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Karl Grünberg and his contribution to odonatology

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Cover picture: *Zygonoides fueelleborni* ♀ Botswana 2006. The species was named after the collector of the material on which Grünberg's first two odonatological publications were based.

Photographer: Jens Kipping

Karl Grünberg and his contribution to odonatology

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Abstract

Reliable information about Karl Grünberg (1878-1945) has been brought together and an overview of his life and work has been compiled followed by an explanation of the scientific names he assigned to odonate species, including currently recognized genera.

Zusammenfassung

Zu Karl Grünberg (1878–1945) wurden verlässliche Informationen zusammengetragen und auf dieser Grundlage ein Überblick über sein Leben und Werk erstellt; daran schließt sich eine Erläuterung der wissenschaftlichen Namen an, die er an Libellenarten vergab, einschließlich derer der Gattungen, denen diese heute zugeordnet sind.

Key words: Odonata, dragonflies, Germany, type material, history of odonatology, biography, taxonomy, nomenclature

Preface

The entomologist Karl Grünberg became known in odonatology because he was commissioned to compile the gomphids catalogue for the Collection de Selys (cf. Wasscher & Dumont 2013: 394). However, little accurate information about his life and work can be found in the literature or online. For example, the entry in the English Wikipedia states that he was a professor in Rostock and died there in 1921: [https://en.wikipedia.org/wiki/Karl_Gr%C3%BCnberg_\(entomologist\)](https://en.wikipedia.org/wiki/Karl_Gr%C3%BCnberg_(entomologist)) (accessed April 11, 2026). Both statements are incorrect: The first one is based on a confusion with the otorhinologist Karl Grünberg (* 1875 in Stralsund, † 1932 in Bonn), who never published on entomology, the second one probably on the fact that no further scientific publications by the entomologist had been found after 1917. Another contemporary namesake was Dr. K. Grünberg of Berlin, who published research reports on mollusks and crustaceans in the 'Archiv für Naturgeschichte' shortly before and after 1900 (cf. Grünberg 1898, Grünberg & Lucas 1899), but about whom I was unable to discover anything further.

Therefore, it seemed important to me to present the actual facts about the entomologist and his odonatological work.

Material and Methods

To obtain reliable information about Karl Grünberg, I contacted the archives of institutions (University of Marburg, Natural History Museum Berlin, Bibliothek für Bildungsgeschichtliche Forschung, Berlin) and cities and states (Berlin, Munich, Bayerisches Hauptstaatsarchiv). In addition, several volumes of the journal *Deutsche entomologische Zeitschrift* and the *Sitzungsberichte der Gesellschaft naturforschender Freunde zu Berlin* were examined for

information about him. I also endeavored to extract Grünberg's publications from zobodat and evaluate those pertaining to dragonfly studies. Furthermore, based on Bridges 1993, I compiled a list of the Odonata species named by Grünberg, which I checked for taxonomic changes using Paulson et al. 2025. The meaning of their scientific names was then deduced by referring to their Latin or Greek roots and the wording of their first description, as are the names of the actual genera, into which Grünberg's taxa are classified now.

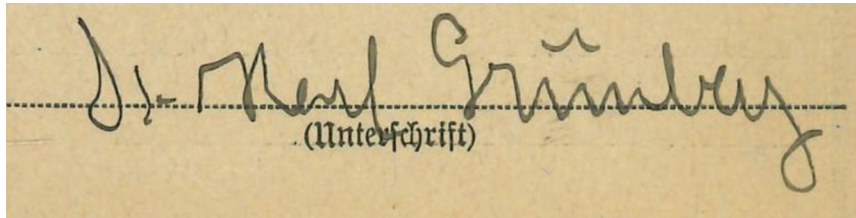


Fig. 1: Grünberg's signature from his entry in the City of Munich's resident registry. © Stadtarchiv München (Signature: DE-1992-PMB-G475)

Life and work

Karl Ludwig Maria Grünberg was born on February 2, 1878 at Mainz to a couple who owned a factory. He attended the school in Bockenheim (1885-1888) (incorporated into Frankfurt since 1895) and in Frankfurt/Main (1888-1898) and then pursued studies in natural sciences, specializing in zoology with minor subjects botany and geology, in Marburg, culminating in a dissertation on the reproductive organs of butterflies (Grünberg 1903b). In April 1902, he began working in the entomological department of the Natural History Museum in Berlin, initially as an aide, then as an assistant, and finally from 1915 onwards as a curator. From 1907 to 1915 he served as secretary of the 'Gesellschaft naturforschender Freunde zu Berlin' (Society of Friends of Natural History Berlin)', which he obviously had joined soon after moving to Berlin. In its proceedings he published on several occasions. In 1906 he had become a member of the 'Deutsche entomologische Gesellschaft', which in 1910 – after the death of its founder and lifelong president Gustav Kraatz (1831 - 1909) – he served as one of its two vice presidents and which he even headed in 1911 and 1912 as its president. Furthermore from 1909 to 1916 he was responsible for Diptera and Lepidoptera in its journal 'Deutsche entomologische Zeitschrift'. He also served as editor of the 'Entomologische Rundschau' from 1911 to 1914. In October 1916, he left the museum. However, it is striking that for the entire year of 1915, only one publication by Grünberg can be found, and for 1916, none whatsoever, whereas he normally published five or more works per year.

Information about the following period of his life can be found in documents in the Bavarian State Archives and the Munich City Archives. In a curriculum vitae from 1930, which is located in his personnel file in the Bavarian State Archives (BayHStA MK 16248), he wrote about this period of his life: "1916 verließ ich den Staatsdienst, um mich privater wissenschaftlicher und Lehrtätigkeit zu widmen [In 1916, I left the civil service to dedicate myself to private scientific and teaching activities]." He gave no reason for this decision. In October 1919 he moved to Munich, where, until 1922, he taught natural sciences and mathematics at a private boarding school. From the autumn of 1927, he was employed at a private Catholic lyceum

run by an order of nuns, where he taught natural sciences as well. However, his doctorate from Marburg was not sufficient to qualify him to teach at state schools. Therefore, in 1929, he enrolled at the University of Munich for four semesters to further his qualifications in chemistry and geography, and in the autumn of 1930, he registered for the state examinations for teaching certification, the last of which he passed successfully in March 1933. Apparently, he remained employed at the Lyceum, as a communication from the school authorities to him was addressed there in 1938. However, by 1936, the school had already been taken over by the National Socialist school administration. I was unable to uncover any further details regarding this, as the archives of the order of nuns were destroyed by a bomb strike shortly before the end of the war.

In January 1940, he was then hired into the state teaching service at another lyceum at Munich, that, however, had also been under the care of the same order of nuns until 1936.

He died in that town on January 4, 1945 in a hospital (fig. 2).

Nr. 62 V C

München, den 4. Januar 1945.

Der Studienrat Doktor der Philosophie Karl Ludwig Maria Grünberg,

wohnhaft in München, Blumenstraße 26

ist am 4. Januar 1945 um 1 Uhr 05 Minuten in München, Maria-Ward-Straße 9 verstorben.

Der Verstorbene war geboren am 19. Februar 1878 in Mainz.

(Standesamt Nr.)

Vater: Adam Grünberg, Fabrikant.

Mutter: Apollonia, geborene Limberger, beide verstorben und zuletzt wohnhaft in Frankfurt am Main.

Der Verstorbene war nicht verheiratet mit Käthe Henriette Olga, geborenen Michaelis, wohnhaft in München.

Eingetragen auf mündliche schriftliche Anzeige der Verwaltung des städtischen Hilfskrankenhauses an der Maria-Ward-Straße 9 in München.

Die Anzeigende

Borgelesen, genehmigt und unterschrieben

Der Standesbeamte
In Vertretung

Todesursache:

Chefärztliche Bescheinigung des Verstorbenen am in

(Standesamt Nr.)

Grünberg's entry in the death register of the City of Munich © Stadtarchiv München (Signature: DE-1992-STANM-1578)

The essential information contained in the death entry reads as follows (in translation):

"The Senior Teacher and PhD, Karl Ludwig Maria Grünberg, residing at Blumenstraße 26, Munich, passed away on January 4, 1945, at 1:05 a.m. at Maria-Ward-Straße 9, Munich.

The deceased was born on February 19, 1878, in Mainz. ...

Registered upon written notification from the administration of the Municipal Auxiliary Hospital at Maria-Ward-Straße 9, Munich."

Odonatologists know him as the one who promised to author the Gomphid section of the catalog of the Collection Selys, but never delivered if, indeed, it was ever written.

Most of Grünberg's publications refer to Lepidoptera (as did his doctor thesis) and Diptera. In this context, he took part in the entomological evaluation of important expeditions, such as Filchner's to Tibet (Grünberg 1908) or Schulze's to South Africa (Grünberg 1910b; for which Ris analyzed the Odonata). Furthermore, he published in renowned cooperative projects such as Brauer's freshwater fauna of Germany (Grünberg 1909, 1910a) or Seitz's work on Macrolepidoptera (Grünberg 1913). The last entomological publication by him I could find was the paper Grünberg 1917; so he appears to have given up scientific work after leaving the Berlin Museum of Natural History.

As far as I can see, unique within Grünberg's oeuvre is a morphological-developmental study dating from the early period of his tenure at the Berlin Museum (1903a). It is a treatise on the homology of the trochanter in chilopods and insects, in which he discussed the larvae and adults of odonates in detail, which is likely to point to his introduction into odonatology. Grünberg's first odonotological publications concern the same collected material. The former treatise (1902) was a lecture from 18 November at the renowned 'Gesellschaft naturforschender Freunde Berlin' (cf. above). In this paper he gave a description of new odonates collected from February 1897 to December 1899 in Eastern Africa during an expedition led by the physician Friedrich Fülleborn (1866-1933); for more see Beolens 2018: 143. The fact that in this paper Karsch ("K.") is listed as the author of five taxa shows that he had already worked on that material, but then had delegated the final editing to the new employee. But since the descriptions do not indicate that they were written by Karsch, Grünberg is the author of the names, regardless of whether Karsch invented them (and perhaps already entered them on the index cards).

Grünberg redescribed his new taxa (and, in some cases, provided illustrations) from that expedition again later anew in a scientific journal, also providing information on the other species caught then (1903c). In total he mentioned 11 new species, of which five he credited to Karsch ("K."), five he claimed for himself and to one he referred to as a collection name by F.M. Brauer. Three of his names however, one of Karsch's names and the one credited to Brauer turned out to be junior synonyms.

Later odonotological publications dealt with dragonflies collected by the famous physician and microbiologist Robert Koch (1843-1910) during an expedition to study sleeping sickness on islands in Lake Victoria (1911), a chlorocyphid from Cameroon (1914), and the evaluation of odonates collected from 1903 to 1905 by an expedition to Madagascar, the Comoros, and East Africa (1917). These papers, however, only resulted in three further synonyms.

As Grünberg's other publications focus on Lepidoptera and on Diptera, it can be assumed that he was backed by Karsch for his first odonotological papers, as to be seen from Grünberg 1903c. Not only are the names suggested by Karsch mentioned, but also additional information is given like on p. 709: "Es folgt hier noch die Beschreibung eines im Wiener Hofmuseum befindlichen ♂ Exemplars von *Gynacantha* von der Insel Sansibar, dessen Identität mit *G. bispina* Ramb. überaus wahrscheinlich ist. Die Beschreibung wurde von Prof. Karsch gelegentlich eines Aufenthalts in Wien aufgenommen [The following is a description of

a ♂ specimen of *Gynacantha* from the island of Zanzibar, housed in the Vienna Court Museum, whose identity with *G. bispina* Rambur is highly probable. The description was recorded by professor Karsch during a stay in Vienna].” Another paragraph referring to Karsch concerns *Trithemis africana* Brauer (p. 718, note 1): “Eine Notiz von Prof. Karsch über diese Art hat folgenden Wortlaut: “Ist nicht *Tramea*, auch nicht *Trithemis*, da der Nodalsector tief wellig, sondern *Pseudomacromia*, hat jedoch den Zahn der gespaltenen Klauen kurz ... [A note by Prof. Karsch about this species reads as follows: “It is not *Tramea*, nor *Trithemis*, since the nodal sector is deeply wavy, but rather *Pseudomacromia*, however, it has the tooth of the cleft claws short ...].”

The same footnote concerns a species “*hoffmanni* Brauer, in litt. (*Tramea*) ♀ : Sierra Leone.”

“Ueber diese Art notierte Prof. Karsch: “Sehr grosse Art, Flügel hyalin, gelblich, Wurzel der Hinterflügel mit tiefbraunem Fleck an der Membranula; 9½-11½ Antenodalqueradern im Vorderflügel.” “Ob ♀ von *flavicosta*?” [Professor Karsch noted the following about this species: “Very large species, wings hyaline, yellowish, hindwing base with a deep brown spot on the membranula; 9½-11½ antenodal crossveins in the forewing.” “Is this a female of [*Schizonyx*] *flavicosta*?].” That species later turned out to be *Zygonyx torridus*.

But in this context, Grünberg not only used material from Karsch, but also critically examined his findings on '*Pseudomacromia torrida* Kirby' (p. 717-718): “Das früher von Prof. Karsch zu dieser Art gestellte, schlecht erhaltene (♂) Exemplar von Togo ... gehört zu der von Sjöstedt neuerdings beschriebenen *Schizothemis flavicosta* ... [The poorly preserved (♂) specimen from Togo, previously assigned to this species by Prof. Karsch ... belongs to the *Schizothemis flavicosta* recently described by Sjöstedt ...].” All in all, he concluded that *Pseudomacromia* Kirby and *Schizonyx* Karsch were junior synonyms of *Zygonyx* Selys, the species of which genus he lists, however with a few errors. Grünberg's use of the terminus *Caenagrionidae* for the zygopteran family in both papers might also point to Karsch's influence (cf. Karsch 1893a: 35, 1894b: 16); in his last odonatological paper (Grünberg 1917: 486) he uses the terminus *Agrionidae*.

The species named by Grünberg

What follows are explanations of the dragonfly species names given by Grünberg. Those he attributes to Karsch are marked with a **(K)** after the year. Parentheses around the year () mean that the species originally was described in a different genus.

bilobata, *Micronympha* 1902: 231 = *Proischnura subfurcata* (Selys, 1876: 534)
scientific L. *bilobatus* -a -um = with two lobes

The name describes the anterior margin of the prothorax: “Am Vorderrande des Mesothorax symmetrisch zur Rückenlängskante zwei deutliche lappenförmige Anhänge, seitlich gerichtet und schräg aufgebogen [On the anterior edge of the mesothorax, symmetrically to the longitudinal dorsal edge, are two distinct lobe-shaped appendages, directed laterally and bent obliquely upwards].”

The Selysian name *subfurcata* [L. = slightly forked] refers to the cerci: “les supérieurs paraissant en forme des tubercules réniformes, rapprochés [the upper ones appearing in the shape of reniform tubercles, close together].”

callista, *Palpopleura* 1902: 236 = ***Palpopleura jucunda Rambur*** 1842: 134

Latinized feminine form of Gr. κάλλιστος [kallistos] = the most beautiful

Grünberg does not give an explanation for his choice of name, but the species is described as yellow with dark markings, the male's abdomen pruinose blue, the wings with yellow wing venation, dark basal spots and an additional dark transverse band in the females. But he already suspected a synonymy to *Palpopleura jucunda* as dealt with by Kirby (1889: 273, not 243). Also Rambur's use of the name is not explained, but it is the feminine form of a Latin word meaning 'pleasant, pleasing', that means was chosen due its offering an enjoyable sight.

cellularis, *Elattoneura* (1902:232) (**K**) (Fig. 3)

mod. L. *cellularis* -is -e = relating to a cell

The name describes the size of the pterostigma (1903c: 704): „Das Pterostigma deckt eine Zelle [The pterostigma covers one cell].“



Fig. 3: *Elattonneura cellularis* ♂ Zambia 2014 © Jens Kipping. This is one of the five species Grünberg credits to F. Karsch in his first two odonatological publications.

consimilis, *Agriocnemis* 1902: 230 = ***Agriocnemis gratiosa*** Gerstäcker, 1891: 190

L. *consimilis* -is -e = like, very similar

The choice of name is explained by Grünberg thus: “Diese Art zeigt im Zeichnungscharakter grosse Uebereinstimmung mit *Agriocnemis exilis* Selys, ist jedoch durch die Bildung des Prothorax und der Analanhänge von derselben leicht zu unterscheiden [This species shows a great similarity in its markings to *Agriocnemis exilis* Selys, but is easily distinguished from it by the formation of the prothorax and anal appendages].“ Gerstäcker probably named the species *gratiosa* [L. = agreeable] because of its multi-colored appearance in both sexes.

fuelleborni, *Zygonoidea* (1902: 235) (**K**) (see cover and fig. 5 p. 13)

Eponym of this species is the physician Friedrich Fülleborn (1866-1933), who led the expedition to East Africa, in which the female type specimen was secured (about him see Beolens 2018: 143). Grünberg only hesitantly adopted the genus *Olpogastra* proposed by Karsch due to clear differences of the new species to *O. lugubris* (1903c: 717): "sie wurde daher hier nur sehr ungern bei *Olpogastra* belassen, doch existirt kein anderes Genus, welchem sie sich unterordnen liesse. Es liegt nur ein Paar vor: das ♀ vom Nyassalande (Dr. Fülleborn), das ♂ aus Nubien; dieses entstammt der Ausbeute Maeno's und gelangte durch die Gefälligkeit des Herrn Prof F. Brauer tauschweise in den Bestand des Berliner Museums. Es trägt von Brauer's Hand die Bezeichnung "*Pseudomacromia ? torrida* Kirby"; bei *Pseudomacromia* W. Kirby sind aber die Hinterschienen dicht und äusserst zart bedornt [It was therefore very reluctantly left with *Olpogastra* here, but no other genus exists to which it could be subordinated. Only one pair exists: the ♀ specimen from Nyasaland (Dr. Fülleborn), the ♂ specimen from Nubia; this one originates from Maeno's collection and came into the holdings of the Berlin Museum through an exchange with Professor F. Brauer. It bears the designation "*Pseudomacromia ? torrida* Kirby" in Brauer's hand; however, in *Pseudomacromia* W. Kirby, the hind tibiae are densely and extremely delicately spined]."

hintzi, *Libellago* 1914: 53

= ***Chlorocypha cancellata*** (Selys, 1879: 383)

Grünberg named the species after its collector, the German entomologist and collector Eugen Hintz (1868-1932), who had brought back the specimens from Cameroon from an expedition to central Africa in the years 1910-1911 (for more see Beolens 2018: 183).

The reason Selys named the species *cancellata* [L. = reticulated, having a lattice or grid pattern] is to be seen from his explanation (p. 384): "Très-distincte des autres espèces ... par le dessus de l'abdomen, dont la couleur rouge est divisée en carrés, comme treillagée par le large anneau terminal noir des segments, la ligne de même couleur qui marque l'arête dorsale, et celle de la suture latérale longitudinale [Very distinct from other species ... by the top of the abdomen, whose red color is divided into squares, as if latticed by the wide black terminal ring of the segments, the line of the same color which marks the dorsal ridge, and that of the longitudinal lateral suture]."

hoffmanni, *Zygonyx* 1903c: 718

= ***Zygonyx torridus*** (Kirby, 1889: 340)

Grünberg in his paper mentioned *hoffmanni* as a manuscript name given by F.M. Brauer to the specimen provided by him to the Berlin Museum as a synonym of Kirby's species. Who the eponym was, is not explained, but Hämäläinen (2016: 57) assumes that the entomologist E. A. Hofmann (1837-1892) is meant, who in 1869 became the first ever curator of entomology at the Stuttgart Museum of Natural History (on him see Beolens 2018: 185). But that is by no means certain, because this scientist always in his publications (and his brother in his obituary after his early death) used the surname 'Hofmann' with only one f. As both of the names are among the most frequent family names in German, someone else might be the intended eponym. Kirby had described the species without any explanation of the name from several specimens from diverse parts of sub-saharan Africa including Teneriffe, meaning from the torrid zone [*torridus* -a -um = dried up, parched, torrid, hot].

inepta, *Chlorocnemis* 1902: 233 (K) = *Allocnemis abbotti* (Calvert, 1892: 164)

L. *ineptus* -a -um = absurd, awkward, silly, inept

The following observation probably led to the name (1903c: 706): "Ein einzelnes, sehr merkwürdiges Stück; es hebt den Hauptunterschied auf, welchen de Selys für seine beiden Gattungen *Disparoneura* und *Chlorocnemis* geltend machte, und lässt es notwendig erscheinen, diese beiden natürlichen Gattungen in andrer Weise zu charakterisiren [A single, very odd specimen; it overturns the main distinction which de Selys asserted for his two genera *Disparoneura* and *Chlorocnemis*, and makes it seem necessary to characterize these two natural genera in a different way]." About the difference to *Allocnemis abbotti* is stated: "Ein augenfälliger Unterschied in der Zeichnung der *Chlorocnemis inepta* und der von Calvert als *Disparoneura* beschriebenen *Chlorocnemis abbotti* ist nicht ausfindig zu machen [No obvious difference in the markings of *Chlorocnemis inepta* and *Chlorocnemis abbotti*, described by Calvert as *Disparoneura*, can be found]." The basis for the separation from this taxon was the lack of a yellowish tinge to the wings and minor differences in the wing venation.

Calvert had named the species after the American physician and naturalist William Louis Abbott (1860 – 1936), who had collected two male specimens at Kilimanjaro (see Beolens 2018: 2).

lindicum, *Pseudagrion* 1902: 230 (K)

L. suffix -icus -ica -icum = pertaining to

This is a toponym. In Grünberg 1902: 231 it reads: "Fundort Lindi, 1 ♂ [Location Lindi, 1 ♂]; meaning that the ♂ type specimen was caught at the coastal town Lindi in southern Tansania (then Deutsch-Ostafrika). Grünberg also mentioned a pair of the species in the Berlin Museum, which had previously been captured by Stuhlmann (cf. Beolens 2018: 400, Fliedner 2026: 66) in East Africa. By the way: in his last odonatological publication Grünberg lists this taxon as '*Pseudagrion lindicum* Grünb.' (1917: 486).

kochi, *Macromia* 1911: 103 = *Phyllomacromia picta* (Hagen in Selys, 1871: 552)

This species is named after its collector, as to be seen from the first sentence of the paper: "Die kleine Libellen-Sammlung, welche den Gegenstand der folgenden Zeilen bildet, brachte Herr Prof. Dr. R. Koch, Exzellenz † von seiner letzten ostafrikanischen Reise zur Erforschung der Schlafkrankheit mit [The small dragonfly collection, which is the subject of the following lines, was brought back by the late Professor Dr. R. Koch, Excellency, from his last East African trip to research sleeping sickness]" (for the eponym, the Nobel laureate in medicine and physiology 1905, see Beolens 2018: 224-225). But the type setter misread Grünbergs handwriting and printed the name as '*trochi*', which does not make any sense, and regrettably Grünberg overlooked that mistake in the proofs, as he did very often. For example, in the same paper, one finds the spelling errors *erythrae* for the *Crocothemis* species, *Rystemis fenestralis* instead of *Rhyothemis fenestrina* and *trifesciata* instead of *trifasciata* for the *Phyllomacromia* species, and the naming *Macronia paula* R. for Karsch's *Phyllomacromia* species. For all these errors I could find no later correction by the author. The name *picta* [L. = adorned with colored designs, painted] credited by Selys to Hagen probably refers to this feature (p. 553): "Abdomen noirâtre ... annellé de jaune pâle [Blackish abdomen... ringed with pale yellow]."

A year earlier, Grünberg had examined the butterflies Koch had collected on the same occasion and named a species after the collector, believing it to be new (*Mycalesis (Bicyclus) kochi*) (1910c: 162); however, it turned out to be a junior synonym of *Bicyclus sebetus* (Hewitson, 1877).

manderica, *Gynacantha* 1902: 234 (K)

L. suffix *-icus -ica -icum* = pertaining to

This is also a toponym, which finds its explanation in Grünberg 1903c: 711: "In der Sammlung des Zoologischen Museums zu Berlin befindet sich noch ein einzelnes ♀ einer ost-afrikanischen *Gynacantha*-Art aus Ukami, Manderia (Dr. Stuhlmann), welches sich auf ein bekanntes ♂ nicht beziehen lässt und dessen Beschreibung daher unter obigem Namen hier ebenfalls Platz finden mag [The Zoological Museum in Berlin still holds a single female of an East African *Gynacantha* species from Ukami, Manderia (Dr. Stuhlmann), which cannot be related to a known male and whose description may therefore also find a place here under the above name]." Ukami is a mountain region 90 km inland from the coast in Tanzania in the Morogoro Region. Manderia therefore cannot mean the Manderia county in Kenya at the border of Ethiopia.

nyanzana, *Macromia* 1911: 104 = *Phyllomacromis contumax* Selys, 1879b: 103

L. suffix *-anus -ana -anum* = pertaining to

This is also a toponym. As can be seen from the title of Grünberg's paper "Zur Kenntnis der Odonatenfauna der Sesse-Inseln im Victoria-Nyanza [On the knowledge of the Odonata fauna of the Sesse Islands in Victoria-Nyanza]," the name refers to the largest lake in Africa surrounded by three states, on whose shores the type locality is located. Selys probably named the species *contumax* [L. = unyielding, obstinate, stiff-necked] because of its size, which did not make it appear inferior to one of its relatives (p. 104): "Differs from *Ph. trifasciata* (of Madagascar) by its much larger size, its expanse of wings equalling that of *Macromia Sophia* (De Selys), but abdomen much longer."

nyassicus, *Microgomphus* (1902: 234)

L. suffix *-icus -ica -icum* = pertaining to

Grünberg's ♀ type specimen was collected near Langenburg, which was a German military base at the northern shore of Lake Nyassa in East Africa.

trochi, *Macromia* 1911: 103 (incorrect original spelling) see *kochi* above

villosa, *Gynacantha* 1902: 233

L. *villosus -a -um* = shaggy

The name refers to the thorax of the species: "Thorax ... dicht und lang behaart [Thorax ... densely and long-haired]."

Actual genera

Agriocnemis Selys, 1877: 134, 142

Gr. ἄγριος [agrios] = living in the fields, in this context a reference to the generic name *Agrion* chosen by Fabricius (1775: 425) to comprise all damselflies (probably, because damselflies, unlike house flies, usually do not live in the domestic area) + κνημῖς [knemis] = greave, legging in reference to the 'Legion *Platycnemis*', which Selys (1863: 148) had

established for genera he thought to be related to the genus *Platycnemis* (= broad greave, because of the widened tibiae).

Already in 1872 (181-182) Selys mentioned two subgenera *Argiocnemis* and *Agriocnemis* named according to their nearness to the genera *Argia* and *Agrion* (today's *Coenagrion*), which however do not pertain to the Platycnemididae. The element '-cnemis' in their names is explained by Selys (1877: 135) when finally establishing the taxa: "Précédemment j'avais pensé que les Argiocnemis devaient se placer à la suite de la légion du Platycnemis à cause de leur quadrilatère presque regulier [Previously I had thought that the *Argiocnemis* should be placed after the Légion *Platycnemis* because of their almost regular quadrilateral]."

***Allocnemis* Selys, 1863: 173**

Gr. ἄλλος –η –ον [álos] = other, another + κνημῖς [knēmīs] = greave, legging as a reference to the genus *Platycnemis*

Allocnemis was described by Selys as a 'sous-genre' among others with –cnemis as second element of their names in a publication intended to cover all the taxa closely related to the genus *Platycnemis*. Its distinguishing feature from the others is given (p. 174): "Ils se séparent ... des autres sous-genres précédents par les ailes plus petiolées [They are separated from the other aforementioned subgenera by the more petiolate wings]." So in this case the name means: "Another platycnemidid taxon". But as mentioned under *Agriocnemis* above, elsewhere the element –cnemis just as well may mean 'Coenagrionid damselfly.'



Fig. 4: *Chlorocypha trifaria* ♂ Uganda 2016 © Jens Kipping. In this damselfly species named by Karsch the yellow markings on the thorax, which may have led to the generic name, are to be noted, as is the protruding clypeus, liable for its second element.

Chlorocypha Fraser, 1928: 684 (Fig. 4)

Gr. χλωρός –ά –όν [chlōros] = greenish-yellow, pale green + –cypha as a reference to the genus *Rhinocypha* (see below)

Fraser chose this name to solve a problem in odonatological nomenclature: Selys (1840: 200), when establishing his genus *Libellago* [= showing the characteristics of a *Libellula*, see Fliedner 2021a: 109], had named *Calopteryx lineata* Burmeister as the first species of his new genus. Two years later, Rambur (1842: 238) founded his genus *Micromerus* (from the Greek μικρός [mikros] = small and μέρος [meros] = part, probably alluding to "Abdomen notablement plus court que les ailes [abdomen notably shorter than the wings]") for the same species, thus creating a junior synonym of Selys' genus. Selys, however, adopted this classification in his Synopsis of the Caloptérygines and instead chose *Libellula dispar* Palisot des Beauvois as the type species of *Libellago*, which had not originally belonged to this genus (cf. Cowley 1934: 243). Therefore, Fraser's solution was "to rectify these errors *Micromerus* becoming *Libellago* and a new name chosen for the latter, for which I would suggest *Chlorocypha*." Fraser gave no explanation for his choice of name, but almost all species in the new genus exhibit striking yellow or greenish markings on the thorax. The second part of the name certainly refers to the closely related genus *Rhinocypha* (Rambur, 1842: 232) [from Greek ρίς, stem ριν– [rhin/ rhin–] = nose + κυφός [kyphos] = bent forward, humped], which was named after the prominent clypeus of all its species: "épistome fortement renflé et saillant [strongly arched and protruding epistome]. "This characteristic is also found in other related genera, which are now grouped together in the family Chlorocyphidae. In odonatological nomenclature, the morpheme –cypha therefore generally means 'genus of chlorocyphid dragonflies'.

Elatoneura Cowley, 1935: 14

Gr. ἐλάττων [elattōn] = less, smaller + νεῦρον [neuron] = sinew, tendon (in entomology used for wing vein)

Selys 1886: 163 and Kirby 1890: 133 had mistakenly associated his species *Disparoneura glauca* with *Agrion* (= *Africallagma*) *glauca* Burmeister. Kirby (1890) had chosen *D. glauca* as type species of *Disparoneura*, while Selys in 1860 had already based this genus on the species *Argia quadrimaculata* Rambur, which is not congeneric to his *D. glauca*. So Cowley in his paper deals with the necessity to find a new generic name for *Disparoneura glauca* Selys 1860, explaining his choice of name thus: "The new generic name is derived from ἐλάττων, smaller, with reference to the reduced condition of the vein A'."

Gynacantha Rambur, 1842: 209

Gr. γυνή [gynē] = woman, female + ἄκανθα [akantha] = thorn, prickle

Rambur chose this genus name for aeshnids, which differed from the genera *Aeshna* and *Anax* by spines beneath the tenth abdominal segment of the females. Rambur's genus was split up by Selys (1883: 744) into subgenera according to the number of the spines, *Tetracanthagyna* with four spines, *Triacanthagyna* with three spines, *Gynacantha* and *Heliaeschna* with two spines, which however later all were elevated to generic rank.

Microgomphus Selys, 1858: 100 (360)

Gr. μικρός [mikros] = small, little + γόμφος [gomphos] = bolt (for ship-building)

Leach (1815: 137) had established a genus *Gomphus* for dragonflies characterized by

"Wings of the male angulated at their anal edge. Abdomen clavate in both sexes." Selys later had split that original genus into many new ones, in these a subgenus *Microgomphus*, which however later was elevated to generic rank. About this taxon, to which he assigned a single male specimen collected by the famous A.R. Wallace in Malacca, he states: "Le sous-genre Hétérogomphus nous a montré les plus grands Gomphus connus. Celui-ci qui en est voisin, nous offre le plus petit de tous [The subgenus *Heterogomphus* has shown us the largest known *Gomphus* species. This one, a close relative, offers us the smallest of them all]."

***Palpopleura* Rambur, 1842: 129**

L. *palpito* = to pulsate, quiver, palpitare + Gr. πλευρά [pleura] = rib, side

The ancient words at the base of the name are employed in an unusual way, as one rather would think of the Latin word *palpo* = to stroke, of which *palpito* is an intensive form, that normally stands for a more intense, more vigorous course of the activity described in the primary word; but not so in this case. Similarly the Greek word is not used in its normal meaning 'a rib', but as an analog of the Latin word *costa*, which in entomology denotes the vein of the anterior border of the wings. This is to be seen from the characteristic feature given by Rambur in his description of the genus: "Bord costal des ailes antérieures sinué ou presque échancré [anterior edge of the forewings sinuous or almost zigzag]."

***Phyllomacromia* Selys, 1878: 212**

Gr. φύλλον [phyllon] = leaf + μακρός [makros] = long + ὤμος [ōmos] = shoulder + L. feminine form of the suffix *-ius -ia -ium* = pertaining to

The genus *Macromia* had been established by Rambur (1842: 137) in reference to its humeral part of the wings: "Ailes ayant la partie humérale du bord costal au moins deux fois aussi longue que la partie cubitale jusqu'au pterostigma [Wings with the humeral part of the costal edge at least twice as long as the cubital as far as the pterostigma]." Selys segregated from this genus the taxon *Phyllomacromia* due to this feature of the males: "Le 8e segment du male campanulé, dilaté en feuilles latérales arrondies [The 8th segment of the male campanulate, dilated into rounded lateral leaves]." He mentioned that this abdominal dilatation was similar to that of some genera of gomphids (for instance *Ceratomorphus*, *Phyllogomphus*, *Cyclophylla* or *Ictinus*).

***Proischnura* Kennedy, 1920: 87**

Gr. prefix προ- [pro-] = prior in rank or order + *Ischnura* see below

Charpentier, 1840: 20 had established a genus *Ischnura* (from Gr. Gr. ισχνός [ischnos] = thin, lean + οὐρά [ura] = tail (in entomology often for abdomen, sometimes for appendage)) for two coenagrionid species he assessed to be quite slender. When Kennedy removed the type species of his new taxon out of the genus *Enallagma*, he stated: "Penis intermediate between that of *Ischnura* and that of *Enallagma*." So one may assume that he assessed his new genus to be prior in evolution to both.

***Pseudagrion* Selys, 1876: 490**

Gr. ψευδ- [pseud-] = false, pretending to be; for *-agrion* see *Agriocnemis* p. 9

Selys described this taxon as one of the many subgenera (now elevated to generic rank) within his genus *Agriion* of those, in which the females lack a vulvar spine. For these he

states (1876: 1233): “Il est difficile de donner une analyse laconique des caractères principaux des douze sous-genres que j’admets dans cette seconde partie du grand genre *Agrion* [It’s difficult to give a succinct analysis of the basic characteristics of the twelve subgenera I’ve included in this second part of the large *Agrion* genus].” So the name probably refers to the difficulty to distinguish this genus from other genera of this group.

Zygonoides Fraser, 1957: 119-120 (Fig. 5)

The name is a combination of *Zygonyx* (see the next entry) with the latinized form of the Gr. suffix –(ο)ειδής [(o)eidēs] = looking like.

The new genus was erected by Fraser to comprise all species formerly classified in the genus *Olpogastra* Karsch (from Gr. ὀλπη [olpē] = leathern oil-flask + –γαστρος [–gastros] = bellied, in reference to the inflated abdomen) except for its type species *O. lugubris*. These two genera he combined with the genus *Zygonyx* to form a new sub-family “Zygonictinae” (correctly: Zygonychinae) because of their similarity.



Fig. 5: *Zygonoides fueleborni* ♂ Botswana 2006 © Jens Kipping. Also, this is one of the species Grünberg credited to Karsch

Zygonyx Selys in Hagen 1867: 62

Gr. ζυγόν = (properly) yoke, (metaphorically) an equal pair of + ὄνυξ = talon, claw

In his paper Hagen reported that Selys was going to establish two genera characterized by the tips of their legs, in which – similar to the genus *Macromia* – the teeth of the claws were of equal length with these; one of these genera would be called *Zygonyx*. Selys himself (1871: 520) stated “onglets à dents égales [claws with equal teeth]”.

Conclusions

In summary, it can be said that Grünberg was one of the German entomologists who, at the turn of the 19th to the 20th century, also described several new dragonfly taxa, along with C. E. A. Gerstäcker (1828–1898; see Bridges 1994: IX.31), H. J. Kolbe (1855–1939; see Bridges 1994: IX.45) or G. Enderlein (1872–1968; see Bridges 1994: IX.21).

It seems that he did not have much opportunity to engage himself with dragonflies, as significant new collections were entrusted to entomologists with more extensive experience, such as Förster (e.g., from the expedition of C. von Erlanger, see Förster 1906), Ris (e.g. collections of L. Schultze, see Ris 1908, or L. Martin see Ris 1911). Furthermore, the large increase in described dragonflies from non-European regions probably had an impact, so that opportunities for discovering new species became more difficult. Therefore, it can be assumed that his proficiency in recognizing dragonfly taxa lagged somewhat behind that of other odonatologists, even though, by associating *Schizonyx* and *Pseudomacromia* with *Zygonyx* Selys (see above p. 5), he had anticipated a modern insight that Ris did not adopt in his monograph on the Libellulinae.

It therefore seems understandable that his commission to describe the gomphids for the catalog of the 'Collection de Selys' did not come about before 1908, probably due to difficulties in recruiting odonatologists to collaborate on the catalog mentioned in Wascher & Dumont 2013: 391-394. This is to be seen from the names quoted on the title page of the fascicles of the catalog published around that date: Grünberg first is mentioned in fascicle XVIII (Martin 1908), while previously (e.g. in fascicle XVII, Martin 1906) the Stettin-based scientist Leopold Krüger (1861-1942) had been named there, who may have withdrawn from the project due to increasing responsibilities at his school and in the Stettin Entomological Society (more about him: Fliedner 2021b). However, there is no indication that Grünberg pursued this project further after leaving the Berlin Natural History Museum.

A case in which Grünberg's expertise was sought, albeit without a successful outcome, is documented in Williamson 1915: 627. He had requested advice from G. Severin of the Collection de Selys regarding a new *Epipleoneura* species, which needed to be compared with other species of the genus housed in that collection. Severin had involved Grünberg and Ris in the matter; in doing so, Grünberg judged two taxa to be identical based on their appendages, whereas Ris provided the decisive, correct answer.

In this case, then, Grünberg's efforts to promote knowledge of odonates were not helpful. However, we are indebted to him for one of the first descriptions of dragonflies at sea. It was presented by him at a meeting of the 'Deutsche entomologische Gesellschaft', over which Grünberg presided at the time, detailing a sea voyage along the Atlantic coast of France en route to a holiday stay in Mallorca in 1911 (Anonymous 1911: 227): "Während der Ausreise, die zur See von Hamburg aus angetreten wurde, erschienen im Kanal und längs der bretonischen Küste die unvermeidlichen entomologischen Gäste, einige Schmetterlinge (hauptsächlich *Pieris*) und große Libellen (*Aeschna mixta* oder *juncea*). Die letzteren begleiten das Schiff auf weite Strecken, oft während längerer Zeit an ruhigen windgeschützten Stellen ausruhend [During the outward journey, undertaken by sea from Hamburg, the inevitable entomological guests appeared in the Channel and along the Breton coast: a few butterflies (mainly *Pieris*) and large dragonflies (*Aeschna mixta* or *juncea*). The latter accompanied the ship

for considerable distances, often resting for extended periods in calm, sheltered spots]" (for a similar observation see Grunsven & Termaat 2010).

Overall, the following impression emerges: During his time at the Berlin Museum of Natural History, Grünberg proved to be a promising young entomologist; although he lacked some experience in the field of odonatology, this shortcoming appears to have had virtually no impact on his first two publications on dragonflies, thanks to Karsch's support. However, since he withdrew from entomological research as early as 1916, his talents consequently never had the opportunity to fully develop.

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I used zobodat and BHL to access literature and had the programmes DeepL and google translate help me formulate the text of some sections.

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Reference cited in the text should read as follows: Tillyard (1924), (Tillyard 1924), Swezey & Williams (1942).

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Swezey, O. & F. Williams, 1942. Dragonflies of Guam. Bernice P. Bishop Museum Bulletin 172: 3-6.

Tillyard, R., 1924. The dragonflies (Order Odonata) of Fiji, with special reference to a collection made by Mr. H.W. Simmonds, F.E.S., on the Island of Viti Levu. Transactions of the Entomological Society London 1923 III-IV: 305-346.

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