

A tribute to Jules Pierre Rambur (1801-1870)

Rienk de Jong

KEY WORDS

Hesperiidae, genitalia, identification

Entomologische Berichten 76 (3): 94-98

As early as 1839, the French medical doctor Rambur published the first drawings of genitalia of Hesperiidæ (Lepidoptera), probably the first of Lepidoptera in general. His pioneering work was ignored or even abused by contemporaries and later students, delaying the large-scale introduction of genitalia as a means for identifying species by some 70 years. Research by Reverdin (from 1910 onwards) and Warren (1926) proved Rambur's conclusions correct. The first and only appreciation for his work received Rambur from Evans in 1949, 110 years after the publication. Time for a tribute.

Introduction

By 1910 all European species of the genera *Carcharodus*, *Spialia*, *Muschampia* and *Pyrgus* (Lepidoptera, Hesperiidæ), as recognized today, a total of ca. 26 species, had been described, except two. It does not imply that they could easily be identified. There was much uncertainty and confusion about the identity of a number of species and about species limits. The situation started to improve when the Swiss medical doctor Jacques Louis Reverdin (1842-1929), living in Geneva, began his study of the male genitalia of European Hesperiidæ. His publications from 1910 onwards, mainly in the *Bulletin de la Société Lépidopterologique de Genève*, showed a very meticulous student. However, his first paper on Hesperiidæ (Reverdin 1910) appeared when he was already 68 years old and although he continued publishing until the year before his death (Reverdin 1928), he felt that he would not be able to make a complete revision of the genus '*Hesperia*' (now *Pyrgus* and some relatives) on the basis of the male genitalia. When he met the much younger and energetic Brisbane Charles Somerville Warren (1887-1979), who lived in Lausanne (Switzerland) from 1922 until 1934 and was 45 years his junior, he persuaded him to take over the job. Warren accepted and in 1926 (three years before the death of Reverdin) he published his exemplary monograph on the 'tribe Hesperiidæ (European species)'. Since then there was no longer an excuse for mixing up species, if one only endeavored to study the genitalia.

The discovery of genitalia

Although the work by Reverdin and Warren was a great leap forward in the study of European *Pyrgus* and related genera, they started their studies 70 years after a French medical doctor, Jules Pierre Rambur (1801-1870) (figure 1), had published tiny but very accurate drawings of the male genitalia of a number of 'difficult' European *Pyrgus* species in his *Faune Entomologique de l'Andalousie* (1837-1840). The work was based on a long trip (1834-1835) he made through southern Spain with his friend Adolphe Hercule de Graslin (1802-1882), who was equally fascinated by Lepidoptera. The publication was issued in parts in a confusing way. Higgins (1958), a medical doctor like Rambur and Reverdin, sorted it all out. In 1839 two plates (8 and 12) were

published with Hesperiidæ. Of these, plate 8 is the most important one, showing a number of species of the genus '*Hesperia*', now in *Muschampia* and *Pyrgus* (figure 2). The very nice hand colored illustrations of wings, natural size and accurate, are accompanied by small drawings of the male genitalia, the largest having a length of 10 mm. In spite of their small size, the drawings are incredibly accurate and for one who is acquainted with Hesperiidæ, it is not difficult to identify the species on the basis of these drawings only. Rambur did not give genitalia drawings of other Lepidoptera (or of other insects, for that matter). The drawings depict the parts of the male genitalia that can be seen when the integument of the eighth abdominal segment is carefully broken away and one of the valves is taken off to show the inner side. Although nowadays complete dissections and preparations are made and photographs taken, the parts depicted by Rambur are still essential for identification.

Rambur's drawings are the first drawings of genitalia of Hesperiidæ ever, and possibly of Lepidoptera. The discovery of such a nice tool for discriminating between species that are otherwise very similar should have given an enormous impetus to the study of Lepidoptera, but nothing happened. One, and perhaps the main reason may have been that the distribution of the publication was very limited. In the second half of the 19th century some students showed an interest in genitalia (Buchanan White 1878, European butterflies among which only two *Pyrgus* species, *serratulae* and *malvae*; Gosse 1883, non-European Papilionidae; Scudder 1889, North American butterflies). Their drawings, although much bigger than Rambur's, do not even come close to the excellent drawings of the latter. None of these authors mentioned Rambur. The study of the genitalia got momentum at the end of the 19th and in the early years of the 20th century, by the work of Peytoureau (1895), Schroeder (1900), Petersen (1900), Pierce (1909), Lacreuze (1911, a fellow-townsmen of Reverdin's and, like Reverdin, using photographs), and others. The interest of Reverdin and Warren in the genitalia fits this picture. Only in 1949, 110 years after the publication of Rambur's plates, the significance of his work was appreciated by Evans (1949: 470): 'He was the pioneer of genitalia diagrams of Hesperiidæ, and, though his figures are small, they are more lucid than many of the photographic and camera-lucida reproductions that have appeared since'.



1. Jules Pierre Rambur (1801-1870). Source: Oberthür (1914)
1. Jules Pierre Rambur (1801-1870). Bron: Oberthür (1914)

A rare publication

Nowadays the *Faune Entomologique de l'Andalousie* is a rare publication. Higgins (1958) could trace only eight complete copies (complete meaning: all that has appeared, the work was never completed), three of which were in England and one in France. However, incomplete copies may be more widespread. The work was planned to appear in two volumes, but text pages and plates of the two volumes were delivered in five parts ('livraisons') and not in sequential order. Thus, Livraison 1 contained pages 1-80 of the text and plates 1 and 2 of Volume 1, as well as plates 14, 15 and 18 of Volume 2. Livraison 2 contained pages 81-144 of the text and plate 2 of Volume 1, as well as pages 1-16 and plates 1-4 of Volume 2; etc. Volume 1, containing text pages 1-144 and plates 1, 2, 19 and 20, appeared in 1837 and 1838. There are two complete copies of Volume 1 in the library of the Netherlands Entomological Society (NEV), nowadays housed in Naturalis Biodiversity Center (NBC), Leiden. Volume 2, containing text pages 1-336 (pages 177-212 are extremely rare; it seems that they were not distributed through booksellers in the usual way) and plates 1-18 (except plates 13 and 16 that were never published) appeared 1837-1840. Note that plates 1 and 2 of Volume 1 are different from plates 1 and 2 of Volume 2, while plates 19 and 20, numbered after the last plate of Volume 2, actually belong to Volume 1. Of Volume 2, the said library has a copy of text pages 1-176 and plates 1-12, 15, 17 and 18. In addition, the

library of NBC has a copy of text pages 213-336 and plates 8, 10, 11, 12, 14, 15, 17 and 18. Obviously this bound volume contains all that appeared on Lepidoptera. Together, the copies in the libraries of NEV and NBC are all that appeared of the *Faune entomologique de l'Andalousie*, except the enigmatic text pages 177-212. Moreover, in the library of the NEV there is also a reprint of the 5th livraison, containing pages 213-336, with plates 8, 10-12, 14, 15, 17 and 18 (black & white). The reprint was published by Agenjo (1942) in recognition of the centenary of the publication of the last livraison of this work. In his preface, Agenjo gave a summary of what was known about the publication of the work.

Because of the rarity of the work and the innovative content, I consider it appropriate to put Rambur in the spotlights, 145 years after his death, particularly so since his contribution has largely been overlooked and/or underestimated.

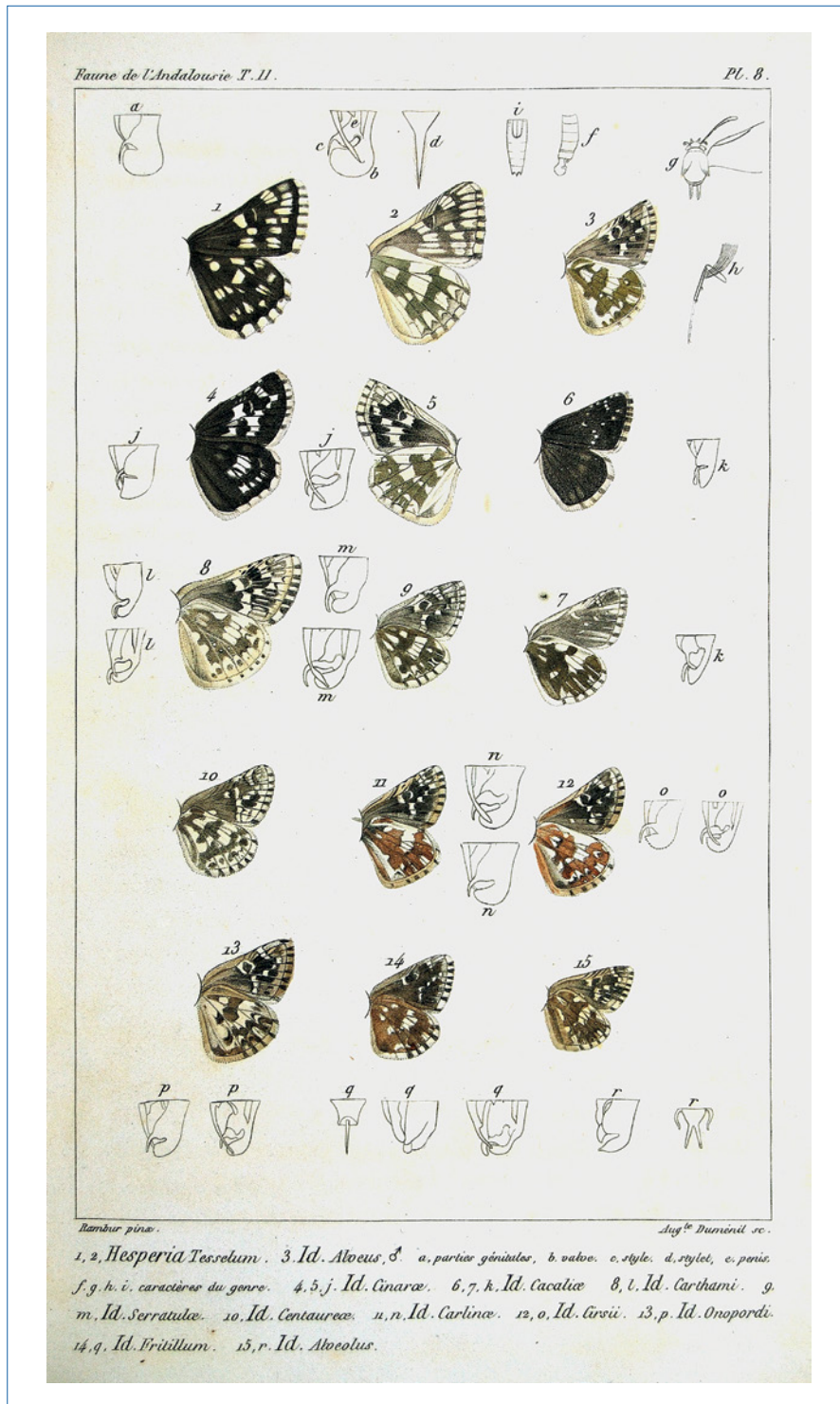
Incomprehension

Up to 1839 there were 15 names for European *Pyrgus* species in use for what we now consider to represent four species. Probably most of the 13-16 European *Pyrgus* species recognized at present were represented in collections and recorded in publications, but under an incorrect name. Rambur dealt with ten *Pyrgus* species. If later authors had only read his descriptions and seen his figures, much confusion and misidentifications could have been avoided. Thus, Speyer (1878) remarked: 'Hier sind es zumal die dem *Alveus* zunächst stehenden Arten oder Varitäten: *Fritillum*, *Serratulae*, *Cacaliae*, *Andromedae* (und ganz abgesehen von den Rambur'schen *Cirsii*, *Carlinae* und *Onopordi*, über den Niemand recht Bescheid weiss), ...'. The end of the quote, meaning: "that are incomprehensible to everybody", only shows that Speyer did not know or understand Rambur's work, and then it is easy to hide oneself behind everybody's back.

Possibly following Speyer, Staudinger & Rebel (1901), recognizing nine European *Pyrgus* species (under the name of *Hesperia*), placed (with a question mark) the names *carlinae*, *cirsii*, *onopordi* and *conyzae*, as synonyms under *alveus*. The first three taxa had been described by Rambur, who had given such fine details that every serious student could see that they are different from *alveus*. *Conyzae* was added in 1877 by Guenée and is currently considered a junior synonym of *onopordi*. As late as 1940 Verity used the name *fritillum* Hübner for what currently is called *cirsii* Rambur. Actually, *fritillum* was first described by Schiffermüller and later by Fabricius, Hübner only used this name incorrectly for what currently is called *Pyrgus malvoides* (or *Pyrgus malvae malvoides*). The descriptions were so inadequate that the name has been used in literature for at least four different species.

Naming *Pyrgus* species

Rambur gave details of eight species described by earlier authors, in what are currently the genera *Carcharodus*, *Spialia*, *Muschampia* and *Pyrgus*, and added eight new Hesperiid species, seven of which belonging to what we now call *Pyrgus*. The names were first published on plate 8 (*Hesperia cinarae*, *H. cacaliae*, *H. serratulae*, *H. centaureae*, *H. carlinae*, *H. cirsii*, *H. onopordi*) and plate 12 (*Syrichtus boeticus*). The plates were published in 1839 (Higgins 1958), and according to article 12.2.7 of the International Code on Zoological Nomenclature, this is the year of publication of the names, although the descriptions only appeared in 1840. On page 323, Rambur changed the name *Syrichtus boeticus* into *Pamphila marrubii*, with reference to the same figure. Since the description was published one year after the plate, *Pamphila marrubii* is a junior synonym, as correctly listed by Evans (1949).



2. Plate 8 from Faune entomologique de l'Andalousie (1839). Copy in library Naturalis. Natural size.

2. Plaat 8 uit Faune entomologique de l'Andalousie (1839). Exemplaar in bibliotheek Naturalis. Natuurlijke grootte.

The synonymy is hardly worth mentioning, but it is interesting to see why Rambur changed the name. He had discovered this new species in 1825, but did not dare to publish it, since he had not yet found the caterpillar. But he had given specimens to several entomologists under the name of 'Boetica' and this name appeared on the plate by accident. When he had found the caterpillars on *Marrubium* he changed the name, but too late as far as the Code is concerned.

Changing a name because of the discovery of the foodplant is remarkable, since Rambur did not know the foodplants of any of the seven species of 'Hesperia' he described (he only mentioned that the single foodplant known for 'Hesperia' was *Rubus idaeus* (Rosaceae)), yet named them all after Asteraceae, suggesting that they live on these plants. The diet of the caterpillars of *Pyrgus* species consists of several herbaceous Rosaceae, like

Potentilla, and a few plants from other families, but none from the Asteraceae (Tolman 1997). Remarkably, also other authors have named *Pyrgus* species after plants on which they do not feed: *Pyrgus malvae* (Linnaeus) does not live on *Malva* (Malvaceae), *Pyrgus sidae* (Esper) does not live on *Sida* (an American genus of Malvaceae), *Pyrgus carthami* (Hübner) (figure 3) does not live on *Carthamus* (Asteraceae), and *Pyrgus andromedae* (Wallengren) does not live on *Andromeda* (Ericaceae). This gives a total of eleven *Pyrgus* species named after plants they don't live on. There is no *Pyrgus* species with the name of a plant it does live on, all other *Pyrgus* species, in both the Old and New World, having been named after a character, a collector, an area or whatever.

For a work on the fauna of Andalusia it is remarkable that only two of the seven *Pyrgus* species (*serratulae* and *onopordi*) described as new by Rambur actually came from Andalusia. These



3. *Pyrgus carthami* (Hübner), one of the eleven *Pyrgus* species named after a plant they do not live on. France, Vaucluse, Lagarde d'Apt, 01.vii.2012. Photo: Rienk de Jong.

3. *Pyrgus carthami* (Hübner), één van de elf *Pyrgus*-soorten die genoemd zijn naar planten waar ze niet op leven. Frankrijk, Vaucluse, Lagarde d'Apt, 01.vii.2012.

two species were described in the current text. Of the remaining five species, originating from the Alps (*cacaliae*, *carlinae*), Fontainebleau (*cirsii*; often seen as conspecific with *carlinae*), Dalecarlia (Sweden; *centaureae*) and Sarepta (S Russia; *cinarae*), four were described in long footnotes (pages 313-316). Of one species (*cinarae*) no description is given, only the nice drawings; we know its origin from the holotype that is in the Natural History Museum, London (Evans, 1949). It shows that Rambur was well acquainted with the European lepidopterous fauna as a whole and had contacts over a wide area.

More than a lepidopterist

Before Rambur went to southern Spain with his friend de Graslin, he had already published, with Boisduval and de Graslin, a large book (488 text pages, numerous plates) on the caterpillars of Europe (Boisduval et al. 1832). He had completed the treatment of the butterflies of Andalusia and had published the first ten pages (327-336) on the other Lepidoptera, when the publication of the Faune entomologique came to a stop in 1840. Only 18 years later his comprehensive catalogue of the Lepidoptera of Andalusia (Rambur 1858) appeared, without further figures of genitalia.

In our present age of worldwide communication and online and open access publications, the chance of overlooking a publication is much smaller than in Rambur's time, but in the 18th and 19th century the number of lepidopterists was relatively small and there was much exchange of ideas and publications. I don't know why Rambur's work remained rather unknown. I am not sure about Rambur's medical career, but he was well known in France as an entomologist, participated in the foundation of the Société entomologique de France (1832) and became its president in 1839. He was not only interested in Lepidoptera, but in addition to studying other insects of Andalusia, he also published a large work on 'Névroptères' (which at the time included Odonata and Mecoptera as well, Rambur 1842), seen as his most important contribution to entomology. This may hold for the number of pages, but in terms of innovation his discovery of the male genitalia as a complex of discriminating characters in Hesperidae (and Lepidoptera in general) stands out.

References

- Agenjo R 1942. 5a Entrega de la Faune entomologique de l'Andalousie. Instituto Español de Entomología.
- Boisduval JA, Rambur P & De Graslin A 1832. Collection iconographique et historique des chenilles; ou, Description et figures des chenilles d'Europe, avec l'histoire de leurs métamorphoses, et des applications à l'agriculture. Roret.
- Buchanan White F 1879. On the male genital armature in the European Rhopalocera. Transactions of the Linnean Society of London, Zoology 1: 357-369.
- Evans WH 1949. A catalogue of the Hesperidae from Europe, Asia and Australia in the British Museum (Natural History). Trustees British Museum.
- Gosse PH 1883. On the clasping-organs ancillary to generation in certain groups of the Lepidoptera. Transactions of the Linnean Society of London, Zoology 2: 265-345.
- Higgins L 1958. A precise collation of Rambur, M.P., Faune Entomologique de l'Andalusie (1837-1840). Journal of the Society for the Bibliography of Natural History 3: 311-318.
- Lacrezue C 1911. Observations rectificatives et complémentaires relatives aux Hesperidae. Etudes de Lépidoptérologie Comparée 5(2): 99-104.
- Oberthur C 1914. Portraits de Lépidoptéristes. Première Série. Etudes de Lépidoptérologie Comparée 9.
- Petersen W 1900. Beiträge zur Morphologie der Lepidopteren. Mémoires de l'Académie de Science St. Pétersbourg (8) 9: 1-144.
- Peytoureau A 1895. Contribution à l'étude de la morphologie de l'armure genital des insectes. Thèse Université de Bordeaux.
- Pierce FN 1909. The genitalia of the Noctuidae of the British Islands. Duncan.
- Rambur JP 1837-1840. Faune entomologique de l'Andalousie. Bertrand.
- Rambur JP 1842. Histoire naturelle des insectes. Névroptères. Roret
- Rambur JP 1858. Catalogue systématique des lépidoptères de l'Andalousie. Baillière.
- Reverdin JL 1910. Note sur l'armature génitale mâle de quelques Hespéries paléarctique. Bulletin de la Société lépidoptérologique de Genève 2: 1-16.
- Reverdin JL 1928. Aberrations de Lépidoptères. Bulletin de la Société lépidoptérologique de Genève 6: 89-92.
- Schroeder C 1900. Die Untersuchung der manlichen Genitalanhänge als Kriterium für die Artberechtigung im Genus *Eupithecia* (Lepidoptera, Geometrae). Illustrierte Zeitung für Entomologie 5: 305-307.
- Scudder SH 1889. The butterflies of the Eastern United States and Canada, with special reference to New England. Privately published.
- Speyer A 1878. Die Hesperiden-Gattungen des Europäischen Faunengebiets. Stettiner entomologische Zeitung 40: 342-352.
- Staudinger O & Rebel H 1901. Catalog der Lepidopteren des palaearktischen Faunengebietes. I. Theil. R. Friedländer & Sohn.
- Tolman T 1997. Butterflies of Britain and Europe. Harper Collins.
- Warren BCS 1926. Monograph of the tribe Hesperidi (European species) with revised classification of the subfamily Hesperinae (Palaeartic species) based on the genital armature of the males. Transactions of the Entomological Society of London 74: 1-170.
- Verity R 1940. Le farfalle diurne d'Italia. Vol. 1. Marzocco, S.A.

Samenvatting

Eerbetoen aan Jules Piere Rambur (1801-1870)

Door onderzoek van Reverdin (vanaf 1910) en later Warren aan de mannelijke genitaliën van Hesperidae werd veel van de verwarring rond de identiteit van *Pyrgus*-soorten en verwante genera opgehelderd. Vreemd genoeg waren er al 70 jaar vóór Reverdin uitstekende tekeningen van genitaliën gepubliceerd van negen *Pyrgus*-soorten (onder de naam *Hesperia*) door de Franse arts Rambur, die als eerste genitaliën van Hesperidae (en waarschijnlijk van Lepidoptera in het algemeen) bestudeerde. Een ware doorbraak, maar het bleef geheel stil aan het front van de vlindertaxonomie. Als de soorten die Rambur beschreef al ter sprake kwamen, werd er door grote namen als Speyer en Staudinger & Rebel neerbuigend over gedaan. Later onderzoek heeft Rambur echter geheel gelijk gegeven. De publicatie van Rambur is zeldzaam in bibliotheken. Het werk werd van 1837-1840 in afleveringen gepubliceerd, waarbij paginering en platen niet in volgorde verschenen. Slechts acht complete kopieën zijn bekend, maar incomplete exemplaren zijn wellicht meer verspreid. De Nederlandse Entomologische Vereniging en Naturalis hebben tezamen een complete kopie op een gering aantal pagina's na. Rambur was niet alleen lepidopteroloog, hij heeft ook veel gepubliceerd over andere insecten, maar zijn ontdekking en toepassing van de genitaliën als hulp bij determinatie van anders moeilijk te onderscheiden soorten vlinders toont zijn statuut en plaats hem op een voetstuk.



Rienk de Jong

Spoorlaan 6

2471 PA Zwammerdam

rienk.dejong@naturalis.nl