Centromerus parkeri Cooke; an intersex of *Centromerus prudens* (O.P.-Cambridge)

M. J. Roberts
41 Padeswood Road,
Buckley,
Clwyd CH7 2JL

Summary

Examination of the holotype of *Centromerus parkeri* Cooke reveals it to be an intersex of *Centromerus prudens* (O.P.-Cambridge). *C. parkeri* should therefore be deleted from the list of British spiders and regarded as a junior synonym of *C. prudens.*

Introduction

Centromerus parkeri was described as a new species by Cooke (1967) on the basis of a single male spider, taken on 2 September 1965 at 3100 ft beneath a stone on Ben Lawers, Perthshire, Scotland. The palpal paracymbium was taken as the distinguishing characteristic of the species and Cooke's figure of the palp of *C. parkeri* did nothing to arouse suspicion. However, on first seeing Millidge's figure of the palp, in *British Spiders* Vol. III (1974), I felt sure that the specimen was abnormal, and it was solely on this basis that I wrote to Dr Cooke expressing my doubts. He kindly suggested that I borrow the specimen from the Hope Dept. of Entomology, Oxford.

Observations and discussion

Preliminary examination showed that the spider was indeed abnormal. The palpi (Figs 1 & 2) are both imperfectly developed. Cooke considered the right palp (Fig. 1) to be normal and the left palp (Fig. 2) to be malformed, but still possessing the "characteristic paracymbium with a row of minute teeth along the bottom margin." It should be noted that, although Millidge (1974) apparently figures the *left* palp of *C. parkeri*, it is actually a mirror-image of the right palp.

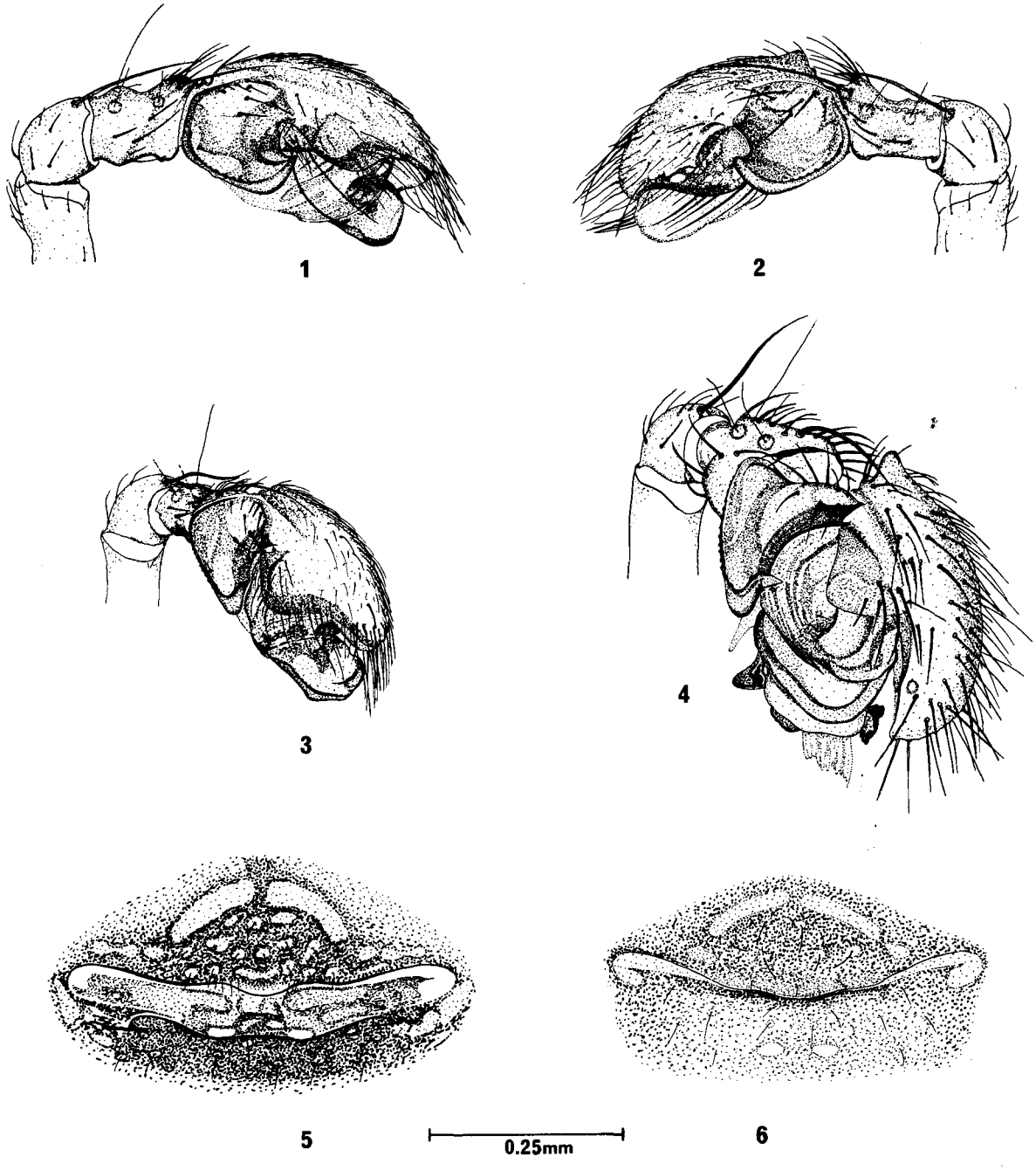
Many species of *Centromerus* have a conical hump on the cymbium. There is no suggestion of such a hump on the right palp of *C. parkeri*, but on the left palp (Fig. 2) it is quite well developed. One could, therefore, argue that the left palp was normal (with hump), but that the right one was malformed because it lacked a hump. The point is that to adopt any single feature of such a palp as being characteristic is unwise. It should be viewed in its complex entirety.

The main reasons for supposing the palpi of *C. parkeri* to be abnormal are as follows: palpal tibiae deformed and differ on the two sides; paracymbia (although similar) show differences, and both are partially fused with the cymbium; paracymbial hairs differ in size and position on the two palps; cymbial hump present on left palp only; palpal organs vaguely differentiated on right, but completely formless on left; fine hairs originating from palpal organs as well as from cymbia; cymbial hairs fine and lying almost flat on the cymbium with marked "tufting" distally. This latter feature seems to be common in malformed palps (cf. Roberts & Parker (1973) p.179 Figs 4, 5, 6, and 8).

Having established that the specimen is abnormal, there are two further questions to be answered. Firstly, what species is exhibiting the abnormality and, secondly, what is the nature of the abnormality?

In some species of *Centromerus* the males have a longitudinal row of minute bristles on the chelicerae. Cooke states that *C. parkeri* has no such bristles. In fact cheliceral bristles *are* present on *C. parkeri,* although they are rather difficult to see as they are reduced in size. Taking into consideration the cheliceral bristles, the tibial spines, the position of Tm I, the size of the specimen, the general shape, markings and the eyes, and the habitat, *C. parkeri* is without doubt an abnormal form of *C. prudens* (O.P.-Cambridge). Examination of a series of *C. prudens* specimens (24 males and 21 females), and comparison of these with *C. parkeri*, not only served to confirm this, but also gave clues to the nature of the abnormality.

When comparing the right palp of *C. parkeri* (Fig. 3) with that of a normal male *C. prudens* in the same position (Fig. 4), the most obvious difference is in the overall size of the palpi. The paracymbium of *C. parkeri* is clearly very close to the normal for *C. prudens*, but it is malformed and partially fused with the cymbium. The differences in the form and disposition of the cymbial hairs are clearly seen and the palpal organs in *C. parkeri* are, by comparison, very rudimentary. The palpal tibia is deformed in *C. parkeri*, but the arrangement of the tibial trichobothria remains the same as in the normal *C. prudens.*



Figs 1-6: (All drawn to same scale). 1 *C. parkeri* right palp; 2 *C. parkeri* left palp; 3 *C. parkeri* right palp; 4 Normal *C. prudens* right palp, in comparable position; 5 Epigastric region of *C. parkeri;* 6 Ditto, normal male *C. prudens.*

Various measurements were taken of *prudens* material and compared with those for *C. parkeri* as follows:

Carapace length: Males, 1.04 – 1.11 mm; females, 0.91 – 1.08 mm; *parkeri,* 0.98 mm.

Abdomen length: Males, 1.26 – 1.54 mm; females, 1.3 – 1.7 mm; *parkeri,* 1.33 mm.

Carapace length/Abdomen length: Males, 0.72 – 0.85; females, 0.54 – 0.78; *parkeri,* 0.74.

Length of metatarsus I: Males, 0.7 – 0.9 mm; females, 0.6 – 0.7 mm; *parkeri,* 0.66 mm.

These figures suggest that *C. parkeri* falls into an intermediate state between the two sexes. Examination of the cheliceral bristles reveals that they are intermediate between the normal male state (present and well defined) and the female state (absent).

Finally, if we look at the epigastric region of *C. parkeri* (Fig. 5), it appears distinctly abnormal when compared with that of a normal male of *C. prudens* (Fig. 6). Although the area does not exhibit any recognisable rudiments of epigynal structure, it would seem, clearly, to be expressing a minor degree of intersexuality. It is certainly not an artefact.

Conclusions

The single male *Centromerus parkeri* Cooke is in fact a case of intersexuality of *Centromerus prudens* (O.P.-Cambridge), with a predominance of maleness.

Great caution should be exercised when describing a new species on the basis of a single specimen. With females, isolated cases of abnormal development of the epigyne will always occur from time to time. For this reason it would be unwise in most cases to describe a single female spider as a new species; at least two identical females are desirable for this. With males, abnormalities of the palpi may also occur, but it is unlikely that *both* palpi would be affected to exactly the same degree. Therefore, a single male specimen might be described as a new species if both palpi were of the same size and of precisely the same structure.

Acknowledgements

I am grateful to Dr J. A. L. Cooke and to the Hope Dept. of Entomology, Oxford, for allowing me to examine *Centromerus parkeri*, and to Dr P. Merrett for the loan of additional *C. prudens* material.

References

COOKE, J. A. L. 1967: New and rare British spiders. *J.nat. Hist.* **1**: 135-148.

LOCKET, G. H., MILLIDGE, A. F. and MERRETT, P. 1974: *British Spiders* **3**: 1-314. Ray Society, London.

ROBERTS, M. J. and PARKER, J. R. 1973: Gynandry and intersexuality in spiders. *Bull.Br.arachnol.Soc.* **2** (9): 177-183.