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Johann Ludwig Christian GRAVENHORST, the first director of the Museum of Natural History, University of Wrocław, and his collection of Ichneumonidae

PAWEŁ JAŁOSZYŃSKI, MAREK WANAT

Museum of Natural History, University of Wrocław, Sienkiewicza 21, 50-335 Wrocław, Poland. E-mail: scydmaenus@yahoo.com (PJ), wanatm@biol.uni.wroc.pl (MW)

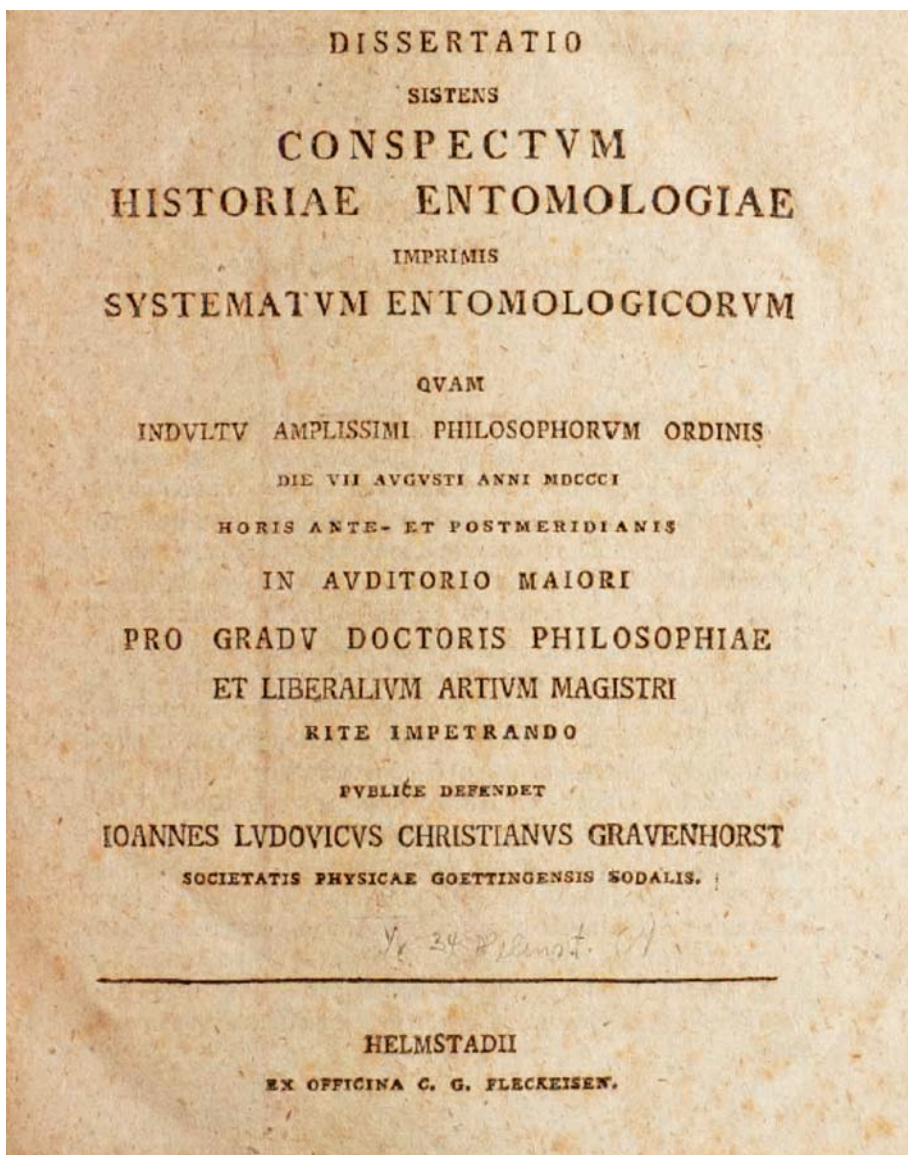
ABSTRACT. Johann GRAVENHORST (1777-1857) was the first director of the Museum of Natural History, rector of the University of Wrocław and an outstanding zoologist with a broad scope of scientific interests, from protists to vertebrates. His publications on insects, and among them on the hymenopteran family Ichneumonidae, are especially valued. GRAVENHORST's private collection was once the core of the Museum's educational and scientific collections; now it represents only a fraction of ca. 2.5 million specimens preserved in this institution. The original GRAVENHORST Collection of Ichneumonidae is among the most valuable entomological treasures of the Polish museums. At present, it comprises 4743 dry-mounted specimens. Of this number, 674 specimens of 229 nominal species, among them 645 type specimens and two possible type specimens, have been so far catalogued and their details are available from the electronic MNHW databases.

Key words: GRAVENHORST, Insecta, Hymenoptera, Ichneumonidae, type collection, Wrocław University, Poland.

INTRODUCTION

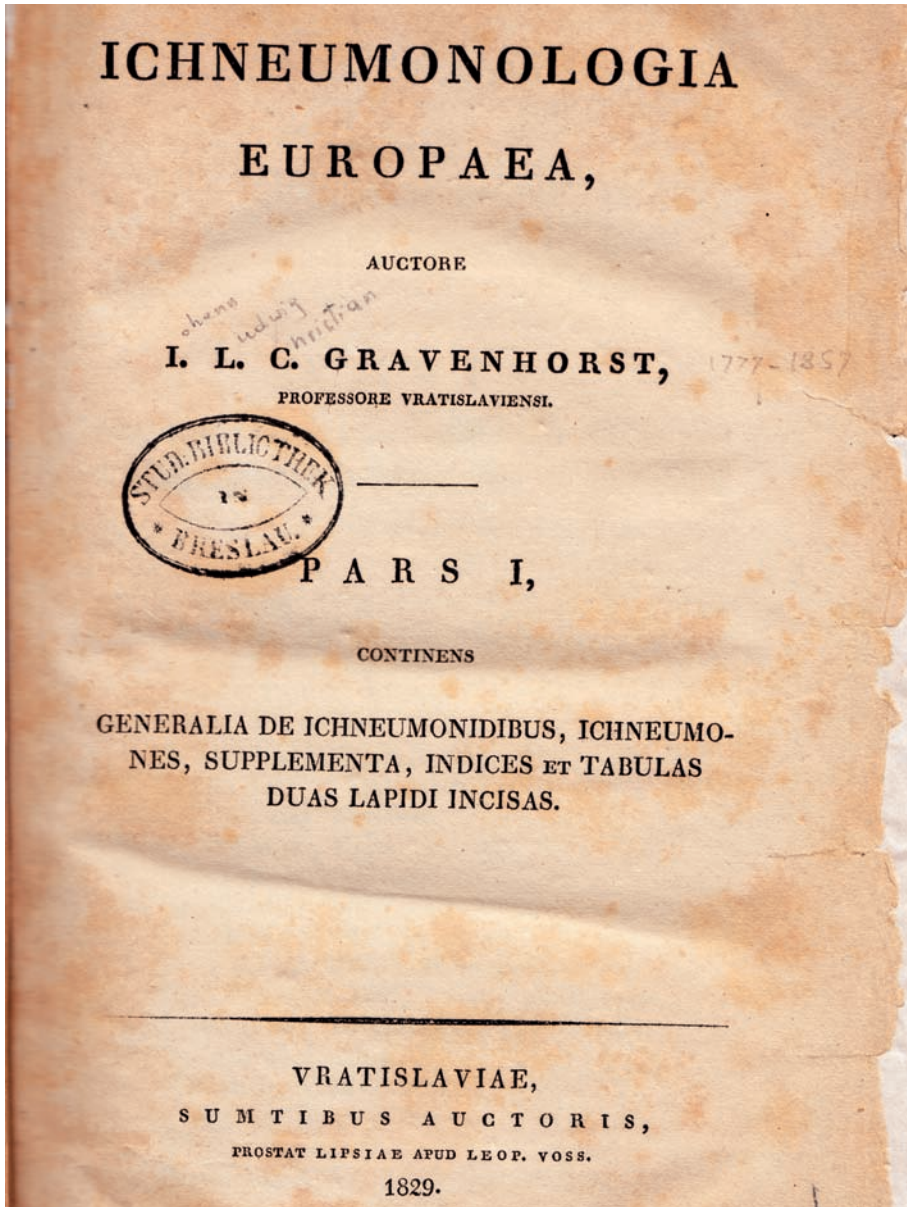
Many distinguished naturalists, most notably zoologists, have worked at the Museum of Natural History over the past two hundred years, but Johann Ludwig Christian GRAVENHORST, the first director of the Museum, rector of the University of Wrocław, and an outstanding entomologist, deserves a special place in the scientific hall of fame. Although seriously depleted during WWII, GRAVENHORST's specimens can still be found in the Museum, and even if this is only a fraction of what was once one of the most remarkable natural history collections in Germany, the several thousand of ichneumon wasps are subject to our special care.

The Royal Privy Councillor, professor of natural history, Johann Ludwig GRAVENHORST was born on the 14th of November 1777 in Brunswick. His father, a wealthy brewer, died when Johann Ludwig was 10 years old, and his mother re-married two years later. GRAVENHORST received his basic school education in the Katharinen-Gymnasium. Already then, in the first grade, his passion to the entomology was inspired by



1. The title page of GRAVENHORST's doctoral dissertation

teachings of Johann Christian Ludwig HELLWIG, who helped to identify insects collected by his student and introduced him to the classification system of FABRICIUS. In 1795 GRAVENHORST entered the Collegium Carolinum (presently University of Brunswick – Institute of Technology), where one of his teachers was professor August Wilhelm



2. The title page of GRAVENHORST's opus magnum, *Ichneumonologia Europaea*

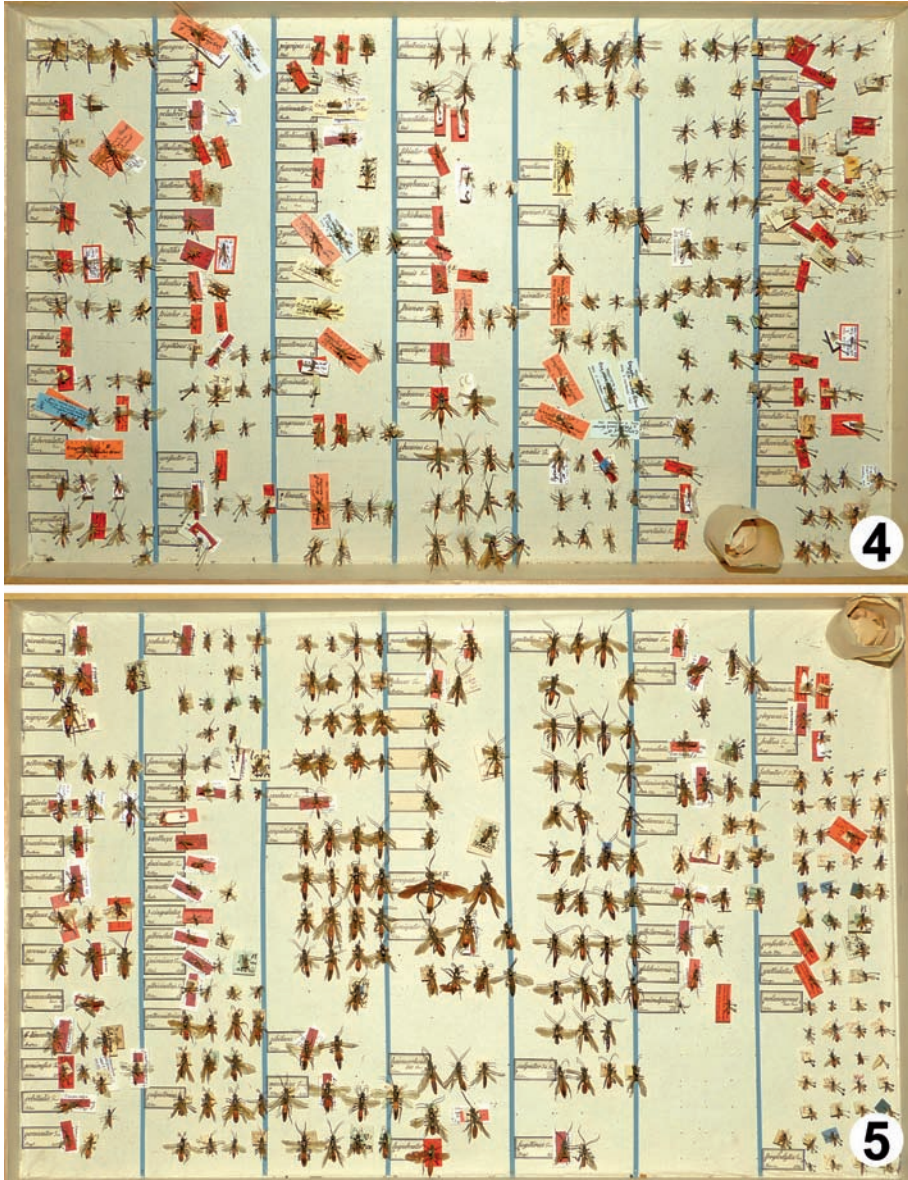
KNOCH, a renowned entomologist and author of the three-volume *Beiträge zur Insektengeschichte*. Thus GRAVENHORST's education was under a continuous influence of the most famous specialists in insect systematics. However, although interested in natural history, young GRAVENHORST was rather inclined to become a lawyer and in 1797 with such an intention he entered the University of Helmstedt (Academia Julia). Spending his spare time exploring the surrounding nature and attending additional lectures in physics and natural history, his zoological interests soon came to the fore. Numerous field trips helped improving his previously unsteady health, and the inherited fortune ensured him a high position in the society, without a necessity of taking a job. Therefore, in 1799 GRAVENHORST decided to move to Göttingen, then a renowned centre of natural history. His teachers were such brilliant scientists as Johann Friedrich BLUMENBACH (physician, naturalist, physiologist and anthropologist) or Heinrich Adolf SCHRADER (botanist and mycologist), and he soon came to be on close terms with Johann Karl Wilhelm ILLIGER.

In Göttingen GRAVENHORST studied not only zoology, but also botany and mineralogy, and soon became a member of the Göttingen Physical Society, at that time headed by the famous naturalist Johann Friedrich GMELIN. In 1801 GRAVENHORST returned to Helmstedt, where he submitted his dissertation *Conspectus historiae entomologiae, imprimis systematum entomologicorum* (Fig. 1), passed the doctoral exam and was awarded a degree of *doctor philosophiae et artium liberalium magister*. Settled down



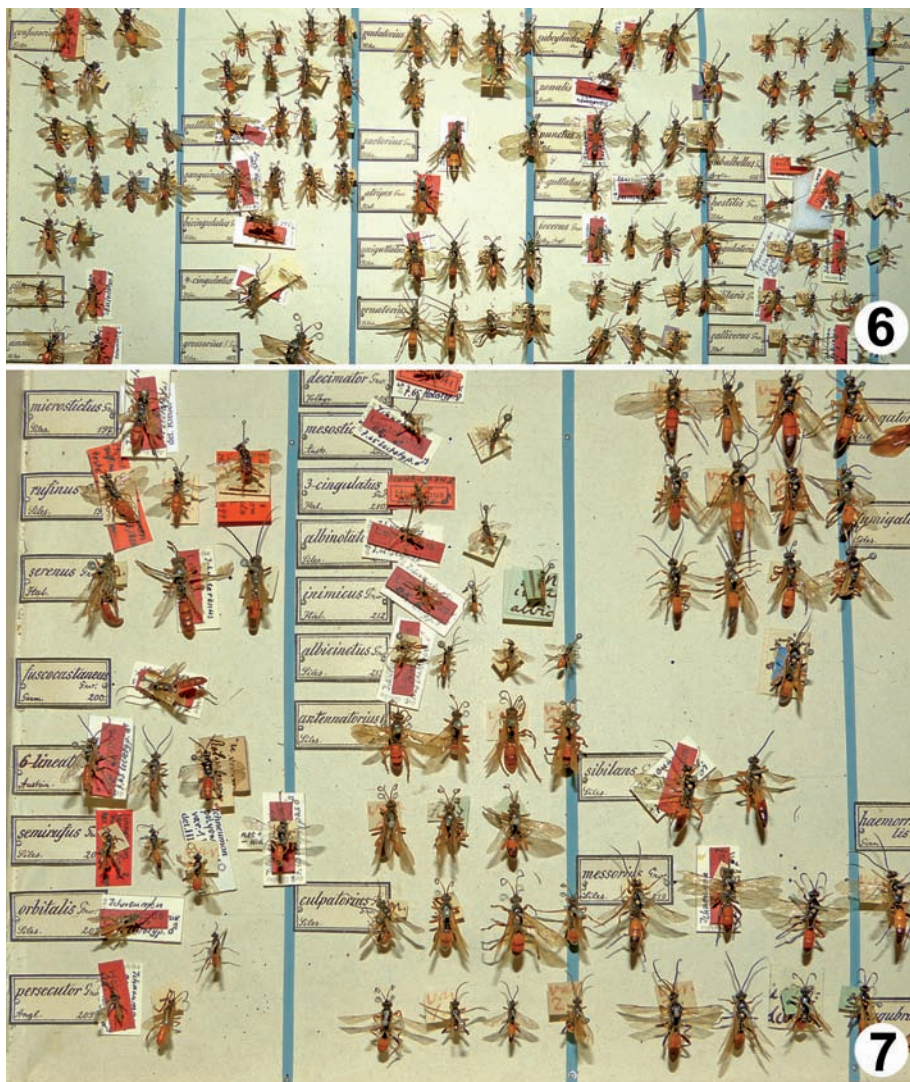
3. *Xorides gravenhorstii* (CURTIS), an ichneumon wasp species dedicated to GRAVENHORST (fot. J. HILSZCZAŃSKI)

in Brunswick again, GRAVENHORST focused on the large family of rove beetles (Staphylinidae). He studied collections of HELLWIG, KNOCH, VON HOFFMANNSEGG, ILLIGER and ZINKEN and in 1802 published the first of his remarkable contributions to entomology, *Coleoptera microptera Brunsvicensia* (GRAVENHORST 1802). In the same year GRAVENHORST visited Paris, where he had an opportunity to study museum collections and met



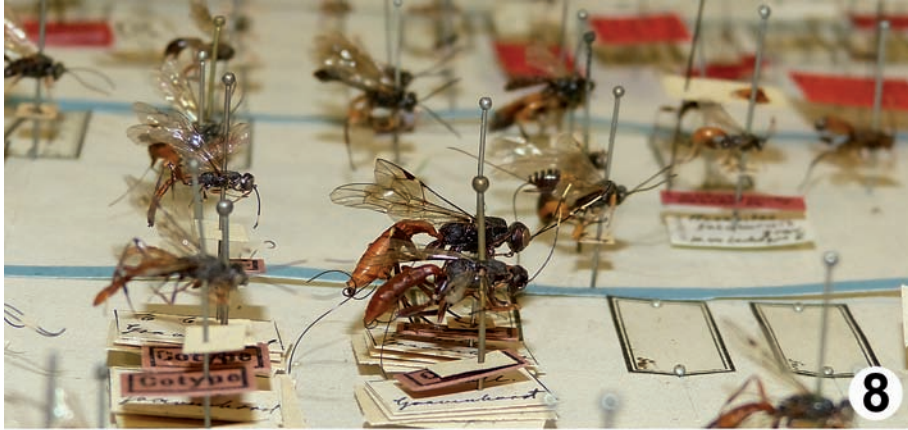
4-5. General view of two drawers from the GRAVENHORST Collection

Georges CUVIER, Guillaume-Antoine OLIVIER, Pierre André LATREILLE, Louis Augustin Guillaume BOSC, Alexandre BRONGNIART and Anselme Gaëtan DESMAREST. After returning to Brunswick, GRAVENHORST published *System der Natur*, a textbook for students attending his lectures (GRAVENHORST 1804). Being rather well-off, GRAVENHORST could afford to enlarge his collection by buying numerous specimens. His acquisitions included the insect and bird collection of MAUERHOFF (some of his specimens were previously described by FABRICIUS) and LAMPE's large collection of reptiles, fishes and shells.



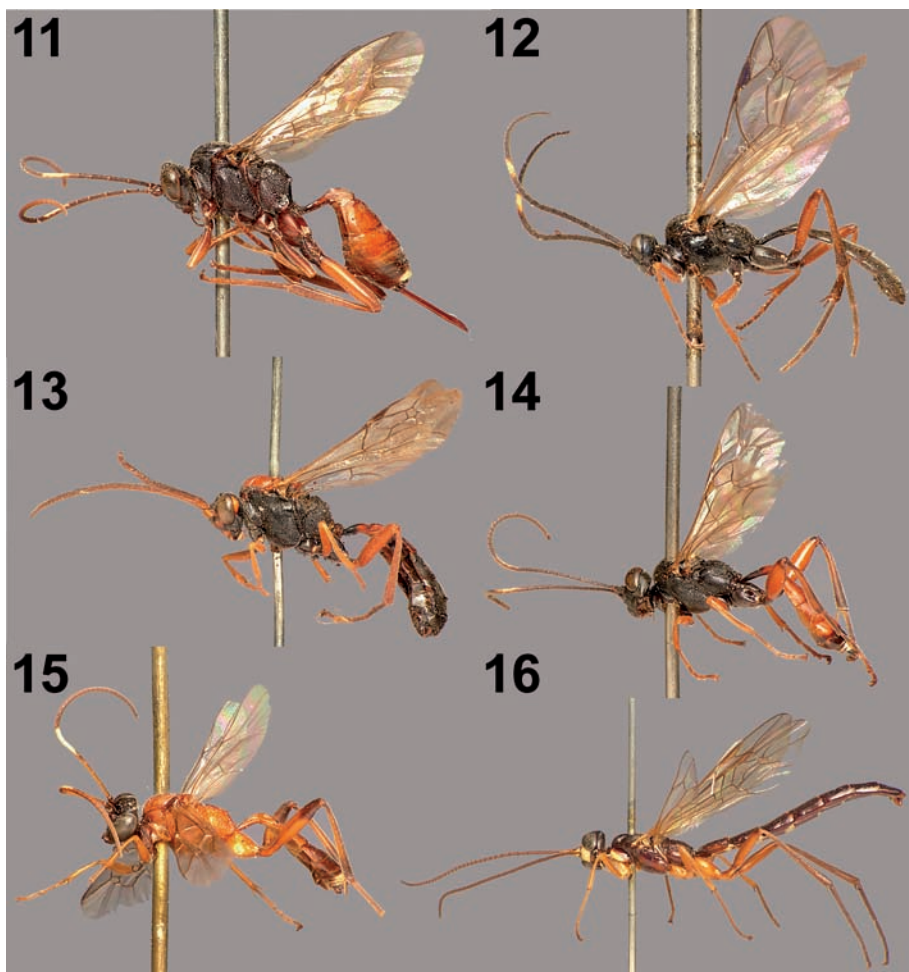
6-7. Specimens of Ichneumonidae from the GRAVENHORST Collection

In 1805, GRAVENHORST received habilitation degree at the Göttingen University, where he moved from Brunswick. Here he published another large study, the famous *Monographia coleopterorum micropteriorum* (GRAVENHORST 1806), where he treated nearly 400 species of Staphylinidae. This monograph, dedicated to KNOCH, confirmed his entomological talents. He continued working on a new, enlarged edition of this book for many years, until 1839-40, when ERICHSON's opus magnum *Genera et species Staphylinorum* appeared and with its broader and overlapping scope forced GRAVEN-



8-10. Specimens of Ichneumonidae from the GRAVENHORST Collection

HORST to abandon his long-term project. In 1809 GRAVENHORST was nominated associate professor of the Göttingen University, but instead decided to accept full professorship in natural history in Frankfurt (Oder), where he also became director of the botanical garden and lecturer in botany and mineralogy. In 1811 he married Charlotte ELSNER, a daughter of a theology professor. In the same year the Frankfurt University, Alma Mater Viadrina, was closed. Its assets were divided between two newly founded universities: the Frederick William University of Berlin (presently HUMBOLDT University) and the Silesian Frederick William University in Breslau (presently University of Wrocław). GRAVENHORST moved to Wrocław.



11-16. Specimens of Ichneumonidae from the GRAVENHORST Collection. *Cryptus adustus* GRAVENHORST, holotype (11), *Cryptus grisescens* GRAVENHORST, lectotype (12), *Cryptus sanguinolentus* GRAVENHORST, holotype (13), *Hoplismenus albinus* GRAVENHORST, holotype (14), *Hoplismenus dimidiatus* GRAVENHORST, lectotype (15), *Xorides collaris* GRAVENHORST, lectotype (16)

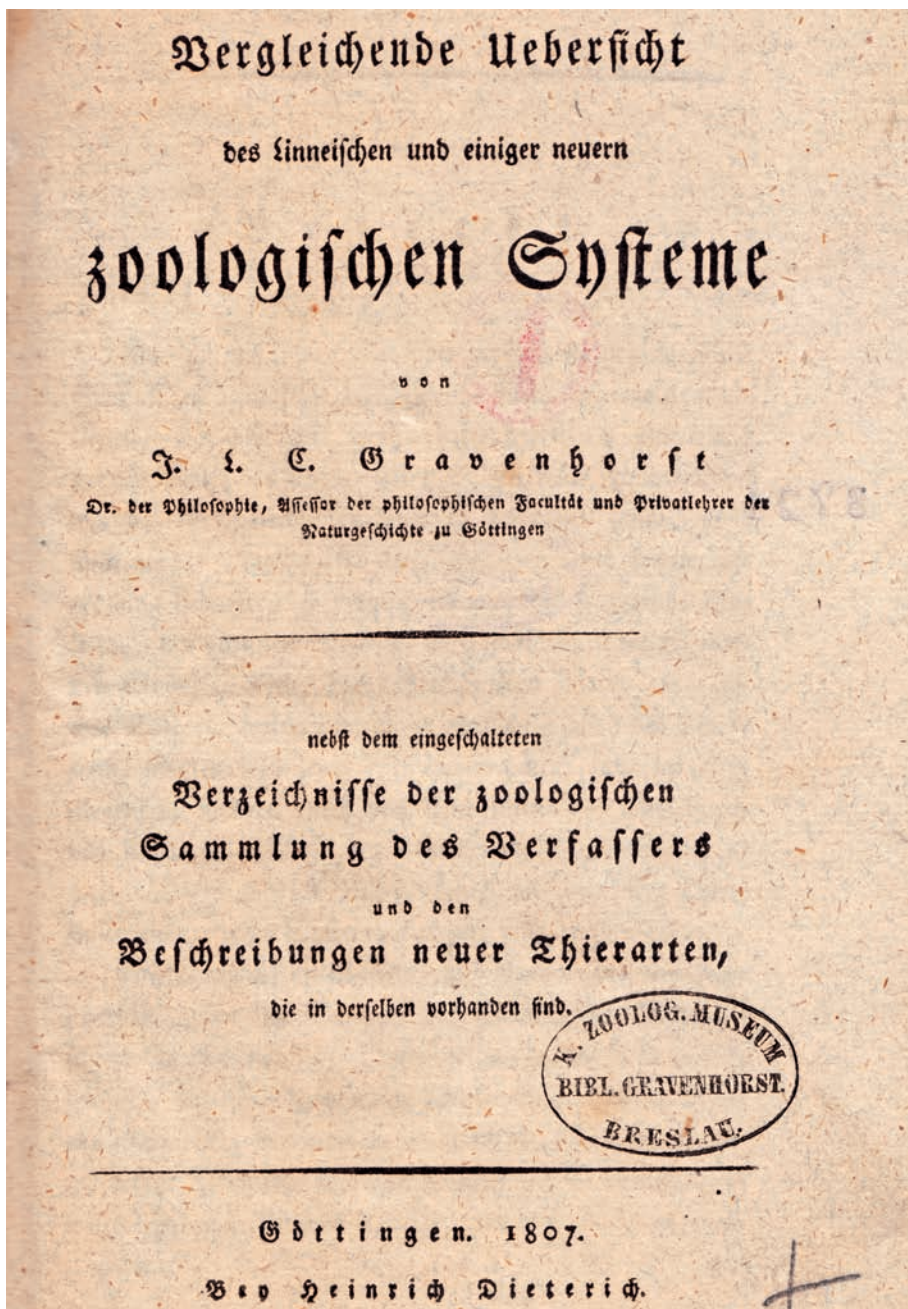


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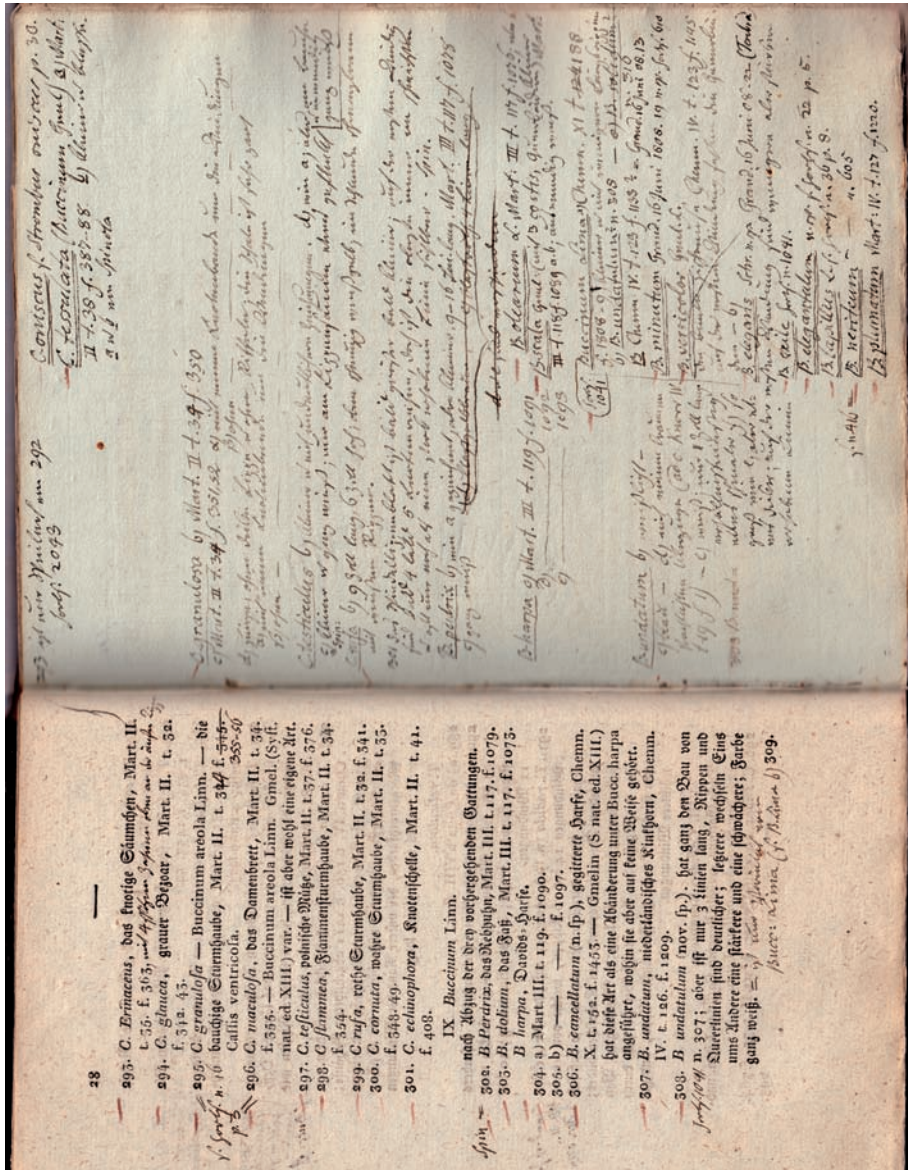
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17-18. Box with remains of various Ichneumonidae from the GRAVENHORST Collection (17) and the annotation on its lid (18) reading "Köpfe, Hinterleiber, Flügel etc. zu *Tryphon* u. *Mesoleptes* in diesem Zustande von Dr. FÖRSTER in Aachen zurückgefordert" ("Heads, abdomina, wings etc. of *Tryphon* and *Mesoleptes* in this condition received back from Dr. FÖRSTER in Aachen")



19. The front page of GRAVENHORST's book *Vergleichende Übersicht des Linnéischen und einiger neuern zoologischen Systeme...*, coming from the library GRAVENHORST donated to the MNHW

In Wrocław professor GRAVENHORST was a teacher of a three-year zoology course which covered all animals except lower invertebrates and fishes, which he found unattractive to study. In 1814 he donated a major part of his collection to the university, for a lifelong pension of 150 thalers. This is the date of establishing the institution



20. Pages from the GRAVENHORST's book *Vergleichende Übersicht des Linnéischen und einiger neuern zoologischen Systeme...*, with his own handwritten notes

that has survived 200 years of various turns of history and is presently known as the Museum of Natural History of the University of Wrocław. GRAVENHORST became its first director. His efforts to organise a remarkable museum were so successful that Karl LETZNER, one of the most eminent Silesian naturalists of 19th c. wrote in 1857 that “es jetzt zu den bedeutendsten Sammlungen Deutschlands gehört” (it now belongs to the most important collections in Germany).

The new environment suited GRAVENHORST well and in Wrocław his scientific activity reached its peak. There he published many valuable volumes, including a textbook (GRAVENHORST 1817) and a series of fundamental studies on the hymenopteran family Ichneumonidae, among others *Monographia Ichneumonum pedestrium* (GRAVENHORST 1815), *Conspectus generum et familiarum Ichneumonidae* (GRAVENHORST 1819), *Monographia Ichneumonum Pedemontanae regionis* (GRAVENHORST 1820) and *Ichneumonologia europaea* (GRAVENHORST 1829) (Fig. 2). However, his research interests comprised a number of various topics and during his work as museum director GRAVENHORST published articles on amphibians, reptiles, several groups of marine invertebrates, spiders, staphylinid and tortoise beetles, chalcidoid wasps and protists.

In 1823 the previously retained doublet specimens from his private collection were also donated to the Museum of Natural History, and for this GRAVENHORST received a salary supplement of 100 thalers.

GRAVENHORST suffered from a severe facial neuralgia and in 1825-26 was forced to make two visits to the seaside resort Bad Doberan. The therapy apparently gave expected results, as for the next few years GRAVENHORST with his usual enthusiasm worked on various entomological projects and in 1828-1829 was even appointed rector (German and Polish equivalent of chancellor) of the University of Wrocław. Unfortunately, the pain returned during his 1830 trip to Prague, Vienna and Trieste. Bathing in the sea relieved the symptoms, and GRAVENHORST took the opportunity to do observations of marine invertebrates. The study *Tergestina, oder Beobachtungen und Untersuchungen über einige bei Triest in Meere lebende Arten der Gattung Octopus, Doris, Pinna, Ascidia, Serpula, Echinus, Asterias, Ophiura, Holothuria, Actinia, Caryophyllia, Actinotus* (GRAVENHORST 1831) was in fact a result of his health-restoring sea baths.

GRAVENHORST's health deteriorated further and in the winters 1840/41 and 1841/42 he spent a long time bedridden. This illness affected also his mental powers and he never fully recovered. Fortunately, shortly before that GRAVENHORST managed to complete several important studies and even ill, he was able to edit seven more papers. Still able to give lectures in the forties and early fifties, in 1853 GRAVENHORST was already too weak to continue his teaching duties. The bath therapy in Salzbrunn in 1854 and 1855 did not improve his health and in April 1856, on his own request, professor GRAVENHORST retired. However, during short periods of health improvement, he still occasionally gave lectures in zoology in the summer that year. Johann GRAVENHORST died on the 14th of January 1857 of a pulmonary failure.

In acknowledgement of GRAVENHORST's scientific achievements and his role as the organiser and the first director of the Museum of Natural History, in 1830 he was awarded a title of the Prussian Royal Privy Councillor and in 1846 the 4th class Order of the Red Eagle. The 50th anniversary of receiving his PhD (1851) was honoured

by a presentation of the honorary doctorate of the Faculty of Medicine, University of Wrocław and the 3rd class Order of the Red Eagle with bow. GRAVENHORST was a member of 21 scientific societies, including eight honorary memberships. In his testament, he donated his large library and 12000 thalers to the Museum of Natural History, and a part of this sum was to be used to fund a stipend for a zoology student. Many taxon names were dedicated to GRAVENHORST by various authors, including insects and reptiles, e.g. ichneumonid wasps *Gravenhorstia* BOIE, *Xorides gravenhorstii* (CURTIS) (Fig. 3), *Stibeutes gravenhorstii* FÖRSTER; braconid wasp *Microchelonus gravenhorstii* NEES; iguanian lizard *Liolaemus gravenhorstii* (GRAY), scincid lizard *Trachylepis gravenhorstii* (DUMÉNIL & BIBRON) and others.

This biography, largely based on LETZNER (1857), presents GRAVENHORST as a brilliant scientist, skilled organiser and dutiful lecturer. It should be added, however, that Karl LETZNER, a vice-secretary of the entomology section of the Silesian Society for National Culture (Schlesische Gesellschaft für Vaterländische Kultur), also recalled GRAVENHORST as a modest, quiet and friendly man with a soft spot for poetry and singing.

GRAVENHORST's collection, or what remained from his large and diverse original collection, is preserved in the Museum of Natural History, University of Wrocław (MNHW). Nearly two centuries of turbulent history, among others the cataclysm of WWII, reduced this once remarkable collection to merely 19 drawers containing less than 5 thousand ichneumon wasps (Figs 4-16). If any other specimens from the GRAVENHORST Collection survived, their origin would now be impossible to identify because of the missing documentation. Half of the scientific collections and nearly the entire museum archives have been destroyed or lost during the war. Even a story of a parcel containing type specimens from the GRAVENHORST Collection and burned during transport is kept in the museum's records. The remaining material is all the more valuable today.

Among the lost GRAVENHORST's collections are the staphylinids, a reference material for two early monographs (GRAVENHORST 1802, 1806), all other insects and remaining animals, including types of numerous species described in *Vergleichende Übersicht des Linnéischen und einiger neuern zoologischen Systeme, nebst dem eingeschalteten Verzeichnisse der zoologischen Sammlung des Verfassers und den Beschreibungen neuer Thierarten, die in derselben vorhanden sind* (GRAVENHORST 1807), published during his stay in Göttingen. MNHW is in possession of a unique exemplar of this book with extensive handwritten notes made by GRAVENHORST himself (Figs 19-20), a volume invaluable as a source of data to clarify status of many taxa presently treated as *nomina dubia* because of missing type specimens.

Even the ichneumonid collection is incomplete. During WWII some of the MNHW treasures were transported to safe locations outside Wrocław, but not all of them were retrieved after the war. Six GRAVENHORST's drawers of ichneumon wasps were missing when the collection was luckily discovered in Kąty Wrocławskie in 1948. All drawers were numbered and the specimens organized as they appear in *Ichneumonologia Europaea*, and therefore it was possible to identify exactly which part of the collection was lost (TOWNES 1959).

The GRAVENHORST ichneumonid collection is a major challenge for scholars who attempt to identify true type specimens. Most specimen labels were removed already in the 19th c., the collection was rearranged, new specimens (*e.g.*, from Arnold FÖRSTER) were added and some were sent in exchange to museums in Leiden and Copenhagen around 1840.

TOWNES (1965) made efforts to clarify these problems during his two visits to MNHW in 1958 and 1964, when he examined the entire collection. He managed to partly reconstruct the pre-war state of the collection by gathering information directly from the last German MNHW curator Karl HEDWIG and from John Frederick PERKINS, a renowned British specialist on parasitic wasps, who studied the GRAVENHORST Collection in 1936. TOWNES (1965) concluded that the labels were removed already in 19th c., possibly before GRAVENHORST's death, because even early authors who studied the collection, as WESMAEL (1859) and TASCHENBERG (1865), did not cite any label data. TOWNES (1965) analysed labels from the GRAVENHORST Collection and was able to identify those originally associated with type specimens collected before 1829. He also found and described several reliable indicators related to pin brands or methods of mounting that can be used to identify type specimens coming from other sources, as those from Italian collectors, from coll. MANGER (Silesian "Warmbrunn") or from coll. HOPE (England). This careful and detailed investigation also enabled TOWNES to identify recent re-mountings of several type specimens.

The GRAVENHORST Collection of Ichneumonidae comprises currently 4743 dry-mounted specimens. Although this material has been partly revised by numerous specialists, the exact number of species remains unknown. Jacques AUBERT (1958, 1960, 1968; AUBERT & JOURDHEUIL 1958), Franco FRILLI (1965, 1974, 1978), Klaus HORSTMANN (1968, 1974, 1976, 1992, 2001, 2005), Geoffrey KERRICH (1942), Joachim OEHLKE (1966), Gerard VAN ROSSEM (1969a, b, 1974), Janusz SAWONIEWICZ (1984, 1986, 1988, 1989, 1990, 2003; SAWONIEWICZ & WANAT 2003), Martin SCHWARZ (2005, 2007) and Henry TOWNES (1958, 1963; TOWNES & GUPTA 1962; TOWNES & TOWNES 1962; TOWNES, MOMOI & TOWNES 1965) and others, used GRAVENHORST's specimens for taxonomic revisions and designated lectotypes or neotypes, but their studies covered only selected taxa and still numerous specimens require examination to verify their status (type specimen? holotype? syntype? identity?). Also traces of much earlier entomologists working on the specimens can be found in the collection, *e.g.*, a small cardboard box containing damaged remains of specimens is pinned inside one of the drawers, with a note "Köpfe, Hinterleiber, Flügel etc. zu *Tryphon* u. *Mesoleptes* in diesem Zustande von Dr. FÖRSTER in Aachen zurückerhalten" ("Heads, abdomens, wings etc. of *Tryphon* and *Mesoleptes* in this condition received back from Dr. FÖRSTER in Aachen") (Figs 17-18). Apparently, already the author of *Synopsis der Familien und Gattungen der Ichneumonen* (FÖRSTER 1869) used GRAVENHORST's material for his work (and already then the process of specimen damage had begun).

Most of the specimens in the GRAVENHORST Collection are pinned, only some are glued on plastic or cardboard mounting cards. The collection is in a relatively good condition, with the majority of specimens well-preserved and identifiable, although some of them are incomplete to various extent. Specimens studied by GRAVENHORST

and later never dissected (Figs 11-16) are usually in a good condition, while too many revisions took their toll on those studied and re-mounted several times by various entomologists. The specimens and taxa that have been used in the published taxonomic works of the above-mentioned specialists are all catalogued and their details can be found in the MNHW electronic databases. The catalogue presently comprises 674 specimens of 229 nominal species, among them 645 type specimens and two possible type specimens. Ninety of them are holotypes, 131 lectotypes, two either syntypes or holotypes, 6 neotypes, and 57 paralectotypes. A large part of the MNHW catalogue was published (SAWONIEWICZ & WANAT 2003) with database entry numbers, specimen details and even the condition of each primary type specimen, and therefore such a list is not presented here. The remaining, not catalogued and largely unrevised part of the collection, awaits specialists willing to explore this nearly two-century old legacy of their predecessor, professor Johann Ludwig Christian GRAVENHORST.

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