. S. \$45.00.

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Dr. Clyde Eriksen, University of Toronto, has translated the paper by Ambühl (1959) from the original German (See Recent Ephemoptera to English. Literature, below).

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A thesis entitled "A revision of the generic classification of the Eastern Hemisphere Leptophlebildae" was submitted to the faculty of the University of Utah by W. L. Peters to complete his Ph.D. requirements. In August, S. L. Jensen completed his thesis "The Mayflies of Idaho" and received the M.S. degree at the University of Utah.

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Recent Ephemeroptera Literature

Compiled by William L. Peters and George F. Edmunds, Jr.

Aggus, L. R. & L. O. Warren 1]-1955. Bottom organisms of the Beaver Reservoir Basin: a pre-impoundment study. J. Kans. Ent. Soc., 38:163-178, 1 fig., 8 tables.

Allen, R. K. 2 <u>-1955</u>. A review of the subfamilies of Ephemerellidae (Ephemeroptera), J. Kans. Ent. Soc., 38:262-266, 4 figs.

- [3] -195. The adult stages of <u>Ephemerella (Drunella</u>) peloss Mayo. Pan-Pacif. Int., 11:280-282, 4 Tigs. [4] -1955. New species of <u>Heptagenia</u> from Western North America (Ephemeropters: Heptageniide). Canad. Int.,

98:80-82, 6 figs.

[5] -1966. Haplohyphes, a new genus of Leptohyphinae (Ephemeroptera: Tricorythidae). J. Kans, Ent. Soc., 39:565-568, 6 figs.

Ambuhl, H.

[6] -199. The meaning of current as an ecological factor. Physical, biological and physiological experiments about the effect of current in flowing water. Schweiz. Zeitsch. für Hydrol., 21:133-264, figs, tables.

Arvy, L. & B. Delage [7]-1965. Infestation massive des Ephemera vulgata du Manaurie (près Les Eyzies), par <u>Spirinella adipophila</u> (Protozoa.,) n.g., n. sp. Ann. Parasitologie, 41:213-216. 8 figs.

Brinck, P. & I. Müller-Liebenau [8]-1955. On the status of Ephemera fuscata Linnaeus, 1761 (Insecta, Ephemeroptera). Proposed designation of a nectype, Z.N.(S) 1620. Bull. Zool. Nomencl., 22:119-122, 4 plates.

- Botosăneanu, L. & I. Tabacaru [9]-1963. EphEmeroptères, Plecoptères et Trichoptères des Monts de Fagarasch (Alpes de Transylvanie). Bull. Inst. Sci. Nat. Belg., 39(38):1-58, 10 figs.
- Brabec, L. [10]-1965. Jefice rodu Arthroplea na Morave. [May flies of the genus Arthroplea in Moravia.] (German summary.) Zool. Listy, 14:90-91.
- Crosskey, R. W. 1-1965. The identification of African Simuliidae (Diptera) 11 -1965. 19190. The luentriceton of African Samplice (v) living in phoresis with nymphal Ephemeroptera, with special reference to Simulium Berneri Freeman. Proc. R. Ent. Soc. Lond. (A), 40:118-125, 1 plate.
- Demoulin, G. [12] -1955. Mission zoologique de l*I.R.S.A.C. en Afrique orientale. (P. Basilewsky et N. Lelupp, 1957) LXXXVIII. Afr. Cantr. in 8. orientale. (r. Basilewsky et M. Leleup, 197/) LAN, --Ephemeroptera. Ann. Mus. Roy. Afr. Centr..in 8 Tool.; 138:91-114, 14 figs., 1 table. [13] -1965, Résultats de l'expédition Belge au "moyen-orient (avril-aout 1963). Ephemeroptera. Bull. Inst. Roy. Sci. Nat. Belg., 41(28):1-8, 4 figs. [14] -1965. Redescription da l'holotype de Ephemera

- 115tt ROY. Sola must available of the last region of the
- 153, 5 figs.
 155, 5 figs.
 161, -166. Contribution à l'étude des Palingeniidee (Insecta, Ephemeroptera). Nova Guinea, Zoology, 33:305-344, 8 figs., 1 table.
- Edmunds, G. F. [17] -1965. The classification of Ephemeroptera in re-lation to the evolutionary grade of nymphal and adult stages. Proc. XII: Intern. Cong. Entom. p. 112-[17a]-1966. (Obituary) Willis C. Day, 1894-1965. Pan-Pacific Ent. 42:165-167, portrait.

- Edmunds, G. F., Jr. & R. K. Allen [16] -1966. The significance of nymphal stages in the study of Ephemeroptera. Ann. Ent. Soc. Amer., 59:300-303.
- Egglishaw, H. J. [19] -1964. The distributional relationship between the bottom fauna and plant detritus in streams. J. Ania. Ecol., 33:463-376, 1.fig., 6 tables.

- Frantz, T. C. & A. J. Cordone [20]-1960. A preliminary checklist of invertebrates col-lected from Lake Tahoe, 1961-1964. Occ. Pap., Biol. Soc. Nev., no. 8:1-12,1 fig.

- Gose, K.

 [21] -1953. The imago of Choroterpés trifurcata Uéno

 (Iphemeroptera).

 Kontyů, 31:140-141, 12 figs.

 [22] -1963. Two new mayfiles from Japan.

 Kontyů, 31:142-145, 13 figs.

Italiani XXV. Gli organi genitali esterni maschili Inst. Ent. Univ. Bologna, 27:77-117, 17 figs. [25] -1964. Contributi allo studio degli Efemerotteri Italiani:XVI. Reperti sulle ninfe del genere : Centroptium Etn. Boll Inst. Ent. Univ. Bologna, 27:119-.125, 4 figs. ...Grimeland, G... [26] -1953. Abnormitet hos Ameletus inopinatus Etn. (Ephemeroptera). Norsk Ent. Tidsskr., 12:97-99, 2 figs. Harrison, 1A. U. [27] -1965. River zonation in Southern Africa. Arch. Hydrobiol., 61:380-386, 1 table. [28] -1965. Geographical distribution of riverine inverte-brates in Southern Africa. Arch. Hydrobiol., 61:387-394. [29] -1965. Some environmental effects of coal and gold mining on the aquatic biota, pp. 270-274, 3 tables, in Bobert &. Taft Sanitary Engineering Center. Biological Problems in Water Pollution. Third Semiar, 1962. Pub. Health Ser. Publ. 999-WP-25. ix + 424 pp. Ikaiamov, P. 30] - 1965. Fintagsfliegen (Ephemeroptera) Macedoniens, Gemus Hentagenia (Ecdyonuridae). God. Zborn., (Biol.), 14:155-165, 6 figs. 31] - 1965. Ephemeroptera Jugoslaviens, Habrophleöia sp. Nympha Konjerensis. God. Zborn., (Biol.), 14:175-181, 15 figs. Jensen, S. 1. & G. F. Edmunds, Jr. [32] -1966. A new species of Ephemerella from Western North America (Ephemeroptera: Ephemerellidae). J. Kans. Ent. Soc., 39:576-579, 6 figs. Kamler, E. [35] -1962. La faune des Ephémères de deux torrents des Tatras. Pol. Arch.-Hydrobiol., IO(23):15-38, 7 figs., 9 tables. [34] -1965. Thermal conditions in mountain waters and the distribution of Plecoptera and their influence on the distribution of Plecopters and Ephemeroptera larvae. Ekologia Polska - Seria A, 13(20):377-414, 11 figs., 5 tables. Kazlauskas, R. Mattaiskas, k.
 [55] -1963. New and little-known mayflies (Ephemeroptera) from the USSR. [In Russian with English summary.] Ent. Obozr., 42:582-593, 51 figs.
 [36] -1964. Waterialy k poznaniyu podenok reki Oki. [Infor-mation on the Ephemeroptera of the Oka River.] Tr. Zool. Inst. Akad. Nauk SSSR, 32:164-176.

Koss, R. W. [56]-1966. A new species of <u>Ihraulodes</u> from New Mexico (Ephemeroptera: Leptophlebiidae) Michigan Entomol. 1:91-94, 7 figs.

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Leonardi J. W. [37] -1955. Hvironmental requirements of Ephemeroptera, pp. 110-117, 1 fig., 5 tables, in Robert A. Taft Sanitary Engineering Center, Biological Problems in Water Pollu-Third Seminar, 1962. Pub. Health Ser. Publ. 999tion. Third Seminar, 1962. Pub. Health Ser. Publ. 999-WP-25. ix + 424 pp.

Levanidova, I. M. & L. S. Rubanenkova

[36] -1955. O metodike izucheniya zhiznenykh tsiklov amfibioticheskikh nasekomykh. [The technique of studying the life cycles of amphibiotic [phemeroptere Trichopteral insects. (English summary.) Zool. Zhee 44:34-45.

Macan, I. I. [39] -1965. The influence of predation on the composition [29] -1905, the influence of predation on the composition of fresh-water communities, pp. 141-143, 1 table, in Robert A. Taff Sanitary Engineering Center, Biological Problems in Water Pollution. Third Seminar, 1962. Pub. Health Ser. Publ. 999-WP-25. Ix + 424 pp. [40] -1366. The influence of predation on the feuna of a moorland fishpond. Arch. Hydrol., 61:432-452, 1 figeo

- 9 tables.
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- McLean, J. A. [42] -1966. A comparative ecological study of three stream faunas in the Auckland area. Tane, 12:97-102, 2 figs.

Morgan, N. C. & H. J. Egglishaw [+3] −3955. A survey of the bottom fauna of streams in the Scottish Highlands Part I Composition of the fauna. Hydrobiol., 25:181-211, 1 fig., 4 tables, 3 appendices.

Müller-Liebenau, I. [44] -1966. Baetis subalpinus Bengtsson, 1917 (Ephemer-optera). Opusc. Ent., 31:21-32, 6 plates.

Oliff, W. D. & J. L. King 45 -1964. Hydrobiological studies on the Tugela River System Part IV The Mooi River. Hydrobiol., 24: 567-583, 4 figs., 9 tables.

- Oliff, W. D., P. H. Kemp & J. L. King [46] -1505. Hydrobiological studies on the Tugela River System Part V. The Sundays River. Hydrobiol., 26: 189-202, 2 figs., 7 tables.
- Packer, J. S. [463]-1966. A preliminary study of the mayflies of Honduras. Ceiba, 12:1-10.

Peters, W. L. & G. F. Edmunds, Jr. [47] -1965. The nymph of Hagenulodas Ulmer (Ephamerop-ters: Leptophlebiidee). Proc. R. Ent. Soc. Lond. (8), 35:28-28, 8 flgs.

Peters, W. L. & L. O. Warren [48]-1966. Seasonal distribution of adult Ephemeroptera in Morthwestern Arkansas. J. Kans. Ent. Soc., 39: 396-401, 1 table.

Pyataeva, A. D. & I. I. Granitov [49] -1952. K roprosu o prirode efemerov. [Material on the nature of Ephemerae.] Nauchn Tr. Tashkentskogo Univ., 193:141-153.

Saaristo, M.

- [50] -1966. A revision of the Finnish species of the genus Caenis Steph. (Ephemeroptera), Ann. Ent. Fenn., 32: 68-87.
- Schneider, R. F. & L. Berner [<u>51]-1953</u>. A new southeastern species of <u>Baetisca</u> (Ephemer-optera: Baetiscidae). Florida Ent., 46: 183-187, 6 figs.
- Trost, L. M. W. & L. Berner [52] -1963. The biology of Callibaetis floridanus Banks (Ephemeroptera: Baetidae). Florida Ent., 46:285-299.

Uéno, M. [53]-1966. Mayflies (Ephemeroptera) collected by the Kyötö University Pamir-Hindukush Expedition 1960. Results Kyoto Univ. Sci. Expedit. Karakoram and Hindukush. 1955, 8:299-326, 16 figs.

Ujhely1, S. 154 - 1955. The mayflies of Hungary, with the description of a new species, <u>Baetis pentaphiebodes</u> sp. n. (Ephemeroptera). Acta Zool, Hung., 12:203-210, 3 figs.

Wise, K. A. J. [55] 1365. An annotated list of the aquatic and semi-gi aquatic insects of New Zealand. Pacific Insects, 7: 191-216-

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Wisely, B. [56] -1955. Studies on Ephemeroptera. III. <u>Coloburis-cus humeralis</u> (Walker): Morphology and anatomy of the winged stages. New Zeal. J. Sci., 8:398-415.

EATONIA INDEX

compiled by Janice G. Peters

Following is the first of a new series to appear in Eatonia. Eatonia Index tabulates information concerning all papers listed in the section, Recent Ephemeroptera Literature, for each edition of Eatonia and the numbers in brackets refer to paper numbers listed in that section. The style is similar to that of Zoological Record. Janice G. Peters is the wife of the Assistant Editor of Eatonia. The editors welcome this addition to Eatonia and we welcome comment on this new series. "When we have not seen the paper that is cited, we can only repeat information published elsewhere. We would appreciate any additions or corrections in order to make Eatonia Index as complete and accurate a record as possible.

TAXONOMY

BAETIDAE

- Genus Acentrella Bengtsson SEE genus Baetis subgn. Acentrella
- Acentrella sp. nymph [of Demoulin (1956), Explor. Hydrol. lac Tanganika, 3(7):7] SEE Centroptilum varium

Application to Intern. Com. Zool. Nomenc.: Brinck & Müller-Liebenau (1965) [8] p. 119. An application to fix the status of Baetis fuscatus (Linnaeus) by designating a neotype and presenting a sufficiently detailed description of the species.

- Genus <u>Baetis</u> subgn. <u>Acentrella</u> Bengtsson (status changed from genus to subgenus) Demoulin (1965) [12] p. 94.
- Baetis noshaquensis sp. n. (female imago, nymph; Uzbekistan, USSR) Weno (1966) [53] p. 316.

Beetis pentaphlebodes sp. n. (male & famale imagos, nymph; Hungary) Ujhalyi (1966) 54 p. 206.

- Baetis subalpinus Bengtsson (redescription) MUIIer-Liebenau (1966) [4] p. 21.
- Baetis ursinus sp. n. (Siberia) Kazlauskas (1963) 35 p. 585, 593.

Centroptilum forlivense sp. n. (nymph; Italy) Grandi (1964) [25] p. 122.

Centroptilum varium Crass [= Acentrella sp. nymph of Demoulin (1956), Explor. Hydrol. lac Tanganika, 3(7):7] Demoulin (1965) [12] p. 94.

- Pseudocentroptilum ? shadini (nymph; Russia) Kazlauskas (1954) [36] p. 164-176.
- Pseudocloeon (Baetiella) fenestratum sp. n. (Siberia) Kazlauskas (1963) [35] p. 588, 593

Pseudocloeon (Baetiella) sibiricum sp. n. (Siberia) Kazlauskas (1963) 35 p. 589, 593.

<u>Pseudocloeon (Baetiella) tuberculatum</u> sp. n. (Siberia) Kazlauskas (1963) 35 p. 586, 593.

HEPTAGENIIDAE

Heptagenia jewetti sp. n. (male & female imagos; California, USA) Allen (1966) [4] p. 80.

- Heptagenia kyotoensis sp. n. (Japan) Gose (1963)
- Heptagenia macedonica (female imago, nymph) Ikonomov (1963) [30] p. 156.

Heptagenia petersi sp. n. (male & female imagos; Wyoming, USA) Allen (1966) [4] p. 82.

Heptagenia trimaculata sp. n. (Macedonia, Jugoslavia) Ikonomov (1963) [30] p. 162.

LEPTOPHLEBIIDAE

- Choroterpes trifurcata Uéno (imago) Gose (1963)
- Choroterpes trifurcatus (imago) Kazlauskas (1963)

Habrophlebia sp. nymph konjarensis (Jugoslavia) Ikonomov (1963) [31] p. 175.

Hagenulodes braueri Ulmer (nymph) Peters & Edmunds (1966) [47] p. 26.

<u>Hraulodes brunneus</u> sp. n. (male imago; New Mexico, USA) Koss 38a p. 91.

EPHEMERELLIDAE

- Subfamily Ephemerellinae
- Genus Austremerella Riek SEE genus Ephemerellina subgn. Austremerella

Genus <u>Ephemereila</u> subgn. <u>Teloganopsis</u> Ulmer (status changed from genus to subgenus) Allen (1965) [2] p. 265.

- Ephemerella (Ephemerella) alleni sp. n. (nymph; Idaho, USA) Jensen & Edmunds (1966) [32] p. 577.
- Ephemerella (Drunella) pelosa Mayo (male & female imagos) Allen (1965) [3] p. 280.
- Ephemerella yoshinoensis sp. n. (Japan) Gose (1963) [22] p. 142.
- Genus Ephemerellina Lestage SEE Subfamily Teloganodinae
- Genus Teloganella Ulmer SEE Subfamily Teloganodinae
- Genus Teloganodes Eaton SEE Subfamily Teloganodinae
- Genus <u>Teloganopsis</u> Ulmer SEE genus <u>Ephemerella</u> subgn. <u>Teloganopsis</u>

Iorleya padunica sp. n. (Siberia) Kazlauskas (1963) [35] p. 584, 593.

- Subfamily Teloganodinae subfamily n. Allen (1965)
- Genus Ephemerellina Lestage (transferred from subfamily Ephemerellinae) Allen (1965) [2] p. 263.

Genus <u>Ephemerellina</u> subgn. <u>Austremerella</u> Riek (status changea from genus to subgenus) Allen (1965) [2] p. 263.

Genus <u>Teloganella</u> Ulmer (transferred from subfamily Ephemerellinae) Allen (1965) [2] p. 263.

Genus <u>Teloganodes</u> Eaton (transferred from subfamily Ephemerellinae) Allen (1965) 2 p. 263. TRICORYTHIDAE

- Genus Haplohyphes gen. n. Allen (1966) [5] p. 566.
- Haplohyphes huallaga sp. n. (male & female imagos; Peru) Allen (1966) [5] p. 567.
- Haplohyphes mithras (Traver) comb. n. (transferred from Leptohyphes) Allen (1966) [5] p. 568.
- Leptohyphes mithras Traver SEE Haplohyphes mithras

EPHEMERIDAE

Ephemera orientalis McLachlan (redescription from holotype) Demoulin (1965) [14] p. 215.

PALINGENIIDAE

- Anagenesia albescens sp. n. (male imago; Borneo) Demoulin (1965) [16] p. 327.
- Anagenesia nana sp. n. (male imago; Bornec) Demoulin (1965) [16] p. 329.
- Anagenesia nanoides sp. n. (female imago; Sumatra) Demoulin (1965) [16] p. 342.
- Anagenesia spodiocephala sp. n. (male imago; Borneo) Demoulin (1965) [16] p. 329.
- Anagenesia yangi Hsu SEE Chankagenesia yangi
- <u>Chankagenesia</u>? yangi (Hsu) (transferred from <u>Anagenesia</u>) Demoulin (1965) [16] p. 316.
- Palingenia apatris sp. n. (male imago; Liberia) Demoulin (1965) [16] p. 312.
- Plethogenesia delicata sp. n. (male & female imagos; Neth. New Guinea) Demoulin (1965) [16] p. 335.
- Plethogenesia lieftincki sp. n. (male imago; Neth. New Guinea) Demoulin (1965) [16] p. 343.
- Plethogenesia pallida sp. n. (male & female imagos; Meth. New Guinea) Demoulin (1965) [16] p. 337.

NEOEPHEMERIDAE

Necephemera tshernovae sp. n. (Siberia) Kazlauskas (1963) [35] p. 582, 593.

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- Caenis horaria (linné) (=Caenis horaria fennica Aro syn. n.; redescription of imagos & nymph) Saaristo (1966) [50] p. 69.
- Caenis moesta Bengtsson (redescription of nymph) Saaristo (1966) [50] p. 80.
- Caenis nivea Bengtsson SEE Caenis rivulorum

- Caenis nocturna Bengtsson (= Caenis undosa Tiensuu syn. n.; redescription of Imagos & nymph) Saaristo (1966) [50] p. 84.
- Caenis rivulorum Eaton (= Caenis nivea Bengtsson syn, n.; redescription of imagos & nymph) Saaristo (1966) [50] p. 75.
- Caenis robusta Eaton (redescription of imagos & nymph) Saaristo (1966) [50] p. 78.

Caenis undosa Tinesuu SEE Caenis nocturna

BAÊTISCIDAE

Baetisca becki sp. n. (nymph; Florida, USA) Schneider & Berner (1963) [51] p. 183.

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Matratopus ? henningseni sp. n. Demoulin (1965) [15] p. 143.

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- Ganus Succinogenia gen. n. Demoulin (1965) [15] p. 151.
- succinogenia lanssoni sp. n. Demoulin (1965) [15] p. 151.

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- Genus Oligophlebia gen. n. Demoulin (1965) [15] p. 146.
- Oligophlebia calliarcys sp. n. Demoulin (1965)
- Oligophlebia ? longiceps sp. n. Demoulin (1965)

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