

# REDISCOVERY OF THE HOLOTYPE OF *PTEROCERA KOCHII* FREYER 1855 (GASTROPODA: STROMBIDAE)

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*Abstract* In a recent revision of the shell collection of the Natural History Museum in Trieste, Italy, the holotype of *Pterocera kochii* Freyer 1855 was found. The original description was published on a difficult to obtain Austrian magazine and is here fully quoted and translated to English. A discussion on the type specimen is given and the first photographs of the specimen provided. The recognition of the holotype is based on morphological characters of the aperture and of the digitations, on handwritten annotations on the shell and on the history of the reassessments of the collections in the Museum. *Pterocera kochii* is considered a junior synonym of *Lambis chiragra chiragra* (Linné 1758) today.

*Key-words* *Pterocera kochii*, *Lambis chiragra*, holotype, Museo Civico di Storia Naturale di Trieste, taxonomy

## INTRODUCTION

In the late 1990s, during a rearrangement and renovation of the shell collection of the Natural History Museum in Trieste, Italy, the holotype of *Pterocera kochii* Freyer 1855 was found. A bibliographical research brought to the conclusion that its existence in the Museum of Trieste is poorly known and that this type has not been recently illustrated.

Type specimens are the bearers of the scientific names of all nominal species-group taxa and are the international standards of reference that provide objectivity in zoological nomenclature (ICZN, 1999). This is the main reason for writing this note.

This taxon is currently considered a junior synonym of *Lambis chiragra chiragra* (Linné 1758) (Abbott, 1961).

## MATERIALS AND METHODS

The entire collection of *Lambis chiragra* and similar taxa at the Museum of Trieste has been studied.

An extensive bibliographical research has been conducted to fully understand the original description, the status of the taxon and provide biographical clues on Heinrich Freyer.

## RESULTS

Heinrich Freyer was born on July 7<sup>th</sup>, 1802 in Idria, Slovenia. In 1832 he became the curator of the Natural History Museum in Ljubljana and in 1853 he became the curator of the zoological and botanical collections of today's Museo Civico di Storia Naturale di Trieste. At that time, Heinrich Koch was the director of the Museum. Freyer died on August 21<sup>st</sup>, 1865 in Ljubljana. He is better known as a botanist but he has described a few species of land snails (genus *Zospeum*, troglobious Ellobiidae) as well.

*Pterocera kochii* was first described on *Sitzungsberichte der Mathematisch-naturwissenschaftlichen Classe der kais*, edited by Akademie der Wissenschaften in Wien.

This magazine is not easy to obtain, so the original description is here quoted and a translation from German to English provided. Italics and capital letters are as in the original.

From: *Sitzungsberichte der Mathematisch-naturwissenschaftlichen Classe der kais*. Akademie der Wissenschaften, Wien, volume 15, pages 18–23.

“B. *Pterocera Chiragra* Linn. und *Pterocera kochii* Freyer

Das Triester Museum bewahrt in der Conchylien-Sammlung zwei verschiedene *Pterocera Chiragra*, die längst bekannt, auch abgebildet sind; aber noch immer unter einem Namen in den Cabineten aufbewahrt werden, wie es mit *Pterocera Scorpio* der Fall war, bis Lamarck jener

mit orangefarbener glatter Mündung den Namen *Pt. Aurantia* gab.

Die ältere sehr gelungene Abbildung der *Pterocera Chiragra* Linn. gab Martin Lister in seiner *Historia sive synopsis methodica conchyliorum*, tab. 870, 24, und junge Exemplare auf tab. 875, 31 und 883, 6, dargestellt. Deshayes citirt in Lamarck's *Histoire naturelle des animaux sans vertèbres*, 2<sup>de</sup> édit. Paris 1843, 8°, Tom. IX, pag 676, diese Abbildungen und Kiener's pl. 5. *Spec. de coq.*; da er dabei im Texte erwähnt *fauce rosea, albostrata*, so war ihm Lister's Exemplar nicht bekannt.

Der älteren guten Abbildung gebührt die Priorität als *Pt. Chiragra* Linn. *fauce brunea, albocostata*. Das Exemplar des Triester Museums ist 6¼ Zoll lang und 3¼ Zoll breit. Die Mündung weiss, glatt; Innenlippe und Lefze weissgerippt, die Zwischenfurchen braun, im inneren Lappen der Lefze zwischen dem zweiten und dritten Finger und am Lappen vom fünften gegen den Schwanz rosa. Der obere innere Lippenfinger quer nach aufwärts gebogen und der an selben angeschlossene oberste Lefzenfinger gerade aufsteigend. Die drei Seitenfinger krallenartig gebogen, das Schwanzende im halben Kreise aufgebogen. Die ersten vier Windungen frei zwischen den beiden oberen Fingern vorragend, die übrigen drei von den oberen zwei Fingern des letzten Umganges bedeckt. Am Rücken knotig, tief quengerippt, gelbbraunlich marmorirt.

Die zweite in Kiener's Prachtwerk abgebildete Art widme ich dem für das Triester Museum hochverdienten Herrn Honorar-Director Heinrich Koch und nenne solche *Pterocera Kochii*.

Unser Exemplar ist 8¾ Zoll lang. Die Diagnose zum Unterschiede der vorigen lautet: *fauce rosea, in fundo albido-striata, labio et labro laevissimo*.

Schlanker als vorige. Mündung schmal, glatt, blassfleischfarben. Innenlippe nach aussen glatt, bräunlich, nach innen fleischfarben; in der Mündung nach unten und am oberen Einbuge schwach gerippt. Äussere Lefze von der Mündung aus rosa mit blasseren schwachen Rippen gefurcht; dann blassrosa gesäumt, ins Bräunliche ausrandend. Der oberste Finger erhebt sich über die dritte Windung, selbe deckend und überragend, nach links schräge auslaufend. Von der Basis dieses Fingers senkt sich dessen links umgestülpte Wulst bis zu den obersten Knoten der letzten Windung, wo sich die Lippe in einen wagrecht ausgehenden, am Ende etwas aufgebogenen Finger verlängert. Die drei Seitenfinger

der Lefze krallenartig aufgebogen. Der Schwanz ist im geraden Winkel weitwärts mit obigem seitlichen Lippenfinger parallel auslaufend, dessen Ende schwach gekrümmt ist. Die ersten sechs Windungen sind zur Hälfte von der Basis beider Oberfinger eingehüllt. Am Rücken des letzten Umganges knotig, undeutlich gerippt, im Übrigen in weiteren Abständen als bei *Pt. Chiragra* quengerippt, röthlichbraun gefleckt, am Rücken der Finger weiss und braun, abwechselnd wellig und zickzack gefleckt.

Diese Art wird in Triest öfters zum Kaufe angeboten, von ersterer kam mir aber noch kein zweites Exemplar zu Gesichte."

The English translation follows here under.

"B. *Pterocera Chiragra* Linn. and *Pterocera kochii* Freyer

In the conchological collection of the Museum of Trieste two different *Pterocera chiragra* are stored. They have been known since a long time and have also been figured, but they are still stored under the same name in the natural cabinets, as it was the case with *Pterocera scorpio*, before Lamarck named *Pt. aurantia* those with the orange coloured, smooth aperture.

The older, very well done figure of *Pterocera chiragra* Linn. was given by Martin Lister in his *Historia sive synopsis methodica conchyliorum* on pl. 870, 24, and young specimens are shown [in the same work] on pl. 875, 31 and 883, 6. Deshayes cites in Lamarck's *Histoire naturelle des animaux sans vertèbres*, 2<sup>nd</sup> ed. Paris 1843, 8°, Vol. IX, pag 676, these [Lister's] figures and the plate 5 of Kiener's *Spec. de coq.* [*Spécies général et iconographie des coquilles vivantes*]; since he mentions in his text *fauce rosea, albostrata*, Lister's specimen was apparently not known to him [Kiener].

The older, better [Lister's] figure has priority for the name *Pt. Chiragra* Linn.: *fauce brunea, albocostata*. The specimen of the Museum of Trieste is 6¼ zoll long and 3¼ zoll wide. The aperture is white and smooth, the inner and the outer lip white ribbed, the grooves brown; the interior parts of the aperture, between the second and the third digit and situated between the fifth digit and the tail, are rose coloured. The upper innermost digit of the lip is curved diagonally upwards and the uppermost digit of the outer lip, which is connected to it, points straight upwards. The three lateral digits are curved and claw-like,

the terminal end (tail) curved up in a half circle. The first four whorls are visible between the two upper digits, the remaining three are covered by the upper two digits of the last whorl (body whorl). The back has tubercles, deep spiral ribs, and is yellow-brownish marmorated.

The second is figured in Kiener's famous work and I dedicate it to the Museum of Trieste's high-achieving Director Heinrich Koch under the name *Pterocera kochii*.

Our specimen is 8¾ zoll long. The diagnosis – in contrary to the previous [species] is as follows: *fauce rosea, in fundo albido-striata, labio et labro laevissimo*.

More slender than the previous one. Aperture narrow, smooth, pale flesh-coloured, inner lip smooth to the outer edge, light brownish, more flesh-coloured inside, weakly ribbed within the aperture pointing downwards close to the posterior sinus. Outer lip from the aperture rose-coloured with paler weak ribs, then pale rose towards the margin, becoming light brownish at the margin. The uppermost digit stretches from the third whorl reaching a bit above it, curving leftwards. From the base of that digit a leftwards-reflected bulge goes down to the uppermost tubercles of the last whorl, where the lip is elongated to a horizontal digit, which is slightly curved upwards at the end. The three lateral digits of the outer lip are claw-like, and curved upwards. The tail sits out at right angles but is straight and parallel with the previously mentioned lateral lip-digit; the tip is weakly curved. The first six whorls are half-obscured by the base of both the upper digits. The back of the last whorl has tubercles, it is inconspicuously ribbed, interstices are generally wider than in *Pt. Chiragra*; it has reddish-brown flecks, and the back of the digits are white and brown flecked in a wavy and zigzagging pattern.

This species is frequently offered for sale in Trieste, but of the first I have not seen a second specimen yet."

The original description does not have any illustration.

The text here quoted clearly deals with two different specimens: the first (*fauce brunea, albo-costata*) is in the Author's opinion *Pterocera chiragra sensu stricto*, while the second (*fauce rosea, in fundo albido-striata, labio et labro laevissimo*) is recognized as a different species and then described

as *Pterocera kochii*. The discussion deals with the latter taxon.

## DISCUSSION

Two specimens in the collection of the Museum in Trieste were studied in detail. They are labeled as W07274 (Fig. 1) and W06299 (Fig. 2). Both carry on the shell the hand-written word "typus".

Specimen W07274 carries a label (Fig. 3) with the taxon name, literature citation of the original description and the "typus" statement. The hand-writing of this label is very likely Giuseppe Müller's. Müller was an entomologist who became curator of the Museum in 1921 and director in 1928. Müller revised the marine fauna display of the Museum (Bressi *et al*, 1999) and so probably revised this shell too realizing it was a type and writing a detailed label. The specimen carries the word "typus" on the columella. However, it is written with something like a permanent marker and could be a note by a modern reviser, possibly later than Müller.

Specimen W06299 carries a china ink hand-written "typus" on the spire. Comparison with hand-written documents by Freyer do not allow us to be sure if it has been written by Freyer himself. The specimen does not have any original label, merely a very recent label written by a reviser a few years ago which does not add useful information to the discussion.

It is not easy to understand which is the true holotype of *Pterocera kochii*, however: specimen W06299 carries an hand-written china ink "typus" mark, which seems earlier than a similar mark on specimen W07274; morphological characters described in the original description match well with specimen W06299.

The diagnostic characters chosen by Freyer were written in italics in the original description: *fauce rosea, in fundo albido-striata, labio et labro laevissimo*. "fauce rosea" means pink aperture. Specimen W06299 has a completely pink aperture which is a character which clearly distinguishes it from other specimens like W07274 which have a pale pink to whitish aperture. He also states "in fundo albido-striata", with reference to the white spiral lirae of the inner part of the



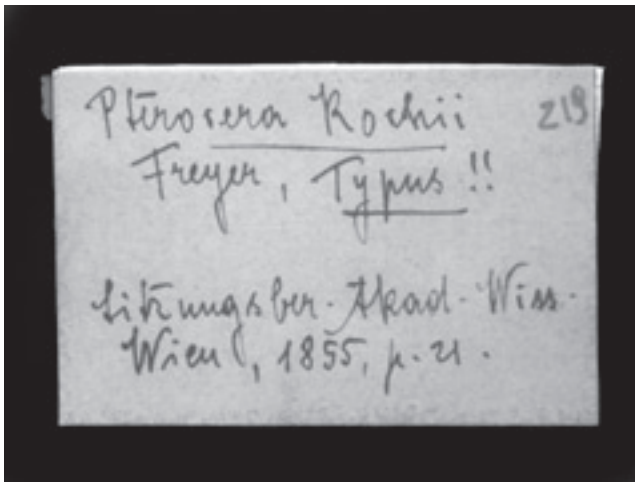
Figure 1 *Lambis chiragra chiragra* (Linné 1758), Museo di Storia Naturale, Trieste, specimen W07274.



Figure 2 *Pterocera kochii* Freyer 1855, holotype, Museo di Storia Naturale, Trieste, specimen W06299.

outer lip. “labio et labro laevissimo” refers to the thin outer lip.

Another useful character is the form of the digitations. Number and form of the digits are



**Figure 3** Müller’s label carried by specimen W07274.

like finger-prints in *Lambis* since every specimen is unique, so their form can be a reliable character. The following discussion refers to “left” and “right” looking at the aperture of the shell. Freyer describes the digit above the spire as curved leftwards which is a character much more evident in the W06299 specimen. Moreover, Freyer describes a horizontal digit, left of the digit above the spire, starting at the same height of the tubercles of the last whorl. This character is evident in W06299, and totally different from specimen W07274 where the same digit is above the suture of the last whorl and so much above the tubercles. The curvature at the end of this digit is an obsolete character which better matches with the words “a bit upwards curved”. Digits on the peristome are described as “claw-like, curved upwards”, a character which better matches with the W06299 specimen. In W07274 they are less curved.

Other characters may be taken into consideration. Freyer says the height of the specimen is “8¾ zoll”. The “zoll” is the traditional German inch, equal to 1/12 fuss (Rowlett, 2005). The zoll was equal to about 2.634 centimeters. This means that Freyer’s description states a height of about 23 centimeters. Specimens W06299 and W07274 are almost of the same height and measure 23 cm, especially if measured with the spire axis slightly bent to catch the maximum height due to digitations bending. The height measured

along the spire axis is about 22 cm for W06299 and 22.5 cm for W07274. Therefore, size does not seem to be a useful character for discriminating which specimen is the holotype.

There are no locality data on the specimens nor do data labels give any clue to origin. Size judged in relation to locality does not help. The holotype recognition of *Pterocera kochii* with specimen W06299 is therefore based on a china ink marking on the shell, morphological characters of the aperture regarded as diagnostic by Freyer, and the morphology of the digits.

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