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ON THE TAXONOMY OF THE GENUS *HIPPARCHIA* FABRICIUS, 1807, WITH DESCRIPTIONS OF TWO NEW SPECIES FROM ITALY (Lepidoptera, Satyridae)

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1. ON THE TYPE-SPECIES OF THE *HIPPARCHIA* FABRICIUS, 1807, ITS SELECTION AND IDENTITY

Koçak (1983) pointed out that *Papilio fagi* Scopoli, 1763, which was designated the type-species (Butler 1868) of the genus *Hipparchia* Fabricius, 1807, was not listed among the nine named species mentioned in the original description of the genus; these were *Papilio hermione*, *Papilio fauna*, *Papilio ligea*, *Papilio maera*, *Papilio epiphron*, *Papilio galathea*, *Papilio pilosellae*, *Papilio hyperanthus* [sic] and *Papilio rumina*. Consequently, Koçak (1983) drew attention to the first formally correct designation of the type-species of the genus *Hipparchia*, this being the selection of *Papilio hyperantus* Linnaeus, 1758, made by Scudder (1875). Koçak further concluded that the valid generic name of the genus *Hipparchia* (sensu Kudrna 1977) should be *Eumenis* Hübner, 1819, the type-species being *Papilio autonoe* Esper, 1784, selected by Grote (1873) (cf. Kudrna 1977). Koçak's (1983) conclusions follow exactly the line set out in the International Code of Zoological Nomenclature, Article 69 (a) (iv). It should be mentioned that also the draft of the third edition (in preparation) of the Code retains in principle the same condition for the validity of the type-species selection and designation, with some additional criteria introduced, which, however, do not seem to affect the above conclusion.

The name *Eumenis* has been at different times by various authors associated with certain species usually referred to the genus *Hipparchia* (Kudrna 1977). The name *Hipparchia* has never been associated in any major reference work with the type-species *Papilio hyperantus* since its selection — so far as I have been able to

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ascertain. The name *Aphantopus* Wallengren, 1853, has always been associated with *Papilio hyperantus*, since its original selection by monotypy. Generic name *Hipparchia* is the oldest generic name of

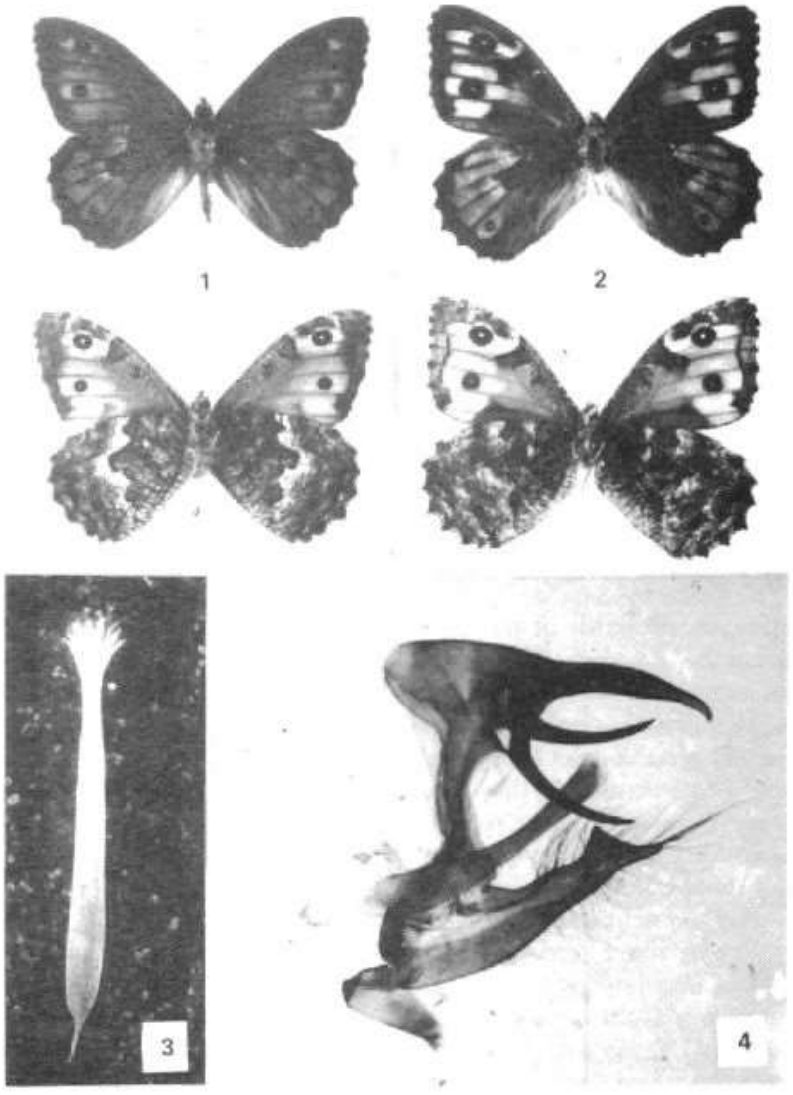

Fig. 1-4: *Hipparchia hellenica*. 1, Male (holotype) upperside and underside; 2, female (paratype) upperside and underside; 3, androconium ca. 400x; 4, male genitalia ca. 19x.

the tribe Satyrini, while *Aphantopus* belongs to the tribe Coenonymphini, both tribes as defined by Miller (1968). Both generic names *Hipparchia* and *Aphantopus* have been relatively stabile and unequivocal in their respective taxonomic status and identity. *Papilio fagi* Scopoli, 1763, was at the time of Butler's (1868) designation generally considered at least conspecific, if not identical, with *Papilio hermione* Linnaeus, 1764, which was originally listed among the nine named *Hipparchia* species. Hemming (1934) already drew attention to the subjective synonymy between *Papilio fagi* and *Papilio hermione*.

Since the object of the International Commission on Zoological Nomenclature is the promotion of universality and stability of the names of animals, and both names *Hipparchia* in connection with its type-species *Papilio fagi (Papilio hermione)* and *Aphantopus* in connection with its type species *Papilio hyperantus* are well established names, the Commission would be well advised to consider very urgently this case, before confusion and uncertainity becomes dominant over the traditional stability of both generic names and, using its plenary powers, declare *Papilio fagi (Papilio hermione)* the valid type-species of the genus *Hipparchia* and *Papilio hyperantus* the valid type-species of the genus *Aphantopus*.

Koçak (1983) also drew attention to the uncertain identity of *Papilio hermione* Linnaeus, 1764 - this has also been done by Higgins & Riley (1978) - and concluded that the above name is at least at present best treated as nomen dubium. Obviously, «nomen dubium» cannot serve as the objective definition of any genus-group name. Nonetheless, the Code does not contain any definition of «nomen dubium» and the term does not appear in the draft of the third edition as there are sufficient means to enable the reviser to dispense with this term altogether. According to the Article 70 (a) (i,ii) of the Code, all cases of misidentified type-species are to be referred to the Commission; apparently, this action has not been taken by the authors (Higgins & Riley 1978, Koçak 1983). Additionally, Higgins & Riley (1978) in their speculations failed to follow the Article 74 (a) (i,ii) of the Code in that they never proved that the specimen designated lectotype (Kudrna 1977) of *Papillo hermione* is not a syntype; they made no effort to suggest, though, that the conditions exist for the designation of neotype (to substitute the lost name-bearing type or all syntypes and objectively define the nominal species), as set out by the Code, Article 75. Should the Commission use its plenary powers to reject

Fig. 5-8: *Hipparchia aboudouia*. 5, Male (holotype) upperside and underside; 6, female (paratype) upperside and underside; 7, androconium ca. 400x; 8, male genitalia ca. 19x.

the name *Papilio hermione* Linnaeus, 1764, the name *Papilio hermione* Linnaeus, 1767, becomes available. One of the figures that illustrate this latter name is the same figure that served later as the only meaningful definition of *Papilio alcyone* Denis & Schiffermüller, 1775, the name already synonymized (Kudrna 1977) with *Papilio hermione*; this figure shows unequivocally the same nominal species as objectively defined by the lectotype of *Papilio hermione* designated by Kudrna (1977). There are, of course, no grounds for the rejection of *Papilio hermione* Linnaeus, 1764, by the Commission and the last speculation is more than hypothetical, immaterial, used here only to describe what consequence would have an extremely improbable ruling.

The only objective definition of any species-group name is the holotype (lectotype, neotype). Nonetheless, the type-concept is rather new and was totally unknown to the classical workers, such as C. Linnaeus. The identity of numerous species named by early authors rests therefore rather on the agreement of the subsequent authors than on the clarity of original descriptions or availability of the relevant type-material. If type-specimens are found, they never bear type-labels, and also the indirect indications are usually few and far between (e.g. locality, date of capture, name of collector or depository, etc.), the best of all being undoubtedly the name of the species written in the author's handwriting on a label pinned under the specimen deposited in the author's or any other relevant collection, where the specimen could have been placed following a gift or exchange.

The only speciment which bears the name *hermione* written by Linnaeus himself is the deposited in the Linnaean collection in London; it is not known how many specimens of *hermione* were available to Linnaeus at the time of writing the original description of the species, but it is known that if there ever was another specimen of *hermione* deposited in the collection of the Queen Ulrica (now at the University of Uppsala, Sweden), it must have disappeared before 1804 (Dr. L. Wallin, pers. comm.). The presence, or indeed «reappearance» of the specimen in the author's collection is not surprising. The argument with regard to the identity of *hermione* based entirely upon its original description supported by specimens figured by other authors is interesting but irrelevant because the description is in any case inadequate for the identification of the species. It is more than surprising that Higgins & Riley (1978) were

able to link the original description of *hermione* with *Papilio fagi*: the constant differences between the two species have been discovered as late as at the beginning of this century (Kudrna 1977), i.e. nearly 150 years after the taxa were described and named for the first time. Both Higgins & Riley (1978) and Koçak (1983) failed to observe that one of the figures believed to depict *hermione* (and in fact depicting another species named later *Papilio fidia* Linnaeus, 1767, but never associated by him with that species) is so crude showing the upperside of the body and the underside of the wings, that Linnaeus' confusion is at least not surprising. It is very unlikely that Linnaeus could ever recognize that *hermione* and *fagi* were in fact two different species, as they are best separated by anatomical characters of their genitalia; it is quite possible that Linnaeus would have considered conspecific with his *hermione* also some other congeneric taxa, to say the least. The rejection of the specimen designated the lectotype of *Papilio hermione* (Kudrna 1977) would throw serious doubt on the true value of any old specimen believed to be a type.

I certainly cannot agree with Koçak's (1983) suggestion that *Papilio hermione* is nomen dubium, which I understand as it defined in the currently valid edition of the Code, as there are at least two serious objections. Firstly, *Papilio hermione* can be associated with three different species: *P. hermione* (identified by the only specimen labelled by the author himself), *P. fidia* (represented by a crude illustration which the author of both taxa never associated with the latter named species) and *P. circe* Fabricius, 1775 (represented by a figure excluded subsequently from the «type-series» by the author himself). The Code provides the means how to deal with such cases, which are by no means axceptional: the name is restricted to one nominal taxon of the group of taxa included by the original author and remains available (Article 17 (2)) - never by the exclusion of all taxa concerned; the designation of lectotype or neotype provides the «restricted taxon» with objective definition. In this case the lectotype selection (Kudrna 1977) does precisely this, preserving at the same time the well established identity of the remaining two taxa involved (*P. fidia* and *P. circe*), and as these are both also type-species, also their respective generic or subgeneric names. Secondly the terminus technicus «nomen dubium» does not offer a lasting solution to nomenclatural problems and is, therefore, justly on the way out: it has already been excluded from the draft of the third edition of the Code.

Higgins & Riley (1978) drew attention to the original description of *Papilio alcyone* Denis & Schiffermüller, 1775, a species conspecific with *P. hermione* only on account of its illustration, and they pretended to be able to understand it. Nonetheless, the original description of *P. alcyone* is so utterly confused by the use of German equivalents to English words former, latter, this and that, that it can only be described as meaningless. Their (Higgins & Riley 1978) speculation regarding the identity of the so called »*P. hermione* Linnaeus, 1767» is, of course, entirely irrelevant as *P. hermione*, Linnaeus, 1764 is an available name. It must also be remembered that the illustrations accompanying the classical description may differ from one copy to another to such a degree that they can hardly be called identical, as required by the Code (Article 8 (1)).

Since the identity of the genus *Hipparchia* is also depending on the identity of its type-species, an action by the Commission may be required also here. Although any unequivocal ruling is better than ambiguity, the adoption of the lectotype of *Papilio hermione*, as selected by Kudrna (1977), would surely be in the interests of the lasting stability of zoological nomenclature.

2. On the nomenclature of *Hipparchia aristaeus* (Bonelli, 1826)

Hemming (1931) pointed out a case of homonymy between *Papilio aristeus* Stoll, 1780, and *Papilio aristaeus* Bonelli, 1826, and consequently replaced the junior primary homonym with a new name, *Hipparchia semele ichnusa* Hemming, 1931, not fully aware that another name known to him at the time, *Satyrus semele sardoa* Spuler, 1902, was already available for the taxon. Hemming's (1931) action was correct according to the first adition of the code of zoological nomenclature which was valid at the time. Nonetheless, the second edition of the International Code of Zoological Nomenclature, drafted by F. Hemming himself (Belfour-Browne 1963) brought about some new alterations regarding the homonimy of species-group names differing in their spelling by one letter, which does not amount to the one letter difference as defined by the Code, Article 58 (a) (iv): according to this altered article, names of different origin and meaning are not to be treated as homonymous. The names *aristeus* and *aristaeus* could either be two different forms of transcription from Greek, of the same Greek word, or they could be correct transcription of two different words: Aristaeus is another

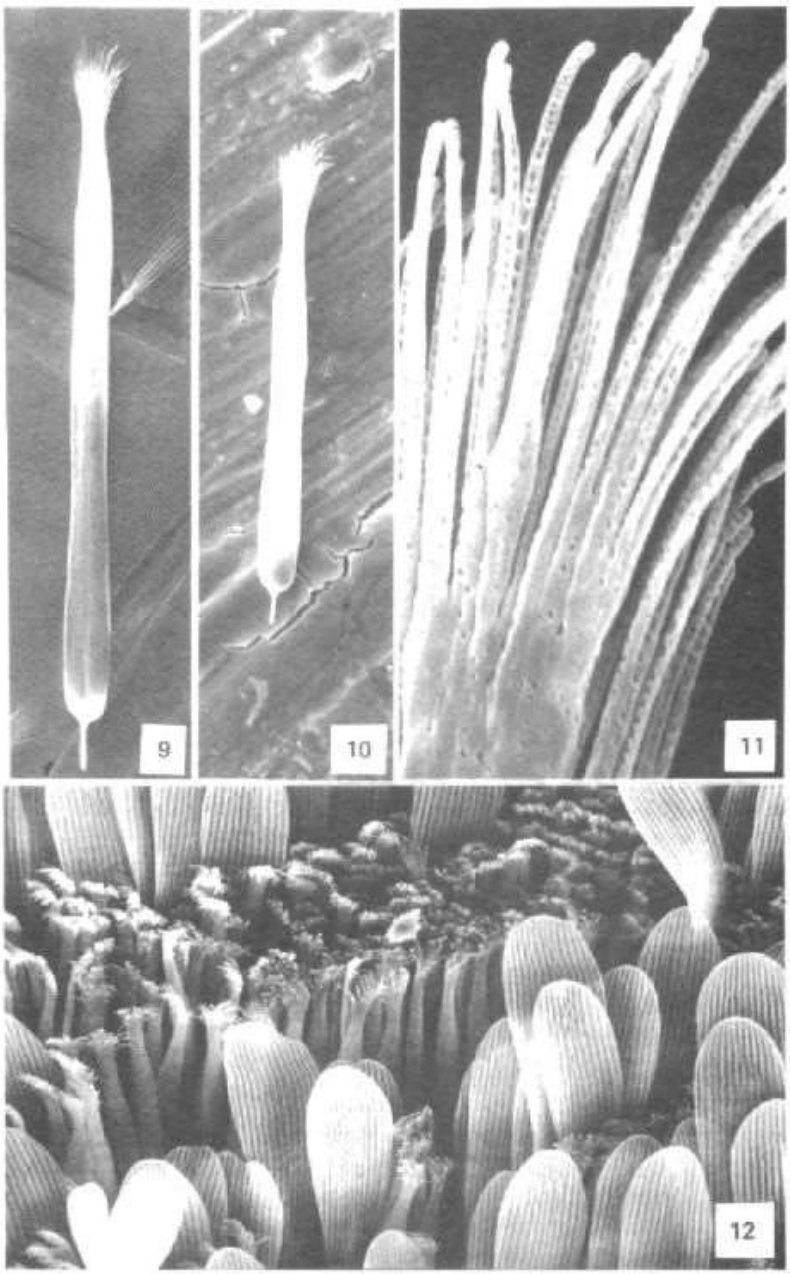

Fig. 9-12: Androconia in some Italian *Hamearis* spp. 9, *H. lucida*, ca. 400x; 10, *H. arsilaus*, ca. 400x; 11, *H. arsilaus*, detail ca. 5500x; 12, *H. sbordonii*, ca. 300x.

name for Apollo and aristeus means the best, often used as a form of a title; aristaeus certainly does not mean prince as erroneously stated by Tremewan (1978).

Aware of the questionable origin of these words as well as of the even more regretable ambiguous article 58 of the Code (a zoologist's judgements in matters of philology are likely to be as unqualified as any would-be statements of a philologist concerning zoological topics!) I decided (Kudrna 1977) to follow Hemming (1931) and made only the correction regarding his replacement name *ichnusa*. In order to avoid any similar confusion in the future I proposed (Kudrna 1978) a new, simplified, modification fo the Article 58, to be used in the third edition of the Code (under preparation). In the backround of my proposal there was the necessity for simplification of the Code, which would bring about both greater and long lasting stability of names as well as its easier use, even if an occasional change of a name became unavoidable because of this alteration alone. This proposal is now very unlikely to be incorporated; it is likely to be substituted with another proposal based on further complication of the above article, taking additionally into account subjective secondary homonymy (Holloway & Robinson 1979). In view of these circumstances, the name *aristaeus* will be retained also in the future for the species, and both *sardoa* and *ichnusa* will be sunk in synonymy. It is perhaps unfortunate that the ever growing complexity of the Code makes its use and application increasingly more difficult, also for experienced taxonomists, not to mention the other zoologists; it is questionable whether this practice contributes positively to achieve the aims set out in the preamble of the Code, such as the stability and universality of zoological nomenclature; I am inclined to consider such measures rather counterproductive.

3. Two new *Hipparchia* species from Italy

The following descriptions contain references to taxa previously treated at different (mostly lower) taxonomic rank (e. g. Kudrna 1977).

Hipparchia aristaeus is treated here as a complex of allopatric morphospecies consising of the following taxa: *H. maderensis*, *H. algirica*, *H. blachieri*, *H. aristaeus*, *H. ballettoi* and *H. senthes*. Also *Hipparchia leighebi* is now considered to be a morphospecies distinct from *H. semele*, and always allopatric with it. The extreme form of *semele* from Sicily (*H. semele wilkinsoni* Kudrna, 1977) is not worthy

of recognition as a morphospecies, within a binominal system of taxa.

Hipparchia b a l l e t t o i sp. n.

Basic wing pattern in both sexes similar to that of *Hipparchia algirica* and *H. senthes* as described by Kudrna (1977: 101, 113), in colour significantly differing particularly from the geographically nearest taxa *H. blachieri* and *H. aristaeus*, the chief constantly distinct features being:
— male genitalia noticeably larger than in any other species of *Hipparchia aristaeus* complex, with uncus slender, quite unlike *H. aristaeus* or *H. blachieri*, longer and nearly straight, with the typical central broadening only slightly pronounced, not so abruptly tapering towards its hooked termination, brachia light, almost as long as uncus, about one third longer than in *H. blachieri* or *H. aristaeus*;
— upperside both wings rather like in *semele* than in *H. aristaeus* and *H. blachieri*, lacking in both sexes the orange/brownish component of pattern characteristic of both latter species;
— underside hind wing lacking the distinctly greyish tone characteristic of *H. aristaeus*, this being replaced by distinctly brown dominance;
— female genitalia (only one female examined) similar to the type characteristic for *H. aristaeus* complex, but with signa possibly slightly longer than in *H. blachieri*;
— androconia very similar to *H. aristaeus* but shorter, about the same lenght as those of *H. blachieri* but with lamina narrower.

Early stages, life history and larval foodplant unknown. *H. ballettoi* inhabits montane beech woods on the slopes of Monte Faito at the altitude of approximately 1200 m; the habitat of *ballettoi* on the Isola Ischia is not know, but it must surely differ from the one described above owing to much lower altitude.

TYPE MATERIAL. Holotype ♂ (length of forewing 27 mm) Italy: Napoli: M. Faito: 29. VII. 1980: E. Balletto leg. & coll.; paratypes 6♂♂, 1♀ with same data but Balletto & Toso leg., deposited in coll. Balletto, Kudrna and Toso.

H. ballettoi has been found only in the neighbourhood of Napoli in southern italy, on the Peninsula apparently restricted to M. Faito, atherwise found also on the Isola di Ischia, a small off-shore island

(only 1♂, 1♀ recorded, apparently identical with specimens from the type-series).

H. ballettoi is a morphospecies allopatric with all closely related taxa of *H. aristaeus* complex as well as with *H. semele* of which I have failed to obtain any samples from the region south of Napoli. The unique shape of uncus and perhaps also the size of male genitalia could constitute an indication that *ballettoi* is what B.C.S. Warren once called «hybrid species» (Warren 1969), i.e. that it may be the product of interbreeding between temporary sympatric populations of the two parent species, which must have been a prae-*aristaeus* or prae-*blachieri* on the one hand and prae-*semele* on the other. The speculation is based on the subsequent extinction of both parent-species in the area, the reasons for this presumed extinction are not known.

Hipparchia s b o r d o n i i sp. n.

Basic wing pattern in both sexes similar to that of *Hipparchia semele*, particularly to the specimens from southern Europe, as described by Kudrna (1977: 61), but differs in certain constant features, as follows:
— outer margin forewings strongly convex in both sexes (it is nearly straight in both sexes of *semele*, in *leighebi* nearly straight in male, somewhat convex in female);
— androconial patch brown, smaller and always less pronounced than in *semele* and *leighebi*;
— genitalia in male similar to those of *semele* from southern Italy and Sicily, but uncus longer, distinctly more slender in appearance, brachia very slender, approximately as long as uncus;
— androconia distinctly shorter than those of *leighebi* and always very much longer than those of *semele*, differing from the former species also in shape;
— colour upperside both wings similar to that of *semele*, with the paler components of pattern well pronounced, particularly in female, proportionally very much like those in *leighebi*, but unlike *leighebi* lacking entirely the reddish/orange tone.

Female genitalia very similar to those of *semele*, probably indistinguishable, without any species-specific constant characters. Male genitalia very much unlike those of *leighebi*, which depart from the

basic *semele* pattern exactly in the opposite direction, being large and much more robust in appearance (e. g. uncus as well brachia are «heavy» in *leighebi* and very light in *sbordonii*; also tha valva is much broader and «rounder» in the former species.
Early stages, life history and foodplant unknown. *H. sbordonii* inhabits several types of Mediterranean vegetational formations ranging from *Quercus ilex* woodland to high and low maquis and garigue; the species is widespread in the Isole Ponziane.

TYPE MATERIAL. Holotype ♂ (length of forewing 29 mm, fig. 6) Italy: Isole Ponziane: Isola Ponza: M. Guardia: 20.VI.1966: V. Sbordoni leg. & coll.; paratypes (in all 51 ♂♂ and 108 ♀♀ deposited in colls. V. Sbordoni and O. Kudrna) Italy: Isole Ponziane: Isola Ponza: M. Guardia: north-west side: 29.V. - 26.VI.1966: Sbordoni leg.: 17 ♂♂, 28 ♀♀; Semaforo: 21.VI.1966: Cottarelli leg.: 4 ♂♂, 1 ♀; Piana d'Incenso: 8.VII.1967: Argano & Vigna leg.: 4 ♂♂, 1 ♀; Guarini: 31.V.1968: Vigna leg.: 3 ♂♂; Giancos: 22.VI.1966 & 8.VII.1967: Sbordoni, Argano & Vigna leg.: 14 ♂♂, 30 ♀♀; Dragonara: 9.VII.1967: Argano leg.: 10 ♂♂, 20 ♀♀; Ponza paese: 7.VII.1967: Argano & Cottarelli: 19 ♂♂, 25 ♀♀; Gavi: 18.VI.1966: Sbordoni leg.: 1 ♂, 3 ♀♀.

H. sbordonii is an insular geographical isolate peculiar to Isole Ponziane where it has been recorded from Isola Ponza (type-locality), Isola Palmarola, Isola San Stefano, Isola Ventotene and Isola Zannone.

H. sbordonii is a morphospecies allopatric with all congeneric taxa, particularly closely related to both *H. semele* and *H. leighebi* but differing in costant taxonomic characters from both and not forming a transitional link between them, undoubtedly a member of *H. semele*-species group, as shown by both male and female genitalia. The convex outer margin forewing in male is a feature unique, not found in any other species of the group. Owing to the allopatricity of the species, its identification can be made on the strength of the locality. It cannot be confused with the extreme clinal form of *semele* from Sicily.

4. THE TAXONOMIC STATUS OF *HIPPARCHIA HANSII TLEMCENI* SLABY, 1977

Slaby's (1977) paper on *Hipparchia hansii* in Algeria appeared only a few weeks before the publication of a taxonomic revision of the genus (Kudrna 1977). In his paper Slaby (1977) erected a new subspecies from Tlemcen Mts. and raised to specific rank *Hipparchia powelli* (Oberthür, 1910). The subspecies, *Hipparchia hansii tlemceni*, is a transitional form close to the taxon named *Satyrus holli* Oberthür, 1909; the pseudopolytypic variation of *Hipparchia hansii*, including the material from the type-locality of *tlemceni* has been dealt with in the above mentioned revision (Kudrna 1977). Morpho-

logy is hardly adequate to establish the true taxonomic status of *powelli* as the slight differences in male genitalia are contradicted by external features: a transitional form with genitalia close to the nominate form and habitus similar to *powelli* has been found in Libya (Kudrna 1977). The true taxonomic status of *powelli* can only be ascertained through the study of ecology, early stages and other relevant biological aspects of *H. hansii* complex. It is possible that at least *powelli* may prove specifically distinct, but the morphospecies concept is rather difficult to apply in this case. It is unfortunate that editors of some journals are willing to accept any paper regardless whether they are able to judge its usefulness, and without having such papers refereed by specialists. I doubt that *tlemceni* would have ever been described had the author taken care to read the original description of *holli* and examine its type-material, an obvious precondition of erecting new names. Consequently, I sink *Hipparchia hansii tlemceni* Slaby, 1977, in synonymy because it is not worthy of recognition.

5. On the occurrence in Africa of *Hipparchia hermione* (Linnaeus, 1764)

Only two species of *Hipparchia fagi* species group have so far been found in north-western Africa, both endemics, *H. ellena* Oberthür, 1894, and *H. caroli* Rothschild, 1933 (Kudrna 1977), occasionally misidentified with either *H. hermione* (Linnaeus, 1764) or *H. fagi* (Scopoli, 1763). All four species are clearly distinguishable by both male and female genitalia. Also Dürck & Reisser (1934) confused the identity of the species, but they were first to collect it in the El Rif Mts. in northern Morocco. I have recently had an opportunity to dissect the specimens they collected in the Chechaouen district («Xauen Umgebung») and found that they all belong to *H. hermione*, being very close to those found in southern Spain (e. g. Sierra Nevada or Granada), showing no transitional features fo *H. caroli*. The series consists of 7 ♂♂ and 2 ♀♀ now deposited in Landessammlungen für Naturkunde in Karlsruhe; they were collected by Dürck & Reisser 20-25.VI.1931 and originally deposited in H. Reisser collection.

Acknowledgements. I have great pleasure to thank to my friends Prof. E. Balletto and Prof. V. Sbordoni for their invitation to study the material they have collected on the slopes of Mt. Faito and in Isole Ponziane respectively; in appreciation of this help I have taken liberty to name the two new taxa described in this paper *H. ballettoi* and *H.*

sbordonii. I also thank them for their kind gift of paratypes of both taxa, as well as to my friend G. G. Toso. My thanks are also due to Dr. E. M. Wolfram and Mrs. H. Müller for their kindly provided technical help, as well as to Mr. G. Ebert for a loan of specimens from Landessammlungen für Naturkunde, Karlsruhe, to Doc. Dr. A.O. Kocak for discussion of various aspects of zoological nomenclature, and to Dr. L. Wallin, Uppsala, for information regarding type-material of *Papilio hermione* in Sweden.

RIASSUNTO

L'Autore discute cinque aspetti nomenclatoriali e tassonomici del genere *Hipparchia* Fabricius, 1807. Commenta e ribadisce la validità nella selezione del lectotipo di *Papilio hermione* Linnaeus, 1764 e nella conseguente designazione della specie-tipo, nell'interesse della stabilità della nomenclatura zoologica.

È discussa la validità del nome *Papilio aristaeus* Bonelli, 1826 e vengono descritte due nuove specie, *Hipparchia ballettoi* e *Hipparchia sbordonii*, rispettivamente del Monte Faito (Napoli) e dell'Isola di Ponza.

Hipparchia hansii tlemceni Slaby, 1977 è considerato sinonimo di *Hipparchia hansii holli* (Oberthür, 1909) ed infine viene segnalata la presenza di *H. hermione* in Marocco, nelle montagne del Rif.

SUMMARY

Five aspects of the classification of the genus *Hipparchia* are discussed (selection and designation of the type-species, identity of the type species, nomenclature of *Hipparchia aristaeus*), two new species (*Hipparchia ballettoi* and *H. sbordonii*) are described from Italy, *H. hermione* is reported from Africa for the first time and the status of *Hipparchia hansii tlemceni* is dealt with.

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