

ON THE QUESTION OF A LECTOTYPE FOR  
*MEGATHYMUS ARYXNA* DYAR\*

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In 1955 DOS PASSOS and BELL published an application to the International Commission on Zoological Nomenclature to fix the lectotype of *Megathymus aryxna* Dyar (1905). Far from being of limited scope, this problem is one of general interest. Every taxonomist meets with problems of the composition of original type series, restriction, and lectotype selection. In the absence of predominant and important usage which it is desired to preserve, a ruling on this application can and should be made on the basis of general principles that will guide all taxonomists faced with similar problems.

For details and review of the literature, the interested reader should consult the papers by BELL and DOS PASSOS (1954), DOS PASSOS and BELL (1955), and STALLINGS and TURNER (1954, 1955). The argument revolves about the original description, which is repeated here:

"*M. aryxna*, new species.

"This is the form figured in the *Biologia Cent.-Am. Lep. Het.*, III, pl. 69, figs. 3 and 4. It differs from *neumoegeni* in having the fulvous markings considerably reduced, the outer band being broken into spots. I have ten specimens from Arizona from Dr. Barnes and Mr. Poling . . . ."

ORIGINAL TYPE SERIES OF *MEGATHYMUS ARYXNA* DYAR

From the original description I consider that there are two reasonable alternatives as to what constitutes the original type series:

(a) The ten specimens from Arizona which DYAR had *before him*, but not the *Biologia* specimens which he (as far as anyone can tell from his words) knew only from the figures; and

(b) The ten Arizona specimens plus the two *Biologia* figures which DYAR identified as being of the same species as his Arizona material.

I cannot conceive of the original type series of *aryxna* being limited to the two figured specimens of the *Biologia* reference, as concluded by DOS PASSOS and BELL. Decision 142 of the 1953 Copenhagen Congress, to which they refer, applies only to those instances in which "a specific name, when first published, is *expressly stated to be a substitute* (e. g. by the use

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\* This paper is only slightly modified from that printed in Opinion 483 of the International Commission on Zoological Nomenclature and was in press when that Opinion appeared. That Opinion directed that *only* the two *Biologia* figures in question are to be accepted as syntypes of *Megathymus aryxna* Dyar, and that the specimens from Mexico upon which figure 4 is based is to be accepted as the lectotype of *aryxna*. The Opinion was based on, although not (in my opinion) inevitable under Declaration 35 (issued at the same time) in which the Commission dealt with the meaning of the expression "syntype" as used in the Rules.

of such expressions as '*nom.nov.*' or '*nom.mut.*') for a previously published name . . ." (Italics mine except for the abbreviations). DYAR's *aryxna*, however, was *not* expressly stated to be a substitute for *neumoegeni*; on the contrary, it was clearly proposed as distinct from *neumoegeni*, both in description ("It differs from *neumoegeni* in . . .") and in the key immediately preceding it.

From a commonsense viewpoint, it would have been contrary to human nature for DYAR to base his new species entirely on two pictures, leaving the ten specimens actually before him without any standing! It would have been far more logical, and indeed in accord with common practice, for him to describe *aryxna* from the ten specimens only, with the comment that it was the species figured in the *Biologia*, but with no intention of including the figured specimens in his type series. As a matter of fact, the ten specimens from Arizona, in the collection of the U. S. National Museum, are all marked with the distinctive red label "Type No. 13033 USNM" (in this case "type" = syntype), and were so entered in the Museum's Type Catalogue on February 28, 1910, by DYAR himself. Granted that labeling per se is not an effective nomenclatural action, it does show clearly what DYAR himself considered to be the type series upon which his species was based. BARNES and MCDUNNOUGH (1912) took the same view.

In conclusion, the first alternative probably more accurately reflects the facts of the case, it seems to me to be the more logical choice, and it may even be the inevitable one because of the publication by BARNES and MCDUNNOUGH (1912). The second is possible if one considers that DYAR also had the two figures before him, even if not the actual specimens.

## RESTRICTION OF *ARYXNA* UNDER THE FIRST ALTERNATIVE

(Type series = the ten Arizona specimens)

SKINNER'S (1906, 1911) synonymy of *aryxna* with *neumoegeni* was a subjective zoological action which still did not pin down the actual type series of *aryxna*, although he did eliminate the *Biologia* figure 3 as belonging to a distinct species (named *M. drucei* in 1911).

The first valid restriction is that of BARNES and MCDUNNOUGH (1912), who unquestionably and clearly recognized that *aryxna* was based on a mixed series, and restricted the name to one of the component parts. At their request, DYAR "restricted the name *aryxna*" (by labeling) to that part of the series which was not *neumoegeni*. Although DYAR himself did not publish the restriction, BARNES and MCDUNNOUGH suggested the restrictive action and did publish it, and published a figure of *aryxna sensu stricto*, based on a "co-type" (=syntype) (plate 1, figs. 1, 2). They also clearly indicated the restriction by the following citations under the various species:

- p. 21, DRUCE's *Biologia* fig. 4 cited under *neumoegeni*;
- p. 22, *aryxna* Dyar, *partim*, cited under *neumoegeni*;
- p. 26, *aryxna* Dyar recognized as a valid species (*aryxna* Dyar, *partim*);  
and
- p. 42, *drucei* Skinner (*Biologia* fig. 3) is said to be possibly the female  
of *smithi*, or else a distinct species.

We can scarcely hope for clearer restriction of a mixed series. (See discussion below on the nomenclature of restriction.)

I do not agree with DOS PASSOS and BELL in finding any significance in BARNES and MCDUNNOUGH's use of the expression "unnamed form" (1912, p. 23: "Dr. Dyar restricted the name *aryxna* to the unnamed form"). BARNES and MCDUNNOUGH found "two forms, both included in the type series of *aryxna*." One was the true *neumoegeni*, but for the second there was no earlier name available (hence, "the unnamed form"), and they suggested that DYAR restrict the name *aryxna* to this part of the series. That conservative taxonomic practice utilized the already published name "*aryxna*" and admirably avoided the necessity of proposing a new name for the "unnamed form".

The lectotype selection by SKINNER and WILLIAMS (1924) would be invalid under the first alternative, because the specimen from Mexico (basis of *Biologia* fig. 4) was not one of the ten specimens from Arizona, and hence was not part of the original type series.

STALLINGS and TURNER (1954, plate 3) showed two figures of "*M. aryxna* Type ♂ as restricted by Dyar." This might be considered the first valid lectotype designation for *aryxna* under the first alternative. On the other hand, because they referred to the "Holotype" of two other species, and were careful to designate a "Lectotype" for *neumoegeni*, it might be argued that their "Type" for *aryxna* was used only in the sense of "a type" — i. e., a syntype — and merely quoted information on the specimen's label. Under the latter view, a lectotype is still not fixed for *aryxna*; under the former, a lectotype was established. Incidentally, STALLINGS and TURNER stated (p. 78) that *aryxna* in BARNES and MCDUNNOUGH's restricted sense includes only four of the original ten specimens.

#### RESTRICTION OF *ARYXNA* UNDER THE SECOND ALTERNATIVE

Under the second alternative the first reviser of *aryxna* is apparently SKINNER (1906, p. 112): "*M. aryxna* Dyar is a synonym of *neumoegeni*, Edw. The fig. 3, pl. 69, Biol. Centr. Amer. Het. is not *neumoegeni*, as stated by Dyar." This action eliminated fig. 3 and restricted *aryxna* to fig. 4 and the ten specimens. SKINNER (1911) continued his 1906 treatment by proposing for fig. 3 the new specific name *drucei* and treating *aryxna* as a variety of *neumoegeni*.

The next revision of the species was made by BARNES and MCDUNNOUGH (1912) (see under first alternative). They clearly restricted *aryxna* to a species represented by certain specimens in the Arizona series, of which they figured a "cotype" (=syntype) as an example.

The lectotype selection by SKINNER and WILLIAMS (1924) would not be valid under the second alternative, because the specimen from Mexico is not in the type series as restricted by BARNES and MCDUNNOUGH (1912).

Again we come to STALLINGS and TURNER (1954), and the remarks made under the first alternative apply here also.

#### LECTOTYPE OF *M. ARYXNA*

For both alternatives the conclusion is the same: The final restricted type series of *aryxna* consists of four specimens from the Arizona series originally studied by DYAR. Depending on interpretation, either a lectotype has been fixed by STALLINGS and TURNER (1954) or no lectotype has yet been fixed definitely. If STALLINGS and TURNER did not actually select a lectotype, rigidly construed, certainly the specimen labeled by DYAR as "Co-type (Sensu Restr)" and subsequently figured by BARNES and MCDUNNOUGH (1912) and again by STALLINGS and TURNER (1954) is the logical choice.

#### THE NOMENCLATURE OF RESTRICTION

Recognition that BARNES and MCDUNNOUGH (1912) did, by their published acceptance of DYAR's action, formally restrict *aryxna* is analogous to the principle accepted by the 1948 International Congress at Paris for the designation of type-species of genera (1950, *Bull. Zool. Nomencl.* 4:181-2, Conclusion 72). That decision stated in effect that if an author accepted (in publication, of course) a certain species as the type-species on the authority of a previous author or as a result of the supposed operation of some rule, his published acceptance was equivalent to the effective selection of a type-species, even if he was in error as to what the previous author did or what the rule accomplished. In other words, what he accepted and published was effective as of that date, even if not before. By the same reasoning BARNES and MCDUNNOUGH's acceptance and publication of the restriction credited to DYAR should effectively date the restriction from BARNES and MCDUNNOUGH (1912.)

It seems to me to be essential to stability and universality that we must respect a clear restriction of a mixed species and that subsequent lectotype selection must be in accord with that restriction, and with legitimate successive restrictions, if such were necessary. This principle was recognized by the 1953 Copenhagen Congress in the decision that dealt with neotypes (cf. *Copenhagen Decisions*, Decision 35 (5) (b). Although the principle is not stated in the decision relating to lectotypes, it is fully as necessary and desirable as for neotype selection, and indeed has been, I believe, the prevailing practice among taxonomists.

## TAXONOMIC PRACTICE

It would be interesting to know how zoologists in general would treat a problem like that of *aryxna*. I sampled the reactions of a number of colleagues with considerable taxonomic experience and interest in nomenclatural problems. To avoid prejudiced or preconceived opinion, I approached zoologists working in groups other than Lepidoptera, and presented the following hypothetical case which parallels the *aryxna* description but uses meaningless names:

Smith, 1896, *Fauna Beensis*: *A. flava* L. recorded.

Jones, 1905: "*A. notata*, new species

"This is the form figured in the *Fauna Beensis*, pl. 2, figs. 3 and 4. It differs from *flava* in having the black areas more extensive, the yellow of the pleura being reduced to rows of spots. I have ten specimens from Quebec from Dr. JACQUES and M. PIERRE."

Question: What constitutes the original type series? In other words, what specimens are eligible for lectotype selection?

- (a) Only the two specimens on which figs. 3 and 4 are based?
- (b) Only the ten specimens from Quebec?
- (c) All twelve specimens?

Most of those approached asked at once if author JONES actually had before him the specimens on which figs. 3 and 4 were based. In the end, however, on the basis of the original description of "*notata*", they answered as follows on the composition of the original type series:

All twelve specimens: H. S. DEIGNAN (Aves), D. H. JOHNSON (Mammalia), C. F. W. MUESEBECK (Hymenoptera), R. I. SAILER (Heteroptera), ALAN STONE (Diptera), W. W. WIRTH (Diptera), and D. A. YOUNG (Homoptera).

The ten specimens from Quebec: W. H. ANDERSON (Coleoptera), F. M. BAYER (Marine Invertebrata), R. E. BLACKWELDER (Coleoptera), F. A. CHACE, JR. (Marine Invertebrata), REMINGTON KELLOGG (Mammalia), K. V. KROMBEIN (Hymenoptera), P. W. OMAN (Homoptera), H. A. REHDER (Mollusca), and L. P. SCHULTZ (Pisces). [Some indicated that they would also include the two figured specimens if it could be shown that author JONES actually saw the specimens].

Conditional, two or ten: H. W. SETZER (Mammalia). (If JONES had the two figured specimens before him, they are the original type series; if he did not, or if it cannot be determined definitely whether he did, then the ten specimens are the original type series).

Two specimens (basis of figures): None.

The zoologists sampled clearly placed emphasis on the specimens actually before the author describing the new species. All but one would always include the "ten specimens from Quebec." The group was about equally divided on whether or not to include the two figured specimens in addition to the ten, although several who voted for all twelve indicated reluctance to go beyond the ten that were unquestionably before the author. Most of those voting for all twelve believed that the lectotype should ordinarily be selected from the ten clearly before the author.

### CONCLUSION

In consideration of the foregoing discussion, I believe the logical solution in the case of *Megathymus aryxna* Dyar would recognize as lectotype the male syntype from Arizona that (a) is consistent with the valid restriction by BARNES and McDUNNOUGH (1912), (b) bears DYAR's label "*Megathymus aryxna* Dyar, Cotype (Sensu Restr)," and (c) was figured as *aryxna* by BARNES and McDUNNOUGH (1912) and by STALLINGS and TURNER (1954). The lectotype may be either by designation of the Commission or, if the Commission so interprets, by designation of STALLINGS and TURNER (1954). The specimen referred to is in the collection of the U. S. National Museum.

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