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# Lepidoptera collections of historical importance in the Hungarian Natural History Museum

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**Abstract** – The historical background of the Lepidoptera collection of Tobias Koy (1757–1829), Ferdinand Ochsenheimer (1767–1822), Friedrich Treitschke (1776–1842) and Imre Frivaldszky (1799–1870) is discussed in the light of their personalities and connections with lepidopterology in Hungary and Europe. The present state of the collections is briefly described and data are provided how specimens have been preserved, labelled and curated. Representative specimens and their labels from each collections are documented. With 17 figures and one table.

**Key words** – Entomology, lepidopterology, history, collections, types, personalities.

## INTRODUCTION

The fates of private entolomogical collections acquired by a large institute, such as the Hungarian Natural History Museum, is that the specimens are amalgamated into the general collections, which are curated either on the basis of zoogeographical regions or phylogenetic relationships. Although the private collection itself, the masterpiece of an entomologist created during a whole life, disappears, but in a well curated scientific collection all the specimens can be traced back on the basis of the inventory label placed on every individual specimens incorporated (Ackery & Goodger 2004). However, if the amalgamated collection is large and diverse, its importance is obvious simply by the long series of specimens in the material or by the unique specimens of rare species. If the collection is small or modest, its existence becomes faded and subsequently only experts or the curators can recognise it.

On the other hand there are collections which are saved from the "fate" of disappearance, and kept intact as a single body. The reason of this "luckiness" is usually the great historical importance of the collection itself (like the collection of CARL LINNAEUS: HONEY & SCOBLE 2001) or a kind of curiosity, which does not allow to unite the specimens with other material. In general, these collections are well known to the museum staff and even for the general public.

The present paper gives a general overview of four Lepidoptera collections housed in the Magyar Természettudományi Múzeum (HNHM = Hungarian Natural History Museum), what I regard for having great historical value in the light of lepidopterology in Hungary. Two of them have never been amalgamated with the general HNHM Lepidoptera collection, but the specimens of the other two had or still have to be reassembled from the main collection. Three entries are aimed to briefly describe each of these collections: (1) the entry "material" informs about the physical state and the size of the collection, (2) the entry "history" aims to place the collection discussed under a historical context focusing on how it was accumulated by its owner and how it became the part of a public collection, and (3) the entry "discussion" attempts to underline certain aspects which are unique and try to falsify certain information circulating in the literature regarding the collection under discussion.

## THE COLLECTIONS

### The Tobias Koy Collection

*Material* – The collection is housed in a special cabinet with 25 drawers of standard 40 × 50 cm size (Fig. 1). All specimens (n = 935) are preserved in individual glass boxes of four sizes (Fig. 2.), and arranged according to families. The boxes are banded by green paper in the edges, but some of the boxes have a more recent drab paper binder. Many, but not all the glass boxes show the species group name of the relevant taxon in a printed label glued inside the box below the specimen. Additional handwritten labels are glued on the cover or the bottom glass of the boxes, also showing the species group name of the species (Figs 2–5). The specimens are in good conditions in general, but there are damaged or broken individuals too. They are on a short pin, which is pinned into a piece of cork glued to the bottom of the box inside. Certain glass boxes are dirty or smoky, loosing the covering papers glued to their edges or the species group name labels glued to their surface giving the hint that they were affected by fire then water (see below) (Fig. 3).

*History* – The collection was created by TOBIAS KOY (*1757, Wien – †1829, Buda), who lived in the HABSBURG ruled Hungarian Kingdom, and from 1787 was a treasurer of the "Hofkammer". After his death the KOY collection and library was purchased by FRIVALDSZKY (NENDTVICH 1872: 13–14, BÁLINT & FRIVALDSZKY 2007). Then the collection was in the house of FRIVALDSZKY, who kept it as a curiosity. I could not find any record how the KOY collection became the possession of the HNHM. The FRIVALDSZKY collection was purchased by the Magyar Nemzeti Múzeum (HNM = Hungarian National Museum) in 1864, and it is most probable that the KOY collection was included also in this act (MATSKÁSI 2002: 17). This is the probable case of the Lepidoptera material, but the Coleoptera specimens, which took the larger part of the collection according to KOY's catalogue, simply disappeared. In 1956 a large portion of the collection (*circa* 400 specimens) was destroyed by flames caused by Soviet shells (BOROS 1957).

*Discussion* – In his lifetime KOY published a technical paper how to collect insects (KOY 1801) plus a catalogue of his collection (KOY 1800). In this catalogue species collected by himself around "Ofen" (= Buda) is marked by normal letters and the species group names set in italics indicate taxa that are not native in the surrounding of his home city. This offers an authentic source for reconstructing the faunal history of the Budapest region, which went through tremendous changes during the 19$^{th}$ and 20$^{th}$ centuries because of the expansion of urban human settlements alongside of land use change, regulating the water courses, irrigating the whole region and cutting off the original oakwoods and riparian forests.

KOY was the corresponding and exchange partner of several eminent and influential entomologist of his time, like EUGENIUS JOHANN CHRISTOPH ESPER (1742–1810), JOHANN CHRISTIAN GERNING (1745–1802), JOHANN KARL WILHELM ILLIGER (1775–1815) and GEORG WOLFGANG FRANZ PANZER (1755–1829) in Germany, and the Austrian JÁNOS MÓR BÖHM (? –1809), GEORG DAHL (1769–1831), OCHSENHEIMER and TREITSCHKE (about them see below in details), as he was highly regarded by all of these entomologists in their books and entomological accounts (ABAFI-AIGNER 1898, REBEL 1911: 270). Hence it is evident that KOY provided material for taxa described by the mentioned entomologists and some taxa were based on those specimens (as like *Papilio admetus* ESPER, 1785). He received material from his corresponding fellows in exchange and used the name they proposed. This latter aspect is testified by species listed in his catalogue (KOY 1800) (Fig. 4).

KOY was most probably in avid correspondence with ESPER, even on technical matters, because their collection was built exactly in the same manner and they used the same mode for preserving specimens in individual glass boxes (HACKER 1998).

Another interesting aspect of the KOY collection, that it was supplemented by many specimens by Imre FRIVALDSZKY (see below), who added Balkan and Anatolian taxa he discovered. For example in this material there is an authentic specimen of *Lycena sephirus* FRIVALDSZKY, 1835, and a pair of *Hipparchia amalthea* FRIVALDSZKY, 1845 (Fig. 5).

**Fig. 1.** The special cabinet of the KOY collection in the main hall of the Hungarian Natural History Museum Lepidoptera collection. The parameters of the boxes: 10×11.5×2.5 cm (large), 7×9×2.5 cm (larger medium), 5×8×2 cm (smaller medium) and 4×5×2 cm (small)

**Fig. 2.** One of the standard museum drawers of the KOY collection containing individual glass boxes in four sizes with hawkmoth (Sphingidae) specimens

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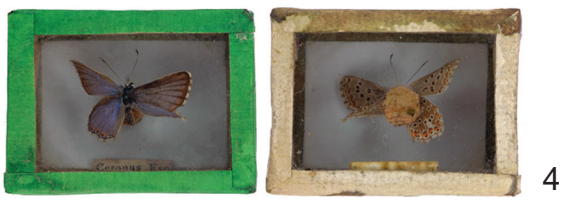

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**Figs 3–4.** 3 = Individual glass boxes from the KOY collection showing damages caused by fire and water. The *Pieris napi* (Linnaeus, 1758) specimen is damaged in the upper left box, all the labels are lost, the box itself has sooty glasses and rebounded edges, as the original green binding was lost because of the water spread out during fire-fighting. The remaining boxes show lesser damages but the glasses are dirty, and labels are lost, 4 = The supposed type specimen of *Papilio ceronus* ESPER, 1793 in an individual Koy collection box, left = upper side, right = under side

**Fig. 5.** The butterfly *Hipparchia amalthea* FRIVALDSZKY, 1845 specimen in the KOY collection, which certainly originated from IMRE FRIVALDSZKY

## The Ferdinand Ochsenheimer collection

*Material* – At the time of writing Macrolepidoptera and Microlepidoptera specimens are kept in two different places. Macrolepidoptera specimens (n = 1,568) are in 30 standard museum drawers, in special tray units according to species and families (Fig. 6). Microlepidoptera specimens (n = 234) are in a single standard museum drawer, which is kept hidden in the TREITSCHKE collection cabinet (SCHMIDT 1923: 58). For many years these specimens were considered to be representing TREITSCHKE material, but a closer examination revealed that they are OCHSENHEIMER's specimens. The drawer contains a large label written by IMRE FRIVALDSZKY "Ochsenheimer féle gyűjtemény" (= collection by OCHSENHEIMER) placed in the upper top centre of the drawer and all the specimens have the label found to be typical for the collection (see below). The specimens are arranged under handwritten curatorial labels with green border, we suspect written by OCHSENHEIMER (Fig. 7). All the specimens possess a small (5 × 7 mm) black bordered label with the inscription "OCHSN" (printed) in the upper and a handwritten numbering the lower part. All the specimens are pinned on short silver pins commonplace in the 18–19$^{th}$ centuries (Fig. 8).

*History* – The collection belonged to FERDINAND OCHSENHEIMER (*17 March 1767 in Mainz – † 2 November 1822 in Vienna), a famous actor of his time. He lived in Vienna from 1807, where the collection was created and he was mainly active as a naturalist.

**Fig. 6.** Standard museum drawers on shelf containing OCHSENHEIMER specimens representing papilionids (Papilionidae) and pierids (Pieridae) in special tray units


**Fig. 7.** The upper centre of the OCHSENHEIMER micromoth drawer with the handwritten inscription of IMRE FRIVALDSZKY: "Ochsenheimer-féle gyűjtemény" (collection by OCHSENHEIMER); plus original OCHSENHEIMER specimens with green bordered handwritten curatorial labels supposedly written by OCHSENHEIMER

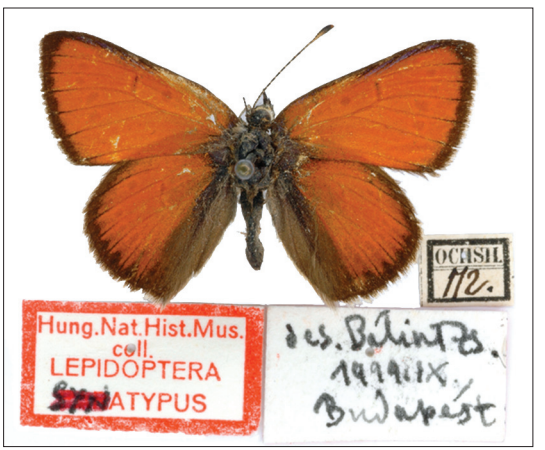



**Fig. 8.** Syntype specimen of *Papilio eurybia* OCHSENHEIMER, 1808 and its labels from the OCHSENHEIMER collection in dorsal view

Although he had interest in natural history previously, he could not have an important collection because he changed his residency quite often and he was overloaded by performances. When he got to know FRIEDRICH TREITSCHKE (see below), they started to work together not only in theatre related topics, but also in entomology. TREITSCHKE brought OCHSENHEIMER to Vienna and could arrange his employment in the "Hoftheater". In Vienna OCHSENHEIMER's health soon started to decline, he became more and more focused on lepidopterology, and he got tremendous support in this activity from TREITSCHKE too, who joined him on his excursions also because of gaining a better health. Their relationship lead to the publication of the influential book series: *Die Schmetterlinge von Europa*, which was started by OCHSENHEIMER and finished by TREITSCHKE (OCHSENHEIMER 1807–1816, OCHSENHEIMER & TREITSCHKE 1825, TREITSCHKE 1825–1835). At the end of his life OCHSENHEIMER was asked to recurate the Lepidoptera material of the "k.-k. Hofmuseum". After OCHSENHEIMER's death his collection was purchased from his widow by the Hungarian National Museum on 23rd of October, 1823 for the Naturalia Cabinet under the advise of IMRE FRIVALDSZKY, who was the associate curator at that time.

During the Big Flood of Pest in 1838 the Hungarian National Museum was affected, many collections sustained a loss. The OCHSENHEIMER collection was considered to be heavily damaged (ABAFI-AIGNER 1898: 60; SCHMIDT 1923: 52). According to the report on the status of the museum's collections after the flood presented by ISTVÁN HORVÁT (1784–1846) to Palatin JOSEPH (file 287/1838.III.20; copy in the archive of the HNHM Lepidoptera collection) it is written that "etiam in cabineto rerum naturalium praetor madefacta herbaria viva vix aliquod evenit infortunium". Accordingly, the natural history collections were not so much affected because in the report no loss was mentioned. However, it seems that the collection was indeed affected as certain OCHSENHEIMER specimens show damage or deformation typically caused by humidity. This might result that only a portion of the collection could be secured. According to the unpublished notes of LAJOS KOVÁCS (1900–1971), research Academic scientists of the HNHM (BÁLINT & RONKAY 2002), the OCHSENHEIMER collection was dispersed in the "Pável-Schmidt" era. KOVÁCS prepared an inventory of the OCHSENHEIMER macromoth specimens he found and made a comparison on the basis of original documents. He was able to find only the one third (n = 1,516) of the Macrolepidoptera specimens. Then KOVÁCS arranged the Macrolepidoptera material into 12 standard museum drawers, which was recurated recently into the present state. At present there are 1568 original OCHSENHEIMER specimens, 52 specimens more than the KOVÁCS's figure. These specimens were found in the general collection by museum staff subsequent to KOVÁCS, plus the material of 23 specimens which has been returned from the agricultural institute Georgikon (see below).

KOVÁCS also made an inventory of the micromoths, but the specimens were left in the TREITSCHKE cabinet. However, the original cabinet for micromoth was most probably not sufficient safe enough because the OCHSENHEIMER micromoth material is now kept in a modern museum drawer. This work was presumably done also by KOVÁCS himself.

*Discussion* – Already in his lifetime OCHSENHEIMER was an influential lepidopterists. He was corresponding with many people, thus it was possible to gather information and

material for his books. He was the sole author of the first three volumes of the book series "Die Schmetterlinge von Europa", and the fourth volume was finished with the collaboration of TREITSCHKE in 1816. The series was taken by TREITSCHKE and the entire opus was completed in ten volumes, which is represented by two complete sets in our Library (inventory numbers: Ec 5 (in the original wrappers: IMRE FRIVALDSZKY's copy) and Ec 102 (hard cover in elegant green clouth binding: colonel VIKTOR BARTHA's copy)).

OCHSENHEIMER was the describer of many European butterflies and moths, and in his collection there are many primary and secondary types, which are in need of careful evaluation. Although it is generally known that the OCHSENHEIMER collection was "partly destroyed in floods" (HORN *et al.* 1990: 287, KUDRNA & WIEMERS 1990: 61), there is no published inventory for the remaining and existing material, which contains primary types of many European species such as *Colias europomone* OCHSENHEIMER, 1808, *Lycaena iolas* OCHSENHEIMER, 1816, *Palaeochrysophanus eurybia* (OCHSENHEIMER, 1808), (Fig. 8) *Phalera bucephaloides* OCHSENHEIMER, 1808, *Pieris bryoniae* OCHSENHEIMER, 1808, *Thymelicus lineolus* OCHSENHEIMER, 1808, and many others, including species described by other lepidopterists, like *Cucullia mixta* FREYER, 1842.

## The Friedrich Treitschke collection

*Material* – According to the catalogue of the "TREITSCHKE Sammlung" the collection contained 9,501 specimens of 2,582 species (ANONYMUS 1842). The catalogue has a handwritten supplement of further 236 specimens of European and 88 specimens of exotic Lepidoptera attached to a record sent to Palatine JOSEPH dated 7$^{th}$ of May, 1843 (copy in the archive of the HNHM Lepidoptera collection). The material listed by ANONYMUS (1842) is preserved today in the original contractor of 42 drawers in size 42 × 55 cm with glass cover (Fig. 9). All of these were placed into a hard wooden cabinet designed specially for the TREITSCHKE collection recently. Very few specimens listed in the handwritten supplement were traced in the general collection (Fig. 10). These are mainly exotic specimens, which are kept now in a special drawer with individual tray contactors in the shelf containing OCHSENHEIMER material.

The drawers contain red framed handwritten curatorial labels with scientific names indicated in the printed catalogue (Fig. 11). All the specimens possess a small (5 × 7 mm) black bordered label with the inscription "TREITS" (printed) in the upper and a printed number in the lower part, which is identical with the number of the species indicated in the catalogue. All the specimens are pinned on long silver pins commonplace in the 18–19$^{th}$ centuries (Fig. 12).

*History* – GEORG FRIEDRICH TREITSCHKE (* 29 August 1776 Leipzig – † 4. Juni 1842 Wien) was primarily a merchant, but later he dedicated his life to theatre-related topics, and became a successful librettist (just to mention LUDWIG VAN BEETHOVEN's *Fidelio* and ANTONIO SALIERI's *Die Neger*), then an influential theatre economist in the HABSBURG imperial-royal court in Vienna. He was an admirer of the actor OCHSENHEIMER, whom he

was able to make a contract for acting in the "Hoftheater". Although they knew each other well before their Viennese times, they could create tight companion- and friendship only in Vienna, where both became very active in lepidopterology. After the death of OCHSENHEIMER, the book series of *Die Schmetterlinge von Europa* was taken, continued and finished by TREITSCHKE with a heroic effort (TREITSCHKE 1825–1835).

The collection was purchased by the Hungarian National Museum in 1842 from TREITSCHKE's widow Christina for 3,000 florins based on the recommendation of JOSEPH SADLER custodian and his adjunct EMERICUS FRIVALDSZKY, both working in the naturalia cabinet. Most probably the TREITSCHKE collection was planned to put into action because a detailed catalogue was published about its content (ANONYMUS 1842), and more than a hundred copies of the catalogue became the possession of the museum with the collection itself. In the archive of the HNHM Lepidoptera Collection there is a copy of this catalogue with annotations of LAJOS KOVÁCS dated ("from 21 June 1956"). This copy shows a fully inventoried status of the collection of those days.

*Discussion* – In spite of the fact that OCHSENHEIMER and TREITSCHKE worked on Lepidoptera jointly, from their entomological works they published it is clear that their collections were independently maintained. TREITSCHKE was also corresponding with many people, just to mention JEAN BAPTISE ALPHONSE DESCHAUFFOUR DE BOISDUVAL (1799–1879), CHRISTIAN FRIEDRICH FREYER (1794–1885) and IMRE FRIVALDSZKY (see below), all of them honoured TREITSCHKE with a "lepidopterological" patronym. Many species described by these lepidopterists are also present in the TREITSCHKE collection, which suggests there is great probability to find primary type material not only in the case of the species described by TREITSCHKE himself, but also by his fellow entomologists. This is proved at least in the case of FRIVALDSZKY (Fig. 13).

**Fig. 9.** The TREITSCHKE collection in the micromoth hall of the Hungarian Natural History Museum Lepidoptera collection. The original compactor with the drawers are kept in a modern cabinet specially designed for this purpose

It was well known that the TREITSCHKE collection could be found in the HNHM (HORN *et al.* 1990: 396, KUDRNA & WIEMERS 1990: 73). The micromoth material has been already studied intensively by experts, yielding many lecotype designations in the book series of *Microlepidoptera Palearctica* written by renowned microlepidopterists as GEORG AMSEL, ERNST ARENBERGER, ALEXEY DIAKONOFF, LÁSZLÓ GOZMÁNY, JÓZEF RAZOWSKI, ROLF-HANS REISSER, ULRICH ROESLER and KLAUS SATTLER. In spite of this there are still many not yet recorded primary types in the collection not only in macros, but also amongst the micros, which have to be clearly labelled after careful examination of the relevant literature.

**Fig. 10.** An old Surinamese *Morpho marcus* (SCHALLER, 1785) individual, an original specimen from the TREITSCHKE collection, located in the Hungarian Natural History Museum Lepidoptera collection. The specimen lost its original head and received a pierid one subsequently

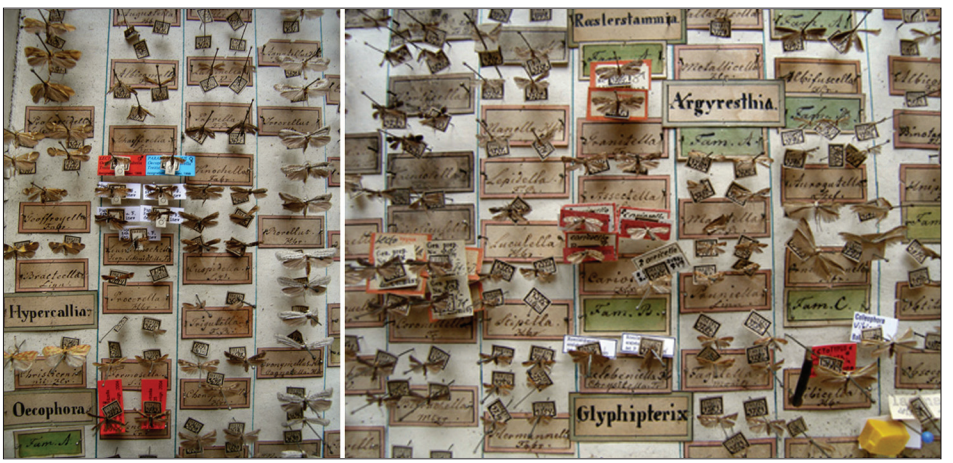
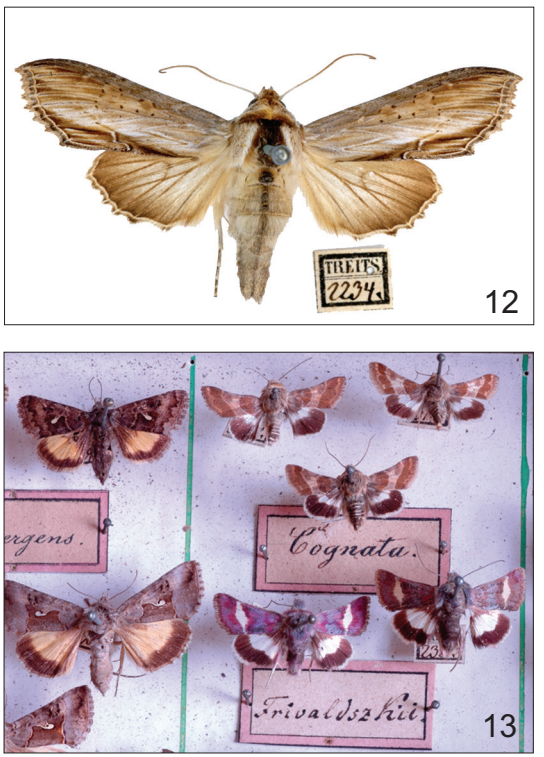



**Fig. 11.** Two sections of one micromoth drawer of the TREITSCHKE collection showing specimens with subsequent typifications via newly attached red labels

## The Frivaldszky Imre collection

*Material* – At the time of writing only a small part of the former FRIVALDSZKY collection became assembled from the general collection: 1,327 specimens are kept in 15 standard museum drawers of the cabinet number 85 (Fig. 14). These specimens are representing all the butterflies, bombycid, geometrid and sphingid macromoths from the Palearctic region, plus some exotic species. The remaining material, what I consider to be voluminous (see below), still has to be assembled form the other macro- and micromoth parts of the Lepidoptera collection.

All the FRIVALDSZKY specimens possess a small (5 × 7 mm) black bordered label with the inscription "FRIV." (printed) in the upper and below the handwritten number in the lower part corresponding with the catalogue (Fig. 15). The specimens are pinned on long silver pins commonplace in the 18–19$^{th}$ centuries. Because of the characteristic labels and the silver pins FRIVALDSZKY specimens are easy to locate in series of more recent material (Fig. 16).




**Figs 12–13.** 12 = Syntype specimen of *Shargacucullia thapsiphaga* (TREITSCHKE, 1826) and its labels from the TREITSCHKE collection, 13 = Type material of *Heliothis frivaldszkyii* TREITSCHKE, 1835 in the TREITSCHKE collection showing original curation with labels

*History* – The collection was purchased with an extensive catalogue (19 March 1864), which testifies that "Lepidoptera europaea" contained 11,371 specimens of 3,189 species and there were further 588 specimens of 366 species in the collection "Lepidoptera exotica" (FRIVALDSZKY 1864). The fate of the FRIVALDSZKY collection was that at the time of its purchase it was more than two times larger than the Lepidoptera collection of the museum itself (Table 1). Hence the FRIVALDSZKY collection became the basis of the general collection and new material became incorporated to the collection (and most probably also the OCHSENHEIMER specimens secured after the flood). Because of this many specimens were lost or exchanged as the records of 159, 165 and 254/1866 in the central archive of the HNHM tells (copies in the archive of the HNHM Lepidoptera collection), that director JÓZSEF PÉTERFFY took 538 specimens of 357 species as a present to the agricultural high school Georgikon in Keszthely, which included 23 specimens of 17 species represented by OCHSENHEIMER material (the list of species was presented) plus some FRIVALDSZKY specimens (not detailed).

**Table 1.** Comparison of the size of the Hungarian National Museum (HNM) public and FRIVALDSZKY's private (FC) Lepidoptera collections. Sources: "A rovarokból összeállított gyűjtemények kimutatása 1872. Martius végéig" (HNM); "Manuscript catalogues of Lepidoptera europaea" and "Lepidoptera exotica" (FC)

| | |
|---|---|
| HNM material | |
| Hungarian Lepidoptera | 2,260 specimens of 862 species |
| Lepidoptera generalia | 2,306 specimens of 783 species |
| All together | 4,566 specimens of 1,645 species |
| FC material | |
| Lepidoptera europaea | 11,371 specimens of 3,189 species |
| Lepidoptera exotica | 588 specimens of 366 species |
| All together | 11,959 specimens of 3,555 species |

The original contractors and drawers of the FRIVALDSZKY collection were made exactly in the same manner as we saw in the case of TREITSCHKE collection. Because of the constant growth of the Lepidoptera collection (FRIVALDSZKY 1880), the old styled drawers became unsafe and inconvenient for modern museological standards, hence they were given away. New drawers and cabinets was employed, and the whole collection was reorganized by the museum staff.

In the early 1950s LAJOS KOVÁCS started to scan the whole Lepidoptera collection and tried to locate FRIVALDSZKY specimens. He copied the numerical numbers, the species names and the number of specimens from the manuscript catalogue of FRIVALDSZKY (1864) and produced an extensive handwritten secondary catalogue, which is in the archive

of the HNHM Lepidoptera collection. Because of the large number of the specimens probably KOVÁCS could not reconstruct the collection as he intended, as was in the case of OCHSENHEIMER material. This work has been started after the first special publication on the FRIVALDSZKY's Lepidoptera material (BÁLINT & OLIVIER 2001).

*Discussion* – IMRE FRIVALDSZKY was a pioneer in the exploration of the Carpathian Basin and the Balkan fauna. He proposed 192 names for animals, including 47 Lepidoptera (BÁLINT & ABADJIEV 2006). Specimens of many taxa what he found to be new were sent to identification or exchange under the name he proposed to his corresponding entomologists, notably to FREYER, PAUL BERNHARD GERHARD (1824–1893?), GOTTLIEB AUGUST WILHELM HERRICH-SCHÄFFER (1799–1874), GEORG ADOLF KEFERSTEIN (1793–1884), and TREITSCHKE (see above). Hence many species recognized first by FRIVALDSZKY became described under the very same name by different authors almost in the same time (see OLIVIER 1999, 2000, BÁLINT & OLIVIER 2001).

FRIVALDSZKY formally described 18 Lepidopteran taxa from the Carpathian Basin, and from the territory of the Balkans and Western Anatolia. The material on which these taxa were established should have been deposited in his collection but many of them disappeared because former curators did not pay special attention to them. For example non of the eight *Plebejus sephirus* (FRIVALDSZKY, 1835) specimens indicated by his collection catalogue (FRIVALDSZKY 1864) could not be located, but there are two authentic FRIVALDSZKY specimens in the possession of the HNHM: one is the already mentioned KOY specimen and another male in the TREITSCHKE collection.



**Figs 14–15.** 14 = The cabinet and the drawers of the FRIVALDSZKY collection in the main hall of the Hungarian Natural History Museum Lepidoptera collection; the drawer containing exotic butterflies is pulled out, 15 = The holotype of *Heliothis treitschkii* FRIVALDSZKY, 1835 and its labels from the FRIVALDSZKY collection

FRIVALDSZKY strived to have a collection as complete as possible. Therefore he was corresponding very widely. According to his autobiography and letters he was in exchange or mercantile connection with more than a hundred naturalists of his time (BÁLINT & FRIVALDSZKY 2007). Consequently amongst the specimens of the FRIVALDSZKY collection there is a high possibility to find syntypic material of other authors, notable the ones whom FRIVALDSZKY exchanged or corresponded.

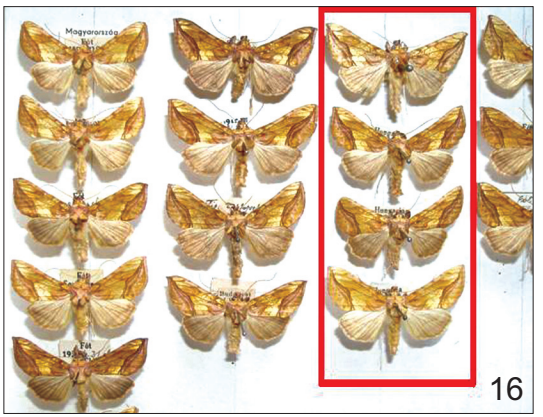



**Fig 16.** A series of still incorporated FRIVALDSZKY specimens of *Panchrysia deaurata* (ESPER, 1787) (in frame) in the general collection of the Hungarian Natural History Museum Lepidoptera collection


**Fig 17.** *Hemaris croatica* (ESPER, 1800) specimen from the FRIVALDSZKY collection, with three types of labels: the subsequently printed and attached provenance label (upper left to the specimen), supposedly the curatorial label from the original drawer (centre below the specimen) and the original FRIVALDSZKY label (upper right to the specimen)

During almost one and a half century the FRIVALDSZKY collection has almost completely disappeared in the HNHM Lepidoptera collection, and a great effort is needed to secure the specimens that can be still located. This is not an easy task as at present the HNHM Lepidoptera collection possesses approximately 1.7 million pinned specimens, which are kept in 12 thousand standard museum drawers.

## GENERAL REMARKS

The Lepidoptera collections of historical importance in the HNHM showed the way how naturalists started to explore biodiversity, and how they develope the collections building techniques and curatorial practices to gain better science. In this development there were clearly two trends: the diminishing baroque era and the enlightened modern one.

TOBIAS KOY, with ESPER and GERNING belonged to the generation of naturalists whose collections were maintained still in the "tradition of curiosities", in a superfluous baroque manner. The KOY collection, which was built in the spirit having curiosities, served specimens for people active as scientists describing the taxonomic composition of the Earth's biota. Probably the idols of KOY were such personalities like ALBERT SEBA (1665–1736), whose grand collection of natural curiosity was well known by the great naturalists in the 18–19$^{th}$ centuries like LINNEAUS and PIETER CRAMER (1721–1779) (BÁLINT & GOODGER 2003), and the grand *Thesaurus* of the SEBA collection was used as a source of material (SEBA 2005).

OCHSENHEIMER and TREITSCHKE represented the new wave of scientists who started to base their work strictly on material, which served as records of distribution and taxonomic variability. Therefore they possessed not only a single specimen of a species as curiosity, but series of specimens which represents the same taxon. Like CRAMER and LINNAEUS they applied the techniques of pinning specimens having voluminous material in pins, which allowed them to study repeatedly small details of the body structures and wing patterns. Every individual specimen was labelled having a combination of numbers, which provided the information about the taxonomic identity and provenance of the specimen via a catalogue.

This labelling tradition was kept until the turn of the 19–20$^{th}$ centuries in the main European museums, when so much material arrived in the collections, that it was impossible to follow (BÁLINT & NGUYEN 2006).

Hence, in a modern entomological collection every individual specimen got a detailed label with the indication at least to geographical place of origin, collecting date and the name of the collector. However in certain cases these basic information are supplemented by precisely referred collecting methods and an indication to the numerical list, in which the collecting site and circumstances are described in more details.

Interestingly, FRIVALDSZKY followed both of these traditions. Purchasing the KOY collection most probably FRIVALDSZKY first of all was impressed by the beauty of the curiosity cabinet and its content. He followed to develop the collection in the same manner. Nevertheless, FRIVALDSZKY was a museologist, and because museums everywhere were serving science and not just for sheer of "loving of nature" or to exhibit the specimens, he also took the modern techniques for building a scientific collection having long series of specimens on pins. He followed also the labelling and cataloguing techniques represented by the OCHSENHEIMER and TREITSCHKE collection. In the eve of the 20$^{th}$ century, when more and more material arrived in the museum originating from modern expeditions, collecting trips and new acquisitions, FRIVALDSZKY specimens got an additional modern label, which indicated the place of origin and some of them also received the curatorial label from the drawer when the FRIVALDSZKY collection was dismantled and amalgamated in the Genaral collection (Fig. 17).

Hence, via studying the HNHM Lepidoptera collections with historical importance we can see how entomologists of the baroque times were amazed by the curious beauty and diversity of the created world and how they wanted to share feeling and knowledge with other people. Later, the same kinds of people having curious love and devotion to nature were moving to a more disciplined approach to the subject, arriving to a state, when the importance of the individual collections with their material emerged to serve science for exploring a kind of biodiversity never imagined before. These people and their works appeared again in the horizon of entomologists very recently, who want to have a firm basis for the future explorations of the living word, recording how these people corresponded, collected and saved their findings, and what was the fate and what was the luck of their collections they assembled.

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