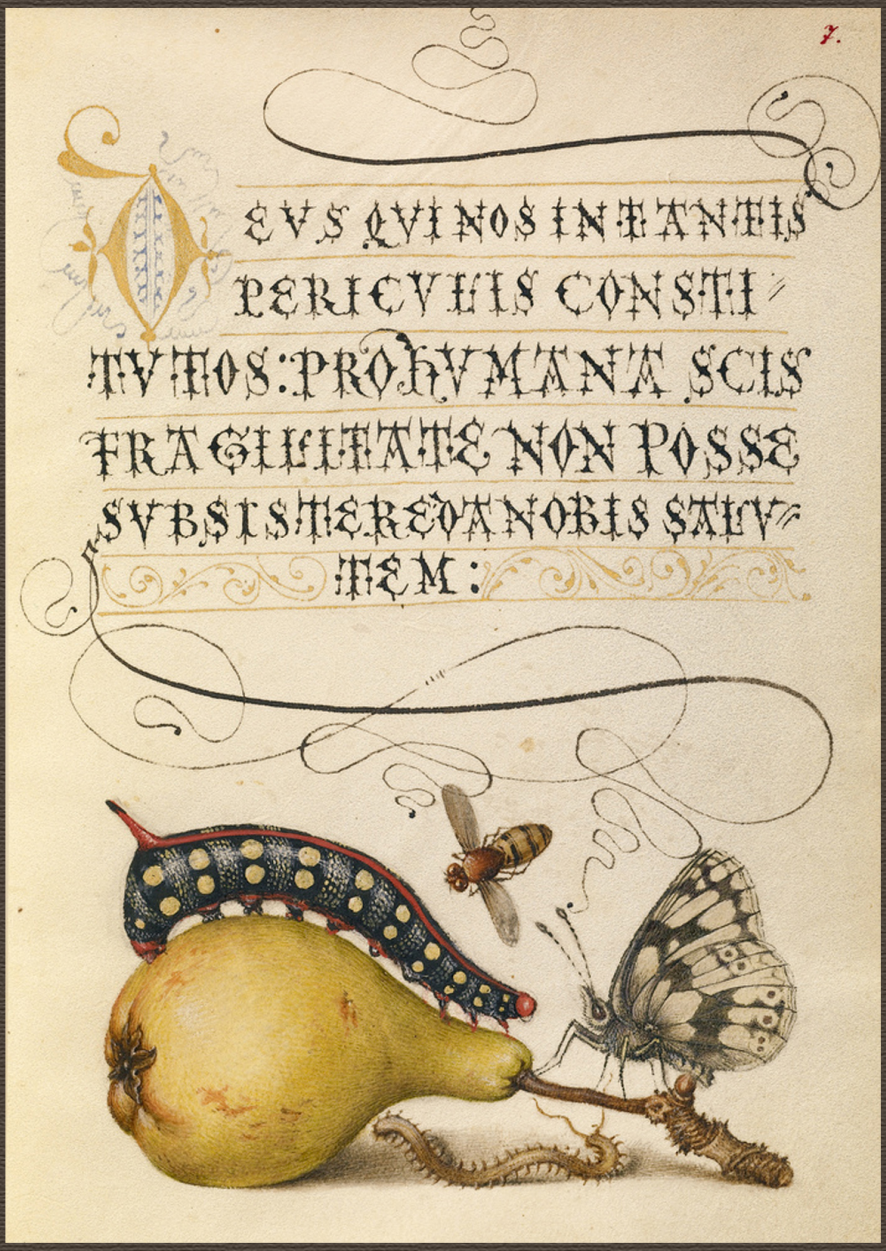
NATURA SOMOGYIENSIS 29.



HYMENOPTERA RESEARCH IN THE CARPATHIAN BASIN

(Hymenoptera: Aculeata)

Attila Haris

NATURA SOMOGYIENSIS 29.

Hymenoptera Research in the Carpathian Basin (Hymenoptera: Aculeata)

ATTILA HARIS

RIPPL-RÓNAI MÚZEUM
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Hymenoptera Research in the Carpathian Basin (Hymenoptera: Aculeata)

ATTILA HARIS

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HARIS, A.: *Hymenoptera Research in the Carpathian Basin (Hymenoptera: Aculeata).*
Abstract: History of the Aculeata research in the Carpathian Basin is discussed. List of species described from the Carpathian Basin and bibliography of the research is provided from 1563 till our present days. *Chrysis leachii* Schuckard, 1836 is syn. n. of *Chrysis hungarica* Scopoli, 1770. *Pompilus lateritius* Mocsáry, 1879 is revocated. *Vespa heeriana* nom. nov. is proposed as replacement name for *Vespa crabroniformis* Heer, 1867.

Keywords: Carpathian Basin, Hymenoptera, Aculeata, history, research, new synonyms, *Vespa heeriana* nom nov.

Introduction

This monograph is preceded by the work of Roller and Haris titled "*Sawflies of the Carpathian Basin, History and Current Research*" (ROLLER and HARIS 2008). Furthermore, the following works are also preceded this paper: firstly we have to mention Sándor Mocsáry's work titled "*Magyarország Hymenopterái" (Hymenoptera of Hungary)* (MOCSÁRY 1886b) in which, he briefly summarized the history of the Hymenoptera research in Hungary till 1886. Mocsáry didn't mention - for instance - the life and works of Grossinger, Bocskay-Hoefnagel, Moeller, Földi, Mitterpacher, Frenzel and many others. So, it is good time, to revise and rediscuss again the early Hymenoptera Research in Hungary. The other is the paper of Fritz Gusenleitner: "*Wildbienenforschung in Österreich*". Austria always had a small territory in the Western Carpathian Basin which even grew after 1920 when Austria received Várvidék and Őrvidék which is now Burgenland therefore Gusenleitner's work is important source to elaborate the Aculeata research of the western part of the Carpathian Basin, namely Burgenland and partly Niederösterreich. Thirdly, we have to mention the "*Almanach Entomologów Polskich XX. Wieku*" (BUNALSKIEGO, LIPY and NOWACKIEGO 2001) which provides valuable data on Polish entomologists who contributed to know the wasps and bees of the Polish Tatras. The next one is the history of the wild bee research in Romania completed by Cristina Ban-Calefariu and Bogdan Tomozei (CALEFARIU and TOMOZEI 2007). In this paper, they provide overview on the Apoidea research in Romania. At last but not least, we have to mention the comprehensive work of Paula Durbesic, titled "*Croatian Entomofauna - Looking Back from the Present and Future Plans*" (DURBESIC 2011) in which we got some sporadic data. Sporadic, since the Croatian entomological research always focused on the Dalmatian and Adriatic territories, the northern parts which belong to the Carpathian Basin weren't researched intensively.

What is included in this work and what is not? Better to start with "*what is not included*". There are two things: Myrmecology (Formicoidea) and Apiculture.

Ants are not included, because it is a very special group of Hymenoptera with special way of collection, and special way of life history therefore their study is particular and this group has its own specialists who are not dealing with other Aculeata groups.

About apiculture. We have no possibility to discuss this huge topic in two points of view. At first, there are only few people (or even less) who keep honey bees and parallel as a hobby, collect gold wasps or wild bees. But the main reason, to omit apiculture is the extraordinary huge number of papers on this topic. Nowadays, there are three apicultural journal only in Hungary: "*Méhészet*" (Apiculture), "*Magyar Méhészújság*" (Hungarian Journal of Apiculture), "*Méhészújság*" (Journal of Apiculture) appearing month by month. One publishes, let's say 25 articles per one issue, it means approximately 75 articles on honey bee in one months only in Hungary. Than we have to multiply this with the articles published in the 11 countries of the Carpathian Basin. After this extrapolating this number with the 170 years of apicultural journals and periodic papers, and adding technical books on honey bee keeping of 10 countries, in this way we receive 100 thousands of papers, articles to process and discuss here. It is close to impossible and finally we should add the thousands of apicultural papers published in various horticultural and agricultural journals. Except apiculture and myrmecology, present study includes all other research of Aculeata species of the Carpathian Basin in the following aspects: systematics, faunistics, ecology, life history, anatomy, plant protection, agriculture including pollination of fruits and crops, toxicology (stings and toxins, their symptoms, mechanisms and treatments) and paleontology.

Since the completion of the first entomological work of Hungary in (BOCSKAY and HOEFNAGEL: *Mira Calligraphiae Monumenta*) our knowledge on the Aculeata fauna has been highly increased: more than 1550 papers, books and monographs were published and the number of the preserved Aculeata specimens from the Carpathian Basin exceeded the 800 000 specimens in the various collections in and around the Carpathian Basin. For our days, the known number of species from the firstly recorded two "species" (*Fucus* and *Apis*) reached nearly the 1500.

The intention of this paper to provide a picture on the 420 years history of the Aculeata research from the very beginning till now.

Our age (the last 25 years) seems to be nothing compared the more than 400 years of research, however, this period is still exceptional. We are on the point to move our written culture from the printed data transfer (Guttenberg culture) to digital data transfer (World Wide Web).

Net publications are not discussed here. The next decades (or century) shall be the years of resolving the long term preservation (for centuries or millenniums) the digital, computerized information. Let's see a trivial example, when we type into a search software the national names of *Vespa crabro* in the numerous languages of the nations of the Carpathian Basin (like: lódarázs, Szerszen europejski, etc.) only for one species we receive 101 600 matches, and thousands of sites. We can not handle this, since even the most respectful site, the Wikipedia is full of dead links. Furthermore, we can not expect readers of this book to type the frequently complicated URLs from printed pages to the net and when they succeed it (let's say after 50 years from publishing this paper, somewhere in the 2070's) they will learn, that this site has been dead for 40 years and receive only error message. The task of our age is to find the way, to preserve the digital culture for the next centuries as printed papers, clay tablets, stone carvings have been preserving our culture for hundreds or even thousands of years.

Material and methods

In collecting of the early articles, published between 1630 and 1897 the "*Literature Hymenopterorum*" (MOCSÁRY 1882) and the "*Fauna Regni Hungariae*" (MOCSÁRY 1900) were consulted. The majority of entomological papers published between 1900 and 1925 were listed in the monograph of Dr. Irma Allodiatoris titled: "*Bibliographie der Zoologie im Karpatenbecken*" (ALLODIATORIS 1966). For the Hungarian Hymenoptera literature between 1897 and 1952 MÓCZÁR (1953b) was consulted.

For the history part, maps and partly for figures, those papers and books are consulted which are listed in the last chapter, titled "*Sources of biographies and pictures*". Due, to their high number and our limited space, we do not list them here again.

Numerous archive photos were taken over from (ROLLER and HARIS 2008) "*Sawflies of the Carpathian Basin, History and Current Research*". Other portraits received from our colleagues and libraries from various countries as they are listed in the Acknowledgement part.

In nomenclature of the species we followed the names of the Hymenoptera part of Fauna Europaea (ACHTERBERG 2013).

We did intensive correspondences with specialists, collection managers of the different museums and scientific institutes to explore their hidden science history collections and learn as much as possible about the biographies of specialists of all nations of the Carpathian Basin. We also studied the archives of the Sience History Collection of the Hungarian Natural History Museum Budapest and received valuable support from the local historians and managers of the Hungarian museums from all over the country.

One of the most important method was the presonal interviews with contemporary entomologists which resulted important biographic details and recorded personal memories. With specialists, living abroad, the only way was the mail correspondence for personal interviews.

Beyond the Latin and Hungarian charachters, there are additional 104 special national characters are used in the countries of the Carpathian Basin, especially after 1920 and dominantly after the WW 2. Since the cost of edition is limited and also we would like to keep the search function of the online (pdf) version, we are forced to do some replacements of these characters.

Therefore, instead of "Ą ą Ă ă Â â" we use "A a", insted of "Б б" we use "B b", instead of B в (only in Ukrainian and Serbian scripts) we use "V v", instead of " Ć ć Č č" we use "C c", instead of "Ц ц" we use "Tch tch", instead of " Ч ч" we use "Tsch tsch", instead of "Ď ď Д д Đ đ" we use "D d", instead of "DŽ dž" we use "Dz dz", instead of " Ę ę Є є" we use "E e", instead of "Ф ф" we use "F f" instead of "Г г Ґ ґ" we use "G g", instead of "Î î И и Ï ï Й й" we use "I i" insted of "X x" (in Ukrainian and Serbian scripts) we use "Kh kh", instead of " Ł ł Ĺ Í Ľ ľ Л л" we use "L l", instead of "Ń ń Ň ň" we use "N n", instead of "H н" (only in Serbian and Ukrainian scripts) we use "N n", instead of "Ô ô" we use "O o", instead of "П п" we use "P p", instead of "Ŕ ŕ Ř ř " we use "R r" instead of "P p" (but only in Serbian and Ukrainian scripts) we use "R r", instead of "Ş, ş Ś ś Š š Ш ш Щ щ" we use "S s" instead of "C c" (only in Serbian and Ukrainian scripts) we use "S s", instead of "T t Ţ ţ Ť ť" we use "T t", instead of "Ů ů" we use "U u", instead of "У у" (only in cyrillic Serbian, Ukrainian scripts) we use "U u", instead of "Ý ý", we use "Z z", instead of "Ź ź Ż ż Ž ž З з ", we use Z z", instead of "Ж ж" we use "Zh, zh", insteaad of "Ю ю", we use "Iu, iu" and instead of "Я я" we use "Ia ia".

Biogeographic Regions of the Carpathian Basin

According to the latest and internationally accepted biogeographic division of Europe (European Environment Agency 2002a, b, c), the Carpathian Basin is divided into 3 biogeographic regions, namely: the Pannonian Region, the Alpine Region and in small fragments, the Continental Region.

The lower territories belong to the "Pannonian Biogeographic Region, also known as the central Danubian basin, is completely surrounded by mountains. It is enclosed by the Alps in the west and the Dinarics in the south. The Carpathians encircle the north and east. As regards the main features of relief, alluvial plains dominate with sparse isolated low hills in the interior and low mountain ranges along the boundaries. The main feature of the region is the Great Hungarian plain. Other plains include the Danube plain in Slovakia and the Sava and Drava plains in Croatia and Slovenia. The hilly landscape west of the Danube includes several small mountain ranges as the Bakony and Mecsek hills in Hungary, Frushka Gora hills in Serbia, Papuk and Bilo Gora hills in Croatia. The northern rim is composed of volcanic mountains (Berecse, Pilis, Cserhát, Bukk and Zemplín hills)."

The higher altitudes of the Carpathian Basin belong to the Alpine Biogeographic Region. "This region ranges of mountains from the Mediterranean to western Siberia constitute the alpine biogeographic region. It includes some of the oldest and most recent mountains of the world; the Alps, the Scandes, the Pyrenees, the Carpathians, the Rhodopes, the Urals, the Caucasia and the Dinaric Alps." From these territories only the Carpathians, the Dinaric Alps and in small part the Alps (Foot of the Alps) are part of the Carpathian Basin.

Beyond these 2 larger regions, there are some smaller fragments of the Continental Biogeographic Region: "The Continental region extends in a central east-west band over most of Europe. The region is not entirely contiguous: the Alps act as a barrier, isolating the part of the region on the Apennine Peninsula. The Continental region entirely surrounds the Pannonian region as well as the Carpathian Mountains, which belong to the Alpine region. In countries such as Slovenia, Croatia, Serbia and Bosnia-Herzegovina the shifts from one region to another occur over short distances."

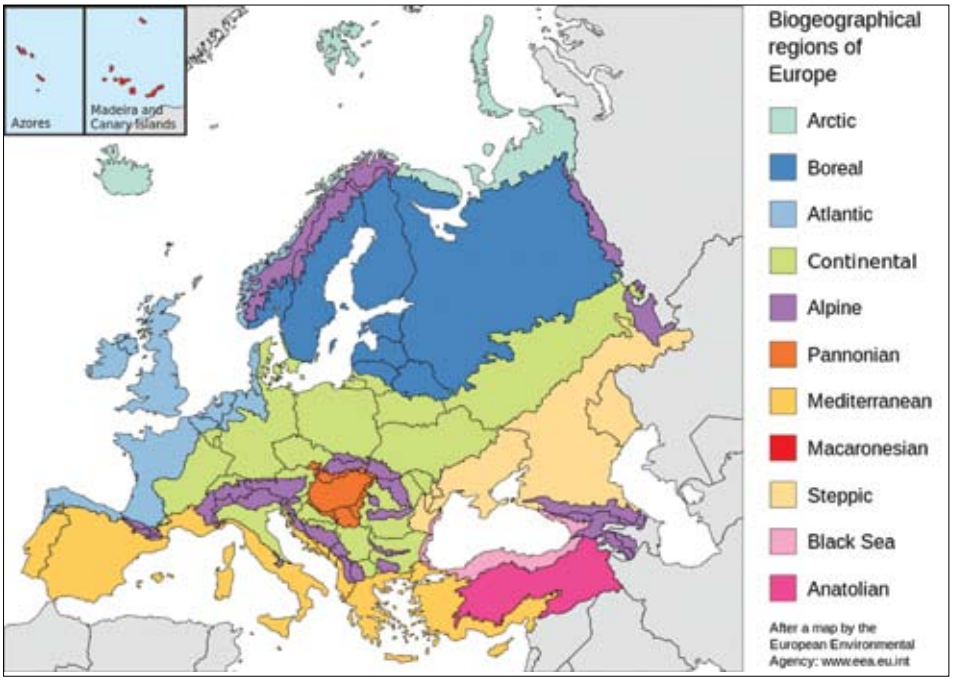

Fig. 1: Biogeographic regions of Europe

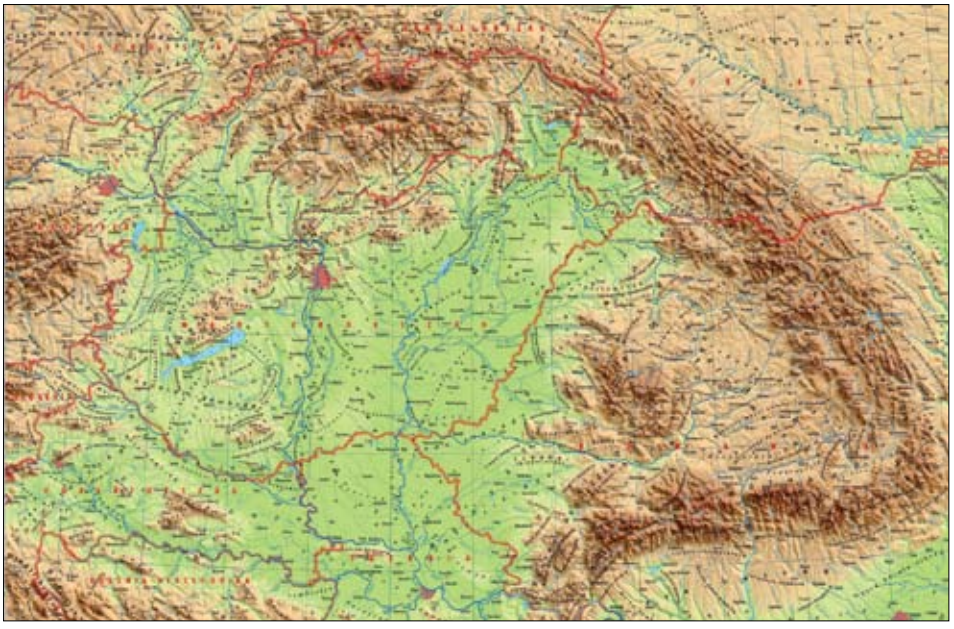

Fig. 2: Geomorpholigical map of the Carpathian basin

List of species described from the Carpathian Basin

Species described by Nikolaus Poda von Neuhaus

(the place of capture of these species are unknown, we only assume, they were collected around Graz, western edge of the Carpathian Basin)

Sphex hortensis Poda, 1761 p. 106.
syn. of *Ammophila sabulosa* (Linnaeus, 1758)

Sphex disparis Poda, 1761 p. 107.
valid as *Lymantrichneumon disparis* (Poda, 1761) not Aculeata

Vespa minima Poda, 1761 p. 109.
current status: valid

Apis minima Poda 1761 p. 110.
syn. of *Bombus hypnorum* Linné, 1758

Species described by Giovanni Antonio Scopoli

Eucera curvicornis Scopoli, 1770 p. 9. "Cremnitzium in Hungaria"
valid as *Systropha curvicornis* (Scopoli 1770)

Apis fasciata Scopoli, 1770 p. 12. without location (Idria or Hungary)
color variation of *Bombus pauscorum* (Scopoli, 1763)

Apis luctuosa Scopoli, 1770 p. 13. "Inveni in Hungaria circa Scheninizium et denuo in collibus Cremnitzensibus"
valid as *Melecta luctuosa* (Scopoli, 1770)

Apis vespiformis Scopoli, 1770 p. 14. "circa Cremnitzium in Hungaria"
It is *Anthidium loti* Perris, 1852 however this name is preocc. by SCOPOLI (1763) (after establishing the genus *Nomada* SCOPOLI, 1770, he used the vespiformis specific name for 2 different species of 2 genera).

Apis vespiformis Scopoli, 1763 is *Nomada flava* Panzer, 1798 (according to ROGENHOFFER and DALLA-TORRE 1881).

Apis agilissima Scopoli, 1770 p. 14. "In Hungaria inferiore"
valid as *Andrena agilissima* (Scopoli, 1770)

Apis fuliginosa Scopoli, 1770 p. 15. "In Hungaria"
syn. of *Colletes succinctus* (Linné, 1758)

Nomada ranunculi Scopoli, 1770 p. 46. location was not published, Hungary or Idria,
current status: valid

Sphaex hemiptera Scopoli, 1772 p. 122 "circa Cremnitzium in Hungaria"
syn. of. *Scolia sexmaculata sexmaculata* (O. F. Müller, 1766)

Chrysis hungarica Scopoli, 1772 p. 122. "circa Cremnitzium "
current status: valid

Vespa pacicephala Scopoli, 1772 p. 122. "circa Cremnitzium "
Ectemnius pacicephala (Scopoli, 1770) unrecognised taxa

Vespa pteropoda Scopoli, 1772 p. 123. "circa Cremnitzium "
unrecognised taxa, probably syn. of *Lestica clypeata* (Schreber 1759)

Species described by Georg Wolfgang Franz Panzer

Vespa austriaca Panzer, 1799 p. 2. described from Wien
valid as *Vespula austriaca* (Panzer,1799)

Philanthus interruptus Panzer, 1799 p. 17. described from Wien
valid as *Cerceris interrupta* (Panzer, 1799)
Philanthus quadricinctus Panzer, 1799 p. 15. described from Wien
valid as *Cerceris quadricincta* (Panzer, 1799)
Philanthus emarginatus Panzer, 1799 p. 19. described from Wien
syn. of *Cerceris sabulosa* (Panzer, 1799)
Apis leporina Panzer, 1799 p. 21. described from Wien
valid as *Melitta leporina* (Panzer, 1799)
Apis aurulenta Panzer, 1799 p. 22. described from Wien
valid as *Osmia aurulenta* (Panzer,1799)

Species described by Franz von Paula Schrank

Sphex austriaca Schrank, 1781 p. 380. described from Wien
nom. dubium
Sphex boops Schrank, 1781 p. 384. described from Wien
valid as *Astata boops* (Schrank, 1781)
Apis fulva Schrank, 1781 p. 400. described from Wien
syn. of *Andrena fulva* (Müller, 1766)
Apis bicolor Schrank, 1781 p. 400. described from Wien
valid as *Osmia bicolor* (Schrank,1781)
Apis convexa Schrank, 1781 p. 405. described from Wien
syn. of *Andrena haemorrhoa* (Fabricius, 1781)
Apis cetii Schrank, 1781 p. 405. described from Wien
syn. of *Andrena marginata Fabricius*,1776
Apis leucostoma Schrank, 1781 p. 405. described from Wien
syn. of *Lasioglossum leucozonium* (Schrank, 1781)

Species described by Johann Ludwig Christ

Sphex radula hungarica Christ, 1791 p. 258. described from: Hungary
syn. of. *Radumeris radula* (Fabricius, 1775)
Sphex versicolor Christ, 1791 p. 245 described from: Siberia, Hungary
junior homonim of *Sphex versicolor* Scopoli, 1763 otherwise this species is *Scolia flavifrons* ssp. *haemorrhoidalis* (Fabricius, 1787)
Apis (*Bombus*) *monacha* Christ, 1791 p. 131. described from: Hungary
current status: valid as *Bombus monacha* Christ, 1791, this species is also known as *Bombus barbutellus* (KIRBY, 1802)
Apis (*Bombus*) *maura* CHRIST, 1791 p. 131. described from: Hungary
syn. of *Bombus hortorum* (LINNÉ, 1761)

Species described by Johan Christian Fabricius

Mutilla ciliata Fabricius, 1793 p. 371 "Habitat Halae Saxonum"
syn. of *Pseudomutilla glabrata* (Fanricius, 1775)
According to LELEY (2002) the real place of collection is Hungary, checking the original label in the Fabricius collection. In FABRICIUS (1793), the habitat is erroneously published.
Mutilla hungarica Fabricius, 1793 p. 369 "Habitat Halae Dom. Hybner" (actually Hungary) syn. of *Ronisia brutia* (Petagna, 1787)

According to LELEY (2002) the real place of collection is Hungary, checking the original label in the Fabricius collection. In FABRICIUS (1793), the habitat is erroneously published.

Mutilla regalis Fabricius, 1793 p. 371, "Habitat in Hungaria"
valid as *Inbaltilla regalis* (Fabricius, 1793)

Tiphia villosa FABRICIUS, 1793 p. 227 "Habitat in Hungaria"
current status: valid

Larra ichneumoniformis Fabricius, 1793 p. 221 "Habitat in Hungaria"
syn. of. *Larra anathema* (Rossi, 1790)

Species described by Arnold Förster

Coelioxys coronata Förster, 1853 p. 280. described from: Hungary
syn. of *Coelioxys afra* Lepeletier, 1841

Coelioxys polycentris Förster, 1853 p. 282. described from: Hungary
current status: valid

Coelioxys emarginata Förster, 1853 p. 288. described from: Hungary
current status: valid

Coelioxys apiculata Förster, 1853 p. 290. described from: Hungary
syn. of *Coelioxys aurolimbata* Foerster, 1853 and junior homonym of *Coelioxys apiculata* Nylander, 1848

Nomia hungarica Förster, 1853 p. 356. described from: Hungary
syn. of *Pseudapis diversipes* (Latereille, 1806)

Hylaeus atratulus Förster, 1871 p. 979. described from: Hungary
syn. of *Hylaeus brevicornis* Nylander, 1852

Hylaeus euryscapus Förster, 1871 p. 909. described from: Hungary
current status: valid

Hylaeus rimosus Förster, 1871 p.1024. described from: Hungary
syn. of *Hylaeus euryscapus* Förster, 1871

Hylaeus semicinctus Förster, 1860 p. 140. described from: Hungary
syn. of *Lasioglossum laevigatum* (Kirby, 1802)

Chrysis cingulicornis Förster, 1853 p. 313. described from: Hungary
current status: valid

Chrysis lazulina Förster, 1853 p. 315. described from: Hungary
syn. of *Spinolia unicolo*r (Dahlbom, 1831)

Chrysis trimaculata Förster, 1853 p. 307. described from: Hungary
valid as *Chrysura trimaculata* (Förster, 1853)

Chrysis sybarita Förster, 1853 p. 309. described from: Hungary
valid as *Chrysis graelsii sybarita* Förster, 1853

Cleptes aerosus Förster, 1853 p. 329. described from: Hungary
current status: valid

Notozus pyrosomus Förster, 1853 p. 333. described from: Hungary
valid as *Elampus pyrosomus* (Förster, 1853)

Notozus frivaldszkyi Förster, 1853 p. 332 described from: Hungary
syn. of *Elampus spina* (Lepeletier, 1806)

Elampus chrysonotus Förster, 1853 p. 347. described from: Hungary
valid as *Holopyga chrysonota* (Förster, 1853)

Hedychrum chalconotum Förster, 1853 p. 345. described from: Hungary
syn. of *Holopyga fervida* (Fabricius, 1781)

Elampus inflammatus Förster, 1853 described from: Italy and Hungary
valid as *Holopyga inflammata* (Förster, 1853)

Hylaeus carbonarius Förster, 1871 p. 1045. described from Laibach and Piesting
syn. of *Hylaeus kahri Förster*, 1871

Hylaeus confinis Förster, 1871 p. 1043. described from Wien
syn. of *Hylaeus gredleri Förster*, 1871

Hylaeus inaequalis Förster, 1871 p. 1061 descfribedfrom Wien
syn. of *Hylaeus lineolatus* (Schenck, 1861)

Species described by Anders Gustav Dahlbom

Pompilus zelleri Dahlbom, 1843 p. 449. described from: Hungary
syn. of *Anoplius samariensi*s (Pallas, 1771)

Chrysis albipennis Dahlbom, 1854 p. 175. "Habitat in Hungaria"
syn. of. *Spinolia unicolor* (Dahlbom, 1831) Dahlbom found a speciemen in Mus. Berlin probably from the Klug collection, this is why his description start with this "*Chrysis albipennis* Klug?"

Species described by Joseph-Étienne Giraud

Panurgus fasciatus Giraud, 1857 p. 179. described from: Hungary
current status *Camptopoeum frontale* (Fabricius, 1804)

Osmia spiniventris Giraud, 1857 p. 181. described from: “Autriche”, “Carniole”, “Italie”, “Hongrie”
current status *Osmia rufohirta* Latreille, 1811

Ampulex europaea Giraud, 1858 p. 442. described from: Wien area: between Mauer and Baden syn of *Ampulex fasciata* Jurine, 1807

Melitturga praestans Giraud, 1861 p. 447. described from Wien: Türkenschnaze
current status: valid

Halictus pulchellus Giraud, 1861 p. 460. described from Wien: Türkenschnaze
syn. of *Nomioides minutissimus* (Rossi 1790)

Andrena taraxaci Giraud, 1861 p. 459. described from Wien
current status: valid

Andrena pictipes Giraud, 1861 p. 458. described from Laibach at Graz
nom. dubia probably *Andrena curvungula* Thomson, 1870

Osmia spiniventris Giraud, 1857 p. 181 described from Wien
syn. *Osmia rufohirta* Latreille, 1811

Anthidium quadridentatum Giraud*, 1857 described from Wien*
syn. of *Rhodanthidium septemdentatum* (Latreille, 1809)

Species described by Frederick Smith

Pompilus ambiguus Smith, 1855 p. 132. described from: "Polish Ukraine"
homonym of *Pompilus ambiguus* Dahlbom, 1845
replacement name: *Pompilus ambiguatus* Dalla Torre, 1897

Odynerus basalis Smith, 1857 p. 51. described from: "Polish Ukraine"
current status: valid

Anthidium nigriceps Smith, 1854 p. 203. described from: "Polish Ukraine"
syn. of *Anthidium septemspinosum* Lepeletier, 1841

Crabro basalis Smith, 1856 p. 415. described from: "Polish Ukraine"
syn. of *Lestica alata* (Panzer, 1797)
Cerceris trifasciata Smith, 1856 p. 441. described from: "Polish Ukraine"
current status: valid
Cerceris rufipes Smith, 1856 p. 442. described from: "Polish Ukraine" (nec. Fabr. 1787)
syn. of *Cerceris tenuivittata* Dufour, 1849
Eucera rufipes Smith, 1879 p. 140. described from: Polish Ukraine
syn. of *Eucera albicans* Baer, 1850
Colletes nasuta Smith, 1853 p. 3. described from: Polish Ukraine
valid as *Colletes nasutus* Smith, 1853

Species described by Gustav Henschel

Megachile villosa Henschel, 1888 p. 321 described from Wien: Schönnborsten Garten
syn. *Megachile genalis* Morawitz, 1880

Species described by Oswald Heer

Vespa crabroniformis Heer, 1867, p. 6. Radoboj (Croatia) Miocene
Junior primary homonym of *Vespa crabroniformis* Smith, 1852.
valid as *Vespa heeriana* nom. nov.
Bombus grandaevus Heer, 1849 p. 96. described from: Radoboj (Croatia) Miocene
current status: valid
Sphex gigantea Heer 1867 p. 33. Radoboj (Croatia) Lower Miocene
current status: valid
Anthophorites thoracica Heer 1867 p. 6. Radoboj (Croatia), Lower Miocene
current status: valid
Anthophorites longaeva Heer 1867 p. 5. Radoboj and Öningen, Lower Miocene
current status: valid

Species described by Jean Antoine Dours

Eucera semistrigora Dours, 1869 p. 45 described from: Algeria, Greece and Hungary
syn. of *Eucera interrupta* Bär, 1850

Species described by János Frivaldszky

Ammophila mocsaryi Frivaldszky, 1876 p. 352. described from: Budapest and Grebenác
syn. of *Ammophila terminata* F. Smith, 1856
Pterochilus formosus Frivaldszky, 1876 p. 357. described from: Grebenác
valid as *Pterocheilus phaleratus* ssp. *formosus* (Frivaldszky, 1876)
Larra hungarica Frivaldszky, 1876 p. 354. described from: Budapest and Grebenác
valid as *Bembecinus hungaricus* (Frivaldszky, 1876)
Tachytes discolor Frivaldszky, 1876 p. 351. described from: Budapest and Grebenác
syn. of *Tachysphex panzeri* (Van der Linden, 1829)
Osmia affinis Frivaldszky, 1876 p. 360. “In Comitatu Crassoviensi ad Oraviczam, in Comitatu Pestiensi vero ad Budapestinum et in Praedio-Peszér”
syn. of *Hoplosmia bidentata* (Morawitz, 1876)

Species described by Franz Friedrich Kohl

Tachysphex pygidialis Kohl, 1883 p. 176. described from: "Hungaria, Epirus, Corfu, Sicilia, Italia, Gall. merid."
syn. of. *Tachysphex incertus* (Radoszkowski, 1877)

Tachysphex mocsaryi Kohl, 1884 p. 367. described from: Hungaria
current status: valid

Tachysphex reiseri Kohl, 1901 p. 777 described from: between Fojnica and Tjesilo Bosnia
syn. of *Tachysphex coriaceus* A. Costa, 1867

Trypoxylon kolazyi Kohl, 1893 p. 29. described from: Austria: Niederösterreich: Bühl; and Krain: Wippach, now Yugoslavia: Vipava
current status: valid

Spilomena mocsaryi Kohl, 1898 p. 325. described from: Oravicza
current status: valid

Diphlebus austriacus Kohl, 1888 p. 723. described from Wien
valid as *Pemphedron austriacus* (Kohl, 1888)

Tachysphex austriacus Kohl, 1892 p. 215. described from Niederösterreich: Wien: *Türkenschaze*
currentstatus valid

Species described by Henri Tournier

Tiphia semipolita Tournier, 1899 p. 20. described from Hungary
current status valid

Species described by Sándor (Alexander) Mocsáry

Pompilus laesus Mocsáry, 1879 p. 125. described from: Budapest
syn. of *Eoferreola manticata* (Pallas, 1771)

Pompilus lateritius Mocsáry, 1879 p. 125. described from: Budapest: Gellérthegy
valid as *Arachnotheutes lateritius* (Mocsáry, 1879)

Pompilus luctuosus Mocsáry, 1879 p. 124. described from: Buda Hills
junior homonym of *Pompilus luctuosus* Cresson, 1865

Ammophila hungarica Mocsáry, 1883 p. 25. described from: Lipótmező
current status: valid

Cerceris penicillata Mocsáry, 1879 p. 130. described from: Central Hungary and Budapest
syn. of *Cerceris bracteata* Eversmann, 1849

Cerceris cribrata Mocsáry, 1879 p. 130. described from: Hungary: Budapest, Jassenova and Nagyvárad
syn. of *Cerceris albofasciata* (Rossi, 1790)

Bembex pannonica Mocsáry, 1883 p. 38. described from: Budapest
Bembex oculata ssp. *pannonica* (Mocsáry, 1883)

Hoplisus minutus Mocsáry, 1879 p. 136. described from Debrecen and Nagyvárad
syn. of *Gorytes latifrons* Spinola, 1808

Hoplisus nigrifacies Mocsáry, 1879 p. 134. described from: Buda: Fáczányos and at Kincstári forest
valid as *Gorytes nigrifacies* (Mocsáry, 1879)

Hoplisus montivagus Mocsáry, 1878 p. 250. described from Korytnica
syn. of *Gorytes quadrifasciatus* (Fabricius, 1804)

Hoplisus anceps Mocsáry, 1879 p. 133. described from: Budapest, Nagyvárad and next to Mehadia
syn. of *Gorytes quinquefasciatus* (Panzer, 1798)

Alyson festivum Mocsáry, 1879 p. 129. described from: Budapest
syn. of *Alysson pertheesi* Gorski, 1852

Oxybelus aurantiacus Mocsáry, 1883 p. 48. described from Budapest
current status: valid

Oxybelus elegans Mocsáry, 1879 p. 138. described from: Budapest: at Rákospalotai forest and Gerebáncz
valid as *Oxybelus dissectus elegans* Mocsáry, 1879

Oxybelus meridionalis Mocsáry, 1879 p. 140. described from: Mehádia: Herkulesfürdő
syn. of *Oxybelus mucronatus* (Fabricius, 1793)

Astata rufipes Mocsáry, 1883 p. 22. described from: Budapest: Rákospalota forest
current status: valid

Astata femoralis Mocsáry, 1877 p. 89. described from: Korytnicza fürdő
valid as *Dryudella femoralis* (Mocsáry, 1877)

Tachytes strigosus Mocsáry, 1879 p. 126. described from: Budapest: below Gellérthegy: Kincstári erdő
syn. of *Tachytes fulvitarsis* A. Costa, 1867

Dryudella modesta Mocsáry, 1879 p. 127 described from: Budapest: Gellérthegy
valid as *Dryudella tricolor modesta* MOCSÁRY, 1879

Dryudella lineata Mocsáry, 1879 p. 128. described from: Grebenác
current status: valid

Colletes punctatus Mocsáry, 1877 p. 231. described from: Budapest
current status: valid

Andrena dilecta Mocsáry, 1879 p. 11. described from: Budapest, Peszér, Sárbogárd, Jassenova
syn. of *Andrena fuscosa* Erichson, 1835

Andrena hungarica (Mocsáry) Friese, 1887 p. 21. described from: Central Hungary
current status: valid

Nomadita montana Mocsáry, 1894 p. 37. described from: Tátrafüred
syn. of *Nomada roberjeotiana* Panzer, 1799

Camptopoeum friesei Mocsáry, 1894 p. 34. described from: Deliblat and Kalocsa
current status: valid

Cilissa Budensis Mocsáry, 1878 p. 119. described from: Hungary: Budapest: Gellért Hill and Sváb Hill
valid as *Melitta budensis* (Mocsáry, 1878)

Cilissa dimidiata var. *hungarica* Mocsáry, 1883 p. 58. described from: Budapest: Rákospalota forest and Torda
syn. of *Melitta dimidiata* Morawitz, 1876

Macropis frivaldszkyi Mocsáry, 1878 p. 119. described from: Pécs and Oravicza
current status: valid

Ceratina Hungarica Mocsáry, 1879 p. 23. described from Grebenác
syn. of *Ceratina chalybea* Chevrier, 1872

Tetralonia glaucopis Mocsáry, 1883 p. 55. described from Torda and Jászkisér
syn. of *Eucera pollinaris* (Kirby, 1802)

Eucera Perezi Mocsáry, 1878 p. 277. described from "Hungaria centralis" Tolouse and Dalmatia
syn. of *Eucera caspica* Morawitz 1873

Eucera amplitarsis Mocsáry, 1878 p. 278. described from Budapest: Buda Hills
syn. of *Eucera caspica* Morawitz 1873

Tetralonia tarsata Mocsáry, 1879 p. 236. described from: Budapest: Sashegy
syn. of *Eucera caspica* Morawitz, 1874

Eucera favosa Mocsáry, 1879 p. 240. described from: Siófok, Eszék, Dálja
syn. of *Eucera chrysopyga* Pérez, 1879

Eucera curvitarsis Mocsáry, 1879 p. 238. described from: Budapest: Kincstári erdő
current status: valid

Eucera echii Mocsáry, 1878 p. 277. described from Jassenova
syn. of *Eucera dalmatica* Lepeletier, 1841

Eucera flabellifera Mocsáry, 1879 p. 12. described from: Grebenác
syn. of *Eucera dalmatica* Lepeletier, 1841

Eucera excisa Mocsáry, 1879 p. 239. described from: Dálja (Slavonia)
current status: valid

Eucera pannonica Mocsáry, 1878 p. 17. described from: next to Buda: Nádorkert
current status: valid

Eucera spectabilis Mocsáry, 1879 p. 15. described from: Grebenác
current status: valid

Tetralonia lyncea Mocsáry, 1879 p. 237. described from: Tasnád
current status: valid

Tetralonia tenella Mocsáry, 1879 p. 235. described from: Tasnád
syn. of *Tetraloniella nana* (Morawitz, 1874)

Eucera sedula Mocsáry, 1879 p. 17. described from Jassenova
syn. of *Eucera nigrifacies* Lepeletier, 1841

Eucera nitidiventris Mocsáry, 1879 p. 242. described from: Buda Hills
current status: valid

Eucera parvicornis Mocsáry, 1878 p. 278.
valid as *Cubitalia parvicornis* (Mocsáry, 1878)

Tetralonia adusta Mocsáry, 1877 p. 233. described from: Southern slope of Gellért-Hill in Budapest
syn. of *Tetraloniella pollinosa* (Lepeletier, 1841)

Tetralonia ruficornis var. *biroi* Mocsáry, 1879 p. 233.
syn. of *Tetraloniella julliani* (Pérez, 1879)

Tetralonia scabiosae Mocsáry, 1879 p. 21. described from Grebenác and Jassenova
current status: valid

Eucera paradoxa Mocsáry, 1878 p. 15. described from: Buda coll. Sándor Fehér
syn. of *Eucera seminuda* Brullé, 1832

Anthophora bombylans Mocsáry, 1879 p. 7. described from Grebenác
syn. of *Amegilla garrula* (Rossi, 1790)

Anthophora pipiens Mocsáry, 1879 p. 9. described from Grebenác
syn. of *Amegilla salviae* (Morawitz 1876)

Anthophora tomentosa Mocsáry, 1878 p. 17. described from: "in Hungaria centrali" Buda: Szőlőhegyek alatt
syn. of *Anthophora podagra* Lepeletier, 1841

Nomada bispinosa Mocsáry, 1883 p. 64. described from Budapest: Kincstári forest, Mehádia and Dobruja
current status: valid

Osmia dives Mocsáry, 1877 p. 232. described from: Southern slope of Gellért Hill Budapest
current status: valid
Megachile bicoloriventris Mocsáry, 1878 p. 120. described from: Southern slope of Gellért Hill Budapest
syn. of *Megachile giraudi* Gerstaecker, 1869
Megachile dacica Mocsáry, 1879 p. 9. described from: Ferencfalva
current status: valid
Chalicodoma Hungaricum Mocsáry, 1877 p. 109. described from Budapest: Gellérthegy, Sas-hegy
valid as *Megachile hungarica* (Mocsáry, 1877)
Megachile vicina Mocsáry, 1879 p. 8. described from: Budapest, Mehádia
syn. of *Megachile pilicrus* Morawitz, 1878
Anthidium barbatum Mocsáry, 1884 p. 274. described from: Budapest: Rákospalotai erdő
valid as *Pseudoanthidium barbatum* (Mocsáry, 1884)
Anthidium nanum Mocsáry, 1879 p. 51. described from: Nagyszeben, Dálja
valid as *Pseudoanthidium nanum* (Mocsáry, 1879)
Anthidium tenellum Mocsáry, 1879 p. 48. described from: Budapest: Gellért Hill, Siófok, Grebenác
valid as *Pseudoanthidium tenellum* (Mocsáry, 1879)
Coelioxys fallax Mocsáry, 1879 p. 67. described from Budapest and Grebenác
syn. of *Coelioxys rufescens* Lepeletier & Serville, 1825
Dioxys cincta var. jucunda Mocsáry, 1894 p. 36. described from: Central Hungaria and Transylvania
syn. of *Dioxys cinctus* (Jurine, 1807)
Dioxys Pannonica Mocsáry, 1877 p. 109. described from: Central Hungary: Budapest: Gellérthegy, Farkasvölgy
valid as *Paradioxys pannonica* (Mocsáry, 1877)
Ammobates punctatus var. *atratus* Mocsáry, 1894 p. 36. described from: "in Hungaria centrali et meridionali"
syn. of *Ammobates punctatus* (Fabricius, 1804)
Ammobates similis Mocsáry, 1894 p. 36. described from: "Hungaria meridionalis"
valid as *Pasites (Ammobates) similis* (Mocsáry, 1894)
Phiarus minutus Mocsáry, 1878 p. 118. described from: Southern slope of Gellért Hill Budapest
valid as *Parammobatodes minutus* (Mocsáry, 1878)
Cleptes Chyzeri Mocsáry, 1889 p. 50. described from Helvetia, Hungaria septentrionalis: Szöllőske, Sicilia
syn. of *Cleptes splendidus* (Fabricius, 1794)
Cleptes fallax Mocsáry, 1889 p. 49. "Patria Helvetia, Austria ad Vindobonam, Hungaria centralis"
syn. of *Cleptes nitidulus* (Fabricius, 1793)
Cleptes ignitus var. *scutellaris* Mocsáry, 1889 p. 53 described from: "Patria: Hungária septentrionali-occidentalis, centralis et meridionalis (Mus. Hung.) : Austria ad Vindobonam"
valid as *Cleptes scutellaris* Mocsáry, 1889
Ellampus aeneus var. *blandus* Mocsáry, Monogr, 1889 p. 97. "Europa meridionalis, Hungaria centralis"
syn. of *Omalus aeneus* (Fabricius, 1787)

Ellampus angustatus Mocsáry, 1889 p. 75. Hungaria centralis et meridionalis, Bozen and Thuringia
syn. of *Elampus panzeri* (Fabricius, 1804)

Ellampus auratus var. virescens Mocsáry, 1889 p. 91. "Praeter Russiam meridionalem, Romaniam et Hungariam centralem etiam Chinam".
syn. of *Pseudomalus pusillus* (Fabricius, 1804)

Ellampus similis Mocsáry, 1889 p. 96 described fom Nagy-Csűr (Transylvania)
syn. of *Pseudomalus violaceus* (Scopoli,1763)

Holopyga bellipes Mocsáry, 1879 p. 121. described from: Budapest
syn. of *Hedychridium flavipes* (Eversmann, 1857)

Holopyga jucunda Mocsáry, 1889 p. 150. described from: Hungary and Austria
valid as *Hedychridium jucundum* Mocsáry, 1889

Holopyga similis Mocsáry, 1879 p. 120. described from: Óbuda, Miksavölgy, Bács county: Palicsi Bath
syn. of *Holopyga chrysonota* (Förster, 1853)

Hedychrum semiviolaceum Mocsáry, 1889 p. 165. "Hungaria centralis et Austria ad Vindobonam"
syn. of *Hedychrum nobile* (Scopoli, 1763)

Stilbum amethystinum var. *festivum* Mocsáry, 1879 p. 81. described from Budapest: Gellérthegy, Rákospalota, Szentlőrinc, Pusztapeszér, Tolcsva, Csongrád, Rezsica
syn. of *Stilbum cyanurum* (Forster, 1771)

Chrysis carinaeventris Mocsáry, 1882 p. 50. described from Péczel
syn. of *Chrysis angustifrons* Abeille, 1878

Chrysis calimorpha Mocsáry, 1882 p. 71. described from: Rákospalota, Kisszentmiklós (Hungary), Sicily and Switzerland
current status: valid

Chrysis chrysostigma Mocsáry,1889 p. 450 described from: "Italia; Helvetia; Hungaria meridionalis et septentrionalis in planitie"
current status: valid

Chrysis dichroa var. *minor* Mocsáry, 1889 p. 274. "Hungaria centralis et meridionalis"
valid as *Pseudospinolia incrassata minor* (Mocsáry, 1889)

Chrysis fallax Mocsáry, 1882 p. 52. described from Budapest and Nagyvárad (now Oradea)
valid as *Chrysis subsinuata fallax* Mocsáry, 1882

Chrysis filiformis Mocsáry, 1889 p. described from: "Hungariae meridionalis montes et Fanum Sancti Viti Flamoniensis Hungariae ad littora maris Adriatici, Fiume"
valid as *Chrysura filiformis* (Mocsáry, 1889)

Chrysis venusta Mocsáry, 1878 p. 247. described from Sziliácsfürdő
syn. of *Chrysura hybrida* (Lepeletier, 1806)

Chrysis kuthyi Mocsáry, 1889 p. 212. "Hungaria centralis"
syn. of *Pseudospinolia neglecta* (Shuckard, 1837)

Chrysis placida Mocsáry, 1879 p. 122. described from: Budapest
current status: valid

Chrysis frivaldszkyi Mocsáry, 1882 p. 52 & 85 "In Hugaria centrali ad Budapestinum"
current status: valid

Chrysis thalhammeri Mocsáry, 1889 p. 456. "Hungaria meridionalis"
valid as *Chrysis distincta thalhammeri* Mocsáry, 1889

Chrysis (Tetrachrysis) ignita L. var. *valida* Mocsáry, 1912 p. 589. described from: Hungaria: Budapest, Germania: München et Halicia: montes Beszkid. (Mus. Hung.).
valid as *Chrysis valida* Mocsáry, 1912

Parnopes grandior var. *fasciatus Mocsáry,* 1889 p. 615. described from numerous coutries including Hungary
syn. of *Parnopes grandior* (Pallas, 1771)

Celonites abbreviatus var. *hungaricus* Mocsáry, 1877 p. 90. described from: Central Hungary
syn. of *Celonites abbreviatus* (Villers, 1789)

Odynerus aurantiacus Mocsáry, 1877 p. 89 described from: Budapest
current status: valid

Odynerus (*Ancistrocerus*) *jucundus* Mocsáry, 1883 p. 49. described from "Hungaria centralis et Asia minor" Budapest and Brussa
valid as *Jucancistrocerus jucundus* (Mocsáry, 1883)

Odynerus terricola Mocsáry, 1883 p. 52. described from Budapest and Dálja
valid as *Hemipterochilus bembeciformis terricola* (Mocsáry, 1883)

Species described by Károly Sajó

Oxybelus treforti Sajó, 1884 described from Kisszentmiklós
valid as *Oxybelus argentatus treforti* Sajó, 1884

Species described by Otto Schmiedeknecht

Andrena mocsaryi Schmiedeknecht, 1883 p. 782. described from: Hungary
current status: valid

Nomada mocsaryi Schmiedeknecht, 1882 p. 133. described from: Hungaria et Asia minor
current status: valid

Andrena genevensis Schmiedeknecht, 1884 p. 693. described from: Genf and Tokaj
syn. of *Andrena potentillae* Panzer, 1809

Nomada speciosissima Schmiedeknecht, 1882 p. 103. described from: Hungary
syn. of *Nomada chrysopyga* Morawitz, 1871

Nomada longiceps Schmiedeknecht, 1882 p. 173. described from: Hungary
syn. of *Nomada rostrata* Herrich-Schäffer, 1839

Nomada Dalla-Torreana Schmiedeknecht, 1882 p. 194."patria Germania, Austria cum Hungaria, Italia"
syn. of *Nomada conjugens* Herrich-Schäffer, 1839

Species published by Otto Schmiedeknecht (described by Mocsáry and Perez)

Andrena paveli Mocsáry (in Schmiedeknecht), 1883 p. 541. described from: Hungary
syn. of *Andrena* (*Plastandrena*) *bimaculata* (Kirby, 1802)

Nomada verna Mocsáry (in Schmiedeknecht), 1882 p. 110. described from: Hungary
current status: valid

Nomada scita Mocsáry (in Schmiedeknecht), 1882 p. 135. described from: Hungary and Russia
valid name: *Nomada hungarica* Dalla Torre and Friese, 1894

Nomada sybarita Mocsáry (in Schmiedeknecht), 1882 p. 172. described from: Hungary
current status: valid

Nomada melanopyga Mocsáry (in Schmiedeknecht), 1882 p. 139. described from: Hungary
current status: valid

Nomada dira Mocsáry, (in Schmiedeknecht), 1882 p. 153. described from: Greece, Italy, Hungary
current status: valid

Andrena hystrix Perez (in Schmiedeknecht), 1883 p. 618. described from: "Habitat in Hungaria et Gallia meridionalis"
current status: valid

Nomada schmiedeknechti Mocsáry, (in Schmiedeknecht), 1882 p. 172. described from: "Hungaria et Rossia meridionalis"
valid as *Nomada fulvicornis schmiedeknechti* Mocsáry, (in Schmiedeknecht), 1882

Nomada calimorpha Mocsáry, (in Schmiedeknecht), 1882 p. 131. described from: Austria, Hungary, Greece and Spain
current status: valid

Nomada cruenta Mocsáry, (in Schmiedeknecht), 1882 p. 170. described from: "Hungaria: Pest, Slavonia, Graecia cum insulis; Sicilia."
current status: valid

Nomada balteata Mocsáry, (in Schmiedeknecht), 1882 p. 185. described from: Hungary
syn. of *Nomada verna* Mocsáry, (in Schmiedeknecht), 1882

Species described by Oktavij Ivanovitsch Burmeister Radoszkowski

Mutilla daghestanica Radoszkowski, 1885 p. 24. described from: "Banat" (Hungary) it is quiet interesting, that a species named "daghestanica" described from Hungary, but it is true. (see PETERSEN 1988).
valid as *Physetopoda daghestanica* (Radoszkowski, 1885)

Bombus pratorum var. *Tatranus* Radoszkowski, 1884 p. 62. described from the Tatras
syn. of *Bombus pratorum* (Linné, 1761)

Species described by Anton Handlirsch

Didineis crassicornis Handlirsch, 1888 p. 266. described from: Central Hungary
current status: valid

Didineis pannonica Handlirsch, 1888 p.264. described from: South-East Hungary
current status: valid

Didineis wuestneii Handlirsch, 1888 p. 263. described from: Dalmatia and Hungary
current status: valid

Gorytes procrustes Handlirsch, 1888 p. 490. described from: " Corfu, Italy (Brindisi, Piemont, Toscana, Neapel) and Austria-Hungary (Marchfeld, Mehadia, Josefsthal, Fiume,) and Sardinia"
current status: valid

Bembex mediterranea Handlirsch, 1893 p. 807. described from many localities: Spain, Portugal, France, Italy, Greece, Hungary (Budapest, Ungvár, Grebenác), Russia, Armenia or Azerbaijan, Algeria, Egypt, Amur area
syn. of. *Bembex olivacea* Fabricius, 1787

Species described by August Schletterer

Cerceris striolata Schletterer, 1887 p. 393. described from Budapest
syn. of *Cerceris arenaria* (Linné, 1758)

Cerceris leucozonica Schletterer, 1887 described from Hungary and Tulcea
valid as *Cerceris bicincta leucozonica* (Schletterer, 1887)
Cerceris dacica Schletterer, 1887 p. 387. described from Hungary
valid as *Cerceris circularis dacica* Schletterer 1887
Cerceris dacica var. magnifica Schletterer, 1887 p. 389. described from Hungary
valid as *Cerceris circularis magnifica* Schletterer, 1887
Cerceris prisca Schletterer, 1887 p. 411. described from: Hungary; Russia: Caspian Sea area, Greece: Athens, Corfu; Turkey: Brussa, Syra
syn. of *Cerceris spinipectus* F. Smith, 1856
Cerceris stratiotes Schletterer, 1887 p.402. described from: Hungary, Greece: Island of Corfu
current satus: valid
Cerceris melanothorax Schletterer, 1887 p. 403. described from: Hungary and Spain
syn. of *Cerceris tenuivittata* Dufour, 1849
Chelostoma ventrale Schletterer, 1889 p. 633. described from Sátoraljaújhely
current status:valid
Chelostoma handlirschi Schletterer, 1889 p. 624. described from: North-Italy, Hungary: Mehádia and Asia Minor.
current status: valid
Chelostoma schmiedeknechti Schletterer, 1889 p. 638. "Süd-Ungarn (Mehadia)"
valid as *Hofferia schmiedeknechti* (Schletterer, 1889)

Species varieties described by Carl Wilhelm Dalla-Torre

Bombus confusus var. *paradoxus* Dalla Torre, 1882 p. 18. described from Graz
valid as *Bombus paradoxus* Dalla Torre, 1882
Bombus terrestris var. *kristophi* Dalla-Torre 1882 p. 26. described from Corsica, Tatra and Niederösterreich
syn. of *Bombus terrestris* (Linné, 1758)

Species described by Joseph Kriechbaumer

Bombus mocsaryi Kriechbaumer, 1877 p. 253. described from South-East Hungary (lectotypes from Budapest, Zombor and Nagykikinda)
syn. of *Bombus laesus* Morawitz, 1875

Species described by Heinrich Friedrich August Karl Ludwig Friese

Andrena niveata Friese, 1887 p. 25. described from Germany and Hungary
current status: valid
Andrena sisymbrii Friese, p. 24. described from: Budapest
syn. of *Andrena oralis* Morawitz, 1876
Andrena braunsiana Friese, 1887 p. 22. described from: Budapest
current status: valid
Anthrena seminuda Friese, 1896 p. 284. described from Eszék Hungary
valid as *Andrena seminuda* Friese, 1896
Andrena florea var. *rubra* Friese, 1914 p. 230. described from: "Szomotor, Szöllőske und Algerien"
syn. of *Andrena florea* Fabricius, 1793

Andrena scita var. *nigrofasciata* Friese, 1914 p. 230. described from: Budapest
syn.of *Andrena scita* Eversmann, 1852

Andrena scita var. *nigra* Friese, 1914 p. 229. described from: Pest and Kleinasien
syn.of *Andrena scita* Eversmann, 1852

Andrena tibialis var. *tricolorata* Friese,1922 p. 212. described from: Hungary
syn. of *Andrena bimaculata* (Kirby,1802)

Andrena atrata Friese, 1887 p. 25. described from: Budapest, Szomotor, Szöllőske
current status: valid

Epeolus fasciatus Friese, 1895 p. 208 described from: Péczel, Bolzano, Fiume and Caucasus
current status: valid

Rophites hartmanni Friese, 1902 p. 381. described from: Wien, Strammesdorf, Neustadt, Altenburg, Krems, Neulengbach, Neusiedlersee, Agram
current status: valid

Osmia mocsaryi Friese, 1895 p. 133. "Budapest, Ofener Gebirge"
valid as *Anthocopa mocsaryi* (Friese, 1895)

Halictus czekelii Friese, 1916 p. 30. described from "Salzburg in Siebenbürgen" [Vízakna, Ocna Sibiu]
syn. of *Lasioglossum mandibulare* (Morawitz, 1866)

Bombus confusus var. *bistellatus* Friese and Wagner, 1914 p. 55. described from: Steiermark and West-Hungary
syn. of *Bombus paradoxus* Dalla Torre, 1882

Eucera hungarica Friese, 1895, p. 206. "In Hungaria, Wallis, Wien, Bozen, Spalato, Corcyraea, Hispania, Armenia"
current status: valid

Eucera longicornis var. *cincta* Friese, 1895 p. 203. described from: Hungary and Caucasus
syn. of *Eucera longicornis* (Linné,1758)

Podalirius retusus var. *obscurus* Friese, 1896 p. 266. described from: "Baden, Tirolia merid. Budapest, Spalato"
syn. of *Anthophora retusa* (Linné, 1758)

Anthidium punctatum var. *fulvipes* Friese, 1897 p. 439 described from: Hungaria, Tirolia mer.
syn. of *Anthidium punctatum* Latreille 1809

Anthidium mocsaryi Friese, 1897 p. 441. described from: Hungary: Deliblat, Fiume, Italia, Mehadia, Russia meridionalis, Buccari
current status: valid

Ceratina acuta Friese 1896 p. 57. described from: Hungary, Dalmatia, Greece, Tunis, Zengg
current status: valid

Anthidium serraticeps Friese, 1917 p. 54. described from Transylvania: Salzburg
current status: valid

Species described by Andrey Petrovich Semenov Tian-Shansky

Cleptes mocsaryi Semenow, 1892 p. 502. described from: Hungary
valid as *Cleptes mocsaryi* Semenow, 1892

Species described by Jacques Ernest Edmond André

Mutilla nigrescens André, 1901 p. 265, described from: South France, Switzerland, Croatia, Russia, Algeria, Tunisia.
syn of *Physetopoda scutellaris* (Latreille, 1792)

Species described by Jean-Jacques Kieffer

Anteon rubrifrons Kieffer, 1905 p. 158. described from: Hungary: Kis Pöse
syn. of *Anteon ephippiger* (Dalman, 1818)
Anteon carinatus var. luteicornis Kieffer, 1904 p. 152. described from: Nagyvárad
syn. of *Anteon infectum* (Haliday, 1837)
Anteon citrinicollis Kieffer, 1904 p. 159. described from: Budapest
current status: valid
Anteon ruficollis Kieffer, 1904 p. 161. described from: Boroszno
current status: valid
Anteon proximus Kieffer, 1904 p. 182. described from: Budapest: Svábhegy
syn. of *Lonchodryinus ruficornis* (Dalman, 1818)
Anteon trichotomma Kieffer, 1904 p. 199. described from: Hungary
current status: valid
Anteon giraudi Kieffer, 1904 p. 199. described from: Hungary and Lower Austria
current status: valid
Anteon radialis Kieffer, 1904 p. 205. described from: Budapest: Zugliget
current status: valid
Anteon integer Kieffer, 1904 p. 206. described from: Budapest, Győr
syn. of *Lonchodryinus ruficornis* (Dalman, 1818)
Anteon hyalinipennis Kieffer, 1904 p. 209. described from: "Füred"
syn. of *Lonchodryinus ruficornis* (Dalman, 1818)
Anteon fuscipennis Kieffer, 1904 p. 209. described from: "Maróth"
syn. of *Lonchodryinus ruficornis* (Dalman, 1818)
Bethylus apteryx Kieffer, 1904 p. 272. described from: Tokaj
current status: valid
Bethylus fuscicornis var. *tibialis* Kieffer, 1904 p. 280. Mt. Meszes, Gafsa and Tunisia: Sfax
syn. of *Bethylus cephalotes* Förster, 1860
Ceratepyris fuscipennis Kieffer, 1904 p. 287. described from: Novi
valid as *Parascleroderma fuscipennis* (Kieffer 1905)
Dryinus Szépligetii Kieffer, 1905, p. 77. described from: Budapest and Novi
syn. of *Dryinus tarraconensis* Marshall, 1868
Epyris crassicornis Kieffer, 1906 p. 317. described from: Djakovar
homonym of *Epyris crassicornis* Walker, 1874
Epyris transversus Kieffer, 1906 p. 317. described from: Hungary
current status: valid
Epyris marshalli var. *minor* Kieffer, 1906 p. 324. described from: Szomotor
valid as *Epyris minor* Kieffer, 1906
Epyris macromma Kieffer, 1906 p. 328. described from: Hungary
current status: valid
Epyris bipartitus Kieffer, 1906 p. 334. described from: Corfu, Dobrudja, Bucharest and Mehadia
syn. of *Epyris inermis* Kieffer, 1906

Epyris tardus var. acutipennis Kieffer, 1904 p. 337. described from: Hungary syn. of *Epyris tardus* Kieffer, 1904

Epyris erythrocerus Kieffer, 1906, p. 325. described from: Rusia: Sarepta, Budapest: Gellérthegy (Gellért hill)
current status: valid

Epyris evanescens Kieffer, 1906, p. 327 described from: Serbia: Nis
current status: valid

Gonatopus striatus Kieffer, 1906 p. 500. described from: Körtvélyes, Triest, England
current status: valid

Gonatopus horvathi Kieffer, 1906 p. 502. described from: Krasova
current status: valid

Gonatopus spectrum var. *albidus* Kieffer, 1906 p. 504. described from: Svetobrdo
syn. of *Gonatopus spectrum* Vollenhoven, 1874

Gonatopus gracilipes Kieffer, 1906 p. 507. described from: Kecskemét, Farkasd, Szomotor, Budapest: Körtöltés
syn. of *Gonatopus lunatus* Klug, 1810

Holepyris neglectus Kieffer, 1906 p. 368. described from: Novi
current status: valid

Labeo albipennis Kieffer, 1905 p. 222. described from: Siófok
current status: valid

Labeo conjunctus Kieffer, 1905 p. 223. described from: Budapest: Mátyásföld
current status: valid

Labeo albosignatus Kieffer, 1905 p. 224. described from: Budapest: Svábhegy
syn. of *Gonatopus albosignatus* Kieffer, 1904

Labeo testaceipes Kieffer, 1905 p. 224. described from: Budapest: Mátyásföld
current status: valid

Mesitius hungaricus Kieffer, 1906, p. 409. Loc. typ.: Novi, Budapest: Hűvösvölgy, Trieszt
current status: valid

Mesitius horvathi Kieffer, 1906, p. 389. described from: Budapest: Sashegy
valid as *Clytrovorus horvathi* (Kieffer, 1906)

Mesitius fuscicornis Kieffer, 1906 p. 407. described from: Hungary: Gellért Hill (Budapest)
syn. of *Clytrovorus mutilloides* (Costa, 1864)

Mesitius fuscicornis var. *spinosus* Kieffer, 1906 p. 408. described from: Hungary
valid as *Itapayos spinosus* Kieffer, 1906

Pedinomma rufescens var. *antennalis* Kieffer, 1904 p. 469. described from: Italia meridionalis, Dalmatia: Castelnuovo and Kecskemét
syn. of *Embolemus ruddii* (Westwood,1833)

Pseudisobrachium concolor Kieffer, 1904 p. 305. described from: Simontornya, Karascs
syn. of *Pseudisobrachium subcyaneum* (Haliday,1838)

Rhabdepyris pallidipennis Kieffer, 1904 p. 382. described from: Budapest
current status: valid

Species described by Johann Dietrich Alfken

Andrena mehelyi Alfken, 1936 p. 380. described from: Hungary
syn. of. *Andrena combinata* (Christ,1791)

Andrena roscipes Alfken, 1933 p. 88. Hungary, leg. Pillich (around Simontornya?)
current status: valid

Andrena submicans Alfken, 1936 p. 381. described from: Hungary
syn. of *Andrena schlettereri* Friese, 1896

Andrena setigera Alfken, 1911 p. 292. described from: Bethlen
syn. of *Andrena seminuda* Friese, 1896

Andrena susterai Alfken, 1914 p. 21 described from: Prague and Németbogsán
current status: valid

Prosopis hungarica Alfken, 1905 it wasn't described from Hungary, only replacement name for *Hylaeus afetroitis* Morawitz, 1876
valid as *Hylaeus hungaricus* (Alfken, 1905)

Prosopis dubitata Alfken, 1904 p. 324. described from: Corsica, Triest, Istria, Hungary, Romania, Greece and Tanger
syn. of *Hylaeus sinuatus* (Schenck, 1853)

Anthidium florentinum ssp. *kissi* Alfken, 1935 p. 25. described from: Hungary
syn. of *Anthidium florentinum* (Fabricius, 1775)

Andrena transitoria ssp. *schmidti* Alfken, 1936 p. 378. described from: East Austria
syn. of *Andrena transitoria* Morawitz 1871

Osmia tenuispina Alfken, 1936 p. 107. described from Bologna: Ronzano and Simontornya (The Simontornya paratype was proved to be different species which were described by Schwarz and Gusenleitner as *Osmia mazzuccoi* Schwarz and Gusenleitner, 2005.)
current status: valid

Species described by Franz Maidl

Mimesa pannonica Maidl, 1914 p. 171. described from Budapest
syn. of *Mimesa crassipes* A. Costa, 1871

Species described by Endre Zilahi-Kiss

Anthrena cziblesana Zilahi-Kiss, 1915 p. 82. described from: Czibles Mountains
syn. of *Andrena barbareae* Panzer, 1805

Nomada banatica Zilahi-Kiss, 1915 p. 85. described from: Boksánbánya
syn. of *Nomada zonata* Panzer 1798

Osmia pannonica Zilahi-Kiss, 1915 p. 83. described from: Simontornya
syn. of *Halictus kessleri* Bramson, 1879

Chrysogona pumila var. *atrata* Zilahi-Kiss, 1915 p. 78. described from: Peér
syn. of *Chrysidea pumila* (Klug, 1845)

Tiphia minuta ab. *unicubitalis* Zilahi-Kiss, 1915 p. 79. described from: Felsőilosva, Boksánbánya, Bethlen, Nagyilonda
syn. of *Tiphia minuta* (Vander Linden, 1827)

Sapyga quinquepunctata ab. *quadricubitalis* Zilahi-Kiss, 1915 p. 79. described from: Boksánbánya
syn. of *Sapyga quinquepunctata* (Fabricius,1781)

Nomada transsylvanicus Zilahi-Kiss, 1927 p. 19. described from: Désakna
syn. of *Nomada errans* Lepeletier, 1841

Chrysis succincta var. *transsylvanica* Zilahi-Kiss, 1927 p. 19. described from: Keisd
syn. of *Chrysis albanica* Trautmann, 1927

Pasites rostratus Zilahi-Kiss, 1927 p. 19. described from: Oroszmező
syn. of *Biastes truncatus* (Nylander, 1848)

Species described by Embrik Strand

Halictus longuloides Strand, 1909 p. 38. described from: "Freienwalde in Mark Brandenburg, Siebenbürgen, Kronstadt, Rückseite der Zinne 29. 6.; Wien; Lusitania, Spanien."
syn of. *Lasioglossum lineare* (Schenck, 1870)

Halictus luteistigmatellus Strand, 1909 p. 39. uncertain place of capture: "Sizilien oder Ungarn"
syn. of. *Lasioglossums pauxillum* (Schenck, 1853)

Halictus servulellus Strand, 1909 p. 50. uncertain place of capture: "Sizilien oder Ungarn" Based on its present distribution: more likely Hungary.
syn. of *Lasioglossum intermedium* (Schenck, 1870)

Species described by Vilém Zavadil

Ammophila slovaca Zavadil, 1937 p. 213. described from: Devinska Kobyla
syn. of *Ammophila campestris* Latreille, 1809

Nysson roubali Zavadil, 1937 p. 198 and p. 120. described from: Seleska and Filakova (He described this species in 2 different papers in the same year).
current status: valid

Nysson susterai Zavadil, 1948 p. 115. described from: Mutenice
syn. of *Nysson dimidiatus* Jurine,1807

Nysson quadriguttatus Zavadil, 1937 p. 119. described from Velehrad and Štúrovo
corrected to *Nysson hrubanti* by Balthasar, 1972

species described by Evgen Jaeger

Andrena hedikae Jaeger, 1934 p. 228. described from West Yugoslawia
current status: valid

Species varieties described by Adolf Hoffmann

Chrysis succinta var. *pannonica* Hoffmann, 1935 p. 228. described from Hainburg and Wien
syn. of *Chrysis frivaldszkyi* Mocsáry, 1882

Holopyga curvata var. *violacea* Hoffmann, 1935 p. 228. described from Hainburg and Wien
syn. of *Holopyga fervida* (Fabricius, 1781)

Species described by Augustin Hoffer

Smicromyrme punctata pseudomontana Hoffer, 1936 p. 161. described from: "Slovakia, Parkan",
syn. of. *Physetopoda halensis* (Fabricius, 1787)

Smicromyrme pusilla septentrionalis Hoffer, 1936 p.162. described from: different places from South Moravia and East Slovakia like Brno, around Bratislava, Pouzdrany, Liderovice, Cidlochovice
syn. of. *Erimyrme sicana* (De Stefani, 1887)

Smicromyrme pusilla septentrionalis f. gregori Hoffer, 1936 p. 163. described from: Morvaszentjános, Brno, Pouzdrany
syn. of *Smicromyrme sicana* (De Stefani, 1887)
Smicromyrme rufipes f. *zavadili* Hoffer, 1938 p. 188. described from: "Somotor" (Slovakia)
syn. of. *Smicromyrme dusmeti* (Mercet, 1905)
Smicromyrme rufipes f. *lidmilae* Hoffer, 1938 p. 188. described from: "Somotor" (Slovakia)
syn. of. *Smicromyrme dusmeti* (Mercet, 1905)
Dasylabris maura f. *nigrociliata* Hoffer, 1938 p. 194. the palce of capture wasn't given, probably Czechia or Slovakia
syn. of. *Dasylabris maura* (Linné, 1758)
Dasylabris italica f. *slovaca* Hoffer, 1938 p. 195. described from: "Sekule, Borsky Sl. Jur" (Slovakia)
syn. of. *Inbaltilla regalis* (Fabricius, 1793)
Mesitius zavadili Hoffer, 1936, p. 120. described from: Párkány
valid as *Clytrovorus zavadili* (Hoffer 1936)
Mesitius cursor var. *picardi* Hoffer, 1936 p. 123. described from Kopecek at Mikulov
syn. of *Codorcas cursor* (Kieffer, 1906)
Chrysis dichroa var. *slovaca* Hoffer, 1937 p. 66. described from: Kassa
syn. of *Chrysis caeruleiventris* Abeille, 1878
Hedychrum roseum f. *nitens* Hoffer, 1937 p. 65. no special locality: "non rara" in Slovakia
syn. of *Hedychridium roseum* (ROSSI, 1790)
Hedychrum roseum f. *spaceki* Hoffer, 1937 p. 66. described from: Párkány
syn. of *Hedychridium roseum* (Rossi, 1790)

Species described by Emil Stoeckhert

Nomada piccioliana ssp. *jurassica* Stoeckhert, 1941 p. 1079. described from: "aus Bozen, Simontornya (Ungarn) und aus der Plagusa-Planina (Mazedonien)"
syn. of *Nomada piccioliana* Magretti, 1883
Andrena alutacea Stoeckhert, 1942 p. 242. described from high number of palces of different countries, from the Carpathian Basin: Transylvania "Szankesd"?
current status: valid
Andrena tenuicula Stoeckhert, 1950 p. 293. described from Stammersdorf (Wien) and Mikulov
syn. of *Andrena aciculata* Morawitz, 1886
Andrena danuvia Stoeckhert, 1950 p. 287. described from Mödling
current status: valid
Andrena tibialis vindobonensis Stoeckhert, 1950 p. 288. described from Oberweiden and Albern bei Wien
syn of *Andrena tibialis* (Kirby, 1802)

Species described by Jan Snoflák

Spilomena zavadili Snoflák, 1942 p. 128. described from Vlkos
syn of. *Spilomena mocsaryi* Kohl, 1898

Gorytes moravicus Snoflák, 1943 p. 83. described from Czech Republic: Bzenec
syn. of *Harpactus morawitzi* Radoszkowski, 1884

Ammophila susterai Snoflák, 1943 p. 1. unceratin type locality, Snoflák didn't indicated it. In the title: Czechia and Moravia is written.
syn. of *Ammophila pubescens* Curtis, 1836

Ammoplanus hofferi Snoflák, 1943 p. 92. described from Brumovice
current status: valid

Species described by Gusztáv Szelényı

Cephalonomia nidicola Szelényi, 1944 p. 151. from nests of *Columba domestica* in Kopács
current status: valid

Parasierola erucarum Szelényi, 1958 p. 269. desscribed from Pomáz: Dolinapuszta
valid as *Odontepyris erucarus* (Szelényi, 1958)

Species described by Stefan Zimmermann

Chrysis procera Zimmermann, 1954 p. 264. described from: Várna, Sződliget, Lago di Cavazzo, Novi
syn of *Chrysura laodamia* (Buysson, 1900)

Species described by Jacques de Beaumont

Cerceris impercepta de Beaumont, 1950 p. 325. described from Hungary
current status: valid

Species described by Vatroslav Vogrin

Cleptes semiauratus var. *pallipes* Vogrin, 1955 p. 5. described from Croatia: Trnovec
syn. of *Cleptes pallipes* Lepeletier, 1806

Discolia trifasciata Vogrin, 1954 p. 6. described from: Zagreb-Sava, Skopie, Smederevo, Uvac, Kalamata, Peloponesos, Tripolis
syn. of *Scolia galbula* (Pallas 1771)

Harpactus picticornis Vogrin, 1954 p. 13. described from Krapina
current status: valid

Harpactus croaticus Vogrin, 1954 p. 14. described from Krapina
current status: valid

Species described by Paul August Viktor Blüthgen

Nannodynerus hungaricus Blüthgen, 1961 p. 204. described from Dabaspuszta
syn. of *Rhynchalastor clypeopictus* (Kostylev, 1940)

Halictus sajoi Blüthgen, 1923 p. 132. described from: Hungary and Caucasus
current status: valid

Halictus danuvius Blüthgen, 1944 p. 26. described from Hainburg.
valid as *Lasioglossum danuvium* (Blüthgen, 1944)

Halictus crassepunctatus Blüthgen, 1923 p. 280-282. described from Hungary: Németbogsán.
valid as *Lasioglossum crassepunctatum* (Blüthgen, 1923)

Halictus trichopygus Blüthgen, 1923 p. 288. described from: Budapest, Újpest, Kismaros, Peér, Gödöllő, Dundovici, Alancic Zagreb, Zengg
valid as *Lasioglossum trichopygum* (Blüthgen, 1923)

Halictus semitomentosus Blüthgen, 1923 p. 274. described from Hungary: Duka
valid as *Lasioglossum damascenum* (Pérez, 1910)

Nomioides minutissima var. obscurata Blüthgen, 1925 p. 9. described from: Carlowitz bei Breslau und Hungary
syn. of *Nomioides minutissimus* (Rossi 1790)

Halictus combinatus Blüthgen, 1921 p. 140. described from: "Schweiz, Baden: Kaiserstuhl, Thüringen: Jena, Naumburg, Südtirol: Meran, Ungarn: Őrszentmiklos, Algier: bei der Stadt Algier, Lambése, Tunis: Nefta und Tozeur"
syn. of *Lasioglossum limbellum* (Morawitz, 1876)

Sphecodes hungaricus Blüthgen, 1923 p. 498. described from: Hungary.
syn. of *Sphecodes pinguiculus* Pérez, 1903

Halictus galileus Blüthgen, 1955 p. 15. described from Galilaea but also mentioned in this paper from Simontornya and Istri*a*
syn. of *Halictus tetrazonius* (Klug, 1817)

Species described by Carlo Menozzi

Pseudisobrachium roubali Menozzi, 1925 p.111. described from: Léva
syn. of *Pristocera depressa* (Fabricius, 1805)

Species described by Raymond Benoist

Osmia jason Benoist, 1929 p. 95. described from Comana Vlasca
current status: valid

Species described by Oldřich Šustera

Pompilus pontomoravicus Sustera, 1938 p. 210. described from: Moravia: Pouzdrany, Slovakia: Nove Mesto
valid as *Evagetes pontomoravicus* (Sustera, 1938)

Species described by Hermann Haupt

Poecilagenia nigrina Haupt, 1938 p. 43. described from Podcetrtek and Shanghai
syn, of *Poecilagenia sculpturata* (Kohl, 1898)

Species described by Hermann Priesner

Pompilus minutulus simplicicrus Priesner, 1960 p. 118. described from: Österreich: Burgenland: Winden s. See
syn. of *Arachnospila minutula* (Dahlbom, 1842)

Priocnemis pillichi Priesner, 1960 p. 119. described from: Simontornya
current status: valid

Auplopus rectus pallipes Priesner, 1967 p. 129. described from: Simontornya, Winden, Neusiedl, Wien and Banyuls-sur-Mer
syn. of *Auplopus rectus* (Haupt, 1927)

Auplopus albifrons crassus Priesner, 1967 p. 128. described from Eichkogel bei Mödling
syn. of *Auplopus albifrons* (Dalman, 1823)

Species described by Noskiewicz

Stelis hungarica Noskiewicz, 1962 p. 58. described from: Hungary: Kecskemét
syn. of *Stelis annulata* (Lepeletier, 1841)

Colletes inexpectatus Noskiewicz, 1936 p. 325. described from: Hungary, South-East Poland
current status: valid

Andrena simontornyella Noskiewicz, 1939 p. 246. described from Hungary: Simontornya
current status: valid

Andrena pillichi Noskiewicz, 1939 p. 241. collected from Hungary: Simontornya.
syn. of *Andrena alfkenella* Perkins, 1914.

Andrena paula Noskiewicz, 1939 p. 251. collected in Kőszeg: Szabóhegy and Vas County
syn. of *Andrena impunctata* Pérez, 1895

Nomada alfkeni Noskiewicz, 1939 p. 257. collected in Hungary, Simontornya, leg. Pillich.
Current status: *Nomada noskiewiczi* Schwarz, 1966 (replacement name).

Species described by Heinrich Wolf

Anoplius pannonicus Wolf, 1965 p. 94. described from Péteri, Zamárdi-Felső, Bátorliget, Nahr El Kelb
syn. of *Pompilus piliventris* Morawitz, 1889

Species described by Miklós Móczár

Anthidium oblongatum var. *flavens* Móczár, 1956 p. 94. described from Németboksán
syn. of *Anthidium oblongatum* (Illiger, 1806)

Rhophites pilichi Moczar 1967 p. 114. described from Hungary
syn. of *Rophites quinquespinosus* Spinola 1808

Halictus veneticus Móczár, 1967 (nec Ebmer 1969) p. 53. described from Simontornya. Tiszabor. Kroatien: Krk. Istrien, Porec. Italien: Riccione, Österreich, Burgenland, Neusiedler See.
syn. of *Halictus sajoi* Blüthgen, 1923

Bombus pratorum f. *hyperburellanus* Móczár, 1953 p. 145. described from Felsőhági and Dévény
syn. of *Bombus pratorum* (Linné, 1761)

Bombus pratorum f. *hypertatranus* Móczár, 1953 p. 145. described from Felsőhági and Székelykeresztúr
syn. of *Bombus pratorum* (Linné, 1761)

Bombus confusus f. *albofasciculatus* Móczár, 1953 p. 146. described from Pokorágy
syn. of *Bombus confusus* Schenck, 1859

Bombus paradoxus f. *quadricolor* Móczár, 1953 p. 146. described from Kisbalaton: Diás
syn. of *Bombus paradoxus* Dalla Torre, 1882

Species described by Ebmer

Halictus veneticus Ebmer, 1969 p. 162. described from: Simontornya, Ebendort, Tiszabor, Malinska, Krk, Riccione, Kijevo, Neusiedler See
syn. of *Halictus eurygnathus* Blüthgen,1931

Halictus pannonicus Ebmer, 1969 p. 165. described from: Oberweiden
syn. of *Halictus tetrazonius* (Klug, 1817)

Species described by Carol G. Nagy (Qabir Argaman)

Myrmilla labecua Nagy, 1968 p. 68. described from: Cluj (Romania)
current status: valid

Myrmilla macrura Nagy, 1968 p. 65. described from: Cluj (Romania)
current status: valid

Bethylus paradoxus Nagy, 1970 p. 63. described from: Cluj (Kolozsvár)
current status: valid

Holepyris napocaensis Nagy, 1968 p. 409 described from "Cluj"
current status: valid

Bethylus antipai Nagy, 1968 p. 1033. described from: Bistrita (Beszterce)
current status: valid

Mesitius foenarius Nagy, 1968 p. 171. described from: "Kolozsvár: Szénafüvek"
valid as *Heterocoelia foenaria* (Nagy, 1968)

Species described by Francisco Javier Suárez

Myrmosa moesica Suárez, 1982 p. 270. described from: "Kaptaza, Zajecar (Serbia)"
current status: valid

Species described by Anna Zacharova Osytshnjuk

Andrena grozdanici Osytshnjuk, 1975 p. 84. described from Yugoslavia around Beograd
current status valid

Species described by Klaus Warncke

Andrena pontica Warncke, 1972 p. 124. described from: Erdőbénye
current status: valid

Andrena combaella Warncke, 1966 p. 126. one paratype from Kamenica, Slovakia
current status valid.

Species described by Walter Linsenmaier

Hedychrum aureicolle ssp. *niemelai* Linsenmaier, 1959 p. 38. Loc. typ. “Mir vorliegend aus Portugal, Spanien, Korsika, Frankreich, Italien und Sizilien, Schweiz, Deutschland, Holland, England, Fennoskandien, Polen, Österreich, Ungarn, Jugoslawien, Mandschurei."
valid as *Hedychrum niemelai* Linsenmaier,1959

Hedychridium chloropygum ssp. *spatium* Linsenmaier, 1959 p. 59. described from: "Ungarn, Rhodos, Schweden, Type (Simontornya), 2 Allotype (Rhodos)"

syn. of *Hedychridium caputaureum* Trautmann & Trautmann, 1919

Chrysis phryne burgenlandia Linsenmaier, 1968 p. 50. described from: Austria: Burgenland: Winden am See
current status: valid

Chrysis germari var. *fulminans* Linsenmaier, 1951 p. 51. described from: "(Österreich-Ungarn, Griechenland, Dalmatien, Cypern)" also "Aus der Südschweiz kenne ich nur diese Form, die ich auch von Sizilien und der Provence besitze"
valid as *Chrysis germari* ssp. *fulminans* Linsenmaier, 1951

Species described by Vladimír Balthasar

Cerceris dacica slovaca Balthasar, 1954 p. 186. described from Slovakia: Seleška (Szőlőske)
syn. of. *Cerceris circularis* ssp. *dacica* Schletterer, 1887

Cerceris somotorensis Balthasar, 1956 described from: Somotor (Szomotor)
current status valid

Miscophus moravicus Balthasar, 1957 p. 109. described from: Czechoslovakia: Čejč
syn of *Miscophus concolor* Dahlbom, 1844

Chrysis rosina Balthasar, 1949 described from South Slovakia (Párkány?)
syn. of *Chrysis interjecta* Busson, 1891

Hedychridium parkanense Balthasar, 1946 p. 238. described from Párkány (Kamenica bei Štúrovo).
current status: valid

Hedychridium krajniki Balthasar, 1946 p. 237. described from Párkány (Štúrovo).
current status: valid

Priocnemis sulci Balthasar, 1943 described from Kobyli and Párkány (Štúrovo)
current status: valid

Species described by Erzsébet Bajári

Cerceris beaumonti Bajári, 1956 p. 408. described from: Deliblát: Fehértelep, Grebenác, Kecskemét, Báziás, Budapest, Őrszentmiklós, Szigetszentmiklós, Szeged, Pécel, Sződ, Pótharaszt.
syn. of *Cerceris somotorensis* Balthasar, 1955

Species described by Jaromír Strejček

Bocchus slovacus Strejcek, 1964 p. 323. Čenkov (Csenke)
current status: valid

Acephalonomia cisidophaga forma *alata* Strejcek, 1990 p. 49. described from Kamenica bei Štúrovo (Garamkövesd) and Krkonose Mts.
syn. of *Cephalonomia cisidophaga* (Strejček, 1990)

Acephalonomia cisidophaga forma brachyptera Strejcek, 1990 p. 49. described from Slovakia
syn. of *Cephalonomia cisidophaga* (Strejcek, 1990)

Species described by Pál Benedek

Rhophites bluethgeni Benedek, 1973 p. 272. described from: more than 50 villages and towns from the present territory of Hungary, Slovakia and Transylvania, they are not listed here.
syn. of *Rophites quinquespinosus* Spinola, 1808

Species described by Bořivoj Tkalců

Osmia labialis tornensis Tkalcu, 1975 p. 312. described from: "Slowakischer Karst, Turna n. Bodvou, in der Nähe von 'Sedielko', ca. 400 m"
current status: valid

Species described by László Móczár

Anospilus hungaricus Móczár, 1944 p. 4. described from: Budapest
syn. of *Agenioideus sericeus* (Vander Linden, 1827)
Cryptocheilus Szabó-Patayi Móczár, 1944 p. 1. described from: Kunszentmiklós, Kisújszállás, Szokolya
syn. of *Cryptocheilus freygessneri* (Kohl, 1883)
Priocnemis crassicapitis Móczár, 1944 p. 10. described from: Kéthalom
current status: valid
Priocnemis hauptius Móczár, 1955 p. 304. described from: Kéthalom
current status: valid
Priocnemis hungaricus Móczár, 1946 p. 40. described from Tihany
syn. of *Priocnemis sulci* Balthasar, 1943
Epyris biroi Móczar 1966 p. 441. described from: Vác and Corfu
current status: valid
Priocnemis hankoi Móczar 1944 p. 2. described from: Budapest, Csepel, Őrszentmiklós, Upper Austria: "Donau"
current status: valid
Rhopalum beaumonti Móczar 1957 p. 423. described from: Gyenesdiás
current status: valid
Tachyagetes dudichi Móczar 1944 p. 5. described from: Őrszentmiklós
current status: valid
Chrysis chalcea Móczár 1965 p. 176. described from: Zenica, Németbogsán
current status: valid
Anoplius atricolor Móczár, 1944 p. 102. described from: Keszthely, Őrszentmiklós, Borosznó
syn. of *Anoplius caviventris* (Aurivillius,1907)
Cleptes hungaricus Móczár 2009 p. 134. described from: Pilisborosjenő, Sóskút, Budapest.
current status: valid
Hedychridium hungaricum Móczár 1964 p. 442 described from: Ócsa: Nagyerdő
current status: valid
Hedychridium jazygicum Móczár 1964 p. 444. described from: Jászberény
current status: valid
Holopyga hortobagyensis Móczár 1983 p. 354. described from: Újszentmargita
current status: valid

Cleptes nitidulus var. *erdosi* Móczár, 1951 p.278. described from: Hungary: Fajsz
syn. of *Cleptes semicyaneus* Tournier, 1879

Chrysis fulgida var. *aurolimbata* Móczár, 1946 p. 27. described from: Kiskunfélegyháza
syn. of *Chrysis fulgida* Linnaeus, 1761

Cryptocheilus richardsi Móczár, 1953 p. 40. described from: Budapest, Kunszentmiklós, Paks, Szabadka
current status: valid

Oxybelus latro var. *rugulosus* Móczár, 1957 p. 425. Balatonszéplak: Tóközpuszta
syn. of *Oxybelus latro* Olivier, 1812

Notozus pyrosomus var. *purpureus* Móczár, 1964 p. 446. described from: Tiszasüly
syn. of *Notozus pyrosomus* Förster, 1853

Ceratepyris claripennis Móczár, 1966 p. 353. described from: Ruma (Vajdaság)
current status: valid

Species described by Maximilian Schwarz

Nomada platythorax Schwarz, 1981 p. 363. described from: Amasya, Samsun, Ankara (Turkey) and Mernye (Hungary)
current status: valid

Osmia mazzuccoi Schwarz, Gusenleitner, 2005 p. 122. described from Burgenland: Jois (Nyulas), Štúrovo (Párkány), Simontornya, Sandanski and Vidin
current status: valid

Species described by Miroslav Kocourek

Nomada bouceki Kocourek, 1985 p. 190. described from: Párkány: Hegyfarok and Bulgaria
current status: valid

Species described by Lajos Tanács

Melitta moczari Tanács, 1985 p. 175. described from: Tiszaderzs and Tiszafüred
current status: valid

Species described by Massimo Olmi

Prioranteon biroi Olmi, 1984 p. 539. described from Szigetszentmiklós
current status: valid

Bocchus lautereri Olmi, 1998 p. 98. described from “Hungary, Kiskunság National Park, Bugac puszta, Biosphere Reserve, sand dunes, 160 m"
current status: valid

Species described by Alexander Valentinovich Antropov

Trypoxylon deceptorium Antropov, 1991 p. 673. described from: Kazakhstan: Iliysk - Bakanas (ZMMU). Paratypes: Armenia, Austria, Azerbaijan, Belorussya, Cyprus, Egypt, Georgia, Germany, Greece, Hungary, Iran, Israel, Italy, Kazakhstan, Kyrgghyzstan, Lebanon, Lithuania, Mongolia, Poland, Romania, Russia (European), Spain, Switzerland, Syria, Tajikistan, Turkey, Turkmenistan, Ukraine, Uzbekistan, Yugoslavia.
current status: valid

Species described by Herbert Zettel

Dipogon bifasciatus pannonicus Zettel, 1993 p. 670. Neusiedl am See, Illmitz
valid as *Dipogon pannonicus* Zettel, 1993

Species described by József Muskovits and Arkady Stephanovitch Leley

Smicromyrme pilisensis Muskovits and Leley, 2010 p. 58. described from: Pilisborosjenő: Malomdűlő, Pákozd: Sár-hegy and Sóskút
current status: valid

Species described by Gerald Hölzler & Karl Mazucco

Colletes pannonicus Hölzler and Mazucco, 2011 p. 274. described from: Austria, Burgenland., Seewinkel, N Illmitzer Zicklacke
current status: valid

Species described by Paolo Rosa et al.

Cleptes striatipleuris Rosa, Forshage, Paukkunen and Soon, 2015 p. 547. described from: Verőce
current status: valid

On some species described by Scopoli, Poda, Christ, Heer and Mocsáry from the Carpathian Basin

According to the following paragraph of ICZN:
23.9.1.1. the senior synonym or homonym has not been used as a valid name after 1899, and
23.9.1.2. the junior synonym or homonym has been used for a particular taxon, as its presumed valid name, in at least 25 works, published by at least 10 authors in the immediately preceding 50 years and encompassing a span of not less than 10 years.
23.9.2. An author who discovers that both the conditions of 23.9.1 are met should cite the two names together and state explicitly that the younger name is valid, and that the action is taken in accordance with this Article; at the same time the author must give evidence that the conditions of Article 23.9.1.2 are met, and also state that, to his or her knowledge, the condition in Article 23.9.1.1 applies. From the date of publication of that act the younger name has precedence over the older name. When cited, the younger but valid name MAY be qualified by the term nomen protectum and the invalid, but older, name by the term nomen oblitum. In the case of subjective synonymy, whenever the names are not regarded as synonyms the older name MAY be used as valid.
The following species are neither agricultural, horticultural insect pest, nor infectious agents or pathogens or disease spreading animals therefore, the corrections of their name don"t disturb the nomenclatural stability.
Therefore to use or reject the proposed names, will be the matter of individual decision of our colleagues.

Chrysis hungarica Scopoli, 1770
Chrysis leachii Schuckard, 1836 syn. n.

The author express his grateful thanks to Zsolt Józan and Paolo Rosa for their help in correct identification of this species.

Material examined: Félegyháza, 23-25. 07. 1957; Kőszeg, 07. 08. 1936; Rém, 30. 08. 1936; Sukoró, 13. 07. 1951; Bonyhád, 12. 08. 1941.

Neotype: according to the point of ICZN 75.1. neotype is not designated, since there is no doubt in the taxonomic status of *Chrysis hungarica* Scopoli, 1770 therefore neotype designation is not necessary. See also the notes below. The Scopoli's collection was destroyed, see about this the Scopoli biography in this monograph and also TÓTH (1989, 1994, 1996).

Original descripton: "*Viridi colore nitent Caput, thorax, abdomins basis, emargines segmentorum aliorum. Fascia thorax et segmentia duo abdomins postica ignito-aurata, Parva; subtus viridi nitens ; abdomine subtus concavo fusco-aurato; antennis pedibusque nigris Abdomine minime dentato. Non ergo eadem cum C. Succina.*"

Head, thorax, base of abdomen furthermore margines of other segments shiny green. Band of thorax and last 2 abdominal segments reddish gold. Small. Body shiny green below, abdomen concave below and smoky gold. Antennae and legs black. Abdomen with minute denticle. Different from *Chrysis succincta* Linné, 1767.

Further remarks: "*Fascia thorax ignito aurata*": mesonotum and mesoscutellum reddish gold. Head and thorax with deep punctures. Face relatively narrow and long. Vertex and thorax above moderately densely and deeply punctured. Facial pit densely sculptured, hatched. 4.0-4.5 mm.

Vespa pacicephala Scopoli, 1770 nomen dubia
Crabro cribarius (Linné, 1758) ?

Author express his grateful help to Dr. Nikola-Michael Prpic Georg-August-Universität Göttingen for his kind advice.
Original description:
"Caput crassum; mucha excavata. Thorax antice punctis flavis binis. Scutello puncto unico pariter flavo. Abdomen 5. fasciis flavis: 2-3. interruptis.
Statura V. Parietum, sed capite et thorace crassioribus. Abdomen nitens. Tibiae flvae."
Only one species meets the description from the present fauna of this region, namely the female of *Crabro cribarius* (Linné, 1758) Especially "Abdomen fascis 5. flavis: 2-3. interruptis" as follows: "abdomen with 5 yellow stripes: the second and third interrupted" refers to this species.

Vespa pteropoda Scopoli, 1770

Original description: "*Nigra abdomine lucido fasciis 6 flavis, posticis tribus interruptis. Femora antica, sed magis adhuc eorum manus uno latere ala albida subdiaphana auctae. Alarum anticarum longitudo lin. 3-4. Caput pone attenuatum. Thorax ovatus, puncto flavo ad angulos anticos. Pedes flavis: anticis structura singularis: manibus hemispherico clypeo aut ala externo latere auctis, cujus alae pars superior binis rufis lineis transversis notata est. Hincnon confundenda cuin S. Palmipede Linn.*"

This species shoud be *Lestica clypeata* (Schreber, 1759), however, sure identification is not possible. The combination of " *manibus hemispherico clypeo*" and "*caput pone attenuatum*" clearly indicate the species known as *Lestica clypeata* (Schreber, 1759) and even the size meets well. However, in *Lestica clypeata* (Schreber, 1759) the statement "*nigra abdomine lucido fasciis 6 flavis, posticis tribus interruptis*" doesn't match at all, not the posterior but always the bands on the anterior third of abdomen are broken. Otherwise, there is no species which would perfectly match the description.
Further investigation is suggested.

Apis vespiformis Scopoli, 1763 and ***Apis vespiformis*** Scopoli, 1770

These are 2 different species (compare the 2 descriptions below).
Apis vespiformis Scopoli, 1770 is junior homonym of *Apis vespiformis* Scopoli, 1763.
Apis vespiformis Scopoli, 1763 is identical with *Nomada flava* Panzer, 1798 according to the identification of ROGENHOFFER and DALLA-TORRE (1881)
Apis vespiformis Scopoli, 1770 is identical with *Anthidium loti* Perris, 1852

According to my opinion, the reason of this duplication: Scopoli established genus *Nomada* in 1770. Probably he tought, that in this way, the *Apis vespiformis* name became free for an other non *Nomada* Apoidea.

Original descriptions:
1. *Apis vespiformis* Scopoli, 1763
Nomada vespiformis (Scopoli, 1763)
syn. *Nomada flava* Panzer, 1798

"*long. lin. 3. Nigra; antennis scutello pedibusque fulvis; abdomine supra cungulis flavis. Lineas 3.5 longa. maxillae, linea circum oculos, punctum in medio frontis, et labii margo, fulvi coloris. Thorax latere singulo linea punctoque fulvis. Scutellum binis punctis fulvis contiguis signatum. Alae hyalinae; limbo obscuriore. Abdomen antennarum longitudine, ellipticum, nitens, glabrum; supra fasciis nigris flavisque alternantibus, subtus fulvum: cingulis anticis tribus nigris. Femora postica nigra.* "

2. *Apis vespiformis* Scopoli, 1770 (not *Nomada*, Scopoli had already treated *Nomada* species separately!)
"*Statura Apis longicornis. Abdomen fasciis flavis interruptis. Pedes flavi. Frons flava. Caput et thorax rufiis villis pubescunt. Abdomen ovatum, basi obtusum, nitens, minus pilosum; fasciis flavis in medio abruptis quinque, et maculis utrinque binis prope basim. Crura non omnibo flava, Tibiae manusque penitus flavae. Alae anticae fuliginosae.* "

Bombus monacha Christ, 1791
Apis (*Bombus*) *monacha* Christ, 1791
syn. *Bombus barbutellus* (Kirby, 1802)

Material examined: *Bombus barbutellus* (Kirby, 1802): Mecsek: Misina-dél, 07. 09. 1951, female; Mecsek: Zobák, 03-06. 07. 1951, female; Szomolnok, 12. 08. 1910, female; Mecsek: Zengő, 04. 08. 1951, female; Budapest, 23. 08. 1954, female.
Bombus veteranus (Fabricius, 1793): Virágosvölgy, female; Alsótátrafüred, female; Poprád, 08. 1885, female; Poprad, male; Tátra, male.

Neotype: according to the point of ICZN 75.1. neotype is not designated, since there is no doubt in the taxonomic status of *Bombus monacha* Christ, 1791, therefore neotype designation is not necessary. See also the notes below.
"*Eine kleine hummelbiene. Sie hat einen schwarzen Kopf, der nebst der Oberlippe mit langen schwarzen Haaren besetzt ist, schwarze Augen und drei Ocellen in einer Linie. Die Ful(?)hörner sind schwarz, fadenförmig mit 10 Glieder nebst einen Kopf und Grund gelengt. An den Halfte an dem Brustschild eine weisse Binde, die bis unter die Bust lauft, dann folgt der schwarze Schild mit einer weissen Einfasung. Die zwei ersten Ringe des Hinterleibs sind gelblichweiss, der dritte schwarz und die übrigen ganz weiss. Die Füsse sind schwarz ohne Dorn mit zwei Klauen und einem kleinen Ballen. Die Flügel haben braunliche Ubern.* "

This identity was known by Kirby, as he noticed it in "*Monographia Apum Angliae*". Although Kirby was clear with the valid status of *Bombus monacha* Christ, 1791, he considered this species only a colour variation of his own species. *Apis* (*Bombus*) *monacha* Christ, 1791 has priority above *Apis barbutellus* Kirby, 1802.
Warncke identified *Bombus monacha* (Christ, 1791) with *Bombus equestris* (Fabricius, 1783) also known as *Bombus veteranus* (Fabricius, 1793). This species has no colour variation which would match to the original description of Christ. Therefore, Kirby's identification is correct.
Hereby, we suggest, using of *Bombus monacha* Christ, 1791 instead of *Bombus bar-*

butellus Kirby, 1802 which is junior synonym of *Bombus monacha* Christ, 1791.

Apis minima Poda, 1760

Material examined: Bombus hypnorum (Linné, 1758): female; Tátraszéplak, 27. 04. 1916, female; Kudsiri havasok, 06. 07. 1905, 1 female. (especialli forma *alboanalis*).

Original description: "*Apis hirsuta thorace rufo, abdomina nigro postice albicante. Reliquis omnibus minor*."

There are 2 identifications for this species. One is *Bombus hypnorum* Linné, 1758 sensu (ROGENHOFER and DALLA TORRE 1881) the other is *Habropoda tarsata* (Spinola, 1838) sensu (WARNCKE 1986).

The ROGENHOFER and DALLA TORRE (1881) identification is perfectly match the description of Poda, but Warncke's identification doesn't match in one important item: in *Habropoda tarsata* (Spinola, 1838) the abdomen is 3 color: base with dense red pubescence, middle segments black and apical segments with dense white pubescence. Therefore the ROGENHOFER and DALLA TORRE (1881) identification is correct.
Apis minima Poda, 1760 is junior synonym of *Bombus hypnorum* (Linné, 1758).

Pompilus lateritius Mocsáry, 1879 spec. rev.

Material examined: Lectotype: 1 female, old, handwritten label "Gellérth. coll 22/7" (probably original label of Mocsáry); second label old manuscript, not from Mocsáry: "*Pompilus lateritius* Mocs. rufithorax costa"; third label with red margin : "typus *Pompilus lateritius* Mocs. det. Mocsáry" (no indication who designated, this type of label wasis used in the 60-90's in the Museum.); fourth label: "*Arachnotheutes rufithorax* det. L. Móczár"; Lectotype: *Pompilus lateritius* Mocsáry, 1879 det. A. HARIS 2016".

The lectotype well agrees the description of MOCSÁRY (1879). The type is the original specimen collected by MOCSÁRY (1879).
The reason of revocation. *Pompilus lateritius* Mocsáry, 1879 were synonymised by László Móczár (MÓCZÁR 1956). Unfortunately, Móczár overlooked the 2 dates. *Pompilus lateritius* Mocsáry was described in 1879 while *Pompilus rufithorax* Costa was described 3 years later in 1882.

Further conseqvences:
1. *Pompilus lateritus* Taschenberg, 1880 described from Abyssinia (Ethiopia) is junior homonym of *Pompilus lateritus* Mocsáry, 1879 described from Hungary.
2. *Pompilus lateritius* Mocsáry, 1879 is valid as *Arachnotheutes lateritius* (Mocsáry 1879).
3. Instead of *Agenioideus lateritius* (Taschenberg, 1880), *Agenioideus masrensis* (Priesner, 1955) shall be used. Since new combination can not be established for homonym name. See about this WAHIS (2006).
4. *Arachnotheutes rufithorax* (Costa, 1882) was described from Calabria but *Arachnotheutes lateritius* (Mocsáry, 1879) was described from Budapest: Gellért Hill. Therefore the identity of these 2 species shall be checked again. If the 2 species is identical, than *Arachnotheutes rufithorax* (Costa, 1882) is junior synonym of *Arachnotheutes lateritius* (Mocsáry, 1879).

Vespa heeriana nom. nov.

Vespa heeriana nom. nov. is suggested to be replacement name for *Vespa crabroniformis* Heer, 1867 described from Radoboj which is junior homonym of *Vespa crabroniformis* Smith, 1852.
The new name is dedicated to the original author of the species, Oswald Heer.

Vespa minima Poda, 1761

Unrecognised taxa, further investigation is necessary.

History of the Aculeata research in the Carpathian Basin

The earliest records and archeological findings belong to Apiculture. In Aquincum, during the Roman period excavations, various red and gray negative baking molds were found which originally served for baking honey cakes and gingerbreads. This activity was based on effective beekeeping. Early Hungarian document of Apiculture is the donation charter of King Szent István (King Saint Stephen of Hungary) to the Zalavár Abbey from 1024, in which the king guarantees the undisturbed beekeping, furthermore he confirms yearly 12 pound bee-wax in-kind benefits for the Abbey.

The Hungarian word "*wasp*": "*darázs* or *darás*" mentioned firstly in Hungarian written form in 1395 (in the Beszterce Latin-Hungarian Dictionary written in 1395) according to the Etymological dictionary (ZAICZ 2006). The following Hungarian scripts up till 1563 are only documents of Apiculture.

Early History of the Aculeata research in Hungary from the 16th till the 19th century (1560-1800)

In 1986, on an auction appeared a sensational codex, known as: Mira Calligraphiae Monumenta written and illustrated by György Bocskay and Joris Hoefnagel.

"*Once upon a time*", in the XVI century, there was a Hungarian nobleman, certain **György Bocskay** (1525 (around) Raszinyakeresztúr (Apajkeresztúr) – 8th April 1575 Wien) member of the Hungarian Royal Chancellery as scrivener, secretary and royal councillor. Although, his son was called István, however, this István is not identical with István Bocskay, governor of Transylvania (although the same dynasty).

Very little is known about his life, he came from the Croatian branch of Bocskay family. Probably, he would have been completely forgotten, if he, as a secretary of the Hungarian royal court had not prepared that writing sample book in 1561-62 which made him as one of the most prominent calligrapher of the world. This is the book, which is well known as Mira Calligraphiae Monumenta, the "*bible*" of international calligraphy. Thirty years later, king Rudolf of Hungary (and also German-Roman Emperor) commissioned the well known Flemish painter and illustrator **Joris Hoefnagel** to complete with artistic illustrations of the Bocskay codex. In that time, Joris Hoefnagel traveled around the kingdom of Hungary and made artistic aquarells and colored engraves on the towns, fortresses of the country. Joris Hofnagel never met György Bocskay. In 1575, when Bocskay died, Hoefnagel still stayed in Antwerp, only in 1591, he moved to the court of King Rudolf. However, in a short epigram, he expressed his appreciation to Bocskay:

"*Hungarus ut calamo Zeuxis, sic Belgicus arte Delicias ornant, magne Rudolphe, tuas! Ingenio pares, studiis, et nomine pares Rumpatur quisquis, rumpitur invidia.*"

Soon after, Hoefnagel started the illustration of the MCM with miniatures of the flora and fauna of the Royal Hungary containing highly artistic and realistic color figures of approximately 190 plants, 135 insects, 8 reptiles and amphibians and 30 spider, snail, worm and centipede species. In the insects, there are numerous hymenoptera species but only 2 Aculeata species. One of them is an *Eumenes* species, very likely *Eumenes pedunculatus* (Panzer, 1799). This is the first Aculeata species reported from the Royal Hungary. The other is an *Ammpohila* species, most likely *Ammophila heydeni* Dahlbom, 1845, although the identification is not easy, since the red colour of legs were not indicated, probably because of strong miniaturisation. The picture is perfectly much *Ammophila modesta* Mocsáry, 1883 but this is a very rare species living in the southwestern part of France, Spain and Portugal, and it is not very likely that Hoefnagel would have captured and painted this species. After the death of king and emperor Rudolf the 2nd, the codex disappeared and its deposition was unknown till the middle of the 19th century. The known owners: from 1887, Albert Milde from Wien; from 1907, Goldschmied from Frankfurt am Main; from 1916, Fritz Gans from Frankfurt am Main; from 1923, Louis Koch from Frankfurt am Main; from 1942, unknown European collector and in 1986 the Paul J. Getty Museum purchased the codex.

More than 40 years later, the first Hungarian entomological monograph was published as early as 1637 by **András Horvát Regéczi** (Andreas Horvát Regéczi). He was calvinist priest born in Petény, studied teology in Wittenberg between 1635 and 1637. After returning to Hungary, he continued his service in Kassa from 1644 and later in Trencsény. Finally, András Regéczi settled in Eperjes, where he became director of the local primary school. After the monograph of Aldrovandi in 1602 and Hoefnagel in 1630, his work is the third entomological scientific book, titled *Disputatio physica de insectis*

Fig. 3: Folio 15 of Mira Calligraphiae Monumenta

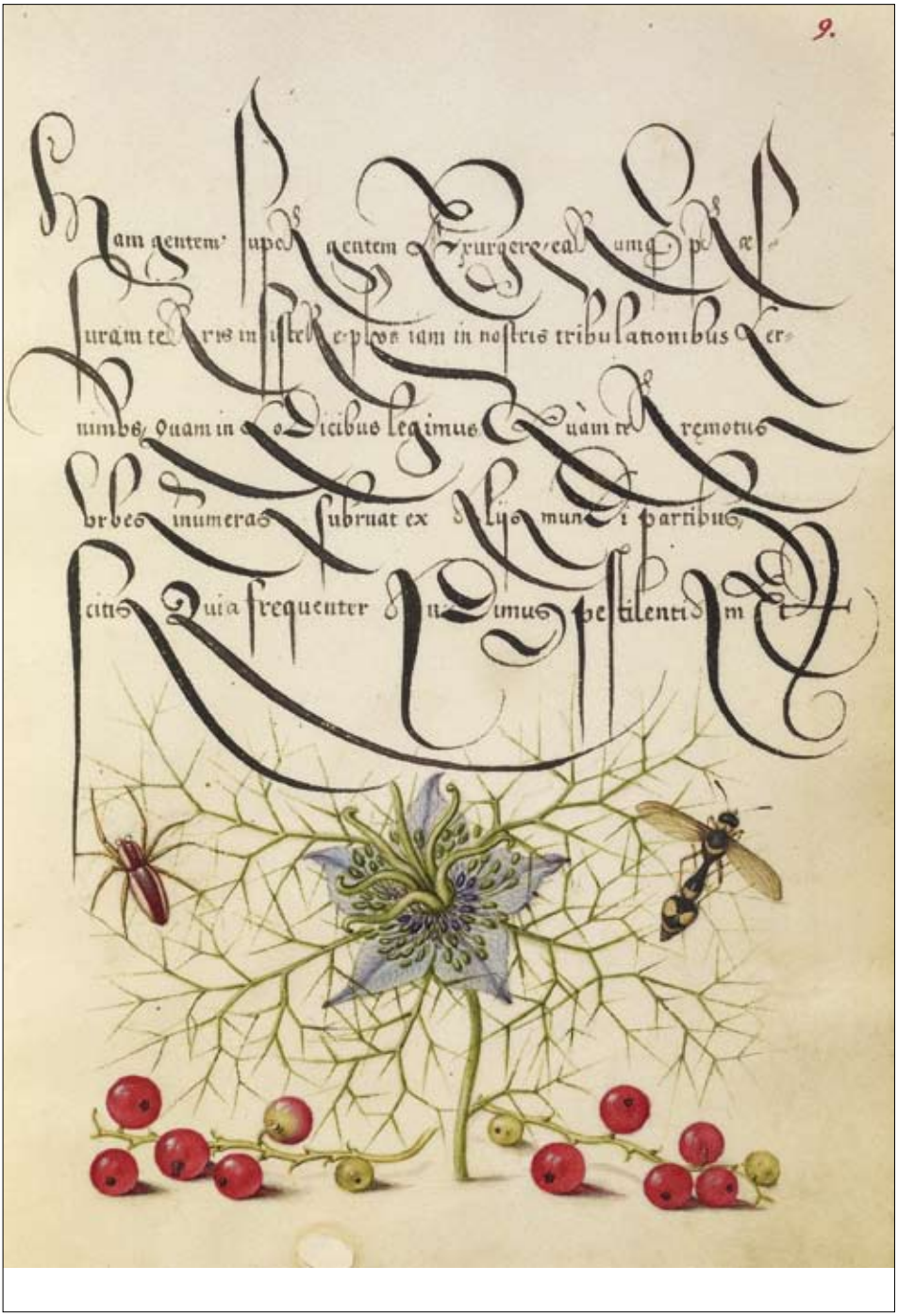

Fig. 4: Folio 10 of Mira Calligraphiae Monumenta

published in Wittenberg. The main topic of his small book is insect physiology (haemolympha, respiratory system). Regéczi also discussed in details the moving of cut insects (reasoned by their special non-central nervous system). Species, distribution, faunistic and systematics are hardly discussed but he provides detailed description of life history of honey bees and ants. The other hymenoptera, he mentioned only wasps in the following way: "*If we cut a wasp, separating the head from the thorax and also the abdomen, the wasp still stays alive: it is still true, when we cut the insect not only into two parts but even into numerous parts.*" On the cover of this monograph, the name of Johannes Sperling is also printed, who were the dean of university and also the professor of András Horvát, when he submitted this work as his doctoral thesis.

The next Hungarian work is written by **János Apáczai Csere** (10th June 1625 Apáca – 31st December 1659 Kolozsvár) titled *Magyar encyclopaedia* (*Hungarian encyclopaedia*) published in 1653. János Apáczai Csere was Hungarian philosopher, theologian, writer and scientist. During his studies in the Netherlands, he completed and published his main work in Utrecht. This encyclopedia comprises the whole knowledge of art, history, teology and science of his age. The 7th part of the encyclopedia discusses the "*things of the earth*" including geography, geology, zoology and botany. In this part, he details the life history of honeybees but about the other hymenoptera, he only mentioned wasps only in one short sentence: "*A darázsnak mérges fullánkja vagyon*", "*Wasp has venomous sting*".

In 1673, two important monographs from two authors were published. on entomology, namely **Vilmos Dániel Moller** or **Daniel Wilhelm Moller** or **Daniel Gulielmi Molleri** (26th May 1642 Pozsony - 25th February 1712 Altdorf bei Nürnberg): *Meditatio de Insectis quibusdam Hungaricis prodigiosis*. Which is a small, 120 pages booklet. The English translation: Meditation on some horrible insects of Hungary. In these "*horrible insects*" we hardly find any hymenoptera, also not easy to identify these insects correctly. The major part dealing with spiders and other arthropods which are also hard to identify (beetles, Collembolans (?), centipedes and even antlion larvae) see the figure. Bees and ants are only mentioned on page 100, as "*Formica et apes: utraque deponit innanum/ Hanc sedulitas hanc studium facit virilem/ huic alveus, illi satis e satis, et dies, et annus*". Moller was polymath and European traveler and also very fruitful author, during his life he published 184 books (!).

The other monograph that is published in 1673, was written by **Simon Friedrich Frenzel (or M. Simone Friderico Frenzelio)** (1638 Cottbus - ?), titled "*Insecta Novisolii in Superiori Hungaria die xx. Novembris Elapsi Anni Cum Nive Delapsa*". Frenzel was a German theologian and philosopher. During his life, he completed 10 books mainly on theology but he wrote book on physica and meteorology as well. The reason, he completed a work on the insects of Hungary remain mystery as his whole life.

"*Apes denid ex floribus plantarum succum dulcem ac tenuem ad conficiendum mel, tenacem magis ac glutinosum ad parandam ceram extrabunt: circa Apiarum extendunt ceram quae ad instar tecti sit subtecto consiciunt cellas maxime sexangulares mira arte in issa mel recondunt, quae materia mox instar musti aut cerevisiae recens cocta effervescit, donec crassescat et dulcescat de qvibus fusius.*."

In the end of the 17th century **Gáspár Miskolczi Csulyak** (1627 Miskolc – 1699 Székelyudvarhely) completed his book with title: "*Egy Jeles Vad-kert*" (A fine menagerie). Miskolczi was calvinist protestant priest, studied in Sárospatak, Utrecht than in

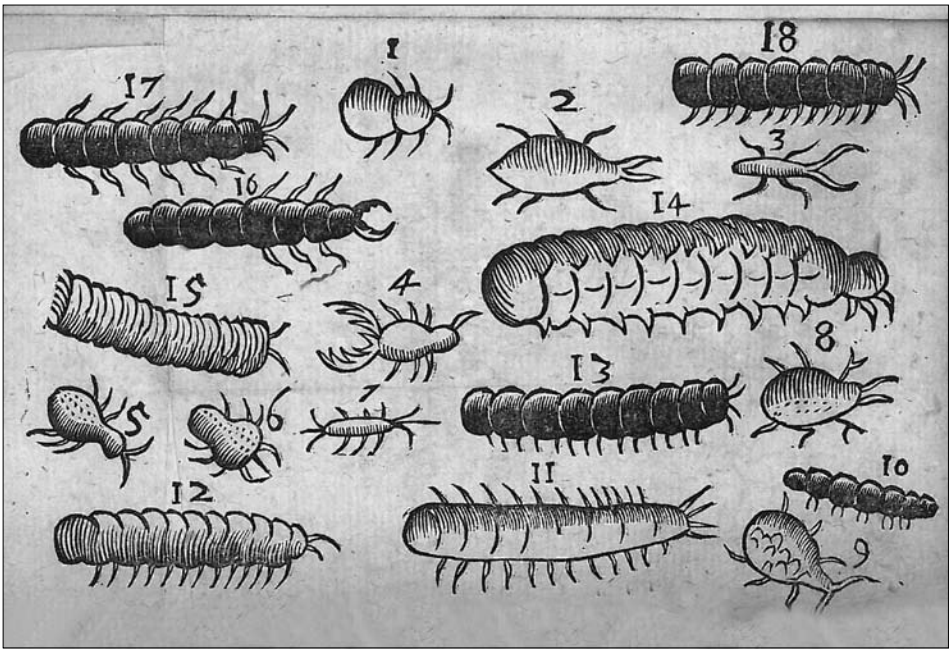

Fig. 5: Illustration from Molleri: Meditatio de Insectis

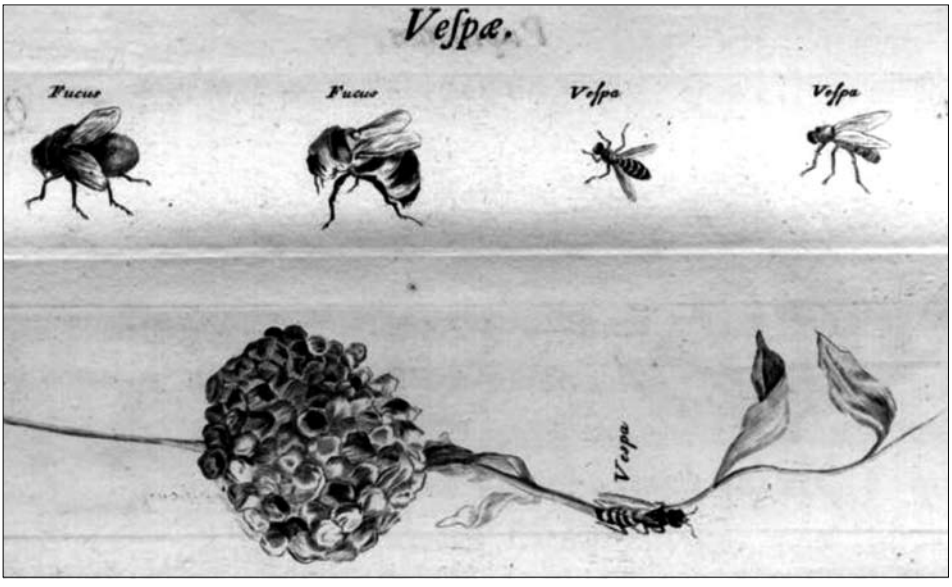

Fig. 6: Illustration from Marsigli: Danubius Pannonico-Mysicus, observationibus

Franker. He, as calvinist pastor, serviced at Ónod, Bodrogkeresztúr, Szilágysomlyó than Nagybánya. Later he had to escape to Transylvania from the persecution of catholic counter-reformation. In Transylvania, he worked in Magyarigen and finally in Székelyudvarhely. In 1691, he translated and also completed with his own observations the zoological work of Wolfgang Franzius: *Historia animalum* (1612). This is the first Hungarian language zoological book which was issued only in 1702, 3 years after the death of the author.

The "*Egy Jeles Vad-kert*" is divided into 5 books. Insects are discussed in the 5th book. Hymenoptera species are detailed in the 3rd part of the 5th book. The following hymenopterous insects are discussed: *Vespa crabro, Vespula vulgaris, Apis melifica* and the ants. We may learn some very interesting contemporary beliefs from this work (which are presented as scientific facts) like: "*wasps are born from carcasses of dead horses*" or "*there are some venomous wasps which flies onto dead vipers where they grease their stings with the venom of dead vipers*". These beliefs are probably taken over from the work of Franzius. On the other hand, his personal observations are proved to be correct and progressive.

Luigi Ferdinando Marsigli (10th July 1658 Bologna – 1st. November 1733 Bologna), Italian born scientist-polymath, diplomat, traveler, military officer. "A thousand faces, *universal man who made a transition between the Italian generals in the Hungarian battlefields of the Ottoman era and the philosopher intellectuals of the age of Enlightenment*". The young Luigi was a descendant of a famous noble family receiving first class education in mathematics, anatomy and natural sciences. He was only 21 years old, when he accompanied the ambassador of Turkey of the Republic of Venice arriving to Constantinople where he spent eleven months. Marsigli studied there the location of the capital, the military power of the Ottoman Empire and collected data; so, there, he was a kind of "intelligence", actually spy. When in 1680, Ottomans made another attack against Hungary, he offered his service to king and emperor Leopold I (emperor of the German-Roman Empire and king of Hungary). In the spring of 1683, he participated in the defense of Southern Hungary against Ottoman general Kara Mustafa at the strategically important river Rába. He was wounded and captured by the enemy and survived the Turkish siege of Vienna as a prisoner. In 1684, he was released from captivity, and continued his military service for the liberation of South Hungary. His historical merit was to save the Corvinas (handwritten codexes) of king Mathias from the smoldering ruins of the royal castle of Buda. His military career broke at the war of the Spanish succession. From this time, his attention turned to sciences and left his enormous scientific heritage for the future generations. Most of his works remained in manuscript. In his life, he published 7 books. One of this book is a 7 volumes huge encyclopedic work on the historical Hungary, titled "*Danubius Pannonico-Mysicus, observationibus*" in the 6th volume of this work, he discusses the insects of Hungary. He mentions and illustrates 5 species and names them simply "Fucus" and "Vespa". Sándor Mocsáry was succeed to identify 3 species, namely *Bombus lapidarius, Bombus terrestis* (Fucus 1 and 2) and *Polistes gallicus* (Vespa).

Lőrinc Pálffi (20th June 1720 Mindszent - 24th August 1775 Kolozsvár). In his work, titled "*Erdélyi méhecske"* (Transylvanian honey bee), Pálffi detailed the lifehistory and harms of Vespidae (withouth mentioning species) in apicultural point of view. He calls our attention for the importance of wasp-control in spring time. According to Pálffi: kill wasps in their drinking places where they gathers in springtime, because each wasp killed in springtime is equivalent with a killed waspiary in summer time. He also men-

tions, wasps regularly prey honeybees in autumn time, when their natural preys are disappeared. Sometimes wasps satisfy with week and dead bees, sometimes they cause significant harms by the predation of the bee populations (PÁLFFI 1762). Pálffi, as young student, entered the Minorite order. After his ordination, he became priest at several noble family and later he was directed to Moldova, than to Szentdemeter finally to Udvarhely to do missionary work and pastoral service. Besides his catholic pastoral mission, he devoted his life to apiculture.

Considering these early data, the first description of Aculeata species were completed relatively late when **Giovanni Antonio Scopoli** obtained a lecturer position at Selmecbánya (now Banská Stiavnica) Academy (this Academy is now Sopron University of Forestry in Western Hungary). The very first institute of the early Aculeata research was this academy founded by Károly the third of Hungary (the same person was Karl the sixth of the German-Roman Empire) in 1735. This "*Berg-Schola*" was reorganized in 1762 and raised to advanced, academic level by Maria Theresia (queen of Hungary and Bohemia) and renamed "*Bergakademie zu Schemnitz*". From 1769, Antonio Giovanni Scopoli took over the senior professor position and started to research the minerals of the surrounding mountains and the plants and animals of the countryside. The other important date of hymenoptera history is 1769 when he started the first (book-format) scientific periodical titled *Anni Historico-Naturales*. It had 5 volumes from 1769 till 1772.

It was a little late, but for the end of the 18th century, the Linnean system spread all over in Hungary and the insect-collections became more and more popular. **János Grossinger** established the first scientific public collection at Kassa (now Kosice) convict. The other, still existing natural history museum was established in Nagyenyed (now Aiud) at the Bethlen College in 1796 named "*Raritatum et Rerum Naturalium Museum*" founded by **Ferenc Benkő**. In this time, the most famous amateur entomologist was **Tóbiás Koy**.

Nikolaus Poda von Neuhaus (4th October 1723 Wien – 29 April 1798 Wien) zoologist, Jesuit priest and professor. He entered to the Jesuits in 1740, after 4 years novitiate, recieved his title of Doctor Philosophiae. In Linz, Klangenfurt and finally in Graz he taught mathematics. In Graz, Poda established the natural history museum (Universalmuseum Joanneum), and became director of the local observatory either. From 1760, he moved to Hungary where he spent 13 years till the dissolution of the Jesuits by Maria Theresia. From this time, he returned to Wien, where he worked as an independent professor and researcher till his death. The Academy of Selmecbánya in that time was a very interesting place by collecting the intellectual leaders, in that time: not only Nicolaus Poda had professor position there but Antonio Scopoli as well. In this aspect, Selmecbánya was a kind of intellectual refuge. Although, significant part of his career of Nicolaus Poda was in Hungary, but his hymenopterological (better to say entomological) work connected to Austria, the very western edge of the Carpathian Basin, to Graz. In 1761, immediately after he moved to Hungary, he published his book, titled "*Insecta musei Graecensis*" (PODA 1761), in this book he published 8 *Apis*, 6 *Vespa* and 8 *Sphex* species, 4 of them new for science (see the list separately). He didn't mention by who and where they were captured, we may only assume, that the place of collection was around Graz (western border of the Carpathian Basin). See for more detailes the Austrian part of this monograph.

Giovanni Antonio Scopoli (13th June 1723 Cavalese – 8th May 1788 Pavia) was the next polymath after Nicolaus Poda who studied the bees and wasps of the Carpathian Basin. His mother was Claudia Catharina Gramola, his father Francesco Antonio Scopoli. The young Scopoli started his studies in Cavalese, continued it in Trento and finished the high school in Hall. He studied medical sciences at Innsbruck University and started his medical practice in the public hospital of his hometown. Soon, Scopoli traveled from home to have further medical practice in Trento than in Venezia. During his stay in Venezia, he read firstly the *Systema Naturae* from Linné which work became determinative for his further career and for his whole life. In the Faculty of Medical Sciences of Vienna University, Scopoli took his final exam. After his successful exam, he received the medical doctor position of Idria. During his travel to Idria, the ship on which they traveled bumped against to a log swimming on the flooded River Inn and the ship sank. His equipment, books and collection lost in the river. In Idria, Scopoli was forced to provide medical supply for 2000 people for low payment from the management of the mines. Furthermore there was 2 fires on his house in Idria in which his collection burnt 2 times. His wife and son died in Idria. On the top of these, the manager of the mines, councillor Sartori, could not accept Scopoli's passion and commitment to natural history and did not provide him time enough to do this. After these, - it was no wonder, - Scopoli felt Idria as his prison. When Nicolaus Jaquin was appointed to professor of Wien University, his position in Selmecbánya Academy in North Hungary became vacant and Scopoli received his former position: lecturer and senior professor at the Metallurgical, Chemical and Mineralogical Department of the Selmecbánya Academy (Now Sopron University of Forestry, the Academy was relocated to Sopron after the First World War). (Scopoli choose himself this position although this time he had other 2 options: one of them was the private medical doctor position of the archbishop of Passau, the other was professor status at Sankt Petersburg Academy in Russia). In Selmeczbánya, Scopoli married to Carolina von Freyenam. She was his third wife and mother of Giovanni Scopoli junior who became the maintainer of his name. During his professorship in Selmecbánya (1769-1779) he wrote 7 important books: *the Crystallographia Hungarica, the Introductio ad historiam naturalem* and the *Anni i-v historico naturalis* series. In the 4th and 5th volumes, namely *Dissertatio de Apibus* and *Observationes Zoologicae* he discusses those species which he described from Hungary. These are:

In Dissertatio de Apibus 1770:
Eucera curvicornis sp. n. "Cremnizium (Körböcbánya) in Hungaria"
Apis fasciata sp. n. unknown locus typicus Carniola or Hungary
Apis luctuosa sp. n. "Inveni in Hungaria circa Scheminizium et denuo in collibus Cremnitzensibus"
Apis vespiformis sp. n. "circa Cremntizium in Hungaria"
Apis agilissima sp. n. "In Hungaria inferiore"
Apis fuliginosa sp. n. "In Hungaria"
Nomada squalida sp. n. unknown locus typicus Carniola or Hungary
Nomada ranunculi sp. n. unknown locus typicus Carniola or Hungary

In Observationes Zoologicae 1772
Sphaex hemiptera sp. n. "circa Cremntizium in Hungaria"
Chrysis hungarica sp. n. "circa Cremntizium"
Vespa pacicephala sp. n. "circa Cremntizium"
Vespa pteropoda sp. n. "circa Cremntizium"

Although Scopoli's collection was destroyed in two fires in his house in Idria, he reestablished it and took it to Pavia with himself when he left the Academy. Dr Péter Tóth (Miskolc University) tried to find his collection in Pavia and also in Verona but without any success. His intensive correspondence with Carl Linné and with the professors of the Budapest University (Mátyás Piller and Ignác Born) are also important documents of his scientific works done in this period. The reason, that Scopoli left Hungary was the royal censorship (last decade of reign of Maria Theresia of Habsburg-Lothringen, queen of Hungary). Between 1772 and 1775 no one of book of Scopoli could be published. According to the decree of the senior royal councillor of mintage and mining affaires, no one was allowed to publish paper or book without prior permission. Especially, Scopoli's one consequence seemed to be very problematic (Principia and Crystallographya Hungarica): "*Not all minerals are creations of God*".

Johann Friedrich Gmelin (8th August 1748 Tübingen – 1st November 1804 Göttingen) German zoologist and botanist. Gmelin graduated at Tübingen University as medical doctor where he became professor of philosophy after his leaving Tübingen, professor of botany, geology and medicine in Göttingen. In the 13th edition of "*Caroli a Linné Systema naturae per regna tria naturae, secundum classes, ordines, genera, species, cum characteribus et differentiis*" (GMELIN 1793) he mentioned the occurrence of *Apis vespiformis* (Cremnitz), *Apis agilissima* (Hungaria inferiore) and *Apis luctuosa* (Habitat in Hungaria) in Hungary based on Scopoli's descriptions.

Johan Christian Fabricius (7th January 1745 Tonder – 3rd March 1808 Kiel) Danish student of Carl Linné, one of the most influential entomologist of the 18th century. He described a nice series of insects from Hungary deposited originally in the Hübner collection. These specimens he received from **Jacob Hübner** 1761-1826, German entomologist. Lepidoptera specialist.

These are:

Mutilla hirta Fabricius, 1793 "Habitat in Hungaria Dom. Hybner"

Tiphia villosa Fabricius, 1793 "Habitat in Hungaria Dom. Hybner"

Larra ichneumoniformis Fabricius, 1793 "Habitat in Hungaria Dom. Hybner"

Petersen found other 2 species in the Fabricius collection described from Hungary, namely:

Mutilla ciliata Fabricius, 1793 "Habitat Halae Saxonum"

Mutilla hungarica Fabricius, 1793 "Habitat Halae Dom. Hybner"

According to LELEY (2002) and PETERSEN (1988): they originally were captured in Hungary, based on the original labels in the Fabricius collection (which is confirmed by the name "hungarica"). In FABRICIUS, 1793, the habitat was erroneously published. Especially the name *Mutilla hungarica*, strongly confirms Petersen's observation.

The way, how these Hungarian specimens got into the Hübner collection is unknown, however, following the kind advice of Zsolt Bálint (curator of Lepidoptera Collection, Hungarian Natural History Museum), we may say: probably Tóbiás Koy sent specimens to Esper and through Esper got these specimens into the Hübner collection.

Johann Ludwig Christ (18th October 1739- 19th November 1813), German Lutheran clergyman and hymenoptera specialist) listed the following species from Hungary with reference for Sopoli's work: *Apis fulviventris, Apis curvicornis, Apis vespiformis, Apis fusca, Apis luctuosa, Apis fuliginosa, Apis* (*Bomb*.) *violacea* (this from Buda), *Sphex hemiptera* and *Chrysis hungarica* in his book, titled *Naturgeschichte, Classification und Nomenclatur der Insecten vom Bienen, Wespen und Ameisengeschlecht*. He also pro-

vided the description of *Sphex radula hungarica* Christ, 1791 from Hungary which is now synonym of. *Radumeris radula* (Fabricius, 1775). According to Christ's description and interpretation, *Apis fusca* Scopoli, 1763 sensu Christ, 1791 is identical with *Osmia bicolor* Schrank. The other species he described from Hungary was *Bombus monacha* Christ, 1793 which is known as *Bombus barbutellus* (Kirby, 1802) but nobody supressed this name (*monacha* has priority 1791 vs. 1802).

János Keresztély Grossinger (27th September 1728 Komárom (now Komárno) – 1803 Komárom, Jesuit friar, director (praefectus) of Nagyszombat (now Trnava) seminary and professor of linguistics and grammar, later director of Kassa (now Kosice) convict and professor of theology) established the first public natural history collection in Kassa. János Grossinger started his studies in his hometown, Komárom and continued in Nagyszombat and finished in Trencsén. At his age of 16, he entered to the Jesuit Order at Besztercebánya. He taught humanities at Ungvár. His superiors recognized his talent therefore they sent Grossinger to Graz to continue his study where he passed his doctoral exams. In the next year, he taught at Nagyszombat seminary where he became praefectus. From 1743, Grossinger traveled around Hungary collecting natural objects and doing observations and researches. After Nagyszombat, he taught several places: Győr, Kassa, Szalonca, Pozsony, Trencsén and also in Wien Theresianum. After the dissolution of the Jesuit Order by Maria Theresia, he joined to the Haller regiment as army chaplain. In this way, he had possibility to travel around in Italy, Austria and Hungary (visiting the museums of Milano, Cremona, Mantova, collecting in Tolna and Bács counties, Zilah, Szilágyság, Meszes Mts, Világos, Borosjenő, Pétervárad, Neszmély, Csókavár, Balaton etc.). In 1780, he left the army, moved back to his hometown, Komárom and started to put together his notices and write his observations. His major work in nature history is the monograph series titled *Universa Historia Physica Regni Hungaria*. The first four books described the fauna of Hungary including insects in the 4th book. The fifth book discussed dendrology. The other 5 books (botany and geology) remained in manuscript and preserved in the manuscript-collection of the Hungarian National Museum.

Grossinger accurately described the morphology and life history of insects including genera of Hymenoptera known in his time and divided the Hymenoptera into the following genera which were discussed in different chapters in this way:

Hymenopterorum Ordo
- I. Hymenoptera generali
- II. Crabrones et Vespae
- III. Tenthredo et Cynips
- IV. Ichneumon
- V. Sirex, Sphex et Chrysis
- VI. Vesparum indoles
- VII. Multiciplitas Vesparum
- VIII. Apis et Mutilla

He discussed these genera (life history, morphology) in details but only few species are mentioned, these are: *Vespa crabro, Bombus terrestis* (as *Apes terrestis*). This monograph is the first academic level zoological and dendrological textbook written in Latin and completed with Hungarian and German names therefore it became significant resource of the old Hungarian zoological names (technical words before the neology of the Hungarian Language in the reform era, in the early 19th century).

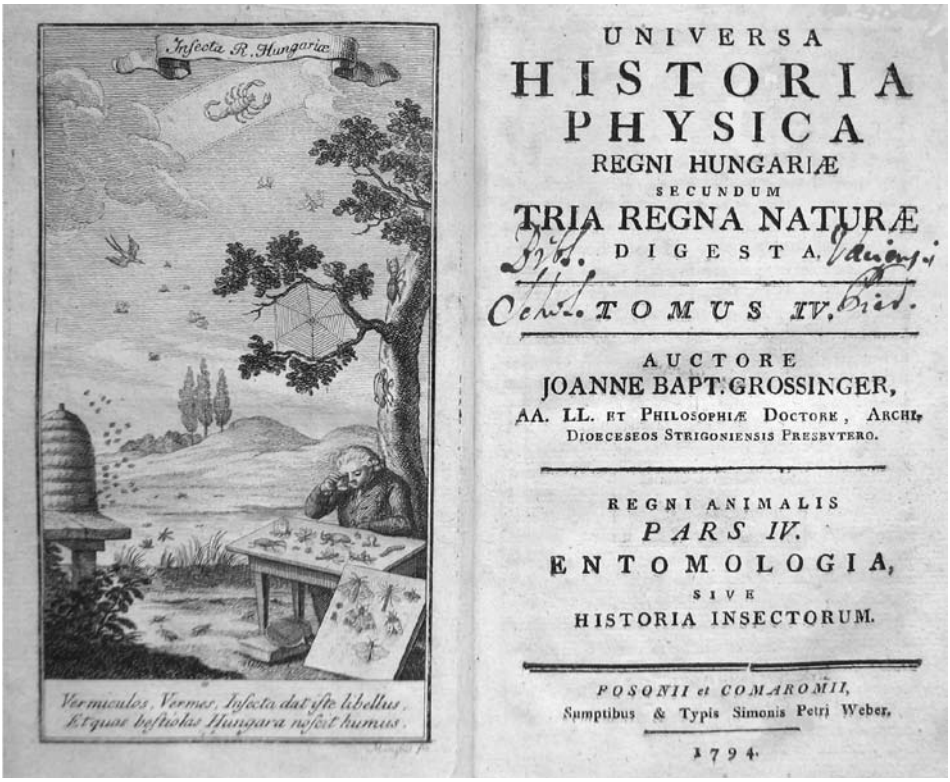

Fig. 7: Illustration from Grossinger: Universa Historia Physica Regni Hungaria

István Gáti (8th April, 1749, Mánd – 17th February, 1843 Szatmár) Calvinist pastor, board judge, poet, the inventor of Hungarian stenography, linguist, naturalist: briefly: polymath. In his book titled "*Természet Históriája*" (Natural History), Hymenoptera is also discussed, in 1795. The whole title of this book is "*A természet históriája, melyben az ásványoknak, plántáknak és az állatoknak három világát azoknak meg-esmértető bélyegeikkel, természetekkel, hasznokkal, hazájokkal rendbe szedve és a gyenge elméhez alkalmaztatva mind egygyütt magyar nyelven botsátja-ki*", English translation: "*Natural History, in which he discusses the three realms of Nature: Minerals, Plants and Animals with their Distinguishing Marks, Natures, Benefits and Homes; sorted in good order and adjusted to the weak minds of the readers (!) published in Hungarian language*". Gáti discusses the following species and groups of Hymenoptera: Ketskedarázs (Common wasp, *Vespula vulgaris*), Lódarázs (European hornet, *Vespa crabro*), dongók (Carpenter bees and Bumble bees) and "flies" (all other diptera and hymenoptera). In this work, the authentic observations and experiences are mixed with legends and uncontrolled information: "*Their honey (European hornet!), which they put in the ground and lairs is good for nothing but their sting is so venomous that it could kill even humans; moreover, in England, some of these hornets chases even sparrows*." Similar contemporary work is **Andreas Kralowanszky** 1795: *Naturalis historiae compendium quod in usum suarum praelectionum conscripsit propriisque sumtibus* edidit Andreas Kralowanszky Lőcse typ

Podhoranszky. p. 311. (not checked). **Andreas Kralowansky** (29 December 1759 Kralova - 14th November 1809 Sopron, professor of Késmárk Lutheran High School, professor and rector of Eperjes High School and finally high school professor in Sopron).

Lajos Mitterpacher (25th August 1734 Bellye – 27th May 1814 Pest) Jesuit friar, professor of theology, Latin and agriculture of the Theresianum in Vienna, later professor of natural history and agriculture of Nagyszombat University (now University of Sciences Budapest). Member of the Bologna Academy of Sciences and author of 25 books mainly on Agriculture. In 1799, he published a University textbook, titled: "*Compendium Historiae Naturalis*" in the hymenoptera part of this book he listed the following Aculeata species from Hungary.

Trypoxylon figulus (Linné, 1758) as *Sphex figulus*
Ammophila sabulosa (Linné, 1758) as *Spheges sabulosa*
Anoplius viaticus (Linné, 1758) as *Spheges viatica*
which is synonym of the above
Apis mellifica Linné, 1758
Megachile centuncularis (Linné, 1758) as *Apis centuncularis*
Colletes cunicularius (Linné, 1758) as *Apis cunicularia*
Bombus terrestris Linné, 1758 as *Apis terrestris*

In the last decades of the 18th century, **Tóbiás Koy** (1757 Wien – 3rd July 1829 Buda, officer of the Hungarian Royal Financial Chamber) took regular collecting trips in the hills of Buda (now Budapest, in that time, the 2 cities: Buda and Pest existed separately). In 1800, he published the checklist of his insects titled: *Alphabetisches Verzeichniss meiner Insectensammlung* (KOY 1800). In this small, 65 pages booklet, he listed 92 Aculeata species. The following species were listed (according to his original spelling): *Andrena aena, A. atra, A. bicolor, A. coerula, A. flavipes, A. hirta, A. plumipes, A. spinipes, Apis agrorum, A. centuncularis, A. cornigera, A. farfarisequa, A. flavipes, A. fronticornis, A. furcata, A. hispanica, A. hortorum, A. lagopoda, A. lapidaria, A. manicata, A. maculata, A. mellifica, A. muscorum, A. pacifica, A. pilipes, A punctata, A. 4 maculata, A. ruderata, A. rufa, A. rupestris, A. terrestis, A. violacea, A. vulpina, Bembex glauca, B. rostrata, Chrysis aenea, Ch. aurata, Ch. carnea, Ch. cyanea, Ch. fulgida, Ch. ignita, Ch. lucida, Ch. splendida, Crabro alatus, C. clypeatus, C. cribarius, C. 4 maculatus, C. subterraneus, C. unicolor, C. uniglumis, C. vagabundus, C. vexillatus, C. zonatus, C. glechomae, C. rosae, Eucera linguaria, E. longicornis, Hylaeus arbustorum, H. cylindricus, H. florisomnis, H. maxillosus, H. morio, Mutilla halensis, M. hungarica, M. pedemontana, Philantus arenarius, Ph. laetus, Ph. pictus, Ph. 5 cinctus, Pompilus tropicus, P. viaticus, Scolia bicincta, S. flavifrons, S. hortorum, S. prisma, S. 4- punctata, S. signata, Sphex annulata, S. arenaria, S. lutearia, S. sabulosa, S. signata, Tiphia femorata, Vespa coarctata, V. crabro, V. gallica, V. germanica, V. parietina, V. pedunculata, V. quadrata, V. rufa* and *V. vulgaris*. "He was in correspondence and exchanged insects with the leading naturalists of his age like Esper, Hoffmansegg, Illiger, Panzer and Schreber."

History of the Aculeata research from 1801 till 1920 in Hungary

The first zoological textbook of the 19th century was the "*Természeti história. A Linné systemája szerint. 1. tsomó. Az állatok országa*" (nice archaic Hungarian, in modern English: *Natural History according to Linné's system*) is written by **János Földi** (21st December 1755 Nagyszalonta – 6th April 1801 Hajdúhadház). In this book (FÖLDI 1801), he mentioned 13 species, namely *Sphex sabulosa, S. figulus, Chrysis ignita, Vespa crabro, V. vulgaris, V. arvensis, V. cribaria, Apis centuncularis, A. mellifica, A. violacea, A. terrestris, A. muscorum* and *Mutilla europaea* (according to his original spelling and classification). Földi described not only the appearance of these species but provided the description of their life history, hosts and economic importance as well. János Földi was a medical doctor, naturalist, philologist and poet. He studied at the Calvinist High School in Debrecen and graduated at the Faculty of Medicine of Budapest University of Sciences. After his graduation, he started his medical practice in Szatmárnémeti than moved to Hajdúhadháza. In these years, he completed this book which was published in Pozsony (now Bratislava) half year after his death. He died in tuberculosis at the age of 45.

There was hardly any Hungarian Aculeata record in the first five decades of the 19th century. Although this period of Hungary was characterized by intensive cultural and scientific progress (Hungarian reform era, foundation of the Hungarian National Museum in 1802 and the Hungarian Academy of Sciences in 1825, establishement of the Natural History Society in 1841 etc.) this group was not studied at all. **Johann Christoph Friedrich Klug** (1775 Berlin – 1856 Berlin, curator of the Natural History Museum in Berlin). Between 1816 and 1818, described 9 new Hymenoptera species from Hungary which were purchased from **Gustav Dahl** salesman and entomologist from Vienna but all of them were Tenthredinidae. Klug, probably in this way, received aculeata specimens either, but he never described them, for instance, *Chrysis albipennis* Dahlbom, 1854 attributed to Klug by Dahlbom (probably he found it in the Klug collection).

From the second half of the 19th century, the Hymenoptera research became intensive. Not only Hungarian but Austrian, German, French and even Russian specialists researched the sawfly fauna of Hungary. Nineteen years after the 1848 revolutions (in Wien and Budapest) the situation was consolidated. Austria and Hungary officially united and formed the Austro-Hungarian Monarchy in 1867. In this time, **János Frivaldszky** established the world famous entomological collection of the Hungarian National Museum and purchased the Koy collection from the 18th century. In 1883, **Ernő Kaufman** started the first entomological journal titled: *Rovarászati Lapok* (*Entomological Journal*) that did not exist even for a year. One year later, in 1884, **Géza Horváth** started the second periodical called *Rovartani Lapok* (*Journal of Entomology*) that is now the *Folia entomologica hungarica*. The most important journals on plant protection: *Köztelek* (journal of the Association of Hungarian Landowners, founded in 1891), *Növényvédelem* (*Plant Protection*, founded first in 1925 and reestablished in 1965) and *Acta Phytopathologica et Entomologica Hungarica* (founded in 1966). In 1880, the *Országos Phyloxéra Kísérleti Állomás* (*National Phyloxera Research Station*) was founded. It was the predecessor of the *Plant Protection Institute of the Hungarian Academy of Sciences*.

Furthermore, applied hymenoptera researches were also done in the Plant Protection Faculties of the Agricultural and Horticultural Universities (Budapest, Keszthely, Gödöllő and Debrecen) and also in the County Stations of the *Hungarian Plant*

Protection Service founded in 1932. The Hungarian research centre of forestry protec¬tion is the Erdészeti Tudományos *Intézet* (*Forestry Research Institute*) in Budapest founded in Selmecbánya (Banská Stiavnica) in 1897.

Different scientific societies and associations gave place for the regional entomological research, like the *Pozsonyi Orvos- és Természettudományi Egyesület* (*Pozsony Society of Medical Sciences and Natural History*) foundend in 1856, the *Erdélyi Múzeumi Egylet* (*Association of Transylvanian Museums*) founded in 1859, the *Magyar Természettudományi Társulat és Magyar Orvosok és Természetvizsgálók Vándorgyûlései* (*Annual Assemblies of the Hungarian Society of Nature Scientist and Medical Doctors*) founded in 1841 or the *Selmecbányai Gyógyászati és Természettudományi Egyesület* (*Selmecbánya Society of Medical and Nature Sicences*) founded around 1870, *Kolozsvári Orvos- Természettudományi Társulat (Kolozsvár Society of Medical Sciences and Nature History*) foundend in 1876. **Ottó Herman** established the journal titled *Természetrajzi Füzetek* (*Journal of Natural History*). In this time, several museums were founded countrywide: in 1879, the Szeged Municipal Museum; in 1882, the Carpathian Museum at Poprád; in 1889, the Besztercebánya (Banská Bystrica) Museum and in 1887 the Mátra Museum at Gyöngyös. The bases of the Natural History Department of Brukenthal Museum (Nagyszeben, Sibiu) were laid in 1849, through the foundation of the *Transylvanian Society of Natural Sciences* (*Siebenbürgischer Verein für Naturwissenschaften, Erdélyi Természettudományi Egyesület, 1849-1949*).

Anders Gustav Dahlbom (3rd March 1806 Herrberga – 3rd May 1859 Lund) was born in a family of a military surgeon. In his work, titled "*Hymenoptera europaea praecipue borealia : formis typicis nonnullis specierum generumve exoticorum aut extraneorum propter nexum systematicum associatis; per familias, genera, species et varietates disposita atque descripta vol. 1. Sphex sensu Linneano* " (nice, long title) Dahlbom published 2 species from Hungary. One of them is *Larra anathema* Rossi (DAHLBOM, 1843) the other one, he described from Hungary, is *Pompilus zelleri* Dahlbom, 1843. This second specimen, he received from his friend **Philipp Christoph Zeller** (1808-1883) German entomologist. Furthermore, in DAHLBOM 1843a, he published occurrence of 4 Chrysididae species from Hungary and in the 1854 issue of "*Hymenoptera europaea praecipue borealia*" Dahlbom provided one more description: *Chrysis albipennis* Dahlbom, 1854 from Hungary. Dahlbom attributed this species to Klug, however Klug didn't described it. He found an old specimen in Berlin Museum probably with label of Klug like "*albipennis and Hungaria*" but we have no description from Klug (DAHLBOM 1854). The young Gustav inherited his interest in entomology from his father, Wilhelm Dahlbom who was amateur entomologist. He matriculated at Lund University in 1825 and completed his PhD there and became docent of natural history in 1830, and later ordinary professor of entomology, and curator of the university entomological collections. He married Johanna Augusta Maria Vilhelmina Krey in 1845. Supported by public funds, he made several research journeys, especially to mountaneous regions of northern Sweden (where he first accompanied his former teacher, the dipterologist Johan Wilhelm Zetterstedt), as well as to other parts of the country and abroad, and published his observations in various works, in which the most important is the *Hymenoptera europaea praecipue borealia* (1843–1853), a foundational work on hymenoptera. He died in Lund and buried in the cemetery of the monastery.

Arnold Förster (20th January 1810 Aachen – 12th August 1884 Aachen). German botanist and entomologist. The young Arnold was born in a family of a farmer, Caspar

Aegidius Arnold Foerster in Aachen and even as schoolboy, he showed strong interest in insects and started to study entomology from Johann Wilhelm Meigen. After finishing his high school, he studied medical sceinces at University of Bonn, where he met Georg August Goldfuss and devoted his life to natural sciences. After his graduation, Förster found a job, in 1836, at "*Higher Bürgerschule*", later Rhein-Maas-Gymnasium in Aachen. Förster was founding member of "*Natural Historical Society of the Prussian Rhineland*" and also that of "*Botanical Club of Middle and Lower Rhine*". He was active in local politics either: Förster was member of the Catholic Civil Organisation, the "*Constantia Society*" in which he was president for a period and also was member of the Centre Party of the City Council of Aachen.

He described 4 *Coelioxys* species, 1 *Nomia* species, 4 *Hylaeus* sepcies and 10 Chrysidoidea species from Hungary. These species he received "*Herr. von Frivaldszky in Ungarn*", very likely from János Frivaldszky, because Imre Frivaldszky retired in 1851 and János Frivaldszky was appointed to the Hungarian National Museum in 1852. These descriptions were published in 2 parts of "*Eine Centurie neuer Hymenopteren*" (FÖRSTER 1853, 1860) and in "*Monographie der Gattung Hylaeus F, (Latr.)*" (FÖRSTER 1871).

Leopold Anton Kirchner (1808 Lerchenfeld – 29th December 1879 Kaplitz, medical doctor, hymenopterologist and dipterologist). In his catalogue, (KIRCHNER 1867) he mentioned only few Aculeata from Hungary, for instance *Chrysis albipennis* Klug without providing any information where this species were described by Klug. In Dalla Torre Catalogue, it was excluded as non existing species. Furthermore, he listed some of the species which were previously described from Hungary (they were already discussed above).

Jean Antoine Dours (22nd March 1824, Bagnéres de Bigorre – 29th July 1874 Amiens) was French Hymenoptera specialist. In one of his main work, titled "*Monographie iconographique du genre Anthophora*", he described one species, namely *Eucera semistrigosa* Dours, 1869 from Greece, Algeria and Hungary which proved to be later synonym of *Eucera interrupta* Bar, 1850 (Dours 1869).

Gustav Mayr (12th October 1830 Wien – 24th July 1908 Wien) high school professor at Budapest, later in Wien (his moving from Budapest to Wien was reasoned by the contemporary hungarization laws inside the Austro-Hungarian Monarchy after 1867). He was one of the founding members of the Wien Zoological and Botanical Society. Mayr was the first entomologist, who studied the Hymenoptera fauna of Transylvania. In his paper (MAYR 1853), he reported eight, mostly common Aculeata species.

Joseph Etienne Giraud (31st January 1820 Briancon – 28th May 1877 Paris). Joseph Etienne Giraud was medical doctor who practiced in Vienna and also in Paris. His field of research was mainly Hymenoptera but he also interested in Coleoptera. He described a bee species, *Panurgus fasciatus* Giraud, 1857 from Hungary based on a male and 1 female specimens received from "Mr. Kováts" (Gyula Kováts), collection manager of the Hungarian National Museum, Natural History (GIRAUD 1857). In his other work, titled "*Description de plusieurs Apides nouvelles et observations sur quelques especes connues*" Giraud mentioned 4 wild bee species from Hungary (GIRAUD 1861).

József Török (14th October 1813 Alsóvárad – 14th March 1894 Debrecen). Medical doctor, naturalist, member of the Hungarian Academy of Sciences. The young József

graduated at the Kalvinist College of Debrecen in teology and law, later he studied medicine in Pest, Berlin and Paris. Török completed the dictionary of Hungarian natural history and medical technical words and phrases titled "T*ermészettudományi szóhalmaz*". During the 1848-49 revolution, he served as Chief Medical Officer. He listed the Hymenoptera fauna of Debrecen in the third part of a series of scientific papers titled "*Debreczen rovarfaunájának ismertetése. III. közlés. Hártyaröptűek (Hymenoptera)*" in 1868. He summarized his 8 years collections. For the identification, Török consulted the identification keys of Dr. E. L. Taschenberg titled "*Die Hymenopteren Deutschlands, nach ihren Gattungen, Leipzig 1866*.". In this paper; he listed 112 Hymenoptera species including 13 Symphyta species and 75 Aculeata species (Török 1868). He gave Hungarian name for all species. These names for now, are badly outdated and not in use any longer. The reason of the non usability of his names is the forced compliance of the Hungarian names to the Linnean binominal nomenclature which is unconventional in the Hungarian language use, like: "*Cerceris arenaria* - homoki Döreg, *Larra anathema* - emle Dengely, *Vespa crabro* - szitári Darázs, *Polistes gallica* - közönséges Alkár, *Tiphia femorata* - vöröczombú Gyöpér, *Bombus pratorum* - réti Pöször, *Osmia fulviventris* - rőtsárgahasú Büzér, *Holopyga ovata* - petés Tünöcz, *Hedychrum lucidulum* - csillogó Zömény, *Chrysis ignita* - tüzes Arangy etc.".

Oktavij Ivanovitsch Burmeister Radoszkowski (7th August 1820 Lomza – 1st May 1895 Warsawa) Radoszkowski was Polish entomologist specialised for Hymenoptera. He worked in Russia. After finishing the High School of Piarist Order in Warsawa in 1837, Radoszkowski went to Russia and continued his study at the College of Artillery in St. Petersburg. His military studies were completed with geometry and mathematic either. He served in Crimea and Caucasus at the Russian units of artillery. Due to his health problem, in 1879, he retired as general lieutenant. A year after, he returned to Warsawa. There, after a long and serious illness, he died. Radoszkowski described one new Aculeata species and one new variation from Hungary. One of them is *Mutilla daghestanica* Radoszkowski, 1885. It is quite interesting, in opposite of the specific name "*daghestanica*", it was described from Bánát (Hungary). The other species is *Bombus pratorum* var. *Tatranus* Radoszkowski, 1884 described from the Tatras (RADOSZKOWSKI 1884, 1885).

Joseph Kriechbaumer (21st March 1819 Tegernsee – 2nd May 1902 München) German entomologist, specialized for Hymenoptera. He described *Bombus mocsaryi* Kriechbaumer, 1877 from South-East Hungary (KRIECHBAUMER 1877). Kriechbaumer finished his highschool in München and graduated in medicine at München University. After his graduation his attention turned towards zoology, changed his career and started to teach in Chur at the local high school. He married in Tegernsee, but his happines was short and till his death Kriechbaumer remained widow. He continued teaching in München later in Ingolstadt. In 1898, he was empolyed by the Natural History State Collection in München but after 3 years he was forced to retire caused by embolism. In 1902, he became seriously sick, digestive organ problems and severe bladder problems caused him lot of pain at the end of his life.

Henri Tournier (26th September 1834 - 27th August 1904) was a Swiss entomologist (Hymenoptera and Coleoptera). He described *Tiphia semipolita Tournier*, 1899 from Hungary (Tournier, 1899).

In 1872, **Ottó Herman** (1835 Breznóbánya – Budapest 1914: naturalist, ethnographer, archeologist and politician) published one paper on the nature history and fauna of

Mezőség listing numerous (47) Aculeata species (HERMAN 1872). The listed Hymenoptera species were identified by **Alois Friedrich Rogenhofer** (22nd December 1831 Wien - 15th January 1897 Wien) Lepidoptera and Hymenoptera specialist, curator of the Lepidoptera collection of the Naturhistorisches Museum, Wien.

János Frivaldszky (17th June 1822 Rajec – 29th March 1895 Budapest, entomologist, manager of the zoological collection of the Hungarian National Museum) has 4 important faunistic papers on hymenoptera. In his paper, titled "*Data to the fauna of Máramaros county*" he described his zoological expedition into the county on July of 1871. In this month, they collected 618 insect species including few (only 3) Aculeata species from Fajnavölgy, Vörösmárth and at the foot of Pietros Mts. (FRIVALDSZKY 1871). In his other paper on the fauna of Temes and Krassó counties (FRIVALDSZKY 1876), he provided long list of Hymenoptera from Grebenácz, Ulma, Ferencfalva, Ribisvölgy and Oravica, including the description of 5 new species, namely: *Ammophila mocsaryi* Frivaldszky, 1876; *Pterochilus formosus* Frivaldszky, 1876; *Larra hungarica* Frivaldszky, 1876; *Tachytes discolor* Frivaldszky, 1876 and *Osmia affinis* Frivaldszky, 1876 (their current status see separately). In 1873, he reported the results of his zoological-botanical expeditions to Herkulesfürdő, Orsova and Korniareva (Transylvania) in 1853, 1856, 1865 and 1867 with Imre Frivaldszky or with Károly Sacher or sometimes alone (FRIVALDSZKY 1873). His long and detailed list includes high number of Hymenoptera species. Frivadszky completed the insect fauna of Budapest either published in the monograph on the nature history of the capital of Hungary (FRIVALDSZKY and MARKÓ 1879).

Frivaldszky attended grammar school in Trencsén (now Trenčín), Nagyszombat (now Trnava) and Léva (now Levice) finally in Vác (luckily Vác is still Vác). In 1840, he started his engineer studies but all his spare time he spent in the Hungarian National Museum, where he worked with his uncle, Imre Frivaldszky. He passed the comprehensive exam of engineering from 1847 to 1848. In 1852, the Hungarian National Museum appointed him assistant curator, and 18 years later, Frivaldszky held the position of the executive officer of Department of Zoology of the National Museum. He traveled twice in the Balkan Peninsula, and from these expeditions, he returned with rich material. In 1865, he was elected correspondent, and in 1873 full member of the Hungarian Academy of Sciences and also became member of numerous international scientific societies. He also studied other animals not only insects.

Károly Brancsik (13th March 1842 Óbeszterce – 18th November 1915 Trencsén, medical doctor and public health officer of Trencsén county). Károly Brancsik studied in Wien, Prague and finally in Graz Universities and started his medical career in Beckó later got job in Trencsén as medical doctor and public health officer of the region. Brancsik participated in different zoological and botanical expeditions, often as organizer in Hungary, in the Balkans and also in Austria. His favorite groups were beetles, snails, grasshoppers, and the plants which were clearly reflected in his collection specimens and his species descriptions as well. He was in exchanges with 125 foreign institutions, therefore he steadily increased his collection with specimens from exotic lands (eg. New Guinea, Madagascar, Africa, North America and Australia). Beyond his interest in natural history, he also dealt with poetry, painting and music (as composer). Károly Brancsik reported numerous Hymenoptera species (BRANCSIK 1893) from the historical Trencsén vármegye (historical county around Trencsén in Hungary, now Trenčín in Slovakia). This output was result of 2 years intensive collection (BRANCSIK 1893). Brancsik didn't list the places of captures. Only the Aculeata parts are 5 pages. Dr.

Brancsik's entomological collection including Hymenoptera is deposited in Trenčín Museum (according to KOLESKA 1979) and few specimens were found in Budapest either.

Jacques Ernest Edmond André (1844 Beaune – 1891 Beaune), French hymenopterologist, who was originally wine merchant but changed his way and soon, he devoted his life to natural history, continuing his career as book editor and scientist. As we know from his paper, published in Természetrajzi Füzetek (Hungary), he was the notary of the town of Gray (Haute-Saone) as well. André was elected to corresponding member of the American Society of Entomology either. His main and well known work, the series of monographs titled "*Species de Hyménoptères d'Europe et d'Algérie*". Most of these books were written by himself, but some of them were written by other specialists of various groups of Hymenoptera (like Kieffer or du Buysson). In this monumental series, he published numerous species of Sphecoidea, Mutillidae and Eumenidae from Hungary mostly based on data of Sándor Mocsáry, with him, he was in friendly relationship. He had other Hungarian connection: he identified the Mutillidae collection of the Natural History Department of the Hungarian National Museum, as he wrote about it: "*M. Alex. Mocsáry, Conservateur du Musée National de Hongrie, á Budapest, a bien voulu me communiquer quelques intéressants Hyménoptéres de la Famille des Mittillidae conservés dans les cartons de cet éta- blissement, en me donnant l'autorisation de décrire les espéces nouvelles qui pourraient s'y rencontrer. C'est le résultat de cette étude que je publie ici, en adressant á M. Mocsáry mes plus sincéres remerciements pour son obligeance bien connue, d'ailleurs, de tous les entomologistes.*" This mutually beneficial connection resulted 2 scientific papers, published in Hungary, one in the Természetrajzi Füzetek (Journals of Nature History) the other in Annales Musei nationalis Hungarici (ANDRÉ 1896, 1908). Unfortunately, all of them were exotic species. André described (perhaps) only one species from the Carpathian Basin, namely *Mutilla nigrescens* André, 1901 (now *Physetopoda scutellaris* (Latreille, 1792)), one of the original series is captured in Croatia. This is a very uncertain locality, Northern part of Croatia is part of the Carpathian Basin, but the Southern part is definitely not.

August Schletterer (1850 St. Pauls (now San Paolo) at Bolzano – 24th May 1908 Girlan (now Cornaiano) at Bolzano). Schletterer attended high school of the Franciscan order. After his military service in Bosnia and Herzegovina, returning home, he started to teach in Bolzano, then at the high school in Horn (Lower Austria) and from 1883 in Vienna. There, Schletterer also worked as volunteer researcher at the Naturhistorisches Hofmuseum. After his appointment in 1890, as high school teacher to Pola, he terminated his activities in entomology. August Schletterer described 3 *Chelostoma* species from Hungary, namely: *Chelostoma ventrale, Ch. handlirschi* and *Ch. schmiedeknechti* (SCHLETTERER 1889a) and 7 *Cerceris* Latr. species and variations (see them separately) (SCHLETTERER 1887). Further valuable faunistic data on genus *Cerceris* we may find in his monograph titled: "*Nachträgliches über die Hymenopteren-Gattung Cerceris Latr.*" (SCHLETTERER 1889b).

Lajos Bíró (29th August 1856 Tasnád – 2nd September 1931 Budapest), graduated at the Faculty of theology of Debrecen, later continued his studies at Budapest Kalvinist College. During his student years, he visited the Zoological Department of the National Museum where he worked as volunteer. In Aculeata faunistic and zoogeography, he has one paper, titled: "*Keleti-Kárpátok vidékének jellemző rovarfajai*" (*Characteristic insects of Eastern-Carpathian Mts.*). Bíró collected there in the autumn of 1883 around

Beregszász (now Ukraine, earlier Hungary) but he also processed in this paper the collected material and faunistic data of Sándor Mihalovics, Kornél Chyzer and Géza Horváth. In this paper, Bíró reported various Aculeata species grouped in different types of habitats from Újhely, Tokaj, Szomotor, Páczin, Szöllőske and Czéke (BÍRÓ 1885a, b). He had several short papers: one on the night activity of *Smicromyrme rufipes* F. (BÍRÓ 1885a), and in other paper, he listed the high number of wild be species which slept in summer nights on dry *Centaurea arenaria* fixing themselves with their mandibles. He also observed that all of these specimen of various wild be species were exclusively male (BÍRÓ 1885b), finally, he described the *Steatoda castanea* Clerck parasitism by *Glypta bifoveolata* Grav. (BÍRÓ 1884).

Bíró, after more than 20 years of work in various places as teacher (Budaörs, Sátoraljaújhely, Rákospalota, Kecskemét), and in Budapest as teacher and later phyloxera inspector and laboratory assistant, in 1895, he went for a longer expedition. He was 7 years in New Guinea and he visited Java, Singapore and Australia either. He collected approximately 200 000 specimen zoological material which resulted descriptions of approximately 2400 new animal and 130 plant species and resulted more than 150 scientific papers and monographs by different authors. Nearly 250 species and 17 genera were dedicated to his honor. After his returning, the King Franz Josef University donated him doctor honoris causa title. He spent his last years with zoological expeditions to Malta, Tunis, Crete, Transylvania and Balkan Mts.

Miksa Kertész (?) High school teacher of the Norbertine order in Nagyvárad and member of the Natural Science Division of the Transylvanian Museum Association. In 1890, he published his monograph titled *Nagyváradnak és vidékének állatvilága* (F*auna of Nagyvárad and its surroundings*) published in Vince Bunyitay: Nagyvárad természetrajza (Nature history of Nagyvárad) (KERTÉSZ 1879). The following rare species he discussed (according to the original zoological nomenclature of this paper): *Pompilius spissus* Dhlb*., Didineis pannonica* Handl*, Odynerus rossii* Lep*., Andrena decipiens* Schck and *Eucera algira* Lep. Most of his data are recorded from Püspök-fürdő, Fácános, Rhédey-kert around Nagyvárad (now Oradea). The same rare species, he repeated, in his other short paper, titled "*Bihar vármegye faunája*" (*Fauna of Bihar county*) (KERTÉSZ 1901).

Artúr Petrogalli (5th January 1850 Fehérkő, now Podbrezová-Vajsková in Slovakia – 14th February 1894 Trencsén (Trenčín), high school teacher). Artúr Petrogalli studied at the University of Budapest and then in Vienna where he successfully graduated in 1871. He worked nearly 3 years as secondary school teacher of natural science, mathematics and physics at high school in Besztercebánya than in Arad finally in Trencsén. During his time in Trencsén, he was active member of almost all societies that operated here including the post of Secretary of Natural History Club of Trenčín. Arthur Petrogalli died young in 1894 at the age of 44. In his work, he reported several Aculeata species from Szitnya (now Sitno) (PETROGALLI 1890).

Jenő Petricskó (3rd August 1851 Csércs, now Circ – 1921 Besztercebánya, high school teacher at Besztercebánya, (now Banská Bystrica). He was educated at Eperjes (now Presov) high school and graduated at Budapest University, where he obtained his teacher degree. Petricskó started his career at Budapest University, as assistant professor than he moved to Zombor (now Sombor) to teach in the local high school. Finally, he became professor of natural history, mathematics and geography at the catholic high school of Besztercebánya (now Banská Bystrica). In his paper, published by the

Selmecbányai Gyógyászati és Természettudományi Egyesület (Selmecbánya Society of Medical and Nature Sicences) in 1892, titled "S*elmecbánya és vidéke állattani tekintetben*" (*Fauna of Selmecbánya and its environment*) (PETRICSKÓ 1892) Petricskó provided high number of Aculeata species. Most of them were collected in 1888 and 1889 from the following localities: Szentháromság-hegy, Ilia, Szitnya, Roszgrudi-tó (tó-lake), Kisiblye, Halicsi-tó, Greczer-forrás, Szélakna, Sba, Kálvária, Vihnye, Vereskút, Bélebánya, Pucsuvadló and Stefultó.

Tivadar Zareczky chief forester of prince Philip Saxe-Coburg and Gotha and science writer in apiculture. He was inventor a new type of vax melting instrument either. We know 2 papers of him on hymenopterology. In both of them, he discusses European hornet as pest of apiculture (ZARECZKY 1896a, b).

Sándor (Alexander) Mocsáry (27th September 1841 Nagyvárad (Oradea) – 26th December 1915 Budapest), royal councillor, director of the Zoological Department of the Hungarian National Museum and member of the Hungarian Academy of Sciences was the first Hungarian specialist of Hymenoptera. He was born in Nagyvárad. After his high school years in Nagyvárad, Mocsáry entered into the Norbertine Order. However, his long lasting sickness (TB) made him taking the monastic oath impossible. Therefore, in 1862, he had to leave the order and studied law at Nagyvárad, in his hometown, and later graduated at Vienna University, Faculty of Natural History. In 1870, he occupied his new position as apprentice in the newly established Zoological Department of the Hungarian National Museum. After 12 years, he nominated to assistant curator and in 1914, he retired as the head of the Zoological Department. In his age of 10, he was inspired to collect insects by his friend, namely gr. (earl) Emil Neuhauss (MOCSÁRY 1901b). His first insect-net were made by his older sister. Few years later, the young Mocsáry and Neuhauss made fashion of insect collection and the children of his town founded a local insect-bourse giving value for different moths, butterflies and beetles and bought and sold them.

He studied all Aculeata and Symphyta groups of the world. The faunistic works published by Sándor Mocsáry, contain the following papers: Hymenoptera fauna of Budapest (MOCSÁRY 1879), Zólyom and Liptó counties (MOCSÁRY 1878a), Transylvania (MOCSÁRY 1883 and 1874), Zemplén and Ung counties (MOCSÁRY 1875), Bihar and Hajdú counties (MOCSÁRY 1876) Temes county (MOCSÁRY 1879) and on the Hymenoptera fauna of Hungary in general (MOCSÁRY 1878c, 1879, 1881b, 1897b, 1894, 1898c, 1899c). He also described 96 new species from Hungary (MOCSÁRY 1878a, b, 1879c, d, e, 1883e, 1877a, c, d. 1894, 1887b, 1883e, 1884c, 1894, 1889a, 1882, 1906, 1912d). His favorite group was cuckoo wasps (MOCSÁRY 1876a, d, 1878b, 1879a, 1882, 1883c, d, 1889d, 1899b, 1902a, 1904, 1907, 1908, 1912a, b, c, d, f). One of his main work is the monograph on the world Chrysididae species titled "*Monographia Chrysididarum orbis terrarum universi*" with its digestions and additions (MOCSÁRY 1889a, b, c, 1890, 1892b). Beyond faunistics and species descriptions, Mocsáry worked on systematics including self-synonyms (MOCSÁRY 1881b), life history and ecology of wasps and bees (MOCSÁRY 1868a, 1876a, b, c, d, e, 1877b, 1878f, g, h, 1879a, 1883b, 1884d, 1885a, b, 1892a, 1904, 1906, 1907, 1908, 1910, 1911). He also paid attention to scientific popular papers as well (MOCSÁRY 1875a, 1876 a, b, c, d, e, 1883b, 1884d, 1886a, 1900, 1901a). Mocsáry summarized his life-work for the Hymenoptera collection in 2 papers (MOCSÁRY 1902b,c) and 2 years before his death, he wrote his self-biography (MOCSÁRY 1912e, 1913).

In 1897, he completed the Hymenoptera part of Fauna Regni Hungariae. This monograph comprised the results of zoological researches and all available faunistic data of

rare and sporadic species from Hungary, issued for the celebration of 1000 years of Hungary from it's foundation. In this monograph, he listed in total 1071 Aculeata species (excluding ants), dominantly from the Carpathian Basin (some places of capture were from Dalmatia) in the following distribution: Chrysididae: 105 species, Heterogynidae: 39 species, Pompilidae: 57 species, Sphecidae: 565 species, Vespidae: 71 species and Apidae: 565 species. (MOCSÁRY 1897d).

Lajos Abafi-Aigner (11th February 1840 Nagyjécsa – 19th June 1909 Budapest) Member of the Petőfi Society, editor of the Journal of Entomology (Rovartani Lapok), Lepidoptera specialist. In his paper, he offers the juice of freshly cut onion onto the skin for the toxins of wasps (ABAFI-AIGNER 1904).

Emil Malesevics (1858 Székesfehérvár – 1911 Losonc (now Lucenec), graduated at the Budapest University of Technology. Emil Malesevics was a geography and natural history teacher in Székesfehérvár high school. Later he moved to Losonc, where he continued his teacher career. Few years later, he was employed by the meteorological Station at Losonc where, after few years, he became director. His interest in zoology was expanded to ornithology and herpetology as well. From Losonc, Malesevics reported numerous Aculeata species in his monograph titled "*Losoncz faunája*" (*Fauna of Losonc*) (MALESEVICS 1892).

Adolph Ducke (19th October 1876 Triest – 5th January 1959 Fortaleza) Hymenoptera specialist and botanist of Museu Paraense where he was invited by Emilio Goeldi in 1899. Ducke initiated the foundation of the National Institute for Research of Amazon Forests in 1954. He published few indefinite Hungarian records in his monograph on *Osmia* bees (DUCKE 1900).

Imre Vellay (11th October 1850 Nagybecskerek – 6th August 1898, Budapest) abstractor of Szeged Town Council, later scientific assistant at Budapest Entomological Institute). Since he wasn't come from a wealthy family, he had many difficulties to live on and to finish school. Finally, he graduated at "Ludovika", the Military College of the Monarchy. For a short period, he worked as an active army officer, later he joined to public servants of Szeged town where he became notary of the town council. With co-authorship of József Vánky, who was teacher of the local secondary school, he listed the insect fauna of Szeged and its ssurroundings based on their collection from 1886 till 1893. They completed a book titled "*Fauna of Szeged and it's surroundings*"(VÁNKY and VELLAY 1894). Vellay also published a series on the fauna of the environment of Szeged. In the second part of these papers, he discussed the Hymenoptera including 163 Aculeata species (VELLAY 1899). In 1895, just before few years of his death, he was appointed to the assistant of József Jablonowski in the Hungarian Royal Entomological station.

In the early 20th century, the most important event in the entomological history was the establishment of the *Hungarian Entomological Society* (*Magyar Rovartani Társaság*) in 1910. In this time, numerous museums were founded in the countryside, for instance in Pécs, Kaposvár, Bártfa (Bardejov) and in Liptószentmiklós (Liptovsky Mikulás). The cultural and scientific life (including Aculeata research) was still active and very vivid till the tragic events of the First World War.

Tivadar Ortvay (originally Tivadar Orthmayr) (19th November 1843 Csíklovabánya (now Ciclova Montana, Transylvania) – 8th July 1916 Budapest) catholic priest, historian, archeologist, member of the Hungarian Academy of Sciences. Ortvay graduated at

the Theology Seminar of Temesvár. As catholic pastor, he serviced at Kikinda, Németoravica, Németcsiklova and Fehértemplom. Later, at Lugos, he became teacher of the catholic high school. In the following 2 years, Tivadar Ortvay worked for the archeological department of the Hungarian National Museum at Budapest and parallel with this, he received doctoral title form the Budapest University of Sciences. In the next 9 years, Tivadar worked in Pozsony as teacher of the Academy of Legal Sciences. During this period, he was also the director of the Teacher Training College of the Ursulines. Furthermore, in Pozsony, he taught the daughters of Archduke Fridrich von Teschen (member of Habsburg dynasty). In his last 10 years, he returned to Budapest and devoted his life to research and science. In his zoological work, titled "*Pozsonyvármegye és a területén fekvő Pozsony, Nagyszombat, Bazin, Modor, S. Szentgyörgy városok állatvilága*" (briefly *fauna of Pozsony county*) he enumerated high number of Aculeata species but without places and date of capture (ORTVAY 1902).

Kornél Chyzer (4th January 1836 Bártfa (now Bardejov) – 21st September 1909 Budapest, doctor of medicine, ministerial councillor, botanist and zoologist). His collection was deposited in the Carpathian Museum at Poprád. Unfortunately this collection lost. In a series of his works, titled: "*Apoidea of Zemplén County*" and "*Hymenoptera of Zemplén County*", Chyzer published high number of Hymenoptera species from all groups from the following localities: Újhely, Tocslva, Szomotor, Szöllőske, Nagymihály, Simonka, Sárospatak, Mád, Erdőbénye, Parnó, Rabaskala, Vihorlát, Szinna, Olyka (CHYZER 1887, 1902). Kornél Chyzer graduated at Pest University of Medicine and continued his studies in Vienna. After his return, for one year he worked for the Department of Zoology of National Museum in Budapest and taught for the Városi Főreáltanoda (Budapest Central High School). In the next year, he moved to Bártfa, where he appointed chief medical officer of balneology at the city hospital. After 9 years, Zemplén County elected him chief medical officer of public health, therefore he moved to Sátoraljaújhely. At his age of 25, he was elected correspondent member of the Hungarian Academy of Sciences. His largest merit was to defeat the cholera outbreak in 1872.

Illés K. Kiss (?) expert of apiculture and scientific writer. He has one paper on *Vespa crabro* L. titled "*Lódarázsfészek*" (vespiary of European hornet) (KISS 1989).

Ödön Morvay some papers of him published in Köztelek mainly on plant protection issue. In one of his paper; he discussed the importance of wasp control in plant protection point of view (MORVAY 1903).

Otto Schmiedeknecht (8th September 1847 Bad Blankenburg – 11th February 1936 Bad Blankenburg) The young Otto spent his childhood at Rudolstadt and started his university studies in Göttingen. At the outbreak of the Franco-German war in 1870, he joined as volunteer to the 56th Infantry Regiment of Göttingen. He survived, unharmed and returned home. Schmiedeknecht received a job as teacher of natural history and modern languages in Gumperda Kahla Institute. Here, he began his scientific work and studying Hymenoptera. In Jena, he was student of Ernst Haeckel where he obtained his PhD. for his thesis on Bumblebees. After his marriage, he moved back with his new family to Bad Blankenburg. Otto Schmiedeknecht was socially active. He was one of the founding members of the Thuringian Society of Entomology, also honorary member of the German Entomological Society and the Thuringian Forest Association. Later, he was appointed curator of the Rudolstadt Natural History collection (now the Natural History

Museum in Thuringer Landesmuseum Heidecksburg). He took several expeditions to the Balearic Islands, the Ionian island, the Mediterranean region, North Africa and the Middle East (Jericho, Egypt, Palestine) and Java in Southeast Asia. In Aculeata faunistic of the Carpathian Basin, he has only one important publication, but it has 1070 pages, titled "*Apidae Europaeae (Die Bienen Europas) per genera,species et varietates dispositae atque descriptae*" (SCHMIEDEKNECHT 1882-1884). In this work he described 17 *Nomada* and *Andrena* species from Hungary. Accurately, Schmiedeknecht author only 6 species, the others species, names and descriptions he received from Sándor Mocsáry, Schmiedeknecht only published the Mocsáry descriptions and names (1 species description namely *Andrena hystrix* is from Perez). Therefore, in the list, we indicate these in the following form *Nomada sybarita* Mocsary (in SCHMIEDEKNECHT 1882) and in the list instead "*species described by Schmiedeknecht*" we use: "*species published by Schmiedeknecht*". This is the explanation for a strange name that we may find in different papers: "*Nomada schmiedeknechti* Schmiedeknecht, 1882". Schmiedeknecht never named a species from himself, Mocsáry named this species for the honor of his friend and provided specimens and descriptions for his monograph. Schmiedeknecht only published this, naturally with the permission of Sándor Mocsáry. These species were published again in 1930, but this time the Nomada part was written by Stoeckhert and the title of the book is "*Die Hymenopteren Nord und Mitteleuropas*" (SCHMIEDEKNECHT 1930). In these monographs, both Schmiedeknecht and Stoeckhert, very correctly attributed the authorship to Sándor Mocsáry of these *Nomada* species detailed separately. Schmiedeknecht was personally in Hungary and he did here collections as well: In the "*Die Crabronen (Hymenopt.) der paläarktischen Region*" Kohl writes: " *Crabro (Crabro Solenius) larvatus Wesmael: Ungarn (Dr. Schmiedeknecht leg.)*" (KOHL 1915).

Gyula Pungur (24th May 1843 Erdőszengyel – 1st May 1907 Zelenika) Ornithologist and Orthoptera specialist, started his studies in Marosvásárhely, later he continued it with teology at Nagyenyed. After few years teaching at Marosvásárhely, he took his final theological exams and admitted to the Hessen-Marburg University. In the next years Gyula Pungur was teacher and/or pastor in Mezőzáh, Szilágynagyfalu and Zilah. When the Hungarian Ornithological Center was founded, he joined and soon, he became the secretary of the Center. Once, when Gyula Pungur collected insects and mounted them and let to dry, he observed serious destructions on the drying insects. He observed, that wasps *(Vespula germanica)* attacked the pinned insects. These wasps were very selective. They ate only the heads of Orthoptera (they did not damaged other mounted insects) but not all Orthoptera species: they selected the heads only of *Barbitistes serricauda* F., *Poecilimon fussi* Fieber and *Leptophyes albovittata* Kollar (Pungur, 1897).

Endre Dudich senior medical doctor of Lekér and Nagysalló, father of Endre Dudich zoologist. He published 2 papers on the life history and biology of leafcutter bees (DUDICH 1884a,b).

Géza Horváth (23 November 1847, Csécs – 8 September 1937, Budapest) was Hungarian medical doctor and entomologist, he was internationally recognized for his work on bugs (Hemiptera). He also studied the Hungarian scale insect fauna. Horváth published over 350 papers during his life. He was appointed to director of the newly established National Phylloxera Research Station in Budapest in 1880, where he did research on aphids, Phylloxera and psyllids. In 1896, he returned to the Hungarian National Museum, where he was director of the Department of Zoology till his retirement. He remained active in entomology, and served as president of the 10th International

Zoological Conference hosted in Budapest in 1927. He has one paper on the insect fauna of the Hungarian salty and alkaline sodic areas. In this work he mentions one Hymenoptera species, namely *Stizus fasciatus* (Fabricius, 1798) *(*as *S. terminalis* Dhlb.*)* (HORVÁTH 1903).

Robert du Buysson (6th May 1861 Brout-Vernet – 16th March 1946 Saint-Rémy-la-Varenne) French botanist and entomologist, preparator of the Laboratoire de Zoologie du Muséum National d'Histoire Naturelle, Paris. Robert du Buysson wrote the Chrysididae part in the series titled "*Species de Hyménoptères d'Europe et d'Algérie*" (BUYSSON 1886). Numerous Chrysididae species are mentioned here from Hungary after Mocsáry's works.

Andrey Petrovich Semenov Tian-Shansky (21st June 1866 St. Petersburg – 8th March 1942 St. Petersburg). Andrey Tian-Shansky studied first at the History and Philology, then at the Faculty of Physics and Mathematics at St. Petersburg University where he completed his studies in zoology and botany as well. After his graduation he took expeditions to the Trans-Caspian region and was employed by the Zoological Museum of St. Petersburg Academy of Sciences (later Zoological Institute of the USSR Academy of Sciences), later became honorary member of the Russian Entomological Society where he hold the president status either. In the "*Revisio Hyemnopterorum Musei zoologici Academiae Cesareae Scientiarum Petropolitanae I. Genus Cleptes Latr.*", he described *Cleptes Mocsarii* Semenow, 1892 from Hungary (SEMENOV 1891). After his retirement, he continued his researches. During WW2, Andrei Petrovich remained in besieged St.Petersburg (in that time its name was Leningrad) until the last days of his life. Andrei Petrovich Semenov-Tyan-Shan died of pneumonia on March 8, 1942. His burial place is unknown.

Jenő Vángel (16th April 1864 Perkáta – 29th December 1918 Budapest), zoologist, professor of Budapest University of Sciences, later director of Pedagogical College of Budapest, called "Pedagogicum". Vángel graduated and completed his doctoral thesis at the University of Sciences, Budapest. He published the list of collected insects by his students from various parts of the historical Hungary (VÁNGEL 1905). In this time, he was professor of nature history at the Pedagogical College in Budapest. His students (like Miklós Móczár, will be discussed later) had to prepare and submit a small insect collection. These collections were deposited in the college and their identifications were reviewed by experts of the Natural History Department of Hungarian National Museum (later Hungarian Natural History Museum). The identification of sawflies, bees and wasps were reviewed by Sándor Mocsáry.

Franz Friedrich Kohl (13th January 1851 St. Valentin auf der Haide – 15th December 1924 Traismauer) was an Austrian entomologist and folksong researcher, one of the founder of the German Folk Song Club in Vienna. Franz Friedrich Kohl studied at Franziskanergymnasium Bolzano. He worked as teacher at first in Bolzano and then in Innsbruck. In 1880, he gave up teaching and moved to Genf, than Munich and eventually to Vienna. After five years of unpaid voluntary work, he received job at the Natural History Museum in Vienna. Kohl described 3 species from Hungary, namely *Tachysphex pygidialis* Kohl, 1883; *Tachysphex mocsaryi* Kohl, 1884 and *Spilomena mocsaryi* Kohl, 1898 (KOHL 1883, 1884, 1889). The followings monographs of Kohl contain sporadic, frequently indefinite, but sometimes more precise (Mehádia, Budapest, Grebenácz, Kecskemét) faunistic data from Hungary: KOHL 1888, 1890a,b, 1906, 1915, 1918.

Jean-Jacques Kieffer (17th February 1857 Guinkirchen – 30th December 1925 Bitche) was a French naturalist and entomologist who specialised in the study of parasitic and dipterous insects. He was educated as priest (similarly to Sándor Mocsáry) and started his career as teacher of the College of St. Augustin in Bitche where he spent his life and where his first paper published about the local flora and fauna. His lifework was enourmus, he published 471 sceintific papers and books and gave name and provided description of 4704 species mainly parasitic Hymenoptera and Diptera. Kieffer received doctor honoris causa degree from the University of Strasbourg in 1904. In our point of view, his monographs written wiht coauthorship of Thomas Ansell Marshall (1827-1903, English cleric and entomologist) are the most important which were published in the series of *Species Hyménoptères d'Europe & d'Algerie* (KIEFFER and MARSHALL 1904, 1905a,b, 1906a,b). In these books, he provided description of 39 species and variations of Bethylidae and Drynidae based on the collection of the Hungarian Natural History Museum, Budapest. These data are repeated in KIEFFER 1914a,b.

Carl Heinrich (11th March 1850 Nagyszeben – 24th July 1920 Nagyszeben). Chemist of Nagyszeben (Hermannstadt, Sibiu). Carl Heinrich graduated at the Lutheran gramar school of Nagyszeben and studied pharmacy at Graz University later in Berlin. He published 24 scientific papers on very diverse fields of nature history like spiders, sponges, cephalopodes, fossil plants, aphids, hymenoptera etc., he published even archeological and art history papers as well. Most of his papers were published in "*Verhandlungen und Mitteilungen des Siebenbürgischen Vereins für Naturwissenschaften zu Hermannstadt*" between 1877 and 1916. In his series of Hymenopterology (HEINRICH 1880, 1881, 1882, 1883 and 1884), he summarized the results of his 4 years collections. He listed 141 Apoidea, 4 Chrysidoidea, 26 Sphecoidea, 8 Pompilidae, 2 Sapygidae, 2 Mutillidae and 13 Vespidae species without exact locality (the given place of capture only Hermannstadt) and we have no information about in which month or day he collected them. His Apoidea list is very impressive. Other Aculeata groups are listed only in HEINRICH 1882.

Jenő Daday (deési), (24th May 1855 Buzamező, – 2nd April 1920 Budapest) zoologist, hydrobiologist, member of the Hungarian Academy of Sciences. Daday wrote a short popular scientific paper on the life history of spider wasps (DADAY 1905).

József Hajóss bank clark in Budapest, amateur entomologist, member of the Hungarian Entomological Society. He published one interesting paper of Vespidae titled "*Gázlámpában elhelyezett darázsfészek*" (*Vespiary built in gaslamp*) (HAJÓSS 1900).

Károly Sajó (originally Károly Schemiz, 20th June 1851 Győr – 9th February 1939 Őrszentmiklós). The young Károly was educated at Győr high school and graduated at Pest University where he obtained his teaching degree in natural sciences. He was employed by the Royal Catholic high school in Ungvár (now Uzhhorod). In 1888, he joined to the National Phylloxera Experimental Station and retired at his own request in 1895 due to deafness caused by scarlet fever, and returned to his wife's family estates at Kisszentmiklós where he spent the rest of his life with scientific studies and observations. He was member of the Hungarian Entomological Society, the Royal Hungarian Natural History Society and the Association of Economic Entomologists, the Kaiserliche-königliche zoologisch-botanische Gesellschaft in Vienna and the Verein für schlesische Insektenkunde in Breslau. From his first wife, Ilona Kvassay, he had three sons. After his first wife's death, he was remarried to his sister-in-law, Júlia Kvassay. Four papers of him discuss the harms caused by leafcutter bees (SAJÓ 1884a,b, 1892, 1896b). He

described an interesting harm caused by *Pemphedron lethifer* Shuck. by drilling wine-branches (SAJÓ 1891). So far, only one incidental damage on mulberry of *Ceratina cyanea* Kby. was recorded (SAJÓ 1894). Károly Sajó described an *Oxybelus* species, which was accepted as ssp. of *Oxyybelus argentatus: Oxybelus argentatus treforti* Sajó, 1884 (SAJÓ 1884). Further interesting faunistic data we may find in Sajó (1883 and 1893). He wrote on the symptoms, physiology and biology of the stings and toxins of bees and wasps (SAJÓ 1896a) either.

Embrik Strand (2nd June 1876 Al in Hallingdal – 3rd November 1947 Riga). Embrik Strand was arachnologist and entomologist. He studied at the University of Kristiania (now University of Oslo). His collection is deposited at the university's museum in Oslo, where he worked as conservator from 1901 to 1903. He left Norway for Germany where he continued his studies of zoology at the University of Marburg, and found job at first at Staatliches Museum für Naturkunde Stuttgart than at Tübingen and at Senckenberg Museum in Frankfurt and finally at Museum für Naturkunde der Humboldt-Universität zu Berlin. After living 20 years in Germany, he left the country for zoology professor status at the University of Riga where he died at his age of 71. Strand in 1909, described 1 or 3 Lasioglossum species from Hungary which were deposited in the Natural History Museum Berlin. *Halictus longuloides* Strand, 1909 (now it is synonym of *Lasioglossum lineare* (Schenck, 1870) is the species he described from Hungary (from Kronstadt). The other 2 species have more than indefinite locus typicus "Sizilien oder Ungarn", these are *Halictus luteistigmatellus* Strand, 1909 which is syn. of. *Lasioglossums pauxillum* (Schenck, 1853) and *Halictus servulellus* Strand, 1909 which is syn. of *Lasioglossum intermedium* (Schenck, 1870).

Heinrich Friedrich August Karl Ludwig Friese (4th May 1860 Friesenhaus – 8th September 1948 Schwerin). Organ builder and bee specialist. For us, the most important his 1 year which he spent in Hungary in 1886. He wrote a Hungarian language report on his travel which was published in *Rovartani Lapok* (FRIESE 1886). Following the advice of his friend, Géza Horváth, they started their expedition on 22nd of March in Fiume from where he described 4 new *Andrena* species. From Fiume and Triest, he continued his expedition around Budapest especially on Sas hegy (Sas Hill). He also collected bees in Budaörs, Csepel, Kelenföld, Gellért hegy and Rákos (now, these are parts of the city) and in Kistarcsa. He also visited Pécel and Isaszeg. In middle of July, he took an expedition to Transylvania and South Hungary. In his Transylvanian round-trip he collected bees at Mehádia, Nagyvárad, Kolozsvár, Piski, Rékas, Orsova, Temesvár and Fehértemplom. On 10th of August, he left Hungary. The 27 new wild bee species which he described from Hungary is partly a result of his Hungarian travel (FRIESE 1887) and partly his personal friendship with Sándor Mocsáry who send him further specimens (FRIESE 1914, 1895a, b, 1888, 1897a 1916, 1917, 1922). In 1893, he published a book, titled "*Die Bienenfauna von Deutschland und Ungarn*" in which 506 species were listed from Hungary, most of them from the Carpathian Basin (FRIESE, 1893). His other smaller papers (FRIESE 1903, 1912, 1897b,c,d) also contain further faunistic data for Hungary. Friese was born in a wealthy and talented organ builder family. During his school years, Friese was introduced to natural sciences. In his age of 20, while working on organ constructions in Halle-Merseburg, Friese met the influential entomologists Ernst Ludwig Taschenberg and Otto Schmiedeknecht. The later was his particularly important mentor who supported him in specialization for bees. He took collection trips in South France, Spain and Switzerland. After these expeditions, Friese worked as organ builder in Paris and Strassbourg continuing the family tradition. He graduated at the

Strassbourg University than moved to Oppenau (Baden-Württemberg), where his family established an organ store and workshop. When he ensured his financial independence, moved to Innsbruck, the place where he completed his main work, titled: "*Bienen Europa's*". In his late years, he did biological researches on malaria mosquitoes and silk worms. Heinrich Friese published 270 scientific papers and monographs and gave name for 1989 new species (in 99% bees) world wide.

Kornél Pisó (1848 - ?) entomologist, lepidopterist, wooden warehouse officer, later chief forester at Besztercebánya, and forestry advisor, member of the Hungarian Entomological Society and the National Forestry Association. He graduated at Selmecbánya Academy (see the chapter on Scopoli) and started his career in Máramaros county: Máramaros and Bocskó, in Transylvania. Pisó was also chief forester of Bustyaháza forestry (now Ukraine). After his retirement he lived in Budapest (Logody street). The date of his death is unknown, last source of him is a list of the members of the Hungarian Entomological Society in 1917. In 1891, he published a paper, in which, he described his observation on *Vespula vulgaris* praying caterpillars of *Attacus cynthia* (Saturniidae moth), that he reared in open-air circumstances for silk production (PISÓ 1891).

Dániel Czekelius (1857 Temesvár – 22nd August 1938). Czekelius is considered the best butterfly researcher and expert in Transylvania, even though he was doctor, hospital director in Nagyszeben (now Sibiu). He attented the medical school at Graz, then continued his studies at Vienna, where he became a physician in 1881. Even in his young years, he showed great attraction to the wonderful world of butterflies, to which he devoted all his spare time. Czekelius became member of the Transylvanian Society of Natural Sciences: Department of Entomology and helped establishing the Lepidoptera collection of the Museum Society. In his paper, "*Data to the entomofauna of Transylvania*" several rare bee species are listed mainly from Vízakna, but we may find data from Szenterzsébet and Nagyapold either (CZEKELIUS 1899).

Emil Dudinszky (24th April 1854 Nagyszalók – 4th March 1921 Nagykálló) director of Nagykálló High School. The young Emil finished the secondary school in Lőcse and graduated at Budapest University of Sciences in 1877. From 1877 till 1913, Dudinszky worked at Nagykálló High School, where he was director between 1904 and 1913. After his retirement, arteriosclerosis was diagnosed which reached his brain. This led to his long lasting suffer and finally his death. His first scientific paper, he published with Rezső Kiss in the annals of Nagykálló High School was titled: "*The bee* (*A méh*)". Emil Dudinszky's works span from pedagogical sciences through botany to zoology. In his hymenopterological papers 3 of them discuss the life history of *Polistes gallica* other paper on *Chrysis ignita*. He also studied *Heriades nigricornis* Nyl. (*Chelostoma rapunculi* Lep.), *Anthophora pilipes* F. (*A. plumipes* Pal.) and *Vespa crabro.* Other publications of him give details how find home *Osmia* spp. in snail shells and about the physiology of bee stings and wasp stings (DUDINSZKY 1898, 1899, 1900 1901, 1903, 1904, 1906a,b,c,d,e, 1908).

József Jablonowski (16th February 1863 Szepesolaszi – 6th July 1943 Budapest, Hungarian Royal Entomological Research Station). After his secondary education in Lőcse, Jablonowski studied law and later natural sciences at Sárospatak (Kalvinist College) than at Budapest University. After few year teaching, he was employed by the Budapest Entomological Research Station where he was the assistant of Géza Horváth

and after 5 years, became director of the institute. Jablonowski studied insects including Aculeata in plant protection point of view, especially Vespidae. He has 3 papers on insect pests of grape (JABLONOWSKY 1895, 1912) and that of orchards (JABLONOWSKI 1912) and also published a short study on the economically important wasps and bees (JABLONOWSKI, 1903). In his popular scientific work, Jablonowski described the breeding behavior of few Aculeata species namely *Megachile parietina* (Geoffroy, 1785), *Eumenes pomiformis* (Fabricius, 1781) and *Sceliphron destillatorium* Illiger 1807 (JABLONOWSKI 1896).

Károly Schilberszky (26th November 1863 Buda – 10th September 1935 Budapest) professor of phytopathology, botanist. From him, we know only one paper on the interaction between bees and odor and color of flowers (SCHILBERSZKY 1904). Schilberszky graduated at Budapest University, where he studied natural history and geography and started his career as instructor at the Department of Botany of Budapest University of Sciences. Later, he became professor of phytopathology firstly at the Horticultural College, Budapest, than at the University of Sciences, Budapest, soon after at the Budapest University of Technology and finally at the Budapest University of Economy.

Karl von Fritsch (24th February 1864 Wien – 17th January 1934 Graz). The family from Wien moved to Salzburg and later to Innsbruck. His young years were influenced by his father, who were passionate naturalist having large botanical and entomological collection. Karl graduated at Wien University and after his graduation he found job at the Naturhistorisches Museum Wien. From 1895, he was professor of the Graz University and also manager of the local botanical garden. Fritsch in 1878, published a check-list of the Hymenoptera fauna of the Monarchy "*Jährliche Periode der Insectenfauna von Österreich-Ungarn. III. Die Hautflügler (Hymenoptera)*" completed with localities mainly from Austria, but few species are recorded from Pozsony (Pressburg, Bratislava), Igló, Hermannstadt, Árva várlaja and Huszt (FRITSCH 1878).

Anton Handlirsch (20th January 1865 Wien – 28th August 1935 Wien). Upon completion of his pharmacy studies, Handlirsch worked initially as research assistant at the Naturhistorisches Hofmuseum in Vienna and finally in 1922, (in the same year when he retired) appointed director of the Natural History Museum and elected full member of the Academy of Sciences. Handlirsch was awarded the Franz Josef Medal, he received honorary doctorate from the University of Graz, and habilitated at the University of Vienna. Also for 10 years period, he filled the presidential position of the Zoological and Botanical Society in Vienna. In 3 monographic works (HANDLIRSCH, 1888a, b, 1893), Handlirsch described 5 Sphecoidea species from Hungary, namely *Didineis crassicornis* Handlirsch, 1888, *Didineis pannonica* Handlirsch, 1888, *Didineis wuestneii* Handlirsch, 1888, *Gorytes procrustes* Handlirsch, 1888 and *Bembex mediterranea* Handlirsch, 1893 (their current status see separately). Valuable Bumblebee-data we may find in HANDLIRSCH 1888d, mainly from Mehadia and 2 Hungarian data on *Nomioides* in HANDLIRSCH 1888d. HANDLIRSCH 1887 and 1895 contains further indefinite faunistic data from Hungary on *Nysson* and *Bembex* species.

Wilhelm Albert Schulz (26th April 1871 Kienitz- 1947) insect dealer and hymenopterologist from Villefranche-sur-Saone. We don't know much about his life, Schulz was active in publication between 1904 and 1918. He described numerous species and genera from diverse groups: Symphyta, Aculeata and Parasitica. In his work, titled "*Ein Beitrag zur Faunistik der palaearktischen Spheciden*" Schulz published occurrence of 7 species

from Trencsén, Hajós, Szomotor, Pest and Kalocsa (SCHULZ 1903). In the time of this publication, he lived in Strassburg.

Gábor Bakó (22nd December 1871 Pest -23rd May 1948 Szekszárd) Director of State Entomological Research Station (after it's reorganization named: Plant Protection Research Institute). He specialized for insect pests of grape and corn. In 1903, Bakó published a short paper on the importance of the preventive control of wasps (BAKÓ 1903).

József Kiss and **Károly Olasz** studied the insect fauna of Árva Polhora and Babiurga (Oravská Polhora and Babia Hora Mt., now in Slovakia) recording 16 Aculeata species namely *Polistes, Bombus, Psythirus* and *Halictus* spp. (KISS and OLASZ 1907). We don't know much about their life, based on their paper, they were very likely teachers of the Paedagogicum in Budapest.

Bertalan Schin studied the insect fauna of Huszt and its environment publishing 103 Aculeata species: 12 Chrysididae, 5 Typhidae, 1 Sapygidae, 5 Pompilidae, 20 Sphecoidea, 8 Vespoidea and 52 Apoidea species (SCHIN 1909). Schin (like Móczár and Henter) was student of Jenő Vángel at the Pedagogicum in Budapest (discussed earlier). In the summer holiday of the 1907 school year, he collected the published Diptera and Hymenoptera species. The identification was completed partly by the author and partly by Sándor Mocsáry (curator of Hymenoptera at the entomological collection of the Hungarian National Museum). His biography is unknown, we have source, that he graduated at Budapest Pedagogicum and received teacher degree for elementary schools in mathematics and natural history in 1908.

Zoltán Szilády (21st May 1878 Budapest – 15th April 1947 Grosspösna, Diptera specialist, science historian). Szilády graduated at Budapest University of Sciences and received his teacher degree, started his career at Budapest but after 1 year he moved to teach to Nagyenyed (now Aiud) at Bethlen College between 1902 and 1920. Zoltán Szilády moved back to Budapest and became first curator and later honorary director of the Hungarian Natural History Museum between 1921 and 1934, in this time he was also lecturer of the Debrecen University. From 1934, he worked for the Zoological Station in Napoli (South Italy). Szilády in his paper titled "*Magyarországi rovargyűjtésem jegyzéke*" (*List of insect of my collection trip in Hungary*) listed high number of Aculeata species mainly from Transylvania. Voucher specimens were deposited partly at Kolozsvár University, partly at the museum of Bethlen College in Nagyenyed (SZILÁDY 1914). He wrote a separate paper on the fauna of Retyezát Mts. including *Aculeata* (SZILÁDY 1918a). He also described *Argyramoeba anthrax* Schrk (= *sinuata*) paraziting *Megachile melanopyga* Cock. (SZILÁDY 1918b).

Elek Benczúr (1875 Kassa – 1923 Budapest, graphic, insect illustrator, entomologist, plant-protection specialist). After graduating at the agricultural secondary school in Kassa, he studied parallel in 2 colleges: at Agricultural Academy in Mosonmagyaróvár and at Veterinary College in Budapest. At first, he got job at Agricultural Academy in Mosonmagyaróvár, than from 1904, he worked for the Budapest Entomological Station (predecessor of Plant Protaction Research Institute). Later, he became director of the institute. This was the time, he published an interesting observation of professor Lüstner. He compared the stomach contents of imagoes and larvae of *Vespula vulgaris*. In the stomaches of imagoes there were exclusively sugar solutions (from fuits) but in the stomaches of larvae, Lüstner found only parts of insects (BENCZÚR 1917).

Endre Zilahi-Kiss (22nd January 1873 Debrecen – 12th January 1931 Szilágycseh, entomologist (mainly coleopterologist), doctor of medicine). Endre Zilahi grown up in a calvinist family and spent his childhood partly in Zilah where the family had a house. His father was a judge in Debrecen. The young Endre finished his schools in Debrecen and graduated at the Medical University of Budapest. He was gynecologist and started his career in Budapest later he worked in Hadad, Désakna, Bethlen and finally in Szilágycseh. He published two papers on the insect fauna of Szilágy county (ZILAHI-KISS 1904, 1906) and also on various parts of Transylvania (ZILAHI-KISS 1915) discussing numerous rare species. In his 2 papers titled "*Neuere Daten zur Hymenopterenfauna von Ungarn. II.*" and "*Über einige neue Arten und Varietaten heimischer Hymenopteren*" Zilahi-Kiss described 10 new species and variations from Hungary (ZILAHI-KISS 1915, 1927). He published 2 papers on the life history of *Eucera clypeata* Erichson and bumble bees (ZILAHI-KISS 1909, 1918).

Lajos Soós (6th February 1879 Magyargencs – 26th August 1972 Budapest, Hungarian National Museum, member of the Hungarian Academy of Sciences and the Hungarian Entomological Society, malacologist). Lajos Soós graduated at the Budapest University of Sciences and started his career at the Central Statistical Office. Later, he was employed by the Hungarian Ornithological Centre (founded by Ottó Hermann). From 1903, he had been employed by the Hungarian National Museum and retired as director of the Zoological Department of the Hungarian Natural History Museum. He described an interesting encounter between common wasps and ants (Lasius sp.). An underground wasp colony were attacked by *Lasius* sp., the high number of ants were preyed the multiple sized huge wasps in organized way of team-work (SOÓS 1901).

Ferenc Pillich (2nd April 1876 Szombathely – 14th June 1948 Simontornya, chemist of Simontornya). Pillich did great contribution to knowledge of the Hungarian insects by his busy and exceptionally lucky collections mainly around his hometown, Simontornya. His family came from Szombathely. The young Ferenc after his middle school years in Bunzlau (Czech) graduated at Budapest University of Sciences and returned home to continue the family tradition. He started to build his entomological collection in 1901. The original idea was to publish a monograph on Tolna county. During the preparation, it became clear, the fauna and flora of the county is hardly known. This was the first inspiration to start learning and researching the nature history of Simontornya. In 1914, he published (as private edition) his main monograph, titled "*Aus der Arthropodenwelt Simontornya's*" (PILLICH 1914). He listed 4487 Arthropod species including 23 Chrysididae species. The other Hymenoptera species are listed separately in PILLICH 1918, 1934, 1935 and 1936. His collection was identified and checked by the specialists of Budapest and the leading experts of all group from Europe. Fourteen new Aculeata species were described from his collection, by Kieffer, Alfken, Blüthgen, Zilahi-Kiss, Stoeckhert, Priesner, Noskiewicz, Ebmer, Móczár and Linsenmaier (PILLICH 1918). Now, the Pillich collection is one of the most significant part of the Hymenoptera collection of the Hungarian Natural History Museum. Hundred and one years after that "*Aus der Arthropodenwelt Simontornya's*" was published, the Hungarian Biodiversity Research Society organized a biodiversity research camp in Simontornya. Their results were published with the title "*Arthropods of Simontornya in memoriam Ferenc Pillich*" (KOVÁCS and HORVÁTH 2015).

History of the Aculeata research in West Galicia and in the Polish Tatras between 1864 and 1918

Frederick Smith (30th December 1805 London – 16th February 1879 London) British entomologist. His original craft was engraver. His interest in entomology was inspired by William Schuckard, his long life friend. In 1849, he was employed by the British Museum, Natural History as first assistant, later as senior assistant. For a year, he was president of the London Society of Entomology. During the 28 years of his activity, he described 25 genera, 702 species and subspecies. Frederick died at the age of seventy three of complications after lithotripsy, i.e., breaking gall stones, in his time was a very painful surgery performed by crude instruments. He described a series of species (listed separately) from "Polish Ukraine". This indefinite places of capture could be the Carpathians or foot of the Carpathian Mts. but also could be the territories out of the Carpathians (SMITH 1853, 1854, 1855, 1856, 1857 and 1879).

Maksymilian Nowicki (9th October 1826 Jablonow – 30th October 1890 Krakow, professor of Zoology at Jagellonian University, Krakow) initiated the investigation of entomology of Galicia and Polish Tatras and published 2 papers (NOWICKI 1864 and 1865) mainly based on the collection of Dzieduszycki Museum at Lwow (Lemberg, Lviv).

In 1846, he graduated at the secondary school of Lemberg, and began studying law at the University of Lemberg. For political reasons - in the Spring of Nations, he took part in demonstrations - he was forced to interrupt his studies and leave Lemberg. He became teacher, taught in the vicinity of Lemberg in Ternopil and later in Sambor. He was friend of Vladimir Dzieduszycki, they worked to enrich the collection of the Natural History Museum of Lemberg (Lwow). Finally, in 1863, Nowicki defended his doctoral thesis at University of Lemberg and became professor of zoology at the Jagiellonian University Krakow, where he taught till his death. With his wife, Antonina Kasparek (sister of lawyer and rector of the Jagiellonian University, Francis Kasparka) had two sons: Francis Henry, and Wladyslaw and 4 daughters: Caroline, Janina, Wanda and Jadwiga. In hymenopterologycal point of view, his list of hymenoptera is small, but pioneer, therefore significant. In 1870, in his detailed list of insects, he enumerated 4 Aculeata (Sphecoidea species) from Polish Tatras without further locality. His other paper, in which he discuss hymenoptera combined with other group of insects, is titled: "*Przyczynek do owadniczej fauny Galicyi*", but in this faunistic list, he listed not only the fauna of the former Polish Galicia but Tatras, Pieniny Mts., Beskides as well. From the former Polish Galicia, for us only Sambir region (now Ukrainian Carpathians) is interesting. This list of Hymenoptera is practically the same that he published in 1865 titled: "*Insecta Haliciae Musei Dzieduszyckiani*".

Edward Feliks Lubicz-Niezabitowski (30th May 1875 Bugaj w Wielkopolsce – 5th November 1946 Poznan, professor of Poznan University and director of the Natural History Museum in Poznan). Edward Niezabitowski studied at the Faculty of Medicine of the Jagiellonian University, where in 1900, he received his doctorate of medicine. His career started at the same institute as assistant at the Department of Anatomy and later at the Department of Botany. After 5 years, in Nowy Targ, he took over a professor position at the local high school and in the next step, he became its director where he organized a free clinic for school children. Fifteen years later, Niezabitowski returned to the Krakow University as lecturer of biology. Than in Poznan, he received professor status

and finally, became rector. Parallel with it, he filled the director position of the Natural History Museum in Poznan. During the WW2, he worked in Warsawa at Ujazdowski Hospital. Niezabitowski died in Poznan. In our point of view, he has 2 important papers titled "*Materyały do fauny Złotek (Chrysididae) Galicyi*" (NIEZABITOWSKI 1901) and "*Materyały do fauny os (Vespidae) Galicyi*" (NIEZABITOWSKI 1902). Although, in the titles Galicyi is clearly indicated, but high number of species are reported from different locations of the Polish Tatras.

Antoni Wierzejski (3rd May 1843 Skala na Podolu – 9th August 1916 Krakow, professor of zoology at Jagellonian University, Krakow). He studied at the high school in Lvov-Lemberg and later in Stanislav. In 1865, he began studying mathematics and natural sciences at Faculty of Philosophy of the Jagiellonian University, one of his teachers was Maksymilian Nowicki (see him separately). In 1878, he obtained postdoctoral position of associate professor at the Jagiellonian University. Initially, he worked for the St. Jack High School. Finally, he received the title of associate professor, and taught comparative anatomy at the Jagiellonian University. He was a member of the Polish Academy of Sciences either and retired in 1912. Wierzejski published numerous species from Galicia and from the Polish Tatras (without exact data on collecting localities) (WIERZEJSKI 1868).

History of the Aculeata research in North Croatia, North Slovenia and North Bosnia from 1800 till 1920

Oswald Heer (31st August 1809 Niederuzwill – 27th September 1883 Lausanne) Swiss geologist, botanist, paleobotanist and paleoentomologist, clergyman, professor of Zurich Polytechnic and member of the Zurich Canton Parliament, corresponding member of St. Petersburg Academy of Sciences. Oswald Heer was educated as clergyman in Halle and later, also in Halle, received his PhD. in medical sciences. From 1831, he returned back to Switzerland and did his service in St. Gallen protestant church. Few years later, Oswald Heer became professor of botany at Zurich Polytechnic where he hold this position till his retirement. Heer-land in Svalbard (Spitzbergen) is named to his tribute. In our viewpoint, his 2 monographs are the most important, titled "*Fossile Hymenopteren aus Oeningen und Radoboy*" and "*Die Insektenfauna der Tertiärgebilde von Oeningen und von Radoboj in Croatien*" in which he described the following Aculeata species from Radoboj (Northern part of Croatia), lower Miocene: *Vespa crabroniformis* Heer, 1867; *Bombus grandaevus* Heer, 1849; *Sphex gigantea* Heer 1867; *Anthophorites thoracica* Heer 1867 and *Anthophorites longaeva* Heer 1867.

Anton Korlević (13th June 1851 Sv. Ivan od Sterne, Istria, – 28th January 1915 Zagreb). Anton Korlević investigated mainly the southern territories of Croatia. I found only one paper of him, in which he provided faunistic data on Middle and North Croatia mainly from Pregrad, but we may find valuable data from Zagreb, Samobor, Stara Pazova (Ópazova) from all three groups (Symphyta, Parasitica and Aculeata), the title of this work: "*Prilozi Fauni Hrvatskih Opnokrilaca*" (KORLEVIĆ 1890). Anton Korlević was the first university professor of entomology in Croatia. After primary and secondary education at Rijeka and Kastav, he graduated at the Faculty of Natural Sciences in Vienna. He was employed as high school teacher in Rijeka, Eszék (Osijek) and Zagreb.

In 1899, he became the first professor of entomology in Croatia at the Forestry Academy in Zagreb. When retired, he was the manager of the entomological sections of the Biological Center (later the Institute of Plant Protection). Anton Korlević collected rich and valuable entomological collection that is stored in the Croatian Natural History Museum. Four species: *Carabus korlevici* Hoffman 1883, *Tenthredopsis korlevici* Konow 1887, *Cynips korlevici* Kieffer 1902 and *Andricus korlevici* Kieffer 1902 were named in his honour (DURBESIC 2011).

August Langhoffer (17th April 1861 Kiszács – 28th March 1940 Zagreb), director of the Zoological Museum and professor of zoology at the University of Zagreb, Diptera specialist. In most of his works on Hymenoptera, Langhoffer describes genera of Aculeata and creates evolutionary tree based on the mouthparts anatomy of various Apoidea groups (Langhoffer 1895, 1897, 1898). In his paper, titled "*Kukci koji su dobili ime po Hrvatskoj*", Langhoffer provides few (only 3) indefinite faunistic records of wild bees for Croatia (LANGHOFFER 1916). August Langhoffer finished his primary and secondary school studies in Újvidék (now Novi Sad) and Eszék (now Osijek). He continued his university studies in Zagreb but finished it in Vienna. He doctorated at Jena University, the title of his thesis was: "*Beiträge zur Kenntnis der Mundteile der Diptera*". As secondary school professor, Langhoffer taught at high school in Rijeka, nautical high school in Bakar, and high schools in Senj, Osijek and Zagreb. In 1895, Langhoffer habilitated as assistant professor of entomology at Faculty of Philosophy of Zagreb University. In the same time, he was appointed to director of Department of Zoology of Croatian National Museum in Zagreb. When the newly established Zagreb School of Medicine opened, Langhoffer started to teach there biology and zoology. He was part time professor of entomology at the Academy of Forestry in Zagreb either.

Franz Friedrich Kohl (13th January 1851 St. Valentin auf der Haide – 15th December 1924 Traismauer), see his biography in the Hungarian chapter titled: "*Aculeata research from 1801 till 1920 in Hungary*". In "*Über neue Arten der Hymenopteren-Gattung Tachyphex Kohl*" he descibed *Tachysphex reiseri* Kohl, 1901 from North Bosnia and *Trypoxylon kolazyi* Kohl, 1893 from North Slovenia.

History of the Aculeata research in Hungary from 1920

In 1933, the Hungarian Natural History Museum separated from the Hungarian National Museum although it still worked under its supervision. The other important historic event was the establishment of the *Hungarian Plant Protection Service* (*Magyar Növényvédelmi Szolgálat*) and its countrywide network in 1932. Finally, in 1923, the name of the entomological journal: *Rovartani Lapok* changed to *Folia entomologica hungarica* and in 1938, the *Fragmenta Faunistica Hungarica* was founded.

In the communist era, Hungary existed under the pressure of the Soviet occupation. In this time, the most important event was the establishment of the first Natural History Museum in the countryside, in Zirc in 1972 that named Bakony Természettudományi Múzeum (Bakony Museum of Natural History, named after the Bakony Mts., north to Lake Balaton). In 1952, they started the scientific journal titled *Acta Zoologica Academiae Scientiarum Hungaricae* that gave place taxonomic publications. From 1966, *Acta Phytopathologica et Entomologica*, the English language journal of applied

entomology appears. With the end of the communist era, the international cooperation and common research programs became again intensive.

Johann Dietrich Alfken (11th June 1862, Frankfurt – 14th February 1945, Rüthersdorf), German entomologist, specialized in Apoidea. Alfken described 10 Aculeata, mainly *Andrena* species from Hungary. He was probably in friendly relationship with Endre Zilahi-Kiss, he was his source of Hungarian bee species, there is no record wether he was personally in Hungary: "*Ich verdanke diese eigenartige Andrena-Art Herrn Bezirksarzt Dr. Andr. Kiss in Bethlen in Ungarn. Die Weibchen wurden am 26. Apr. 1910 bei Bogsän. die Männchen vom 14-26. Apr. 1910 ebenfalls bei Bogsán und in früheren Jahren bei Hadad gesammelt. Die Typen befinden sich in Herrn Dr. Kiss' und in meiner Sammlung, sowie im Ungarischen National-Museum*". In that time, as we know from Endre Zilahi-Kiss (ZILAHI-KISS 1915), he lived and worked in Bremen. For a period, he worked for the Übersee Museum in Bremen as entomological assistant. Alfken described seven new *Apoidea* species from Hungary, 5 of them are *Andrena* species. *Andrena mehelyi* Alfken, 1936 was dedicated to Lajos Méhelyi (see this entry separately). The other species are: *Andrena roscipes* Alfken, 1933, *Andrena submicans* Alfken, 1936, *Andrena setigera* Alfken, 1911, *Andrena susterai* Alfken, 1914, *Prosopis dubitata* Alfken, 1904 and *Anthidium florentinum* ssp. *kissi* Alfken, 1935 (ALFKEN 1911, 1914, 1933, 1935, 1936). In "*Die Bienenfauna von Westpreußen*", Alfken separately indicated the occurrence of each species in Hungary (approximately 55 faunistic data) and also in Transylvania (approximately 10 faunistic data) (ALFKEN 1912). One paraptype of *Osmia tenuispina* Alfken, 1936 was collected in Simontornya, very likely by Ferenc Pillich. These specimen later proved to be a separate species.

Reinhold Heinrich Meyer (13th August 1892 Rathenow – 12th December 1944 Darmstadt). Meyer studied between 1914-1916, in Jena and he was employed by Merck Plant Protection Laboratory in Darmstadt from 1924. In his spare time, Meyer collected Hymenoptera and Diptera. His collection lost, only small part remained in the Hessischen Landesmuseum Darmstadt. Between 1922 and 1938, Reinhold Meyer was editor of magazine Konowia. He died in 1944, during an air raid in Darmstadt. Meyer identified the *Thyreus* and *Crocisa* species of the Hungarian Natural History Museum. Most of them are exotic species, but he published four, mostly indefinite Hungarian data as well (MEYER 1922).

József Gelei (20th August 1885 Árkos – 20th May 1952 Budapest) zoologist, member of the Hungarian Academy of Sciences. József Gelei graduated at Kolozsvár University where he studied chemistry and natural history. He received teacher degree, than he completed and defended his doctoral thesis. After his years in Kolozsvár, Gelei had postgraduate studies in Graz. He returned back to Kolozsvár and worked in the next 10 years at the Zoological Institute. After this 10 years period, he taught at Unitarian College of Kolozsvár and became curator of the Transylvanian Museum Society. The next years of his career, Gelei spent partly at Szeged University, Department of Zoology, and Kolozsvár University than again at Szeged University, but this time at the Faculty of Medical Sciences. This fluctuation between Szeged-Kolozsvár (now Cluj Napoca)-Szeged was the reason of the actual status of Transylvania. Till 1920 Transylvania was part of Hungary, after 1920 Hungary lost Transylvania and as a result of the 2nd Vienna Award Hungary received back one part of Transylvania. After the WW2, Hungary lost again its Transylvanian territories. This is the explanation of the migration of **László Móczár** between Szeged-Kolozsvár either. Gelei has one paper on Aculeata: he studied and described the control of wasps in fruit orchards (GELEI 1929).

Wolfgang Karl Weyrauch (7th December 1907 Elberfeld - 21st July 1970 Tucuman, Argentina) German-Peruvian malacologist and entomologist. Weyrauch obtained his PhD at Friedrich-Wilhelms-Universität and worked from 1938 in Peru as entomologist at the Agricultural Research Station (Estación Agrícola de La Molina) in Lima. After 10 years, he worked for the Museo Nacional de Historia Natural of Universidad Mayor de San Marcos in Lima as professor of zoology and genetics. For a period, he also worked as professor of Agricultural Zoology at the Pontificia Universidad Catolica del Lima. In 1962, he emigrated to Argentina and became a professor at the Instituto Miguel Lillo in Tucumán. He died of heart attack in Tucuman, Argentina. In his paper, titled "*Zur Systematik und Biologie der palaearktischen Polistinen*" (WEYRAUCH 1939) mentioned *Polistes opinabilis* Kohl from Hungary and North Italy, this species proved to be a synonym of the common *Polistes nimpha* Christ.

Lujza Pillich (1914 Simontornya – 2012 Budapest) continued his father's work (Ferenc Pillich, discussed previously) with one paper mentioning further bees and wasps species around her native town. She published her single paper on her entomological research titled: "*Mein erster Versuch*" (PILLICH 1930). In this paper she mentioned numerous Aculeata species mainly from Simontornya and surroundings. Lujza Pillich initially lived in Simontornya with his husband, Imre (Müller) Hidasy (chief notary of Gyönk, Tamási and later of Dombóvár), from Simontornya they moved to Gyönk and after the second world war to Budapest. During the socialistt era, his husband was in prison for a while because of his high position in the public administration that he held between the 2 world wars. After the WW2, Lujza Pillich received a job at the Budapest Creamery (Tejcsarnok), later she worked for various museums, finally, she worked at the Tourist Information of the Buda Castle Museum where she could utilise her excellent German and English. His husband died in 1985. They had one son: Imre, 1935 and one daughter, Erika 1932. She was buried in the kalvinist cementry of her hometown, Simontornya.

Gyula Kadocsa (originally Gyula Kauffman, 20th February 1880 Magyarkimle – 26th January 1962 Budapest, director of the Plant Protection Institute of the Hungarian academy of Sciences). Gyula Kadocsa finished his secondary school at Győr than graduated at Mosonmagyaróvár Agricultural Academy and worked there for a while. He moved to Budapest and joined to the National Entomological Station (later Plant Protection Research Institute) where he became director. Gyula Kadocsa is author of 1200 scientific papers and books. One paper he has on the control of harmful Vespidae species titled "*Control of wasps*" (KADOCSA 1935).

László Haller geography and natural history teacher in Tihany, from 1937 in Gyöngyös. Probably later, he moved to Budapest because high number of his papers and particularly photos described and illustrated the life of Budapest Zoo and Botanical Garden. László Haller wrote 2 papers on the life history and ethology of *Vespa crabro* L. (HALLER 1937, 1944). In 1941, he was soldier ordered to the Russian battlefields. He was active in publications between 1937 and 1944. After 1944, neither any publication from dr. László Haller nor any report on him we could find, probably he died in WW2.

Aladár Vágó (?) He was a friend of Lajos Bíró, teacher at Arena street primary school in Budapest (Arena street 12). He lived in Szigetszentmiklós. Vágó was the librarian of the Hungarian Tourist Association of Teachers either and later vice president of this organization from 1906. He published papers in different topics like ethnography, tourism and entomology as well. Vágó with Lajos Bíró found *Chrysis sybarita* Först. (valid as *Chrysis graellsi* Guer.) in the nest of *Osmia rufa* L. in Szigetszentmiklós (VÁGÓ 1912).

Nándor Tomala Hungarian lepidoptera specialist. His publication activity spans 21 years between 1892 and 1913. Tomala had an expedition to Abbázia. He was one of the founding members of the Hungarian Entomological Society. Nándor Tomala argued the statements of an article published by Electrical World, in which they described harms of wasps making holes for nesting on the lead cover of electrical wires. According to Tomala's opinion, the cover had already been destroyed and punched and wasps only used these holes as nest (TOMALA 1904).

Lajos Méhely (24th August 1862 Kisfalud-Szögi – 4th February 1953 Budapest). Herpetologist, one of the most influential zoologist of his age, member of the Hungarian Academy of Sciences. The scenes of his childhood and early education were in Kassa, Lőcse and Eperjes. He graduated at Budapest University of Technology and Economy. After his professorship in Brassó, he was employed by the Department of Zoology of the Hungarian National Museum, where he finally became the director of the department. From 1932, he was appointed manager of Department of Zoology of Budapest University of Sciences. Méhely described a series of reptiles and mammals world wide. His interest in zoology expanded to the systematics of different arthropods like crustaceans and bees either. In Hymenopterology, his main and only one scientific work is a monograph on the Colletidae bees of Hungary. This book, like his other zoological works, was illustrated by himself in high artistic standard (MÉHELY 1935). He was enthusiastic propagator of Charles Darwin's evolution theory however he expanded Darwinism to human field (social darwinism) and published political and social articles and studies on Hungarian racial theory and Turanism. He was the greatest but also the most controversial figure of zoology, not only the Hungarian zoology but one of the most prominent scientist of the zoology in general of his period. By the stalinist regime, after the World War 2, he was sentenced for lifelong imprisonment for "war criminal against the people" because of his political publications. Hard to enumerate the species which were dedicated to his honor, let's see some of them: *Rhinolophus mehelyi* Matschie, 1901 (Méhely's horshoe bat); *Microtus oeconomus mehelyi* (Éhik, 1928); *Mus mehelyi* (Bolkay, 1925); *Micromys mehelyi* (Bolkay, 1925); (mammal species); *Clemmis mehelyi* Kormos, 1911 (fossil turtle); *Agama mehelyi* Tornier, 1902 (agama); *Xenorhina mehelyi* (Boulenger, 1898); *Chiasmocleis mehelyi* Caramaschi & Cruz, 1997; *Austrochaperina mehelyi* (Parker, 1934); *Xenobatrachus mehelyi* Zweifel, 1972 (amphibian). He died in Mosonyi street prison-hospital in Budapest, in 1953, at his age of 90.

Adolf Lendl (6th May 1862 Orczyfalva – 25th September 1943 Keszthely) university professor, zoologist, member of the Hungarian Academy of Sciences. Adolf Lendl finished high school at Temesvár and graduated at University of Technology in Budapest where he received teaching degree and also doctorated. He remained at the University of Technology and became professor of the Department of Zoology. From 1890, Lendl was employed by the Hungarian National Museum (Dept. of Zoology) where he worked 4 years. In 1894, he established his own company (school equipment factory). In 1911, he was appointed director of Budapest Zoo. Few years after that he retired from academic life, Adolf Lendl moved to Keszthely where he lived his remaining 11 years. In 2 papers, Adolf Lendl published his observations on the life history of leafcutter bees (LENDL 1891a, b).

Béla Kuthy (23rd April 1873 Szabadka – 3rd May 1946 Kiskunhalas), was medical doctor and dentist of Kiskunhalas. He was born in Szabadka (now Subotica) and finished there the local high school (about this high school see also the entries: Alfred Taupert, Gyula Szöllősi and Aleksandar Rafailovic). He graduated as medical doctor at Budapest University.

The stations of the early period of his career was the Szabadka hospital than Csantavér, Rácmilitics and Magyarkanizsa. When the Serb-Croatian-Slovenian Kingdom formed, Béla Kuthy and his family (his wife Etelka Sztrilich and their 2 sons Antal and Károly) moved to Kiskunhalas where he worked as a dentist (his house was at Alsónádor street 10 of the town) and he lived there till his death. He started his entomological investigation around Kiskunhalas in 1923 (date based on the earliest labels of his collection). Later, his colleague, János Polgár also joined to his collecting trips. His collection (1 cabinet) was preserved till 2013 at the biological collection of the Áron Szilády Grammar School of the Protestant Church of Kiskunhalas. In 2013, the Kuthy collection was transferred to Rippl-Rónai Museum Kaposvár where it was disinfected and rearranged. ÁBRAHÁM et al. (2014) published the collected material. Béla Kuthy prepared only one paper on Aculeata listing the Chrysidid fauna of Kiskunhalas in 1942 (KUTHY 1942). This part of his collection was identified by the help of the young **László Móczár**. In 2013, **Zsolt Józan** re-identified his Aculeata (mainly Chrysididae) collection. After 70 years later, Zsolt Józan found, that in the Kuthy collection was a nice series of *Holopyga minuma* Linsenmaier, 1959 which were recognized in that time as new for the science neither by Kuthy nor by Móczár. *Hecalus kuthyi* Tóth, 1938 (Homoptera) was dedicated to Béla Kuthy.

Sándor Gorka (12th October 1878 Ungvár (now Uzghorod) – 10th April 1944 Pécs), biologist, university professor. Sándor Gorka graduated at Kolozsvár as natural history and art teacher and in 1901, he defended his doctoral thesis at Zoology. He moved to Pécs and joined to the Zoological Department of Queen Elizabeth University where he appointed professor 12 years later. He was the first professor of the freshly established Biological Institute of Pécs University. Sándor Gorka was member of Allgemeine Entomologische Gesellschaft and secretary of Association of Hungarian Medical Doctors and Naturalists. He was author of approximately 800 scientific publications. Sándor Gorka described an interesting experiment with toxins of *Vespa crabro, Vespula germanica* and *Vespula vulgaris* (GORKA 1898).

Paul August Viktor Blüthgen (25th July 1880 Mühlhausen – 2nd September 1967 Naumburg). Jurist was his original profession. Paul studied law in Marburg and later in Berlin. He started his career at magistrate of Rügenwalde. After the Great War, from 1920, he became judge at Court of Naumburg. He finished his career in Halle, as president of City Senate. At the age of 69, he retired at his own request. In entomology, Blüthgen published more than 200 scientific papers. Blüthgen received honorary doctorate in entomology from Martin Luther University of Halle-Wittenberg. He described 7 species and 1 new variation from Hungary, namely: *Halictus combinatus* Blüthgen, 1921, *Sphecodes hungaricus* Blüthgen, 1923, *Halictus semitomentosus* Blüthgen, 1923, *Halictus trichopygus* Blüthgen, 1923, *Halictus crassepunctatus* Blüthgen, 1923, *Halictus sajoi* Blüthgen, 1923, *Nomioides minutissima* var. *obscurata* Blüthgen, 1925, and *Nannodynerus hungaricus* Blüthgen, 1961 (BLÜTHGEN 1921, 1923a,b, 1925, 1961).

Rezső Láng (Rezső Rudolf Láng, hunter and hunter novelist, alias Sólyom (the Falcon), 7th January 1881 Vérteskozma – 25th may 1963 Mosonmagyaróvár). He wrote a popular scientific paper on Vespidae in Természet (The Nature) (journal of Budapest Zoo) (LÁNG 1937).

Sándor Pongrácz (21st April 1888 Budapest – 22nd January 1945 Budapest, entomologist, paleontologist and general director of the Hungarian Natural History Museum, professor of University of Sciences at Debrecen). Humanist and artist (he played music

and painted paintings), thinker, scholar and museum director. His death was caused by an incoming garnet during the siege of Budapest, while he stayed at his bathroom where he regularly worked instead of retreating to the basement. His grave in the Farkasréti Cemetery at Budapest was eradicated. In Hymenopterological point of view, his monograph on fossil insect is the most important, titled: "*Die Fossilen Insekten von Ungarn, mit besonderer Berücksichtigung der Entwicklung der europäischen Insekten-Fauna*". In this paper, he mentioned a fossil Apidae species from Piski (Transylvania) (Upper Miocene?) this undescribed species has wing venation and abdominal apex similar to *Osmia* species, but its large, merged eyes more for *Apis*. He also provided a figure and further description of *Sphex gigantea* Heer, 1867 from Radoboj (Croatia) lower Miocene (PONGRÁCZ 1928).

Jenő Győrffy (30th January 1882 Köveskál – 22nd October 1970 Budapest) Entomologist, agricultural engineer. Jenő Győrffy graduated at Kalvinist High School of Pápa than finished the university in Budapest where he received teaching degree in natural history and geography. He started his career in Békés as high school teacher. After 2 years teaching he started studying again, this time in Keszthely at Academy of Agriculture. After receiving his second degree, he was appointed researcher of Entomological Station Budapest where he established an entomological collection. He married Paula Horváth (daughter of Géza Horváth). In 1933, he had to retire for a while because of serious eye problem. As his health condition improved, he returned back to Meteorological Service of the Plant Protection Office. After the WW2, he worked for the Coleoptera collection of the Hungarian Natural History Museum. In 1917, in Gyenesdiás, he saw *Vespula germanica* individuals preying common flies (*Musca domestica*), he provided detailed description on the hunting method of wasps (GYŐRFFY 1917).

Emil Stoeckhert (10th May 1888 Kehlbach – 1943) German hymenopterologist. Emil Stoeckhert lived in Abensberg where he was the notary of his town (after the posthumous work of Stoeckhert and Pittioni, 1950). His and his brother's, Ferdinand Stoeckhert's collections are deposited in München Zoologisches Staatssammlung. Stoeckhert described two species from Hungary, namely *Nomada piccioliana* ssp. *jurassica* Stoeckhert, 1941 from Simontornya and *Andrena alutacea* Stoeckhert, 1942 from Transylvania "Szankesd" (STOECKHERT 1941, 1942). Stoeckhert wrote the *Nomada* part in Schmiedeknecht, 1930, titled: "*Die Hymenopteren Nord und Mitteleuropas*". In this work, he described all the *Nomada* and *Andrena* species of the region, including those which were described by in major part by **Sándor Mocsáry** and in smaller part by Otto Schmiedeknecht (the "author" of these are Schmiedeknecht only, however, Schmiedeknecht and Stoeckhert very honestly indicated, that he received the specimens, descriptions and names from Sándor Mocsáry).

Lajos Varga (26th January 1890 Désakna – 10th may 1963 Sopron. Zoologist and hydrobiologist). Lajos Varga graduated at King Franz Joseph University at Kolozsvár and started to work there. During the WW1, he fought on Russian and Italian battlefields. After his military service, he married in Sopron where he started to teach in one of the local elementary schools (namely Rákóczi Ferenc reáliskola) where he became director. Parallel with this occupation, he started to work for the Botanical Institute of Sopron College of Mining and Forestry (successor of Selmecbánya Academy, see the entry on Scopoli and Poda). In this College, he worked till his retirement. Meanwhile, he received a second university degree at Szeged University in hidrobiology. He was correspondent member of Hungarian Academy of Sciences. This membership was terminated during the communist

regime and he was rehabilitated only post-mortem. He died in cancer. Lajos Varga reported a large vespiary of *Vespula germanica* from Sopron (VARGA 1939).

Gábor Stohl (23rd April 1919 Budapest – 6th April 2009 Budapest) Biologist. Curator of Hymenoptera between 1945 and 1949 at Department of Zoology of Hungarian Natural History Museum and after this period he worked for Collection of mammals. After finishing the Sziget street primary school and the Lutheran High School of Budapest, he received natural history and chemistry teacher degree at Faculty of Arts of Budapest University of Sciences and after one year he doctorated. In his first years of his career, he was part-time teacher at the Lutheran High School and the State High School of district 10th of Budapest meanwhile in his free time, Stohl worked for the Department of Zoology of Budapest University of Sciences as volunteer. His next period of life was the researcher position at Hungarian Natural History Museum where he was curator of Hymenoptera, Odonata and Neuroptera collections between 1945 and 1949. After this few years, he moved to Tihany Biological Station, than he changed again to the academic research group located at and cooperated with Gödöllő University: Dept. of Livestock Breeding. His next working place was the Institute of Genetics of the Hungarian Academy of Sciences. In these years, Gábor Stohl received his PhD. He spoke Russian and German in advanced level. His last workplace was the Department of Zoology of Hungarian Academy of Sciences. Gábor Stohl was member of Division of Zoology of the Hungarian Biological Society, Division of Zoology of Hungarian Society of Natural Sciences and member of editorial staff of Búvár (popular science magazine). During that short period, when he was curator of Hymenoptera collection in Budapest, he wrote 3 papers on Aculeata. In these papers, he studied the *Andrena* species of the Carpathian Basin (he planned a series, but only the first paper was completed), the variability of *Halictus tumulorum* L. and the anatomy of genitalia and mouthparts of *Halictus* species living in Hungary (STOHL 1945, 1947, 1948).

Gábor Kolozsváry (Gábor Kolosváry) (18th August 1901 Kolozsvár – 24th December 1968 Szeged). Gábor started his university studies at József Ferenc (King Franz Josef) University in Kolozsvár and graduated at Szeged University (because of the relocation of the University after 1920). Gábor Kolosváry started his career at Dept. of Zoology of the Hungarian National Museum and became curator of the paleontology collection. Parallel with this, he had professor status at Szeged University either. For 2 years, he was guest professor of Budapest University of Sciences. His last 14 years, he spent in Szeged, where he was head of the Department of Zoology at Szeged University. We know only one hymenopterological paper of him. In this work, he describes in details the ectoparasitic breeding behavior of *Homonotus sanguinolentus* (Fabricius, 1793) pompilid wasp on *Cheiracanthium erraticum* (Walckenaer, 1802) spider (KOLOSVÁRY 1937).

József Erdős (9th March 1900 Péterréve – 1st August 1971 Székesfehérvár). Chlacidoidea specialist, catholic priest of Tompa. He was born in Péterréve where his father was teacher of the local elementary school. Later he went to Kalocsa (to the archiepiscopal residence) where he was educated at the catholic high school. From 1926, Erdős became professor of the Archbishop's Theological College. Between 1931 and 1934, he graduated at Ferenc József University at Szeged and his second degree was in geography and natural history. Finally, in 1935, he finished the university with doctoral degree. Returning to the Theological College, he continued his professorship, and later appointed director of the institute. In the communist era, when the regime disbanded the Theological College, he was sent to Tompa for pastoral service. These year was the most

productive years of him as specialist of Chalcidoidea. He described 352 new species and 49 new genera and published several monographs (in ser. *Fauna Hungariae*) on the Chalcidoidea fauna of Hungary. In his early period, he published one paper on Chrysididae. It contains list of Chrysididae of his collecting trips between 1933 and 1939 from Feldebrő, Debrecen, Kalocsa, Rém, Kecel, Foktő and Kőrösmező, listing 40 *Chrysididae species* in 1942 (ERDŐS 1942).

Franz Maidl (6th April 1887 Wien – 18th September 1951 Mödling) graduated in 1906, at University of Vienna in zoology and received his PhD in 1911. Maidl worked for the K. K. Naturhistorischen Hofmuseum where he specialized under the guidance of F. F. Kohl for Hymenoptera and initially worked on genus *Xylocopa*. He also spent short time at Cornell University in Ithaca (USA) and brought from there rich insect material. In 1949, Maidl was appointed administrative director of the Natural History collections. Franz Maidl described *Mimesa pannonica* Maidl, 1914 from Budapest (MAIDL 1914). In his work, titled "*Beiträge zur Hymenopterenfauna Dalmatiens, Montenegros und Albaniens*", he indicates the Hungarian occurrence of 65 different species (MAIDL 1922). Few Hungarian *Xylocopa* data from Hungary is published in MAIDL 1912.

Mihály Rotarides (13th June 1897 Gyulafehérvár – 19th July 1950 Budapest). He was malacologist and paleontologist, graduated at Kolozsvár, Ferenc József (Kaiser und König Franz Josef) University of Sciences. He started his scientific career as an assistant professor at Szeged University of Sciences (forced relocation of Ferenc József University to Szeged after the dissolution of Austria and Hungary). Later he joined to Limnological Research Institute at Tihany (Lake Balaton). From 1932, he returned back to Szeged, where he became professor of the university. He finished his career at the Zoological Department of Hungarian Natural History Museum, Malacological collection. The "*Daten zur Biologie von Sceliphron destillatorium Illig. (Hym.) auf der Halbinsel Tihany*" is a masterwork of Aculeata ethology (ROTARIDES 1934).

Jan Wlodzimierz Noskiewicz (8th October 1890 Sanok – 27th August 1963 Wroclaw, librarian of Dzieduszycki Museum at Lemberg-Lwow, later professor of zoogeography at Wroclaw University, bee specialist). Noskiewicz graduated in Yaroslavl and under the influence of his teacher, Kazimierz Piatkowski, started studying insects. He continued his studies at Jagellonian University Krakow then moved to Lemberg (Lvov), where he studied zoology under the supervision of Joseph Nusbaum. After few years teaching in secondary schools of Lvov and Krasnymstawie, he became librarian-researcher of Dzieduszycki Museum (parallel, he continued his career as high school teacher either). After World War II., Noskiewicz became head of Invertebrate Zoology Department of Dzieduszycki Museum and the local pedagogical college as well. In 1946, he was repatriated from Lemberg to Wroclaw, where he became manager of the Department of Systematics and Zoogeography of Wroclaw University till his retirement. In 1939, he described 4 new bee species from Hungary, mainly from the Pillich collection, namely: *Andrena simontornyella* Noskiewicz, 1939, *Andrena pillichi* Noskiewicz, 1939, *Andrena paula* Noskiewicz, 1939 and *Nomada alfkeni* Noskiewicz, 1939 (see their current status separately). In 1936, he described *Colletes inespectatus* Noskiewicz, 1936 and in 1962, *Stelis hungarica* Noskiewicz, 1962 both from Hungary.

Pál Zoltán Örösi (14th January 1904 Székelyudvarhely – 13th April 1986 Budapest) biologist, entomologist, specialized for apiculture. He graduated at Budapest University of Sciences and started his career at University of Debrecen and University of Kolozsvár.

Till his retirement, Örösi was director of the Research Institute of Apiculture (after the re-organization of this institute: Department of Apiculture of Institute of Small Animal Research) in Gödöllő. Örösi, in his book on the "*Enemies of honeybees and the animals of bee hives*" (*Méhellenségek és a köpü állatvilága*), discusses few economically important Aculeata species like *Philanthus triangulum, Vespa crabro*, *Bombus* spp.*, Psithyrus* spp. etc. (ÖRÖSI 1939). In "*Einige Beobachtungen an Wespen, Hornissen und Hummeln bei Bienen*" (Some observations of wasps, hornets and bumble bees) (ÖRÖSI 1939) Örösi wrote about Vespidae and bumble bees in apiculture point of view (ÖRÖSI 1937).

János Győrfi (13th March 1905 Keszthely – 9th October 1966 Sopron, professor of Sopron University of Forestry, Department of Forest Protection). He was born and grown up in Keszthely and graduated at Sopron University of Forestry (successor of Selmecbánya "Bergakademie" where Scopoli was professor of metallurgy, chemistry and mineralogy) and Győrfi became professor of forest protection and head of the department here. Later, he moved to the Forest Protection Institute of Hungarian Academy of Sciences when his professorship was terminated in 1951 for political reasons during the stalinist era of the Hungarian communist regime. He has 2 faunistic papers: one paper on the Hymenoptera fauna of Sopron and the surrounding areas, in which he reported 290 Aculeata species, namely 40 Vespoidea, 30 Pompilidae, 100 Sphecoidea and 120 Apoidea species (GYŐRFI 1940). The other faunistic paper discusses the Hymenoptera fauna of former Bars County of the historical Hungary (GYŐRFI 1944). He also published a short paper on Megachilidae spp. titled "*The leafcutter bee*" (GYŐRFI 1938).

Endre Dudich (20th March 1895 Nagysalló – 05th February 1971 Budapest), zoologist, member of Hungarian Academy of Sciences. Dudich is very well known for his application of mathematical methods for studying of insects variations. In his early career, he was professor of zoology at Szeged University, nearly 10 years after, in Budapest University of Sciences. Dudich established the Institute of Zoology and Zoogeography inside the university. His special field of researches were taxonomy of coleoptera and crustacea, hydrobiology, biometrics, soil zoology and also speleology. In hymenoptera, he has one paper, published in 1961 (DUDICH 1961) which is proved to be the funniest mistake of the Hungarian paleontology. In the Hungarian geological journal, titled Földtani Közlöny (Journal of Geology), he described an extremely rare Miocene fossil, a nest of a 10 million years Crabronid digger wasp with mummified flies together with it's eggs and larval cuticles. According to Dudich, it was a 10 million years old fossil Crabronid nest in a *Sequoioxylon* tree with fossilized remains of larval feed (ball of body parts of Syrphyd and Tabanid flies). According to FŐZI et al. 2013, "*the palaeontological sensation did not last long. **Sándor Pordán** (1940-1999) who graduated at the University of Budapest in 1964, did not respect the fossils shown to the students during a study excursion but pressed them with his fingers. Some disgusting material, the adipose body, gushed forth from the supposed Middle Miocene insect remains. Dudich's fossils turned out to be an eggs of a present-day digger wasps, embedded in the Herend lignite instead of the remains of the 10 million-year old insect*".

Stephan Zimmermann (27th October 1896 Kutna Hora (Kuttenberg) – 4th July 1980), for biographic details see the entry: Aculeata research in the Austrian part of the Carpathian Basin. Zimmermann described *Chrysis procera* Zimmermann, 1954. It has several type locality, one of them, Sződliget, is in Hungary (ZIMMERMANN 1954).

Erzsébet Bajári (Erzsébet Nagy after her marriage, 12th August 1912 Újverbász – 25th October 1963 Budapest) curator of the Hymenoptera collection of the Hungarian Natural History Museum till her early death. She graduated in Budapest as chemistry and natural history teacher. During the world economy crisis she was tutor, educating children at home of families. Later she got job at Budapest Analytical Institute (Vegyvizsgáló Intézet) and later at Central Statistics Office of the government. After her short employment by the Ministry of Religion and Education, from 1948, she worked for the Hungarian Natural History Museum where few years later, she became curator of the hymenoptera collection. She defended her doctoral thesis at Szeged University of Sciences. Erzsébet Bajári wrote 2 books in the series Fauna Hungariae, namely Scolioidea and Sphecoidea I. (BAJÁRI 1956a, 1957a). She completed 3 monographs on Mutillidae fauna of the Carpathian Basin (BAJÁRI 1952, 1953, BAJÁRI and MÓCZÁR 1954). Bajári described *Cerceris beaumonti* Bajári, 1956 from Hungary which proved to be synonym of *Cerceris somotorensis* Balthasar, 1955 (BAJÁRI 1956b) and completed the catalogue of the Hungarian *Cerceris* fauna (BAJÁRI 1956c). In "*New Sphecidae for the fauna of Hungary*", she published faunistic data of high number of Sphecidae recorded firstly for the fauna of Hungary. (BAJÁRI 1957b). With László Móczár, they completed the Hymenoptera part in a book titled "*Collection of animals*" (MÓCZÁR and BAJÁRI 1962).

Walter Linsenmaier (18th August 1917 Stuttgart – 31st October 2000 Ebikon). Walter Linsenmaier was a well known artist, famous for his paintings of nature like insects, birds, plants and he was also the leading Chrysididae (cuckoo wasps) expert of his age. He was born in Germany, Stuttgart, but his family soon moved to Switzerland. He initially continued the art of his father and worked as stucco artist and also practized the taxidermy of animals which leaded to establish later his private museum. He studied drawing and illustration at Lucerne University of Applied Sciences and Arts where he got his teaching degree and became professional nature illustrator. From the surrealistic trends of his early ages, his art moved to the realistic direction of natural art. His most famous book is the "*Insects of the world*" which contains nearly 2000 artistic illustrations. Together with his father, they established a private museum with landscape panoramas filled with the typical animal species of different natural habitats. In 1943, he published his painting titled "*Dun ein Bild einer farbenprächtigen Goldwespe*" in Auftrag der Kunstzeitschrift. This was the beginning of his scientific activity as entomologist in the field of the cuckoo wasps (Chrysididae) research. Linsenmaier took numerous collecting trips to Europe, North Africa, Turkey, California and Brazil. His private collection reached the 250 000 specimens which includes 60 000 cuckoo wasps specimens with hundred of types (he described approx. 600 Chrysididae species). His collection is deposited in the Natur-Museum Lucerne. Linsenmaier described 3 species from Hungary (amongst many other countries) namely *Hedychrum aureicolle* ssp. *niemelai* Linsenmaier 1959; *Hedychridium chloropygum* ssp. *spatium* Linsenmaier 1959 (syn. of *Hedychridium caputaureum* Trautmann & Trautmann, 1919) and *Chrysis germari* ssp. *fulminans* Linsenmaier, 1951. Two of them has very indefinite place of capture: "Österreich-Ungarn" (LINSENMAIER 1951, 1959). Sporadic Hungarian data can be found in "*Altes und Neues von den Chrysididen*" (LINSENMAIER 1997).

Géza Zilahi-Sebess (12th December 1905 Marosugra – 30th April 1960 Debrecen, zoologist, professor of Debrecen University of Sciences). After his secondary schools in Arad, Nagyenyed and Hajdúböszörmény, Zilahi graduated at Debrecen University. Before the WW2, he worked 18 years for Szeged University and finally became professor. After 4 years military service, he returned to Szeged, but soon, from 1949, he moved

to Debrecen where he started to work for the university. From 1949, he joined to the Department of Zoology of Debrecen University and as university reader (docent) managed the department. In his paper, titled: "*Neue Fundorte von einigen Hymenopteren auf der Ungarischer Tiefbene*", he published faunistic data from Szeged, Tiszacsege and Hajdúhadház: Bocskay Garden (Symphyta and Aculeata) (ZILAHI-SEBESS 1939). Géza Zilahi-Sebess investigated the biodiversity of cultivated fields: few Aculeata species are listed from orchards in Tiszacsege and more species from potato-fields in the Northern Trans-Theis (Tiszántúl) region (ZILAHI-SEBESS 1955, 1956). He also contributed to the revision of genus *Apis* (ZILAHI-SEBESS 1932).

Gusztáv Szelényi (5th September 1904 Késmárk – 14th October 1982 Budapest) Chalcididae specialist, professor of Budapest University of Agriculture, president of the Hungarian Entomological Society. Gusztáv Szelényi spent his early years in Pozsony (now Bratislava) and in Késmárk (now Kesmarok). After finishing the Mezőtúr Kalvinist High School, he admitted to University of Budapest, where he studied biology and zoology and earned teaching degree. Later, Szelényi doctorated at István Tisza University in Debrecen. He started working at the Entomological Station (later Plant Protection Research Institute). Parallel with his occupation at the Plant Protection Research Institute, he became professor of University of Agricultural Sciences, and guest professor of plant protection entomology at Eötvös Loránd University. For a period, Gusztáv Szelényi was president of the Hungarian Entomological Society. Two Bethylidae species, he described from Hungary, namely *Cephalonomia nidicola* Szelényi, 1944 and *Odontepyris erucarus* Szelényi, 1958 (SZELÉNYI 1944, 1958). After his retirement from the Plant Protection Research Institute, he continued working as volunteer at the hymenoptera collection of the Natural History Museum and started to teach again at József Attila University in Szeged as honorary professor.

Dénes Palotay (?-?) professor of Keszthely Academy of Agriculture. Probably, he is the author of a paper on the control of harmful Vespidae (PALOTAY 1947).

Gábor Reichart (16th May 1917 Szeged – 19th November 1979 Budapest), plant protection specialist, graduated at Peter Pázmány University of Sciences in Budapest. After few years work at the genetic laboratory of the Seed testing Station, he got job at Plant Protection Research Institute where he worked till his retirement. Gábor Reichart reported his observation on *Polistes gallica* praying *Hyphantria* moth (REICHART 1958).

Adolf Gusztáv Manninger (6th May 1910 Rácbóly – 10th December 1982 Budapest) agronomist, plant protection specialist, university professor. He completed his university studies in Budapest at József Nádor University of Technology and Economics, Faculty of Agricultural Sciences. After this, he completed two semesters at Georg August University of Göttingen. Following his father's advice, he worked for the University of Sopron, "Daniel Fehér" Institute of Soil Biology. After a short period of teaching at Debrecen and Székesfehérvár, he became professor at Keszthely Agricultural Academy, where he specialized for plant protection. Due to the (temporary) closing of countryside colleges, he was relocated to Budapest and Gödöllő University of Agricultural Sciences, Plant Protection Department and became dean of the faculty. At the time of the 1956 anticommunist revolution, Manninger was the university's vice-rector. During this period, he courageously supported the revolutionary student movement therefore he was dismissed from the university. After this, he worked for the Plant Protection Research

Institute, where he founded the national plant protection forecasting system which became the basis of a new, environmental friendly way of plant protection. Finally, he was recalled back to Keszthely University. Professor Manninger studied the way of increasing the population density of *Megachile centuncularis* and other wild bee species to reach better pollination for alfalfa cultures, he also studied the parasites of *M. centuncularis* (MANNINGER 1967, 1979, MANNINGER and APJOK 1967). His co-author was **Ferenc Apjok** (1934 - , Agricultural Research Institute, Martonvásár, graduated at University of Agriculture in Gödöllő).

Hermann Priesner (19th November 1891 Linz – 11th August 1974 Linz) professor of University of Fouad and Ibrahim in Cairo till his retirement in 1957. See his biograpy in the Austrian part of this monograph. Priesner described 2 species from Hungary: *Priocnemis pillichi* Priesner, 1960, described from: Simontornya, is a valid species, the other, *Auplopus rectus pallipes* Priesner, 1967 described from: Simontornya, Winden, Neusiedl, Wien and Banyuls-sur-Mer is a synonym of *Auplopus rectus* (Haupt, 1927) (PRIESNER 1960, 1967).

Stefan Negru (27 January 1923 Epureni – 21 November 1970) published few cuckoo wasp species from the Kolozsvár university collection from Kispest and Budapest (NEGRU 1960).

Jacques de Beaumont (26th September 1901 Genf – 29th September 1985 Genf) completed his primary and secondary schools and university studies in Genf, and defended his PhD thesis in 1929. He started his career at the University of Lausanne where he became head of the Laboratory of Zoology and docent of entomology and for 2 years he held the position of dean of Faculty of Science. Additionally he was curator and later director of the Zoological Museum of Lausanne University. Beaumont described *Cerceris impercepta* de Beaumont, 1950 from Hungary (BEAUMONT 1950).

Miklós Móczár (3rd December 1884 Kiskunfélegyháza – 16th January 1971 Budapest, bee specialist). Miklós Móczár was the 9th son of a 15 children family of a well known miller builder István Móczár. After receiving his certificate from the local pedagogical college in Kiskunfélegyháza, he continued his studies and graduated at Pedagogical College of Budapest in 1906. He completed it with additional 2 years study at the Péter Pázmány University of Sciences. After a teaching period at Kassa Pedagogical College, Miklós Móczár returned home, and became professor of the local pedagogical college. In these years, he published his early faunistic researches (MÓCZÁR and HENTER 1907, MÓCZÁR 1911). After this two papers, there was 42 years break in his publication activity in hymenoptera. In MÓCZÁR (1911), he added 135 Aculeata species to the fauna of his home town. Pál Henter was class mate of Mikós Móczár at Pedagogical College at Budapest (called Pedagogicum), they published occurence of 600 Hymenoptera species, dominantly Aculeata from the various regions of Hungary collected by the authors, László Sztancsik and Jenő Zepeniág (MÓCZÁR and HENTER 1907), the identifications of the young students were revised by Sándor Mocsáry. Later, Móczár was appointed to director of pedagogical college of Jászberény till 1942. During the WW 2, they escaped to Újvidék. After the war, he was employed by the Hungarian Tax Office as tax inspector. After his retirement (from 1951) he worked as paid voluntier ("retired researcher") for the Hymenoptera collection of the Hungarian Natural History Museum. In his late years in the museum, Miklós Móczár completed 4 booklets in the series titled Fauna Hungariae on Colletidae, Halictidae, Melittidae, Apidae and Megachilidae (MÓCZÁR 1957a, 1958a,

1960, 1967). Before publishing each booklet, he collected and published the faunistic data of each group in the Carpathian Basin based on the collection of the Hungarian Natural History Museum (MÓCZÁR 1953a,b, 1954b, 1955, 1956a, c, 1957b, 1958b, 1959, 1961a,b). Finally, Miklós Móczár has one paper on pollination ecology (MÓCZÁR 1954a) and an other paper on bee gynandromorphy (MÓCZÁR 1956b).

László Móczár (10th December 1914 Kiskunfélegyháza – 3rd July 2015 Budapest) was born in Kiskunfélegyháza, but since Miklós Móczár, his father, got job in Kassa (now Kosice), the family moved there. At the beginning of World War I, because of the Russian troops from Bártfa (now Bardejov) invaded our country, together with his family moved back to Kiskunfélegyháza. When the danger passed, the Móczár family returned back again to Kassa (Kosice), but Hungary lost the city and they had to escape again. In 1939, he was called for military service for two years effective. After six weeks of basic training, he participated in the fights for Transcarpathia, Transylvania and the Southern Regions of Hungary. When Transylvania returned back to Hungary, he worked as lecturer of Franz Joseph University, Faculty of Natural Sciences and Mathematics in Kolozsvár (now Cluj-Napoca).

After the WW 2, the next 25 years, he spent as the curator of Hymenoptera Collection of the Hungarian Natural History Museum, Budapest with a longer interruption: due to political reasons under the stalinist regime, he was relocated to Pécs (Southern Transdanubia) for few years. The next 45 years, he spent in Szeged as professor of Attila József University of Sciences, Department of Zoology. After his retirement, he returned back to Budapest and he was active nearly till the end of his exceptionally long life, at his age of 101. During this long period, he published 227 scientific works including 11 books and described 230 Hymenoptera species new to science world wide. László Móczár regularly took part in faunistic researches of the Hungarian Natural History Museum and also did independent faunistic researches. These works took place in divers locations in the Carpathian Basin (MÓCZÁR 1938c, 1950a), in Hungary, various places: (MÓCZÁR 1938a, g, 1939b, 1941a, 1943a, 1944a, 1946a, 1952b, 1954c, 2955a, 1956c, 1958b, c, 1974e, MÓCZÁR and SCHWARZ 1968, 1970, MÓCZÁR et al. 1972, MÓCZÁR and WARNCKE 1972), in Nagykörös and Szeged (MÓCZÁR 1943d), in Jászberény (MÓCZÁR 1939d), in Kudsir Hills (MÓCZÁR 1938j), in Pótharaszt-puszta (MÓCZÁR 1938f), in Kőszeg-Hills (GYŐRFFY et al. 1940), in Kassa (MÓCZÁR 1941b), in Tihany (MÓCZÁR 1946b), in Bars county (MÓCZÁR 1947a), in Transylvania (MÓCZÁR 1947c), in the Carpathians (MÓCZÁR 1949), in Bátorliget Nature Reserve (MÓCZÁR 1953d, 1990b), in Kiskunság National Park (MÓCZÁR 1979b, c), in the sodic and sandy territories of Hungary (GYŐRFFY and MÓCZÁR 1981), in Bugac National Park (MÓCZÁR and GYŐRFFY 1982), in Hortobágy National Park (MÓCZÁR 1983b), in Bükk National Park (MÓCZÁR 1996a) and in Aggtelek National Park (MÓCZÁR 1999).

He organized the series titled *Catalogus Hymenopterorum I–XXVI*. listing the families and genera of animals of the Carpathian Basin and completed the zoogeographical map of the area. In the series of Fauna Hungariae he wrote the following books on Aculeata: Pompiloidea, Sphecoidea II., Chrysidoidea and Vespoidea (MÓCZÁR 1956a, 1959d, 1967d, 1996b). László Móczár completed the world catalogue of Mesitiinae subfamily of Bethylidae and the world revision of subfamilies Ceropalinae and Cleptinae. He described 24 new species and new variations from the Carpathian Basin as they are listed separately. In systematics, his main field of interest was genus *Odynerus* (MÓCZÁR 1937, 1938e), Pompilidae (MÓCZÁR 1946c, d, 1953c, 1955b), Crabroninae (Móczár, 1957a, 1958a), Ceropalidae (MÓCZÁR 1978a, 1986c, d, 1987a, 1988a, 1989b, 1990a, 1991, 1993, 1994), Chrysididae and Cleptidae (MÓCZÁR 1951b 1964a, c, 1996b, 1997a,

b, c, 1998a, b, 2000a, b, 2001a, b, 2009), Drynidae (MÓCZÁR 1965c, 1967e) and *Bethylidae* (MÓCZÁR 1966a,b, 1969, 1970a,b, d, 1971a, b, 1974d, 1975a, 1977a, 1983a, 1986b). Special field of his life-work was the research of pollination ecology of alfalfa. This results is very important basis to compare the pollinator-fauna of the pre-chemical and the chemicalized period of agriculture (MÓCZÁR 1954b, 1956b, 1959e, f, 1960d, 1961b, c, e, 1962b, c, MÓCZÁR and BÖJTÖS 1957, BENEDEK and MÓCZÁR 1970), the title of his DSc thesis was "*Role of wild bees in the Hungarian alfalfa cultures*" (MÓCZÁR 1959e).

László Móczár published high number of papers on ethology. Most of his ethological papers discuss the nesting habits and larva-rearing behavior of *Paragymnomerus spiricornis* (Spinola, 1808), *Stilbum cyanurum* (Forster, 1771) and *Sceliphron destillatorium* (Illiger, 1807) and many other species (MÓCZÁR 1939c, 1960b, c, 1961a, 1962e, 1967a, 1938i, 1943c, 1947b, 1952a, 1954a, 1961d, 1966c, 1970c, 1972a, 1973, 1961f, 1977b, 1974b, c, MÓCZÁR and GALLÉ 1983). In ecological aspect, Móczár studied some species in Apoidea (1938h), Sphecoidea (1943b), and Pompilidae (1944c) and also had one paper on zoosociology (MÓCZÁR 1960a). We have to mention his work on hymenoptera anatomy (BENEDECZKY et al. 1990) and hymenoptera pathology: gynandromorphy (MÓCZÁR 1944b) and abnormal development in Chrysididae (MÓCZÁR 1963b). He was the first, who defined the zoogeographical regions of the Carpathian Basin mainly based on Hymenoptera research (MÓCZÁR 1948, 1967f, 1972b).

László Móczár was also exceptionally active in popular science as well (MÓCZÁR 1950a, b, 1951a, 1953a, 1957b, 1963a, 1967b, 1975b, 1984, 1987b, 1990c, 1995a, MÓCZÁR and BAJÁRI, 1962, MÓCZÁR and CSÉPE 1974). During his life, he took more than 500 public presentations. His most important work is the 2 volumes *Állathatározó I-II.* (*Identification Books of the Hungarian Fauna I-II.*) and published numerous richly illustrated popular books for amateur naturalists, middle school and university students, he also published 2 CDs, one of them is titled *World of Insects* (*Rovarvilág*) including hundreds of his own photography and one other CD on the biographies of Hungarian entomologists. Very important part of his scientific career the insect photography, his large collection of his own photos is deposited in the Hungarian Natural History Museum.

Sándor Bognár (25th January 1921 Budapest – 30th March 2011 Budapest). Sándor Bognár was born in a catholic family in Budapest, only 2 boys of the 9 children of his parents grown up. After the early death of his parents, he moved to Gyöngyös with his uncle. Finishing his primary and secondary schools in Gyöngyös, he graduated at the Faculty of Agriculture of Palatine József Habsburg-Lothringen University of Technology and Economy in Budapest. In 1944, he was called for military service. After the world war, he got job at the Plant Protection Department, and later at the Zoological Department of University of Agriculture. From 1961, Sándor Bognár was appointed head of Department of Entomology of University of Horticulture in Budapest. Due to his heart problems, he retired in 1981. Sándor Bognár observed *Vespula germanica* praying caterpillars of Codling moths. (BOGNÁR 1962). He also recorded *Pristocera depressa* as natural enemy of wireworms (BOGNÁR 1957).

Alfréd Taupert (sometimes his name is written Taubert, 1879 Oravicabánya (now Oravica) – 1945 Szabadka (now Subotica). Teacher of Szabadka high school and martyr of Yugoslav partisans. He spent the summer of 1912 in Fonyód and July of 1911 in Herkulesfürdő from where Taupert collected high amount of Aculeata species (smaller amount of Aculeata, he collected from other places of Hungary). He planned to published them but his and his family's cruel execution made it impossible. The Taubert

collection was published in 1958 and 1963 by **Aleksandar Rafailovic** and **Gyula Szöllősi** (RAFAILOVIC and SZÖLLŐSI 1958, 1963). See their biographies and the story of the Taupert collection in the Serbian part of this monograph.

Barnabás Nagy (1921 Szamoskér –) Orthoptera specialist of the Plant Protection Research Institute of the Hungarian Academy of Sciences. He started his university studies at Debrecen University. In his early stage of career, he was professor assistant at the Zoological Museum of Kolozsvár University (King Franz Josef University). *Isophya nagyi* (SZÖVÉNYI et al. 2012), a new grasshopper species described from the Kelemenhavasok (Muntii Calimani) was dedicated to him for his 90th birthday. This species was collected by the researchers of Budapest University of Sciences and the Hungarian Natural History Museum. Barnabás Nagy was responsible for the compilation of the Aculeata part of the "*Handbook of the Plant Protection Zoology*". In this book, he discusses 11 species mainly Vespidae and Megachilidae species describing their life history and the control of these insect pests where necessary (NAGY 1994).

Heinrich Wolf (24th April 1924 Siegen –) (See his biography in the Czech part of this monograph) described *Anoplius pannonicus* Wolf, 1965 from Hungary which proved to be synonym of *Pompilus piliventris* Morawitz, 1889 (WOLF 1965).

Jenő Papp (20th May 1933 Budapest –) Till 1969, curator of Bakony Museum of Nature History in Zirc, later till his retirement curator of the hymenoptera collection at Hungarian National History Museum, Braconid specialist. With **Zsolt Józan** (teacher at Mernye elementary school, Aculeata specialist), they published the Hymenoptera material of Síkfőkút Malaise trap (PAPP and JÓZAN 1995). In 2 papers, Jenő Papp published faunistic data of rare Apoidea species from Bakony Mts., these data are completed with maps showing the distribution of these species (PAPP 1963, 1965).

István Szarukán (1935 Miskolc –) professor emeritius of Plant Protection Department of University of Agriculture at Debrecen. After his early years in state farms in Debrecen and Berettyóujfalu and 1 year employment at Plant Protection Station of Hajdú-Bihar County, István Szarukán was employed by Plant Protection Department of the University of Agriculture in Debrecen. István Szarukán was co-author in one conference paper of Miklós Tóth investigating the effect of natural and synthetic lures in traps designed for Vespidae (TÓTH and SZARUKÁN 2004).

Klaus Warncke (14th May 1937 Neusterlitz – 2nd January 1993 Cairo). Ornithologist and bee specialist. After finishing the high school in Braunschweig, Klaus started his university studies in Mainz than Freiburg, finally he graduated at Ludwig Maximilian University of Munich and got teacher-degree in biology, geography and chemistry. Klaus Warncke completed his doctoral thesis in Munich University. He started to teach in Hilpoltstein, Schrobenhausen and finally in Dachau. Warncke died with his second wife Christa in car accident in Cairo. In Hungarian point of view, he has 3 important papers: In "*Die Wildbienen Mitteleuropas ihre gültigen Namen und ihre Verbreitung*", Warncke attempted to identify few Apoidea species described from the Carpathian Basin: Austria and Hungary by Christ and Poda. However, this identifications are controversial with the results of other authors. According to opinion of Warncke, *Apis minima* Poda, 1761 identical with *Habropoda tarsata* (Spinola, 1838) and *Apis (Bombus) monacha* Christ, 1791 identical with *Bombus equestris* (Fabricius, 1783). From Erdőbénye (Hungary) Warncke described *Andrena pontica* Warncke, 1972 (WARNCKE 1972). In his revision on *Stelis* Pz., we find sporadic but valuable Hungarian data (WARNCKE 1992).

Maximilian Schwarz (30th August 1934 Wien –). After finishing the elementary school, the young Maximilian had to join to the army during the WW2. After leaving it, he moved to Linz. Maximilian Schwarz did several expeditions to Tunisia, Morocco, Algeria, Greece, Crete, Sicily, Turkey, South Africa, Namibia, Spain and North America frequently with his colleagues Kusdas, Warncke, J. Gusenleitner, Schmidt and Pulawski. These expeditions resulted the largest private collection in Austria which exceeds the 140 000 specimen. Since 1980, on his own initiative, he started the entomological period titled "*Entomofauna*". Maximilian Schwarz is the publisher and owner of this and this magazine was originally printed in their own print shop placed in the basement of his house.

With **László Móczár**, they compiled the fauna-catalogue for genera *Nomada, Ammobates, Pasites* and *Parammobates* (MÓCZÁR and SCHWARZ 1968) and *Sphecodes* (MÓCZÁR and SCHWARZ 1970). Maximilian Schwarz revised the *Nomada* species described by Otto Schmiedeknecht including those which he described from Hungary (SCHWARZ 2015). Also, he described one Nomada species from Turkey and Hungary, namely *Nomada platythorax* Schwarz, 1981 (SCHWARZ 1981).

Massimo Olmi (13th October 1942 –) Full Professor of Agricultural Entomology at University of Tuscia (Viterbo, Italy), Catholic University of Mozambique (Cuamba, Mozambique) and Eduardo Mondlane University (Maputo, Mozambique). He retired in 2009. Massimo specialized for world Dryinidae, Embolemidae and Sclerogibbidae. He processed the European species of Dryinidae, Embolemidae and Sclerogibbidae for Fauna Europaea. He is author of more than 300 papers, including six books on Dryinidae and Embolemidae. In his monograph titled "*A Revision of the Dryinidae*" and it's supplement (OLMI 1984, 1990), he revised the species described by Kieffer from Hungary. Additional, sporadic Hungarian data we may find in OLMI (1998a). Massimo Olmi took part in the project of investigation of the fauna and flora of the Hungarian national parks and wrote 2 papers, one on the Bükk and the other on the Aggtelek National Park (OLMI 1992, 1993). He described 2 new species from Hungary, namely *Prioranteon biroi* Olmi, 1984 and *Bocchus lautereri* Olmi, 1998 (OLMI 1984 and 1998b).

Pál Benedek (1943, Gönc –) DSc., Professor of Mosonmagyaróvár Faculty of University of West Hungary, where he originally graduated as agricultural engineer. Earlier, he spent 25 years at the Hungarian Plant Protection Service. Pál Benedek is member of the International Bee Research Association, International Commission of Plant-Bee Relationships, Hungarian Association of Agricultural Sciences and the International Society of Horticultural Science. Author of more than 300 scientific papers including 4 books. His interest in entomology spams the faunistics and systematics of Heteroptera, Hymenoptera, faunistics of Odonata, forecast of insect pests and pollination of orchards and alfalfa. Benedek recorded *Passloecus clypealis* Faester, 1947 firstly for the fauna of Hungary (BENEDEK 1966a) and studied the biology of the following species: *Pemphredon austriacus* Kohl, 1888, *Nitela spinolai* Latreille, 1809, *Trypoxylon figulus* (Linnaeus, 1758), *Passaloecus turionum* Dahlbom, 1844, *Diodontus minutus* (Fabricius, 1793), *Spilomena troglodytes* (Vander Linden, 1829) and *Rhopalum clavipes* (Linné, 1758) (BENEDEK 1966a). Also, he investigated the Sphecoidea fauna of Bakony Mountains (Central Transdanubia in Hungary) from where he recorded 161 species (BENEDEK 1979) and their flower visiting habits (BENEDEK 1968a). Benedek recorded firstly *Diodontus dahlbomi* Morawitz, 1864 for the Carpathian Basin (this species proved to be a synonym name of D. *medius* Dhlb., 1842 which had already been recorded earlier) and *Harpactus tumidus* (Panzer, 1801) for the fauna of Hungary. He described

Rhophites bluethgeni Benedek, 1973 new for science (BENEDEK 1973b), which proved to be synonym of *Rhophites quinquespinosus* Spinola, 1808. He put together the list of Sphecoidea fauna of Tapolca-brook, Veresegyház and Bátorliget and completed their ecofaunistical analysis (BENEDEK 1969a). He published a separate paper on the Sphecoidae fauna of Tapolca-Brook, providing the list of 90 species (BENEDEK 1970a). Significant part of Pál Benedek's publications the studies on the wild bee fauna of alfalfa and it's pollination. Comparing to works of László Móczár, the reason of differences: while László Móczár worked in the pre-pesticide period, these studies were carried out in the time of intensive use of chemicals in agriculture (BENEDEK 1966, BENEDEK 1967a,b, 1968b, c, d, 1969b, c, 1970b, 1970d, 1972a, b, d, 1973a, 1978, 1987, 1997, 1998, BENEDEK and MÓCZÁR 1972, TANÁCS and BENEDEK 2004, 2005, 2007, 2010, TANÁCS et al. 2008, TANÁCS, BENEDEK and BODNÁR 2008a, b, TANÁCS, BENEDEK and MÓCZÁR 2009, TANÁCS, BENEDEK and TÓTH 2007, TANÁCS et al. 2010). Benedek also studied the wild bee pollination of red clover, vetch and onion (BENEDEK 1970e, 1972c, 1975, BENEDEK, BUGLOS and MANNINGER 1971, BENEDEK and PRENNER 1972, BENEDEK, BÁNK and KOMLÓDI 1973, BENEDEK 1974, 1976, BENEDEK, PRENNER and WILHELM 1977). They also studied the transformation of pollinator wild bee fauna: 113 wild bee species were registered at flowering alfalfa fields but the structure of wild bee assemblages has changed significantly, due to the changed weed vegetation caused by pesticides. Bumblebees became the most common wild bees in alfalfa fields. The density of *Melitta, Andrena* and *Halictus* species were reduced significantly. Density of *Eucera* species decreased also dramaticly but *Megachile* species became somewhat more frequent (BENEDEK 1971, BENEDEK and TANÁCS 2005, 2007, 2008, 2009a,b). Pál Benedek's other important field of research is the pollinator friendly agricultural and plant protection technologies (BENEDEK 1970c, BENEDEK et al. 1976). He has one popular scientific paper, titled "*Apoidea - Nearly 800 wild bee species live in our country*" (BENEDEK 2014). We should also mention, that Pál Benedek frequently appeared on TV channels with short plant protection presentations.

Zsolt Józan (21st November 1943 Érsekújvár (now Nove Zamky) –) The family, on paternal side, originated from the Hungarian Highlands (now Slovakia). His father received public servant position at the county council at Érsekújvár which in that time was the part again of Hungary. After, the WW2, the family was forced to leave immediately Érsekújvár and they had to move to the remaining territory of Hungary. (In this aspect, this story is similar, that happened with László Móczár and his family). Zsolt graduated at Pécs, Pedagogical College and started his first job in Kaposmérő as biology and geography teacher in the local elementary school. After 3 years, he moved to Mernye, and continued his teacher career in the local primary school. Beyond his teacher career, from 1968, he worked as pedagogical inspector and advisor as well. He is author of 2 teacher's guide-book on geography education for primary schools. Zsolt Józan specialized for Aculeata research of Central-Europe which he completed later with studying of Aculeata fauna of the Mediterranean Europe (Croatia and Sicily). His interest in Aculeata started in the last years of the secondary school and his earliest captures dated back to this time (1961-62). Majority of Józan's papers are faunistic studies. He investigated the Aculeata fauna of the following territories: South Transdanubia, Hortobágy National Park, Juniper Woodland in Barcs, Kiskunság National Park , Tihany Peninsula, Zselic Hills, Bátorliget Nature Reserve, Béda-Karapancsa Nature Reserve, Boronka Nature Reserve, Bükk National Park, Duna-Dráva National Park, Mátra Mts., Heves-Borsod Hills, Mecsek Hills, Lake Baláta, Bakony Mts., Villány Hills, Őrség, Fertő-Hanság National Park, Simontornya, Síkfőkút, Bükk National Park, Aggtelek

National Park, Cserhát (JÓZAN 1971, 1983a, b, c, 1985, 1986, 1989, 1990a, b, 1992a, b, c, 1993, 1995a, b, c, 1996, 1998, 2000a, b, 2002a, b, c, 2006, 2007, 2015a, PAPP and JÓZAN 1995, SÁROSPATAKI et al. 2009, TANÁCS and JÓZAN 1993, 1999, VASKOR et al. 2015). His other important works are the various checklists and their additions, partly for Hungary and partly for Somogy county (JÓZAN 2001, 2008, 2010, 2011). Józan has 3 papers on the Aculeata fauna of fruit orchards, mainly apple orchards (JÓZAN 2008, 2014, 2015b). With Sipos Bánk Botond, they completed a short paper on the invasive digger-wasp, *Sceliphron curvatum* Sm. (JÓZAN and SIPOS 2001). He, after 72 years of Móczár's identification, re-identified the Chrysididae species of the Kuthy collection (ÁBRAHÁM et al. 2014). With Zoltán Vas, they provided faunistic data and identification key for the newly introduced invasive digger wasps species (VAS and JÓZAN 2014). Józan also participated in ecological projects of Miklós Sárospataki (with identification) investigating and comparing the wild bee fauna of various types of grassland in the Hungarian plains (SÁROSPATAKI et al. 2004, 2006, 2007, 2009, VASKOR et al. 2014). The Zsolt Józan collection was purchased by the Rippl-Rónai Museum, Kaposvár. It contains 60 576 specimens of 1563 species. The collection includes one paratype of *Nomada platythorax* Schwarz, 1981.

Holger Heinrich Dathe (29th June 1945 Gettengrün –) *Hylaeus* specialist, director of Deutsches Entomologisches Institut, Eberswalde between 1993 and 2010. Dathe published *Hylaeus lepidulus* Cockerell, 1924 from Budapest and Szentendre (DATHE et al. WITT 1996). Also five indefinite Hungarian records are available in DATHE (1980). He graduated and doctorated at Humboldt University in Berlin and started his career at Vertebrate Research Station of the Berlin Zoo.

Gyula Erdős (chief medical officer, retired), **Judit Szlobodnyik** (chief medical officer), and **Viktor Zöldi** (biologist). All of them work for the Hungarian Epidemiological Center. They compiled "*Methodological guide for protection against venomous Arthropods*" (ERDŐS et al. 2004). In this paper, they discussed the most common Aculeata species with venomous stings, their life history, prevention, symptoms and treatment.

Zoltán Barotányi (1966 Pécs –) Journalist of Magyar Narancs (Hungarian Orange) and Tilos Rádió (Forbidden Radio). Zoltán graduated at Széchenyi István College (Széchenyi István Szakkolégium) in Budapest in 1994. He published a paper on the symptoms and treatment of the toxins of bees and wasps with focus on the toxin-specific immuno-therapy (BAROTÁNYI 2009).

József Muskovits (11th April, 1943 Tárnok –), chemical engineer, he graduated at Budapest University of Technology. His career started at the High Pressure Experimental Institute of OKGT. József Muskovits was there for 7 years, later he worked for Reanal, Chinoin and Olajterv (predecessor of MOL, Hungarian Oil Company). His interest in entomology started at his university years, when he took part in collecting trips with his fellow from the university. In the first 30 years, he studied Hungarian jewel beetles and longhorn beetles, subrecently he started to study at first velvet ants and now, he's been working on a monograph of cuckoo wasps. In the last decades, he established the largest private hymenoptera collection of Hungary (the largest, because the Józan collection was purchased by the Rippl-Rónai Museum). There are approximately 5000 specimens of velvet ants and 13-14 000 cuckoo wasps in his collection. He found 2 new species from Hungary for the science. The first is *Cleptes hungaricus* Móczár, 2009. The other is *Smicromyrme pilisensis* Muskovits and Leley, 2010.

Arkady Stephanovitch Leley (25th August 1946 Belarus –) With co-authorship of József Muskovits, they described *Smicromyrme pilisensis* Muskovits and Leley, 2010 from Hungary (MUSKOVITS and LELEY 2010). The description is based on 31 specimens from Pilisborosjenő: Malomdűlő in 2007 and 2008, collected by József Muskovits. Unfortunately, the species hasn't been captured in other place till now, and the known habitat has already destroyed. According to Leley's English self-biography: "*I received my undergraduate training at Kazakh State University, Alma-Ata, Kazakhstan. I was a postgraduate student at the Institute of Biology and Soil Sciences, Vladivostok with a major in entomology (taxonomy, systematic, phylogeny, evolution), and received my Ph.D. degree in 1978 and DSc. degree in 1993. I am professor in entomology since 2001. At the Institute of Biology and Sciences, I served as a junior scientist, and as a senior scientist. I was appointed head of the Entomology Laboratory in 1989 and continue to serve in that position. Currently I am supervisor of postgraduate student who study the bees*." In his monograph, titled "*Catalogue of the Mutillidae (Hymenoptera) of the Palaearctic region*" he revised the Fabricius species described from Hungary (LELEY 2002).

Lajos Tanács (25th November 1944 Budapest –) professor of Szeged University, Faculty of Agriculture, Institute of Plant Sciences and Environmental Protection at Hódmezővásárhely. Lajos Tanács graduated at Attila József University of Sciences at Szeged and received secondary school teacher degree in biology and chemistry. For 2 years, he worked for Endre Ady secondary school as a teacher and assistant director of the school-dorm. Lajos Tanács studied and described the wild bee pollinators of alfalfa cultures on sandy and clay soils, their population density, pollination activity, bionomics, species composition. His papers also discuss of alfalfa cultures and their pollinators in environmental point of view. The title of his PhD. thesis: "*Wild bee communities of alfalfa fields around Szeged.*" (TANÁCS 1974a, 1977a, 1999a, b, TANÁCS and BENEDEK 2004, 2005, 2010, TANÁCS et al. 2007, 2008, 2010, TANÁCS, BENEDEK and BODNÁR 2008, TANÁCS, BENEDEK and MÓCZÁR 2009). Other field of his research is the role of wild bees in the pollination of onion (TANÁCS et al. 2008, TANÁCS and BENEDEK 2007).

Beyond alfalfa cultures, he also investigated the Apoidea communities of ruderal spots around agricultural areas studying the influencing biotic and abiotic factors, community associations and ecological conditions. It is more or less connected to his other important field of scientific work: the apoidea faunistics. He joined to the environmental research programs of the Hungarian Natural History Museum. During his faunistic works, he described a new species for science from Hungary (TANÁCS, 1985a) and 14 new species for the fauna of the Carpathian Basin. Lajos Tanács made faunistic investigation on the following areas: Ásotthalom and Zsombó, Tisza-Dam, Lower Tisza (River Theis), Tisza flood area, Hortobágy, Bugac, Kisköre water reservoir, Tisza valley, Bükk National Park and Aggtelek National Park (TANÁCS 1974b, 1977b, 1975, 1979a, b, 1981, 1982, 1987a, b, 1992, TANÁCS and GULYÁS 1986, TANÁCS and JÓZAN 1993, 1999). Lajos Tanács also performed ecological and anatomical investigation on hymenoptera (TANÁCS 1995, BENEDECZKY et al. 1990).

Alexander Valentinovich Antropov Department of Entomology, Zoological Museum of the Moscow Lomonosov State University, senior researcher and curator of Hymenoptera. He graduated and defended his PhD thesis at Faculty of Biology of Lomonosov University. His self biography was published in Sphecos in 1983: "*I was born in 1955 in Dzerzhinsk (Gorky district). In two years my parents left for Moscow where I have been living since then. From 1963 to 1973 I have been studying at school.*

I have been interested in animals since my early childhood, but especially in Arthropods. But it was only after 1970 that I began collecting and studying insects seriously. My first step was connected with butterflies. In the period between 1970 and 1979 I have been passing gradually from Rhopalocera to Noctuidae and Sphingidae. In 1977 I entered the Biological Faculty of the Moscow Lomonosov State University. In 1979 I got acquainted with G. M. Dlussky (he was a specialist in Formicidae) who showed me the diversity of Hymenoptera. After this meeting I became a student of Hymenoptera and turned to research work on Aculeata, especially Sphecidae. After graduating from the University in 1982 I began working for the Zoological Museum, where I am a curator of Aculeata. I devoted myself to systematics research of sphecid wasps, especially Trypoxylini. Now I am collecting material on the Old World Trypoxylini for my review of this group in the USSR and in Palearctic region and then probably in the Old World in general." Antropov described *Trypoxylon deceptorium* Antropov, 1991 from many countries of the Palaearctic region including Hungary (ANTROPOV 1991).

Hans Richard Schwenninger (29th March 1953 –) German Apoidea specialist at Büro Entomologie und Ökologie Stuttgart. He published some original data from Transylvania and Hungary (Németbogsán, Hadad, Budapest: Kamaraerdő and Verőce-Magyarkút) of *Andrena curvana* Warncke, 1965 (SCHWENNINGER 2013).

Klára Gyires (2nd February 1946 Debrecen –) Professor of Semmelweis University, Department of Pharmacology and Pharmacotherapy. She graduated at Debrecen University of Medical Sciences in 1970. **Zsuzsanna Fürst** (1939 –) Professor emeritus of Semmelweis University, Department of Pharmacology and Pharmacotherapy. She graduated at the same university in 1963 and started her career at Chinoin pharmaceutical company. She retired as head of the Department. They completed a university textbook, titled "*A farmakológia alapjai*" (*Bases of pharmacology*) (GYIRES and FÜRST 2011) in which they discuss the chemical compositions, amounts, symptoms, mechanism and treatment of toxins of *Apis mellifica, Vespula vulgaris* and *Vespa crabro*.

Raymond Wahis and **Christian Schmid-Egger** published few *Eoferreola* Arnold (Pompilidae) species from Simontornya (Pillich collection) (WAHIS and SCHMID-EGGER 2002). (See their biographies in the Serbian and Austrian part of this monograph).

Miklós Tóth (10th April 1953 Budapest –) DSc, correspondent member of the Hungarian Academy of Sciences; scientific advisor of the Plant Protection Institute of Hungarian Academy of Sciences, author of more than 210 scientific publications and owner of 9 patents. His scientific activity ranges from the investigation of chemical communications of insect pests, pheromones to their aplication in practical plant protection. With coauthorship of **Gábor Szőcs** (Head of Department of Zoology at the Plant Protection institute of Hungarian Academy, specialist of chemical communication, chemical ecology of insect pests), **István Ujváry** (27. March 1953 Szekszárd –), chemical engineer and researcher, senior researcher of the Chemical Research Institute of the Hungarian Academy of Sciences till his retirement) **Zsolt Kárpáti** (senior researcher of Department of Zoology at the Plant Protection Institute of Hungarian Academy of Sciences, specialist of neurophysiology, graduated at Lóránd Eötvös University of Sciences, Budapest as biology teacher in 1998), and **Tibor Jermy** (31st January 1917 Lőcse – 23rd September 2014 Budapest, member of the Hungarian Academy of Sciences specialized for zoosociology-synbiology, ecology, experimental insect ecology, evolution) published a conference summary (TÓTH et al. 2001) on a new type of funnel pheromone traps designed for Noctuidae, Geometridae and Vespidae.

János Bodor is plant protection specialist, worked for the Plant Protection Research Institute and he is active in publications from1964, he specialised for the insect pests of stored grains, strawberry and those of *Asparagus*. He is also chief editor of a Hungarian horticultural journal titled "*Kertészet és Szőlészet*" (Horticulture and Viticulture). In this journal, János Bodor published a paper, titled "*The mysterious leafcutter bees*" in which he describes the life history of some economically important megachilid bees (BODOR 2003). On his other paper, he described the feeding behaviour of *Mellinus arvensis L.* (BODOR 1965).

Júlia Katalin Jósvai scientific assistant of the Plant Protection Institute of Hungarian Academy of Sciences, Erzsébet Voigt (National Agricultural Research and Innovation Centre: Fruit Cultivation Research Institute Budapest) and Miklós Tóth (see his biography above) studided the domimancy (species composition) of various Vespidae species in Hungarian vineyards and orchards and they found high dominantion of *Vespula vulgaris* and *Vespula germanica* against other *Vespa, Vespula* and *Polistes* spp. (JÓSVAI et al. 2007b). In other paper, titled "*Damages caused by wasps and the possibilities of their control in the fruit and viticulture*", they studied damages caused by Vespidae, their life history and their control giving the descriptions of various insect traps (JÓSVAI et al. 2007b).

Peter J. Landolt (Research Entomologist and Research Leader at the USDA Yakima Agriculture Research Laboratory, previously Behavior and Basic Biology Laboratory, Gainesville, Florida). Dr. Landolt field of research includes insect behavior, pheromones, host plant kairomones and feeding attractants. His pheromone studies focus on sex attractants. He also researched the isolation and identification of host attractants and their effects for insect's host finding behavior. **Peter Landolt** with co-authorship of **Miklós Tóth** and **Júlia Jósvai** described a pheromone experiment executed in Hungary, in which they investigated the effect of different compounds in traps for Vespidae species. They got the following result: "*Five species of social wasps were captured in trapping tests in Budapest (Hungary) that evaluated the attractiveness of acetic acid, isobuthanol, 2-methyl-2-propanol, and heptyl butyrate. Both Vespula vulgaris (L.) and Vespula germanica (F.), were captured in traps baited with isobuthanol, the combination of acetic acid and isobuthanol, and the combination of acetic acid and 2-methyl-2-propanol. V. germanica did not respond to acetic acid or to heptyl butyrate. V. vulgaris also responded to acetic acid alone, and 2-methyl-2-propanol alone, but did not respond to heptyl butyrate. Both V. germanica and V. vulgaris responded more strongly to the combinations of acetic acid with isobuthanol and acetic acid with 2-methyl-2-propanol, compared to any of these chemicals tested alone. Small numbers of European hornets, Vespa crabro L. were captured in traps baited with acetic acid with isobuthanol, but not with any other lures. Small numbers of Dolichovespula media (Retzius) were captured in traps baited with acetic acid, and with the combination of acetic acid and isobuthanol, but not with any other lures.*"

Győző Szél (1958 Budapest –) Coleoptera specialist, Hungarian Natural History Museum, Budapest. He graduated at Loránd Eötvös University of Sciences Budapest. Győző Szél in 2005 wrote a popular scientific paper on the breeding ecology of some Sphecoid wasps titled "*Bölcsőépítő darazsak: Repülő sárdagasztók*" (*Vespiary-builder wasps: flying mud-kneaders*) (SZÉL 2005).

Imre Fazekas microplepidoptera specialist. Imre Fazekas works for the Regiograph Institute in Komló, previously, he was curator of the natural history collection of Komló Museum. With Csaba Szinetár, they studied the breeding ecology of *Sceliphron destillatorium* Illiger (SZINETÁR and FAZEKAS 2012), Imre Fazekas also published a paper on the occurrence of invasive *Sceliphron curvatum* in the Mecsek Mts. (South Hungary) (FAZEKAS 2012). He graduated at Pécs Pedagogical College where he received biology and agriculture, and later physical education teacher degree. In 1993, he graduated in environmental protection at Janus Pannonius University of Sciences in Pécs. He is editor of Acta Naturalia Pannonica, and till 2006 worked for Folia Comloensis either.

Csaba Szinetár (27th May 1960 Szentgotthárd –) Spider specialist, professor of zoology at Pedagogical College in Szombathely (part of Western Hungarian University). He graduated at Lóránd Eötvös University of Sciences as biology-chemistry teacher. With Imre Fazekas, they published the list of spider species found in nests of *Sceliphron destillatorium* Illiger (SZINETÁR and FAZEKAS 2012).

Sabine Steghaus-Kovac (10th July 1960 Frankfurt am Main –) zoologist, freelance writer of Tessloff publisher. Sabine is married and has two grown up children and a little grandson. She graduated at Frankfurt's Johann Wolfgang Goethe University in biology. During the time of her doctoral studies, she had three years living in Malaysia. Since then, she's been working as freelance science journalist for various media, including the prestigious international journal Science, a Frankfurt newspaper, but also for various public entities. Her popular scientific work publisehd in the series of "*Was ist was*", titled "*Bienen, Wespen und Ameisen*" was translated and published in Hungary, in 2005 (STEGHAUS-KOVAC 2005).

Gábor Zanathy (1962 – 22nd December 2015) associate professor of Department of Viticulture at Institute of Viticulture and Enology of Budapest Corvinus University. Gábor graduated at Budapest University of Horticulture. His first job was at Vörösmarty cooperative farm, as farm manager in Fót. After 2 years in agricultural production, he joined to University of Horticulture in Budapest. He published one paper on the harm caused by Vespidae species in wine yard. He discussed their life history and described a trap for the pests (ZANATHY 2011).

Mario Boni Bartalucci, Museo di Storia Naturale dell'Università degli Studi di Firenze. Baralucci in his monograph, titled "*European Myzininae (Hymenoptera: Tiphiidae)*" reported data of 2 species from Pest and Fülöpháza from Hungary and also 2 species from Slovakia: Štúrovo (Párkány), Nitra (Nyitra), Chotin (Hetény), Somotor (Szomotor) etc. (BARTALUCCI 2012).

Miklós Sárospataki (11th May 1963 Budapest –) Docent of Department of Zoology and Animal Ecology of Szent István (King Saint Stephen) University at Gödöllő. Miklós graduated at Attila József University of Sciences in Debrecen. Later, he completed his skills with teacher degree at the University of Sciences in Budapest. With help of an academic scholarship, he worked 3 years in Plant Protection Research Institute of the Hungarian Academy of Sciences in Budapest. Finishing these 3 years academic scholarship, Miklós got employment at University of Agriculture in Gödöllő (now it is the Gödöllő faculty of Szent István (King Saint Stephen) University) where he's been teaching till present days. His wife, **Judit Fazekas** is also biologist and co-author of Miklós Sárospataki. Miklós is the president and founder of Tölgy (Oak) Nature Conservation

Organization and member of the Hungarian Biological Association, Hungarian Entomological Association, International Bee Research Association and the Royal Entomological Society (Great Britain). Beyond his profession, he is also interested in nature photography.

Co-authors of Miklós Sárospataki:

Attila Lengyel earlier Loránd Eötvös University of Sciences, Budapest, Department of Plant Systematics, Ecology and Theoretical Biology, now Ecological and Botanical Research Institute of Hungarian Academy of Sciences, botanist; **Sándor Koczor**, PhD. Plant protection Research Institute of Hungarian Academy of Sciences. He is not hymenopterologist, co-author of Miklós Sárospataki in one paper; **Florian Kohler** Nature Conservation and Plant Ecology Group, Wageningen University, The Netherlands and Laboratory Soil and Vegetation, Institute of Biology, University of Neuchatel, Switzerland; **Jort Verhulst** Nature Conservation and Plant Ecology Group, Wageningen University, The Netherlands; **Eva Knop** Community Ecology, University of Bern, Switzerland; **Felix Hercog** Agroscope Reckenholz-Tänikon Research Station ART, Swiss Federal Research Station for Agroecology and Agriculture, Zürich, Switzerland; **David Kleijn** Center for Ecosystem Studies, Wageningen, The Netherlands; **Sarolta Erdős** PhD student at the Institute for Environmental and Landscape Management of Szent István (King Saint Stephen) University, Gödöllő. She is interested in ornithology, she also worked for the Hungarian Natural History Museum, now she is employed by the Kiskunság National Park; **Tamás Rédei** Ecological Research Institute of Hungarian Academy of Sciences in Vácrátót; **Dávid Rédei** Heteroptera specialist, Hungarian Natural History Museum; **Tibor Kisbenedek** Head of Dept. of Nat. Hist., Janus Pannonius Museum, Pécs, previously: Hung. Nat. Hist. Mus., Orthoptera specialist; **Kirill Márk Orci** Orthoptera specialist, Animal Ecology Research Group, Hungarian Natural History Museum; **Győző Szél** Coleoptera specialist, Hungarian Natural History Museum; **András Orosz** Hemiptera specialist, Hungarian Natural History Museum, retired; Attila Podlussány Curculionidae specialist, he was typographer of the Hungarian Natural History Museum, retired; **Tamás Szűts** Arachnidae specialist, University of Western Hungary, Szombathely; **István Rozner** Coleopterologist, Hungarian Natural History Museum, **Dóra Neidert** Szent István (King St. Stephen) University, Faculty of Agricultural and Environmental Sciences, Gödöllő, **Gergő Gyurcsó** 11th July 1988 - Szent István (King St. Stephen) University, Faculty of Agricultural and Environmental Sciences, Gödöllő, also athlete of BEAC Hungary; **Dénes Saláta** 1984 Miskolc - , Szent István (King St. Stephen) University, Faculty of Agricultural and Environmental Sciences, Gödöllő, **Bettina Donkó** Szent István (King St. Stephen) University, Faculty of Agricultural and Environmental Sciences, Gödöllő, **Áron Bihaly** Szent István (King St. Stephen) University, Faculty of Agricultural and Environmental Sciences, Gödöllő, **Márk Szalai** assistant professor, applied entomology, Plant Protection Institute, Szent István (King St. Stephen) University, Faculty of Agricultural and Environmental Sciences, Gödöllő, **Orsolya Pintér** PhD student, botany and weed control, Plant Protection Institute, Szent István (King St. Stephen) University, Faculty of Agricultural and Environmental Sciences, Gödöllő, **Judit Novák** and **Viktória Molnár** both studied at Gödöllő University and completed their diploma-thesis under the supervision of Miklós. They were responsible for data collection at various museums to establish bumblebee-database, therefore they were co-authors of Miklós Sárospataki discussing the distribution, nature conservation and frequency of bumblebee species.

Important part of Milós's work are the bumblebee studies, Miklós studied their distribution, faunistics (for instance Bodrogköz or Romania), nature conservation, pollination ecology and endangering factors (SÁROSPATAKI, NOVÁK and MOLNÁR 2000, 2002a, b, c, 2003a,b, 2004, 2005, SÁROSPATAKI and HAVAS 2009b, BAN-CALEFARIU and SÁROSPATAKI 2007, SÁROSPATAKI et al. 2009, 2010, 2011, 2012, 2016, SÁROSPATAKI and BAKOS 2011, BAKOS et al. 2011, BAKOS, SALÁTA and SÁROSPATAKI 2011a, b, SÁROSPATAKI, ÁDÁM and BAKOS 2011, BAKOS et al. 2012, 2013, SALÁTA et al. 2013, 2014, 2015, BAKOS and SÁROSPATAKI 2012). Miklós and his team did very important investigations in wild bee faunistic and pollination ecology as well, like faunistic investigation on Naszály, dry grasslands of Hungary, Tihany Peninsula, abandoned mines, grasslands of The Netherlands and Switzerland, wild bee fauna of the Hungarian plains (SÁROSPATAKI HAVAS 2009a, SÁROSPATAKI and FAZEKAS 1995, HAVAS, SÁROSPATAKI and JÓZAN 2008, BATÁRY et al. 2010, SÁROSPATAKI 1998, SÁROSPATAKI HAVAS and PINTÉR 2005, SÁROSPATAKI at. al. 2006, SÁROSPATAKI, BÁLDI and BATÁRY 2007, SÁROSPATAKI at. al. 2004, 2007, BATÁRY et al. 2007). They also tested the national biodiversity monitoring system for pollinators (SÁROSPATAKI, MENYHÁRT and KOVÁCS 2003, SÁROSPATAKI and HAVAS 2006). Furthermore, Miklós and his group published few papers on the distribution and frequency of *Megachile* and *Osmia* spp. (KOCZOR and SÁROSPATAKI 2005, BATÁRY et al. 2005, HAVAS, POCSAI and SÁROSPATAKI 2008, HAVAS et al. 2011). In nature conservation, they studied the way of preservation of biodiversity in agricultural landscapes, they completed quantitative ecological studies in the Pannonian grasslands, studied the effect of intensity of grazing for grassland biodiversity, effects of seminatural spots for pollinator communities, effect of landscape-structure for ecosystems of apple orchard and their flower visiting communities and the effect of disturbances for the wild bee communities (BÁLDI, BATÁRY, ERDŐS and SÁROSPATAKI 2006, BÁLDI et al. 2007, BATÁRY et al. 2005, BIHALY et al. 2015, SOMAY et al. 2013, FÖLDESI et al. 2014, VASKOR et al. 2014, BIHALY, VASKOR and SÁROSPATAKI 2015, SÁROSPATAKI et al. 2015). They also investigated the effect of wild bee pollinators for the yield of apple orchards (KOVÁCS-HOSTYÁNSZKI et al. 2015).

Michael Kuhlmann (25th July 1968 Hamnn (in Hessen, Germany) –) After finishing his high school, Michael graduated at Wilhelms Universität in Münster as biologist and habilitated in the same university where he worked 8 years after spending few years at Planungsbüro für Landschafts- und Tierökologie (Planning office for Landscape and Animal Ecology) in Geseke. Now, he is research entomologists of The Natural History Museum in London. In "*Faunistik und Zoogeographie der Bienengattung Colletes Latreille, 1802*" (KUHLMANN 2005), Kuhlmann listed the distribution of Colletes species including the countries of the Carpathian Basin. For instance, 12 species he mentions from Hungary and 5 species from Slovakia.

Attila Haris (8th September 1968 Kaposvár –). I was born in Kaposvár and grown up in Kaposmérő. I graduated at Mihály Táncsics High School and received my university degree in Keszthely as a chemical-agricultural engineer: My university studies was started in Veszprém University and finished in Keszthely University. My interest in entomology started my early childhood when we spent our summer in our summer cottage at Fonyód and became more intensive in my age of 10 or 11 when I became member of the naturalist study group at the upper classes of elementary school under the guidance of **Márta Pál**. In that time, when I was between 11 and 16, I collected all kind of insects mainly around Kaposmérő. I wrote my thesis on the sawfly pests on grass cultures and cereals under the supervision of **János Szabolcs** and I completed my PhD

at Keszthely Faculty of Veszprém University (during this time the universities were reorganized) on ecology of wheat sawflies (*Dolerus, Pachynematus* spp.) under the supervision of **Gyula Sáringer**. After few months at Marcali Museum I started to work for Göncöl Foundation. Here, I studied Aculeata in the frame of a project to explore the natural values of a planned National Park. In this time I completed 5 research reports (HARIS 1993, 1995a, 1996a, b and a summary report). The results of this works was published only 20 years later, in 2015 (HARIS 2015). After my project is finished at Göncöl Foundation, I worked for several companies like IBM Székesfehérvár, Larus Holding, General Electric etc. but I didn't continue to study Aculeata. In these years I spent 1-1 months in various museums in Stockholm, Madrid and Leiden financed by different EU projects (Highlat, BiodIberia and Synthesys). Subrecently in 2012 and 2013, I collected Aculeata species in Sicily (mainly in Monti Nebrodi and Milazzo) and in Libya (in Marsa El Brega). After the terrorists occupied the site in Libya where I worked (Lifeco) I had to return home. In the last 25 years, I studied dominantly Symphyta, only few works I have on Aculeata bees and wasps, 1 of them is a popular scientific paper on leafcutter bees (HARIS 1995b).

Paolo Rosa was born in Milan (Italy) in 1974. His father, Vittorio Rosa, was an entomologist and deeply influenced the interest of the young Paolo in natural sciences. Their first expeditions to the rainforests of River Amazon forest dates back to 1986. Their field research continued in South America, in Africa and in Asia. In 2001, Paolo graduated in Natural Sciences at University of Pavia and during his studies he opened his own private entomological company, specialized in organising temporary exhibitions in museums, universities and parks and writeing popular science books and scientific papers. With **Mattias Forshage** (Station Linné, Ölands Skogsby, Swedish Museum of Natural History), **Juho Paukkunen** (Aculeata specialist, Finnish Museum of Natural History) and **Villu Soon** (Natural History Museum and Institute of Ecology and Earth Sciences, University of Tartu) they described a new Cleptes species from Hungary, *Cleptes striatipleuris* (ROSA et al. 2015). The specimens were collected by Z. Nyírő in 2005 by Malaise trap and they were deposited in the collection of Tartu University.

Anikó Kovács-Hostyánszky (22nd April 1984 Dombóvár –) Anikó graduated at Faculty of Veterinary Science, Budapest of Szent István (King Saint Stephen) University in applied zoology. Five years later, she defended her PhD thesis in Gödöllő, Faculty of Agricultural and Environmental Sciences of the same university. Now, she is research associate of Ecological Research Center of the Hungarian Academy of Sciences in Vácrátót. Before this, she had shorter projects at Hungarian Natural History Museum, at Georg-August University in Göttingen (DAAD Scholarship) and also at Würtzburg University. She is member of the Hungarian Biological Society, Hungarian Ecological Society and Society for Conservation Biology. Anikó works in various research groups, her coauthors: **Rita Földesi** (Syrphyd researcher, applied ecology, Szent István (King Saint Stephen) University), **András Báldi** (11th October 1965 Budapest – , Ecological Research Center, leader of her research group, DSc.), **Ádám Kőrösi** (Animal Ecology Research Group of the Hungarian Natural History Museum, specialized for butterfly ecology, previously, he worked for the Lepidoptera collection of the Natural History Museum, Budapest) **László Somay** (Ecological Research Center of the Hungarian Academy of Sciences, research assistant), **Zoltán Elek** (research associate, Ecological Research Center of the Hungarian Academy of Sciences), **Viktor Markó**, (agricultural engineer, plant protection specialist, reader of Corvinus University of Budapest, Faculty of Horticultural Science), **Ákos Varga** (PhD student, Corvinus University of Budapest,

Faculty of Horticultural Science), **Réka Bakos** (Szent István (King Saint Stephen) University, Gödöllő, Department of Zoology and Animal Ecology, PhD student) **Gisela Lüscher, Philippe Jeanneret, Manuel K. Schneider, Debra Bailey** and **Felix Herzog** (all of them from Agroscope, Institute for Sustainability Sciences ISS, Zurich), **Lindsay A. Turnbull** (Department of Plant Sciences, University of Oxford), **Michaela Arndorfer, Karl G. Bernhardt, Thomas Frank, Jürgen K. Friedel, Marie-Louise Oschatz** (all of the from University of Natural Resources and Life Sciences Vienna), **Katalin Balázs** (Institute of Env. and Landscape Mgm., Szent István (King Saint Stephen) University), **Jean-Philippe Choisis** (Touluse University), **Maximilian Kainz** (Munich Technical University, Freising), **Maurizio G. Paoletti** (Department of Biology, Padova University), **Susanne Papaja-Hülsbergen** (Munich Technical University, Freising), **Jean-Pierre Sarthou** (Touluse University and INRA), **Norman Siebrecht** (Munich Technical University, Freising), **Sebastian Wolfrum** (Munich Technical University, Freising), **Csaba Centeri** (associate professor, Szent István (King Saint Stephen) University, Gödöllő), **Eszter Falusi** (15th March 1981 – , Szent István (King Saint Stephen) University, Gödöllő, botanist, aquatic plants), **Philippe Jeanneret** (Agroscope Reckenholz-Tänikon Research Station ART, Zurich), **Károly Penksza** (25. 04. 1963 – , Szent István (King Saint Stephen) University, Gödöllő, botanist), **László Podmaniczky** (rural landscape development, Szent István (King Saint Stephen) University, Gödöllő), **Ottó Szalkovszki** (PhD. student, University of Debrecen, specialized for spider ecology), **Sebastian Haenke** (Agroecology Department of Crop Sciences, Georg-August University, Gottingen), **Birgit Jauker** (Justus Liebig University, Department of Animal Ecology, Giessen), Teja Tscharntke (Agroecology Department of Crop Sciences, Georg-August University, Gottingen), **Andrea Holzschuch** (University of Würzburg, Department of Animal Ecology and Tropical Biology, specialized for Aculeata ecology), **Annamária Fenesi, Csongor I. Vágási, Monica Beldean, Edina Török** (all from Hungarian Department of Biology and Ecology Faculty of Biology and Geology, Babes-Bolyai University, Kolozsvár), **Julie Teresa Shapiro** (School of Natural Resources and Environment and Department of Wildlife Ecology and Conservation, University of Florida, Gainesville).

Anikó and her co-authors investigated the pollination of 12 Hungarian farms and found that pollination success of apple was significantly related to the species richness of wild bees, regardless the dominance of honey bees (FÖLDESI et al. 2015), also they studied that agricultural intensification how reduce the bee diversity in winter cereal fields and they found that increasing the amount of fertilizer decreased wild bee abundance therefore the intensification of agriculture decreases diversity and reduces pollination success (KOVÁCS-HOSTYÁNSZKY et al. 2011). This was confirmed by Lüscher et al. 2014 with co-authorship of Kovács-Hostyánszky, that avoidance of mineral nitrogen and pesticides beneficial for biodiversity (including wild bees) and species protection. They also studied the impact of the highly invasive *Solidago canadensis* on plant and pollinator communities in old fields with different ages (1–20 years since last ploughing) in Southern Transylvania, Romania. They found, that invasion of S. canadensis had negative effect on the abundance of bees irrespectively for the field age (FENESI et al. 2015). They also investigated the bee species (together with other groups) and their role in environmental quality indication in rural farms (KOVÁCS-HOSTYÁNSZKY et al. 2013) and also the effect of oilseed rape mass flowering for the wild bee communities and the affection of pollination success of other wild plants around (KOVÁCS-HOSTYÁNSZKY et al. 2013).

Enikő Havas She was born at Esztergom and graduated at Gödöllő, Szent István (King St. Stephan) University. Now, she works for the Plant Protection Service at Velence as plant protection supervisor. Her thesis was: "*Latest investigation on the wild bee fauna of Tihany peninsula*" (HAVAS 2007) under the supervision of Miklós Sárospataki. After her master grade, Enikő started her PhD studies in the same university. Till now, she hasn't finished her PhD, instead of this, she is happy mother of 2 beautiful children and married to **Ádám Staszny** (her co-author). Enikő Havas and with her co-authors did wild bee faunistic investigations in Naszály Hill, Tihany Peninsula, Bodrogköz and Zemplén region (SÁROSPATAKI and HAVAS 2009a, b, HAVAS, SÁROSPATAKI and JÓZAN 2008). She studied the effect of mining for wild bees, comparing the fauna of abandoned mines and the neighboring natural rock grasslands (SÁROSPATAKI, HAVAS and PINTÉR 2005). Enikő studied the wild bees of raspberry plantations (SÁROSPATAKI and HAVAS 2006). With Imre Pocsai and Miklós Sárospataki, they collected data of leafcutter bees preserved in Hungarian museums and used their data to estimate their nature conservation status. For other publications of Enikő Havasi, see the next entry.

Viktória Répási (1975 –) Viktória graduated as zoologist at the Faculty of Veterinary in Budapest of Szent István (King St. Stephen) University in 2002. She is PhD. student of Péter Nagy, Department of Anmal Ecology in Gödöllő, where she studied nematodes. Viktória was employed by the Hungarian Natural History Museum from 2008 till 2009 where she studied the family Vespidae. Due to financial reasons, the museum cancelled the 2nd muzeologist position in the Hymenoptera collection, therefore her contract was terminated in 2009. Viktória with Enikő Havasi completed the wild bee database for *Chelostoma, Megachile* and *Osmia* species. They analysed and published their data (HAVAS et al. 2009a, b, 2011, HAVAS, RÉPÁSI et al. 2009, HAVAS, RÉPÁSI and SÁROSPATAKI 2009). With Libor Dvořák, they completed the latest checklist of Hungarian Polistinae species with their distribution data (RÉPÁSI, HAVAS and DVOŘÁK 2009).

Bánk Botond Sipos (1968 Pécs –) entomologist and nature photographer, ex conservator of Mátra Museum in Gyöngyös. According to his biography: "*I was born in 1968 in Pécs. I studied in Kisdobsza, Nagyszekeres and Püspökladány and graduated in ecology at Miskolc University. Since my childhood, I've been living in countryside, close to nature. Studying the life of forests, meadows, brooks and lakes made the inspiration to learn entomology. I was primary school student when I started correspondence with prof. Dr. László Móczár, who inspired me to begin studying Aculeata. He told me the story of his experiences with wasps with great enthusiasm. In 2000, I was admitted to the Hungarian Entomological Society. Within Aculeata research, I'm particularly interested in faunistic investigations of Embolemidae, Bethylidae, Dryinidae, Chrysididae, Scoliidae and Sphecidae (SIPOS 2001, 2005). In 2000, I was succeed to catch a specimen of Sceliphron curvatum which was new record for the Hungarian fauna. In 2001, I collected 2 other new species, in Foktő, namely Miscophus niger and Gonatopus distinctus (SIPOS and MÓCZÁR 2007). In 2000, I organized an entomological exhibition on the Conference of Kalvinist high schools in Kunszentmiklós. In 2007, I worked in Bristol as volunteer in organizing the event: Wildlife Photographer of the Year, 2007 housed in Bristol City Museum and Art Gallery. In 2012, I won the photo contest of the Hungarian Entomological Society with my 7 pictures series on insects in action. I'm passionate about nature photography especially the technique of photographing of flying insects and birds (SIPOS, 2014). The photography of their way of life and behavior is a great challenge and engagingly interesting. My photographs are published in the following journals: Rovarász Híradó (Entomological News), Vadász évkönyv (Hunter's Annals), Magasles (High-*

stand), Vadon (Wildlife), Nimród, Természet világa (Nature), Természet Búvár (Naturalist) and Madártávlat (Bird's-eye view)." Bánk Botond published papers on the newly appeared invasive Sphecoidea species such as *Isodontia mexicana* (Saussure, 1867) and *Sceliphron caementarium* (Drury, 1773) (SIPOS 2010a,c, 2015). He has a popular scientific paper on the ethology of *Sceliphron destillatorium* (Illiger, 1807) either.

Dóra Vaskor (17th February 1989 Balassagyarmat –) Dóra is living in Magyarnándor. After finishing Balassi Bálint High School in her hometown, she received her BSc. at Lóránd Eötvös University of Sciences in environmental sciences and later, her MSc. in biology at Szent István (King Saint Stephen) University in Gödöllő. She is PhD student of Miklós Sárospataki at Gödöllő University. She writes her thesis on wild bee faunistics and pollination-ecology in nature protected areas. One of her main field of research is the pollination ecology. She investigated the seminatural fragments in maintaining the pollinator communities (VASKOR et al. 2015, BIHALY, VASKOR and SÁROSPATAKI 2015, SÁROSPATAKI et al. 2015, BIHALY et al. 2015). Dóra Vaskor investigated the effect of various disturbances for the pollination of wild bees (VASKOR et al. 2014). Finally, very important part of her publications the bumblebee research (ecology and pollination) (KOVÁCS-HOSTYÁNSZKY et al. 2014, SÁROSPATAKI et al. 2016, SÁROSPATAKI et al. 2014, BAKOS et. al, 2013).

Zoltán György (8th August, 1979, Budapest –) Zoltán completed his primary and secondary schools at Budapest and graduated at Kecskemét College, Faculty of Horticulture. He is horticultural engineer. The title of his diploma-thesis was "*Insect pests of grapevine*". In 2002, he was employed by Department of Zoology of the Hungarian Natural History Museum. Here, Zoltán worked as collection manager of Coleoptera. Now, Zoltán is marketing and communications specialist of the museum. Petra Szöllősi-Tóth is Zoltán's wife and his co-author. Zoltán is a talented artist, illustrator. With his wife Petra Szöllősi-Tóth, they completed a check list of Drynidae of Hungary and summarized the history of Drynidae research (SZÖLLŐSI-TÓTH and GYÖRGY 2009a,b). With József Muskovits, they published a well illustrated monograph of the velvet ant fauna of Hungary (MUSKOVITS and GYÖRGY 2011).

Petra Szöllősi-Tóth (2nd August 1980 Cegléd –) Petra studied at János Damjanich High School at Nagykáta, and Kecskemét College of Horticulture. She is conservator of the Hymenoptera Collection of Nat. Hist. Mus. Budapest. In "*Checklist of Dryinidae of Hungary*" (SZÖLLŐSI-TÓTH and GYÖRGY 2009a) they listed 42 species, *Gonatopus distinctus* Kieffer, 1906 was recorded first time for Hungary. They summarized the history and research results on Drynidae in Hungary (SZÖLLŐSI-TÓTH and GYÖRGY 2009b).

Zoltán Vas (1985 –) Zoltán started as ornithologist then specialized for bird lice, now curator of Hymenoptera of the Hungarian Natural History Museum. Zoltán for few years, when he moved from the collection of mammals to the Hymenoptera collection has been specialized for Ichneumonidae. However, he is co-author of some papers on Aculeata as well. One of them is a popular scientific work with co-authorship of Anikó Kovács-Hostyánszki, the title: "*Secret of bees - everything is over when they disappear*" (VAS and KOVÁCS-HOSTYÁNSZKI 2013). Other 2 papers belong to the "*insect of the year*" project. In 2014, it was *Bombus terrestris* (Linné, 1758) (KOVÁCS-HOSTYÁNSZKY et al. 2014, VAS 2014, VAS, 2014). In "*New data and key to the Mud-Dauber fauna of Hungary (Hymenoptera: Sphecidae)*" they reported distribution data of *Sceliphron curvatum* (Smith, 1870) and *Sceliphron caementarium* (Drury, 1773) was firstly reported from

Hungary. These reports were completed with a key for *Sceliphron, Chalibion* and *Isodontia* species (VAS and JÓZAN 2014). Zoltán finished the Kecskemét Calvinist High-School and graduated at Lóránd Eötvös University of Sciences, Faculty of Natural Sciences, Section of Biology. After his graduation Zoltán was collection manager of the collection of birds and also of collection of mammals of the Hungarian Natural History Museum. From 2012, he is curator of the Hymenoptera collection and started to study Ichneumonidae. The title of his PhD dissertation: "*Host-parasite relationship of birds (Aves) and lice (Phthiraptera) – evolution, ecology and faunistics*" submitted in 2013, Faculty of Veterinary Sciences Szent István (King St. Stephen) University Budapest.

History of the Aculeata research in the Polish part of the Carpathian Basin from 1918

Mirosława Dylewska (27th September 1927 Skarzysko-Kamienna – 18th June 2007 Kielce), specialist in Apoidea. She worked at Institute of Animal Systematics and Evolution of the Polish Academy of Sciences in Cracow. She is author of 80 scientific papers on fields of zoology, animal psychology, faunistics, taxonomy and phylogeny. In 66 of her papers, she discusses the Apoidea fauna of Polish Carpathians partly or entirely. In 1993, she founded the Section of Hymenopterology of Polish Society of Entomology, which she chaired until her death. Professor Dylewska was co-organizer of 14 annual symposia on hymenopterology held in Ojców. She was in charge of bumblebee monitoring carried out in several national parks. Her collection is deposited at the Institute of Animal Systematics and Evolution of Polish Academy of Sciences in Cracow. She habilitated at the Jagellonian University of Cracow where she held professor status.

Dylewska completed a key and 3 monographs for the *Andrena* species of Poland and Central Europe providing distribution data of the species in Europe (DYLEWSKA 1987a, b, 2000). In her bibliography, *Bumblebees (Bombus* spp. and *Psithyrus* spp.*)* takes central part. In 18 of his papers, she discusses the importance of these groups in nature conservation, detailing their population dynamics and density, endangering factors and distribution in the Polish Tatra, in Ojców National Park in Babia Góra National Park and she provided suggestions and solutions for their active protection (DYLEWSKA 1957a, b, 1958, 1991a, 1996a, 1997, 1998, 2002, DYLEWSKA, BILINSKI and RUSZKOWSKI 1996, DYLEWSKA, BILINSKI, and ZLAGA 1997, 1998, 2000, DYLEWSKA et al. 1998, DYLEWSKA and GASIENICA-CHMIEL 2000, DYLEWSKA M., ZLAGA and GĄSIENICA-BYRCYN 2001, 2002, DYLEWSKA and WISNIOWSKI 2001). Important field of her research is the alfalfa pollination (DYLEWSKA et al. 1970, DYLEWSKA 1970, 1973, 1974b, SOWA et al. 1979). She had 2 papers on Vespoidea faunistics either (ECK and DYLEWSKA 1998, DYLEWSKA and WISNIOWSKY 1998). With **Waldemar Celary**, she provided complete ecological analysis of different Hymenoptera groups (including Aculeata) for the Pienin Mountains and completed the monograph of Polish Colletidae (CELARY and DYLEWSKA 1988, DYLEWSKA and CELARY 2000). In 1962 and 1963, with co-authorship of **Jan Noskiewicz**, she published the Apoidea fauna of Pieniny National Park providing zoogeographical and ecological analysis of the species and regions and phenological observations on the captured species (DYLEWSKA 1962, DYLEWSKA and NOSKIEWICZ 1963). In 1966, she published the Apoidea fauna of Babia Gora Mountains, the fauna was analyzed in details, similarly as they did with the Apoidea fauna of the Pieniny National Park. In her

several smaller publications and conference papers, she provided further valuable faunistic data on Polish Tatras, Western Carpathian Mountains and Pieniny Mountains and other nature conservation areas of the Polish part of the Carpathian Basin (DYLEWSKA 1962, 1965, 1966, 1967, 1974a, 1981, 1983a, b, 1988, 1990a, b, 1991b, c, d, 1992a, b, 1995, 1996b, 2000, 2001, 2004, 2005, DYLEWSKA and BAK 2004, DYLEWSKA and ZABLOCKI 1972, DYLEWSKA and WISNIOWSKI 1995, 2001, 2003, WERSTAK and DYLEWSKA 2005, DYLEWSKA and KOZIK 2007).

Tomasz Huflejt (curator of Hymenoptera, Museum and Institute of Zoology of the Polish Academy of Sciences, Warsawa). Tomas Huflejt is co-author of a paper titled: "*New records of the two alien mud daubers Sceliphron destillatorium (Illiger, 1807) and Sceliphon curvatum (Smith, 1870) (Hymenoptera: Sphecidae) from Poland*" (WISNIOWSKI et al. 2013).

Tadeusz Kaźmierczak was born on 14th February 1932 in Borszczowie (Tarnopol province). Tadeusz started his primary school studies in Borszczowie. But soon, in 1940, he and his mother were deported by the USSR People's Commissariat for Internal Affairs to Kazakhstan (Semipalatinsk Oblast, Bolshaya Bukoń district, village Wozdwizenka). In September of 1945, they returned from Kazakhstan to Borschiv where he finished the primary school and the high school. In 1951, Tadeusz obtained certificate of secondary education and in the same year he passed the preliminary exams at the Technical University of Lvov, but he was not admitted for political reasons. Therefore, he worked at Institute of Epidemiology, Microbiology and Hygiene Research in Lviv as laboratory assistant. After 4 years, he was allowed to begin studies at the Faculty of Biology, University of Uzhhorod. In 1959, he returned to Poland. Kaźmierczak continued his studies at the Faculty of Biology and Earth Sciences of the Jagiellonian University in Krakow, specializing in the field of zoology. In the next 3 years, he was assistant researcher in the Department of Nature Conservation of Academy of Sciences. In the next 2 years, he worked for the Provincial Sanitary-Epidemiological Station in Krakow as sanitary inspector. He changed job and started to work at the Faculty of Forestry, University of Agriculture in Krakow where he became associate professor. In 2002, Tadeusz Kaźmierczak retired. His scientific output includes over 100 publications, he is member of Polish Zoological Society, Polish Entomological Society and Polish Society of Foresters. Professor Kaźmierczak with co-authorship of Roze Kazmierczakowa and Andrzej Kosiór, wrote the monograph on the Bombini and Ichneumonidae fauna of Pieniny Mts. (KAZMIERCZAKOWA, KAŹMIERCZAK and KOSIÓR 1997).

Very significant researches and investigations were performed on the ecology and faunistics of bumblebee bees and cuckoo bees, on their significance in nature conservation, on the changes their population densities with special focus on the Western Bieszczady Mts., Beskid Niski Mts, Pieniny National Park, Magursky Park Narodowy, Bieszczadów and Tatrzanski Park Narodowy by the research team of Instytut Ochrony Przyrody PAN (institute of Nature Conservation, Polish Academy of Sciences). This group was coordinated by **Andrzej Kosiór** (Institute of Nature Conservation, Polish Academy of Sciences, Cracow, now retired) and his co-authors from the same institute: **Róza Kaźmierczakowa, Jan Fijal, Wieslaw Król, Piotr Płonka, Andrzej Kalemba, Joanna Korzeniak, Pawel Olejniczak, Wojciech Solarz** and **Zbigniew Witkowski** (KAZMIERCZAKOVA et al. 1997). Important part of their scientific outputs is the bumble bee research (KOSIÓR 1980, 1990, 2002, KOSIÓR, KRÓL and PLONKA 2001a, b, KOSIÓR, PLONKA and WIZKOWSI 1999, KOSIÓR et al. 2007, 2008, KOSIÓR, CELARY and OLEJNICZAK 2007, KOSIÓR, CELARY and FIJAL 2003).

Tadeusz Pawlikowski (18th September 1947 Inowroclaw –) graduated and completed his doctoral thesis and habilitated at Nicolaus Copernicus University Torun. At this University, he filled the following positions: academic teacher at the Department of Animal Ecology, director at the Biomonitoring Laboratory of Terrestrial Ecology and now, he is scientist at the Department of Ecology and Biogeography. The main subject of his investigations are ecology, ethology and zoogeography of Hymenoptera Aculeata in the following aspects: bioindication of developmental processes in ecosystem and landscape levels , monitoring of social bees and wasps, pollination by bee communities in cultural landscapes and nesting ecology of bees (Apoidea) and wasps (Vespoidea). His past and present memberships: Polish Entomological Society, Polish Zoological Society, International Society of Hymenopterists, New York Academy of Sciences, Bees Wasps Recording Society (GB) and National Geographic Society. Important data are available from the Carpathian Basin in his large monographs on Polish Colletidae, Halictidae and bumble bees (PALIKOWSKI 1992, 2008, RASMONT et al. 2015). In three papers on bumblebees, we may find data on the Polish Tatra and Carpathians (PAWLIKOWSKI et al. 2007, PAWLIKOWSKI and RAFA, 2000). Tadeusz Pawlikowski has one-one paper on the Vespoidea fauna of the Polish Tatra and on the Aculeata fauna of the Pieniny Mts. (PAWLIKOWSKI 1997, SZADZIEWSKI, PAWLIKOWSKI and BUSZKO 1973). With 4 co-authors, they monitored the invasive Sphecoid wasps providing faunistic data from the northern margin of the Carpathian Basin (WISNIOWSKI et al. 2013).

Piotr Olszewski (5th May 1977 Warsawa –) PhD. student at Department of Ecology and Biogeography of Nicolaus Copernicus University in Torun. In (OLSZEWSKI et al. 2016) they provided valuable historical and present data of Scolitidae species from the Carpathian Basin partly from the Czech Republic and partly from Poland. They concluded, *Scolia hirta* (Schrank) and *Scolia sexmaculata* (Müller) are common in Poland and also in the Czech Republic. *Megascolia maculata* (Drury) has been recorded only in some parts of the Czech Republic, while *Colpa sexmaculata* (F.) is considered extinct in both regions. In (OLSZEWSKI et al. 2013), they provided distribution data of rare Aculeata species from Poland, few records are from the Carpathian Basin, like the record of *Sceliphron curvatum* (Smith, 1870) from Pieniny Mts. National Park.

Maciej Krzyżyński (1987 –) PhD. student at Department of Ecology and Biogeography of Nicolaus Copernicus University in Torun. In OLSZEWSKI et al. 2016, he is co-author of Piotr Olszewski. Maciej graduated at the same university. His interest in arts, especially his poetry is well known.

Tomasz Cierzniak (5th September 1961 Szamocin – 16th December 2006 Poznan). His research area is not the Carpathian Basin but his 4 monographs written with several co-authors partly from Russia and Ukraine, contain data from the Carpathian Basin either: two of them on halictid bees (PESENKO et al. 2000, PESENKO, BANASZAK and CIERZNIAK 2002), the other is on Andrenidae (OSYTSNJUK et al. 2005) and the third on *Megachilidae* (Banaszak, Romasenko and Cierzniak 2001). Cierzniak graduated at Adam Mickiewicz University, Faculty of Biology and Earth Sciences in Poznan. After his early employments (Department of Biology of Agricultural and Forestry Sciences in Poznan, Pedagogical School in Bydgoszcz) he employed by Bydgoszcz University and later became deputy director of the Department of Biology and Environmental Protection (Kazimierz Wielki University in Bydgoszcz), and deputy editor-in-chief of the "*Polish Journal of Entomology*". He was bee specialist and ecologist. Tomasz Cierzniak was author of 68 publications.

Waldemar Żyła with **Jarosław Bury** (medical doctor in Markowa, entomologist, director and owner of his own medical centre), **Damian Sudoł** (Głogów Małopolski, medical doctor, graduated subrecently at Medical University of Lublin) and **Przemysław Zieba** (State Veterinary Laboratory in Lublin) provided data, on the distribution of *Sceliphron destillatorium* Illig. and *Sceliphron curvatum* Sm. in South Poland and Europe completed with maps (Jaroslaw et al., 2009). With **Krzysztof Werstak** (Akademia Świetokrzyska, Instytut Biologii, Kielce), they published occurence of 14 Vespidae species from Pieniny National Park (Werstak and Zyla, 2009). Waldemar Żyła after finishing Forestry Vocational School in Brynek, graduated at Uniwersytet Śląski Wydział Biologii i Ochrony Środowiska in 2000 and Uniwersytet Jagielloński w Krakowie, Instytut Etnologii i Antropologii Kulturowej in 2007. Now, he is curator of Hymenoptera at Muzeum Górnoślaskie in Bytom.

Józef Banaszak (19th March 1947 Lednogórze –) Director of the Institute of Environmental Biology, University of Kazimierza Wielkiego in Bydgoszcz. Banaszak graduated, defended his doctoral thesis and finally habilitated at Uniwersytet Adama Mickiewicza in Poznan. After these years, Józef Banaszak spent a period at Instytut Ekologii Polska Akademia Nauk Dziekanów and Wyzsza Szkola Pedagogiczna w Bydgoszczy as rector (1996-1999) before he joined to University of Kazimierza Wielkiego. His private collection of wild bees exceeds the 30 000 specimens. He is editor-in-chief of the Polish Journal of Entomology and honorary Member of the Polish Entomological Society. In Sphecos, 1982 6: 25-26, the following English autobiography we find from him: "*I grew up in a rural environment in Wielkopolska region among fields, mild hills and pine forest. Through early and the continuous contact with nature I developed my love and fascination to it. My interest in insects began early in the high school received from reading wonderful book by Polish naturalists, J. J. Karpinski, "In the marvel land of Jean Henri Fabre*". *In this time I began to dream of becoming a biologist, and when I finished high school in 1965, my dream become reality. I entered the Faculty of Biology and Earth Sciences of the A. Mickiewicz University of Poznan. My first mentor in zoology was Professor J. Rafalski, a specialist in Arachnida. Thanks to his help and benevolence I can do my first student articles, concerning the bee fauna. Also my graduate thesis concerning bees: "The Apoidea of Middle Wielkopolska region" (West Poland) (1970). After graduation I decided to work in the Department of Investigation of the Useful Insect Diseases, Inst. Veterinary in Swarzedz near Poznan. During five years (1970-1975) I worked on parasites and pests of the honey bee which resulted in a D.S. Thesis "Studies on the fauna associated with inhabited bee hives (1975). In 1975 I start work in the Department of Agrobiology, Polish Academy of Sciences in Poznan where I am currently. Most of my papers and articles concern Apoidea. In the first stage of my investigation I was conducting a faunistic study on bees in my country. I think that estimation of state of the fauna is the duty of each generation of naturalists. In recent years my investigations concern, among others, ecology of bees in agroecosystems and natural habitats. Independently of mention investigations I collect all faunistic data concerning wasps and in particular the Chrysididae and Scolioidea."* We may find data on Apoidea distribution, including South Poland (Carpathians, Tatra, Pienin Mts.) in various monographs on Halictidae, Andrenidae, Megachilidae co-authored by Józef Banaszak either (PESENKO et al. 2000, PESENKO, BANASZAK and CIERZNIAK 2002, OSYTSNJUK et al. BANASZAK, ROMASENKO and CIERZNIAK 2001). In "*A checklist of the bee species of Poland*" Banaszak discussed the Polish fauna in zoogeographical point of view including the Carpathicum (BANASZAK 2000). He also published 2 papers on the Beskid Mts. (1969, 1975b) and further Aculeata species are recorded from South Poland in BANASZAK 1975b and 2010.

Waldemar Celary (1st December 1960 Lubliniec –) Professor Celary is not only one of the most productive researcher in Aculeata in Poland, but his very intensively researched area is the Carpathian Basin (Pienin Mts. Tatras, Polish Carpathian Mts.). Bombidae is one of his speciel field of research (KOSIÓR, CELARY and FIJAL 2003, KOSIÓR et al. 2007, CELARY 1989, 2003, CELARY, FIJAL and KOSIÓR 2002, CELARY and WISNIOWSKI 2012). In their series with Bogdan Wisniowski titled "*Contribution to the bee fauna (Hymenoptera: Apoidea: Anthophila) of Poland*" they provided distribution data in Poland for rare bee species providing their UTM coordinates (CELARY and WISNIOWSKI 2001, 2003b, 2007, 2011). Waldemar Celary has an important series on the Aculeata fauna of Babia Gora Mts. either (CELARY 1998b, 2003a, b). Valuable distribution data we may find for Beskid Mts., Brzozów, Tymbark, Tarnica, Zurawica, Lupków etc. frequently illustrated with UTM maps in his monografs on Polish Colletidae, Melittidae, parasitic Megachilidae bees, Nomadini, genus *Nomada* Scop. and genus *Sphecodes* Latr. (CELARY 1898, 1997, 1990, 1991, 1995a, CELARY and DYLEWSKA 1988). On *Megachile nigriventris* Schenck, *Sceliphron destillatorium* Illig., *Xylocopa valga* Gerst., *Lasioglossum sabulosum* Warncke and *Andrena stragulata* Illiger, professor Celary published faunistic data from the southern parts of Poland (CELARY 1995b, 1996, CELARY and WISNIOWSKI 2003a, 2009, CELARY et al., 1998).

According to his self biography: "*Waldemar Celary was born in a traditional mining family. He attended primary and high school in Jastrzębie Zdrój on Upper Silesia. He begun biological studies on University of Silesia in Katowice. After four years his fascination to Aculeata (wasps and bees) led him to Jagiellonian University in Cracow. He graduated in 1985 with a Msc degree in biological sciences. On a very same year he started his first job as an assistant in the Institute of Systematics and Evolution of Animals of Polish Academy of Sciences in Cracow, got married to Barbara Kaczmarczyk and had his firstborn son. His wife is a oligofrenoeducator, and she works in a school for students with special needs. His son Piotr is a Częstochowa University of Technology graduate. Celary received his doctors degree in 1992 based on a dissertation entitled "Genus Nomada Scop. (Apoidea, Hymenoptera) in Poland". Then in 2006 he qualified as a assistant professor with a thesis entitled "Biodiversity and Biology of Mellitid Bees (Hymenoptera: Apoidea: Melittidae) in Poland". Both of his degrees were given by the Institute of Systematics and Evolution of Animals of Polish Academy of Sciences in Cracow. Since 2006 until now he works for Jan Kochanowski University in Kielce as a professor and a head of Laboratory of Ecology and Environmental Protection. He published seventy scientific papers concerning biodiversity, biology, behaviour and ecology of aculeates (mainly wild bees). He is also interested in sociobiology and nature photography.*"

Yuriy Andreyevich Pesenko (18th October 1944 – 23 September 2007; Leningrad (St. Petersburg). Pesenko graduated at Rostov-on-Don State University, Russia. After his graduation he had 3 years postgraduate student years at All-Union Research Institute of Plant Protection in St. Petersburg – Pushkin. Till his early death, Pesenko worked for the Laboratory of Insect Taxonomy of Zoological Institute of Russian Academy of Sciences in St. Petersburg. With co-authorship of *Józef Banaszak* (his biography see above), *Vladimir Radchenko* (director of Institute of Evolutionary Ecology of National Academy of Sciences of Ukraine) and *Tomasz Cierzniak* (his biography see above) completed 2 monographs, titled "*Bees of the family Halictidae (excluding Sphecodes) of Poland*" and "*Blonkówki – Hymenoptera, Pszczolowate – Apidae, Podrodzina – Halictinae". In these* monographs, they discuss the morphology, life history and distribution of halictid bees and also provided keys for the species. They give their distribution in details providing high number and valuable data on the bee-fauna of the Polish Tatra, Pieniny Mts., Bieszczady Mts. and Beskid Mts. Distribution data are frequently illustrated with maps (PESENKO et al. 2000, 2002).

Bogdan Wiśniowski (29th December 1961 Tarnów –) Bogdan Wisniowski graduated and defended his doctoral thesis at Agricultural University of Kraków. Now, he is manager at Ojców National Park, Poland. Wisniowski's nature photographs are visible on internet and as far as I may judge them, they represent the highest standard in nature photography. In this aspect, his biography parallel with László Móczár but Bogdan Wisniowski uses the technology of the 21st century. Bogdan Wisniowski is the most productive author of the region. In many of his papers, he is co-author of **Miroslawa Dylewska**, **Piotr Olszewski** and **Waldemar Celary**. These papers have already discussed above. In his faunistic papers the followings are the most important (in our point of view): Aculeata fauna of Ojcow National Park (WISNIOWSKI 2003, 2005), Aculeata of Beskid Mts. (WISNIOWSKI 2000) and Magura National Park (WISNIOWSKI and WERSTAK, 2003, 2009a, b). Further faunistic data we may find in his series on Pompilidae with J**an Krzysztof Kowalczyk** (Lodz, Natural History Museum, retired, now he lives in Gdynia) (WISNIOWSKI and KOWALCZYK 1998b, 2002) and Sphecoidea with **Krzysztof Werstak** (University of Humanities and Sciences, Institute of Biology in Kielce) (WISNIOWSKI and KOWALCZYK, 1998a, WISNIOWSKI and WERSTAK 2003, WISNIOWSKI et al. 2013). He also provided distribution data of *Polistes dominulus* (Christ, 1791) and *P. gallicus* (Linné, 1767) including Cieszyn, Beskid Mts. and Skawina (WISNIOWSKI 2004).

Piotr Bilański (Department of Forest Protection, Forest Entomology and Climatology, Faculty of Forestry, University of Agriculture in Krakow), **Zbigniew Kolodziej** (Department of Silviculture, Faculty of Forestry, University of Agriculture in Krakow) and **Marek Pajak** (Department of Forest Ecology, Faculty of Forestry, University of Agriculture in Krakow) published a paper on the distribution of *Sceliphron destillatorium* Illiger, 1807 in Poland. They recorded many localities, these localities are concentrated for South Poland, dominantly to the Polish Tatra, Carpathians and Beskid Mts. These data are mapped by using UTM grids (BILANSKI, KOLODZIEj and PAJAK 2012).

Krzysztof Kukula, **Henryk Okarma, Jerzy Pawłowski, Kajetan Perzanowski, Tomas Ruzicka, Judit Sándor, Viera Stanova, Lydia Tasenkevich** and **Mojmir Vlasin** completed the "*Carpathian List of Endangered Species*" (KUKULA et al. 2003). 42 Hymenoptera species are listed, dominantly Aculeata species. These species are displayed in table format which contains the countries of the Carpathian Basin and the status of the endangered hymenoptera according to the IUCN categories.

History of the Aculeata research in the Soviet and Ukrainian part of the Carpathian Basin (Kárpátalja, Subcarpathia) from 1920

The so called "Ukrainian Carpathians" was partly Hungarian (Munkács-Mukachevo and Ungvár-Uzhhorod region) and partly Polish territories in the Austrian part of the Austro-Hungarian Monarchy (Lwow-Lemberg and Sambor region). So, the earliest researches were done by Polish authors, as it discussed in the chapter "*Aculeata research in West Galicia (now part of Ukrainian Carpathians) and Polish Tatras*". Further data were recorded in Mocsáry's monographs (MOCSÁRY 1900) from the Hungarian part of Subcarpathia around Munkács (Mukachevo). After 1920, this area was Czechoslovak holding till the Soviet occupation. The earliest Ukrainian research started in the late fifties of the 20th century, in the Post-Stalinist Soviet Union.

Anna Zacharova Osytshnjuk (originally: Hanna Kolmas, 25th September 1926 Bandurovka (next to Kirovograd) - 13th May 1998 Kiev). She graduated at Kiev University and started her career at Schmalhausen Institute of Zoology. Anna Zacharova specialized for the genus *Andrena*, especially the fauna of the former Soviet Union. In OSYTSHNJUK et al. 2005, they published the synthesis of the Central and East Palaearctic Andrenidae. In 1959, (OSYTSHNJUK 1959) she published a brief report on bee collectings in the north-eastern foot-hills of the Carpathians reporting 91 species. In 1961, (OSYTSHNJUK 1961), she summarized 3 years of intensive collection of bees in the Carpathian lowland, foothills of the Carpathians, the mountain forests and the Alpine meadows listing 265 species (about 10 000 specimens). In the next year, (OSYTSHNJUK 1962), Anna Zacharova published the bees of the same collecting trip, but she examined their flower visiting habits (host-plant association). Four year later, (OSYTSHNJUK 1966), she continued publishing the results of these expeditions, this time she provided an annotated list of 69 halictid species with collecting data and brief information on their geographical distribution, with ecological, and biological remarks. In the next year, she continued it with 6 melittid and 48 megachilid species (OSYTSHNJUK 1967a). In the same year, Anna Zacharova continued studying the flower visiting habits of bees in the Carpathian region of Ukraine, providing tabulated data of 173 bee species of 20 families giving their occurrence on various flowers (OSYTSHNJUK 1967b). Finally, in 1975, she discussed the problem of protection and nature conservation of bees and other beneficial insects providing data on bee faunas of the Ukrainian Carpathians and Crimea (OSYTSHNJUK 1975).

Irina Emelyanovna Vikhanskaya (27th January 1931 -) She was post-graduate student and assistant at the Department of Invertabrate Zoology of Uzhhorod State University in the 50'-60's. She lived in Uzhhorod. She has 2 important papers on the pollination communities of Transcarpathia. Vikhanskaya published the results of collecting wild bees in the Zakarpatskaya province between 1957 and 1959. Over 2000 specimens were collected and 80% of them were 19 species of *Halictus*. She also noted 12 species of *Bombus* as important pollinators (VIKHANSKAYA 1961). In her other work, she published collecting results of wild bees between 1963 and 1964. A list of 41 species visiting flowers of apple-, pear-, plum-, cherry-, bird cherry-, apricot-trees, and dog-rose were provided completed with data on their relative abundance and diurnal activity (VIKHANSKAYA 1964).

Aleksandr Mikolajovits Bokotey Zoological Museum of Uzhhorod National University. We know 2 papers of him discussing the Apoidea fauna of the Ukrainian Carpathians. In Bokotey 2012, *Hylaeus hungarica* (Alfken, 1905) was recorded as new species for Ukraine. In the same paper, 25 *Colletes* and *Hylaeus* species were recorded, mainly around Ungvár, Nagymuzsaly, Nagybakta, Beregszász etc. In BOKOTEY 1999, a brief review of published data on bee fauna of Transcarpathia is provided with combination of list of some apoid pollinators from the Ukrainian Carpathian Mts.

Irene B. Konovalova Apoidea specialist of State Museum of Natural History, National Academy of Sciences of Ukraine, Lviv. Irene recorded firstly *Bombus gerstaeckeri* Morawitz for Ukraine (KONOVALOVA 2007b) and *Bombus argillaceus* Scop. for the Transcarpathian Lowland (KONOVALOWA 2008b). She studied the faunistics of Bombinae in the Carpathian and Transcarpathian region (KONOVALOVA 2002, 2005, 2007a) and also studied their ecology, especially the effect of the sturcture of their habitats for the morphological variations of bumble bees (KONOVALOVA 2008a). In her monograph titled "*The Bumble Bees of Ukraine: Species Distribution and Floral Preferences*" she provided detaild distribution maps for all species (KONOVALOVA 2010).

History of Aculeata research in Czechoslovakia, in Slovakia and in the Czech part of the Carpathian Basin from 1920

In the first Czechoslovak republic (1918-1938), several Czech entomologists studied the Aculeata fauna of Slovakia and eastern Moravia. Only, 2 papers are knwon from this region before 1918: **Jan** (Johann) **Slavíček** (28th March 1856 Mikulov - 2nd October 1938 Litovel), Moravian entomologist. He published occurenc of 136 wild bee species around Mikulov (Slavíček, 1895). They were collected between 1888 and 1892. He also provided faunistic data of Bombus species of Moravia (Slavíček, 1901).

Carlo Menozzi (7th April 1892 Spilamberto – 4th March 1943 Spilamberto) Italian hymenopterologist, specialized mainly for ants. After his graduation, he worked for several places ie.: Padua, Geological Institute; Laboratory of Agricultural Entomology in Portici; Modena Agricultural Department and in the Phytopathology Laboratory in Chiavary. His last place of work was the National Consortium of Sugar Production where he was employed as entomologist. In 1924, he described *Pseudisobrachium roubali* Menozzi, 1924 from Léva (now Levice) which proved to be a synonym of *Pristocera depressa* (Fabricius, 1805).

Karol Mergl (27th April 1876 Bratislava -30th October 1953 Bratislava) teacher and researcher. **Karol Mergl** was the youngest child of Johan Mergl, descendant of an old family of Pozsony. He was teacher and taught in several schools of Pozsony (now Bratislava), for example Saint Martin Roman Catholic school or at a vocational school Vazovova street where he was the director as well. From his early age he interested in natural sciences (especially zoo1ogy and botany), which was the influence of his older cousin, the town physician Edmund Mergl. Karol was active member of the Bratislava-medical science association, he was elected librarian of the association and filled its chairman position between 1914 and 1922. This association was an important center of natural sciences, unfortunately in the Czechoslovak period, the association were slowly declining and after the second world war didn't exist any longer. Karol Mergl's main work remained in manuscript. This is a 6000 pages illustrated series of monographs on the flora and ffauna of Bratislava. In the 7th book of Fauna Posoniensis, he discusses Hymenoptera and Diptera (MERGL 1943). "*Fauna Posoniensis*" is derived from the original name of Bratislava: Pressburg or Pozsony, the present name: Bratislava occurs firstly in 1919.

Vladimír Balthasar (21st June 1897, Prague – 10th November 1978, Prague) was important Czech naturalist, ornithologist, Doctor of Science, an entomologist dealing with orders Coleoptera and Hymenoptera. In the years 1933 - 1939, he served as curator of zoological and botanical department of the Slovak National Museum in Bratislava. In ornithology, Balthasar completed a monograph of birds of the Slovak Danube. He took part in nature conservation projects in the following regions: Samorín (Somorja), Dunajska Streda (Dunaszerdahely), Komarno (Komárom), Štúrovo (Párkány). His collection of insects is stored in the National Museum (major part). He was one of the founders of the Czechoslovakian Entomological Society and one of its presidents. IN BALTHASAR, 1945, 20 Sphecoidea and Chrysididae species are reported from various places of South-West Moravia dominantly from the Carpathian Basin like Bzenec, Kobylí, Cejc, Vizovice, Zlamanec, Muténice and Kyjov. In the field works, Eva Balthazarová helped Vladimír. He described 7 species from the Carpathian Basin (BALTHASAR 1943, 1946, 1949, 1954, 1956 and 1957), namely *Cerceris dacica slovaca* Balthasar, 1954; *Cerceris somotorensis*

Balthasar, 1956; *Miscophus moravicus* Balthasar, 1957; *Chrysis rosina* Balthasar, 1949; *Hedychridium parkanense* Balthasar, 1946; *Hedychridium krajniki* Balthasar, 1946 and *Priocnemis sulci* Balthasar, 1943 mostly from Slovakia. Three of them are still valid (see the list separately). In his work, titled "*Grabwespen – Sphecoidea*", he listed and provided descriptions of 187 Sphecoidea species from the Carpathian Basin (BALTHASAR 1972), the other great monograph of him was on cuckoo wasps: "*Zlatenky – Chrysidoide*a" published in series Fauna CSR (BALTHASAR, 1954b). In the series "*Opuscula Hymenopterologia*", Balthasar provided miscellaneous faunistic records of Aculeata from the former Czechoslovakia, including high number of faunistic data from the Carpathian Basin (BALTHASAR 1944, 1945, 1948, 1950, 1956, 1957 and 1958) with description of new species. Other sporadic faunistic records can be found in BALTHASAR, 1941, 1952, 1954a and BALTHASAR and HRUBANT 1961 titled "*Beitrag zur Kenntnis der Hymenopteren-Fauna der Tschechoslowakei*" his coauthor was **Milan Hrubant**. Vladimír Balthasar published smaller monographs and revisions on various digger wasps genera like *Cerceris* Latr., *Mischopus* Jur. (BALTHASAR 1956, 1957). One of his faunistic work focused only on one area, namely Párkány (now Štúrovo) and it's surroundings (BALTHASAR 1948). Vladimír Balthasar's favorite group was the cuckoo wasps and in his works on Aculeata, numerous monographs and papers discuss these colorful insects inside (BALTHASAR 1946, 1948, 1949, 1954b) and outside the Carpathian Basin including descriptions of few new species mainly from Štúrovo (Párkány).

Jan Roubal (16th August 1880, Chudenice, Austro-Hungarian Monarchy - 23rd October 1971 Prague, Czechoslovakia, secondary school teacher, director, heteroptera and coleoptera specialist.). Roubal graduated in natural sciences, mathematics and physics at the Faculty of Arts and also anatomy and embryology at the Medical Faculty of Charles University in Prague. He worked as secondary school teacher in Prague and Príbram, later he appointed the director of the high school fir girls in Banská Bystrica (Besztercebánya). He established the natural history collection of the high school. Roubal was also very active in social life: he founded in Banská Bystrica (Besztercebánya) the local Society for Nature Conservation and Society Against Animal Cruelty. He was not hymenopterologist and he didn't wrote paper on hymenoptera either, but as collector he is very important. His cuckoo wasp collection from the Slovak territories was identified and published by **Klemens Spacek** (see also the next entry).

Klemens Spacek (17th November 1899 Wien – ?) He lived in Trautenau. He had professor status, as some papers mentions him "Prof. Klemens Spacek". Unfortunately, his biography completely unknown. Spacek identified and published the Roubal's cuckoo wasp collection which was collected from Slovak territories of the former Czechoslovakia between 1934 and 1935 (SPACEK 1935b). He analyzed the Czechoslovak Chrysidid fauna from zoogeographical and ecological point of view (SPACEK 1935a).

Augustin Hoffer (20th April 1910 Prachatice - 21st August 1981 Prague). Augustin graduated at the Masaryk University of Brno, Faculty of Natural Sciences. After finishing the university he started his career at National Museum of Prague. During the World War I., his career broke, since it was prohibited to employ people with Czech nationality in the state institutes. After the Second World War, he joined to the Institute of Phytopathology and after to the Agricultural Institute of Prague. After the establishment of the Research Institute of Plant Production in Prague-Ruzyne he was appointed there. He also taught applied entomology at the Agricultural College in Prague. After the reorganization of Forestry Research Institute in Kostelec nad Cernymi Lesy, he worked at

the zoological laboratory, which's establishment was initiated by himself. He was a vice-president for a period of the Czechoslovak Entomological Society and founder of the periodicals titled "*Studia entomologica forestalia*" and "*Entomologické listy*" (with prof. Gregor). In his paper (HOFFER 1938), Hoffer listed 9 various Eumenidae species from different locations of the former Czechoslovakia, few of them, like species reported from Štúrovo (Párkány), Somotor or Pozdrany are part of the Carpathian Basin. In his other paper (HOFFER, 1936b), he reported *Xylocopa iris* (Christ, 1791) (*X. cyanescens* Brullé, 1832) from Devinska Kobyla (Dévény) and Štúrovo (Párkány).

Jiří Niedl (14th, November 1920, Prague – 11th April 1986 Chlum u Treboné). Entomologist, herpetologist and teacher. At his school, he built Herpetological station. **Eduard Staněk** (1899-1974) worked as teacher and amateur entomologist in the vicinity of Uhersky Brod (Magyarbród), Brno and Svitava in Slovakia. His large, partially identified collection of Hymenoptera includes mainly Apoidea (18 958 ex.). Niedl and Staněk published a common paper on the distribution of *Osmia nigriventris* in Czechoslovakia (NIEDL and STANĚK 1961).

Bořivoj (Bořek) Tkalců (20th December 1927 Prague – 6th March 2013 Prague). His last paper he wrote with co-authorship of Antonín Přidal is titled "*Records of two bumble bee species new for the Czech Republic and Slovakia*" in this paper *Pyrobombus sicheli* (Radoszkowsky, 1859) is reported from the White Carpathian Mts (PŘIDAL and TKALCŮ 2003). Another rare species is *Bombus pyrenaeus* Perez, 1879 which was also recorded from Slovakia firstly by Tkalců (TKALCŮ 1965). He wrote a paper on the red book species *Anthocopa mocsaryi* Friese, 1895 (TKALCŮ 1992) either and provided further interesting faunistic data form the Slovak and Moravian areas of the Carpathian Basin (TKALCŮ 1973, 1974). Bořek Tkalců described *Osmia labialis tornensis* Tkalců, 1975 from the Slovak Karst (TKALCŮ 1975).

As primary school student Bořek fall in love with nature and started to collect beetles and butterflies. Despite his interest in entomology, Tkalců chose to study Sinology at Faculty of Art, Charles University of Prague. After few years as Chinese language lector at the university, he taught for the State School of Foreign Languages. His next job was at the Oriental Institute of Czechoslovak Academy of Sciences as scientific researcher. This job gave him time enough to get deeper in entomology and visit the European Hymenoptera collections in Paris, London or Berlin. In the 1980's he joined as scientific researcher to the National Institute for Conservation and Restoration of Historical and Natural Monuments.

Jaromír Strejček (9th October 1925 Konojedech u Kostelec nad Cernymi lesy –) Czech coleopterologist and hymenopterologist. Quiet early, when Jaromír was only 4, the family moved to Prague. As schoolboy, he was interested in nature and forestry, but the WW II. interrupted his studies. He was deployed for anti-aircraft defense. Jaromír became interested in entomology and during the World War II, he joined the Czech Entomological Society in 1944. After the war, he left Prague for Ústí nad Labem. For a short period, Jaromír worked as salesman but soon he got job in the local museum and continued (as correspondent student) his university studies at the Charles University of Prague. From 1960, he worked for the Prague State Heritage Center till his retirement. The following species were dedicated to Jaromír Strejček: *Ceutorhynchus Strejčeki* Dieckmann (Curculionidae), *Phaenotherion Strejčeki* Frieser (Anthribidae), *Mordellistenochroa Strejčeki* Horák (Mordellidae), *Meligethes Strejčeki* Jelínek (Nitidulidae), *Stenus Strejčeki* Hromádka (Staphylinidae), *Takobiella Strejčeki* Ruzicka

(Leiodidae) and *Notoxus Strejčeki* Kejval (Anthicidae).Two new species he described from the Carpathian Basin, namely *Bocchus slovacus* Strejček, 1964 and *Cephalonomia cisidophaga* (Strejček, 1990) (STERJCEK 1964, 1990). He completed the Bethyloidea and Pompiloidea part in "*Enumeratio insectorum Bohemoslovakiae*" (STREJČEK 1989a, b) and also the Bethylidae part in the latest Czech and Slovak list (MACEK, STREJČEK and STRAKA 2007). He provided further faunistic records on Bethylidae from the Carpathian Basin in the series titled "*Faunistic records from Czechoslovakia*" (STREJČEK 1988, 1991).

Vilém Zavadil (9th February 1876 Uhlírské Janovicé – 16th May 1953 Ostrava) high school teacher, Czech hymenoptera specialist, specialized mainly for Sphecoidea. Vilém Zavadil attended his high schools in Kutna Hora and Hradec Kralove. He graduated at the University of Prague. In his paper titled "*Kutilky (Sphaegidae) sirsiko Ostravska*" (ZAVADIL 1924-25) he discusses the Sphecoidea fauna of Ostrava. The region is the very North-West border of the Carpathian Basin. We may find valuable faunistic data in Zavadil, 1932, Zavadil and Šnoflák, 1948 either. The object of two of his papers are the Sphecoidea fauna of Slovakia, in one paper, he discusses the Eastern Part of Slovakia listing some interesting digger wasps (ZAVADIL 1934) the other paper of him discusses the predator and pollinator Aculeata species of Slovakia. With Oldřich Šustera and Leontin Bata, he compiled the monograph of Sphecoidea fauna of Czechoslovakia in 1937 and he added suplemental data in 1939 (ZAVADIL et al. 1937, ZAVADIL 1939). In his other work, Zavadil discussed the population dynamics of pollinator and predator Hymenoptera of Slovakia recording even few rare montaneous species like *Anthidium montanum* (Morawitz, 1864) (ZAVADIL 1951). Vilém Zavadil described four new Sphecoidea species from Slovakia and Carpathian Moravia, namely *Ammophila slovaca* Zavadil, 1937, *Nysson roubali* Zavadil, 1937, *Nysson Šusterai* Zavadil, 1948 and *Nysson quadriguttatus* Zavadil, 1937 (ZAVADIL 1937a, b, 1940, 1950).

Jan Šnoflák (4th May 1891 Rímov bei Trebír – 9th May 1954 Brno) ant and Sphecidae specialist, co-author of Vilém Zavadil in his monograph on digger wasps of Czechoslovakia titled "*Kutilky (Sphecidae) Ceskoslovenské republiky*" (ZAVADIL and SONFLÁK, 1948). Several valuable faunistic data are available from Šnoflák, 1952. In this paper, he published faunistic data on various groups of Hymenoptera deposited in the collection of Moravian Museum in Brno. Jan Šnoflák described 4 Sphecoidea species from the Carpathian basin, namely: *Spilomena zavadili* Šnoflák, 1942, *Gorytes moravicus* Šnoflák, 1943, *Ammophila Šusterai* Šnoflák, 1943 and *Ammoplanus hofferi* Šnoflák, 1943 (ŠNOFLÁK 1942, 1943a, b, c, 1944). He also took part in the project titled "*Keys for wildlife of Czechoslovakia*" (Klíc zvíreny CSR) (BOUČEK et al. 1957) published posthumous.

Leontin Bat'a (16th November 1885 Moravany – 9th February 1952 Ceské Budejovice). Czech hymenopterologist and lepidopterologist. Bat'a graduated at grammar school in Chrudimi a v Kolíne and Charles University in Prague. For a short period, he taught at high schools in Prague and Pribram, than at the high school in Ceské Budejovice. After his few years teaching period, Leontin Bat'a became manager of the natural history collections of South Bohemia Museum in Ceske Budejovice. He also worked in colaboration with the Forest, Hunting and Fishing museum in Hluboká. Bata wrote not only scientific books and papers but he wrote also fictions. In our point of view (Aculeata, Carpathian Basin), his 3 monographs are interesting, which he wrote in coauthorship with Šustera, Hoffer and Zavadil. In the first (ZAVADIL, ŠUSTERA and BAT'A

1937) we may find data on *Sphecoidea*, in the second (BAT'A, HOFFER and ŠUSTERA 1937) on *Vespoidea* and in the 3rd (BAT'A, HOFFER and ŠUSTERA 1938) on *Sapygidae, Scoliidae, Tiphiidae, Methocidae, Myrmosidae, Mutillidae* and *Pompilidae.*

Oldřich Šustera (30th June 1879 Zirotin – 28th November 1971 Prague) Dipterologist, later changed to Hymenoptera. His pioneer work in this field was "*Die paläarktischen Gattungen der Familie Psammocharidae*". Oldřich Šustera had outstanding ability for management and organization. Between 1937-1947, actively participated in the project of the eight-part monograph series "*Prodromous Hymenoptera Czechoslovakia*." In his years in the National Museum, Šustera gathered around him the leading Hymenoptera specialist of this period: like Hoffer, Zavadil, Šnoflák, Bata, Balthasar, Gregor etc. as a scientific workshop and this way, they were finally able to produce a collective work, such as "*Prodromus*" in which the following specialists participated: Balthasar, Gregor, Hoffer, Kratochvil, Spacek, Šustera, Zálesky and Zavadil. On the fauna of the Carpathian Basin, the following works (actually monographs) are known from Šustera: Identification keys for the Central-European spider wasps (ŠUSTERA 1956), Overview of the genera of Central-European wild bees (ŠUSTERA 1958), Identification key for the Czechoslovak *Sphecodes* species (ŠUSTERA 1959), and his study on the wild bees of Czech and Moravia (ŠUSTERA 1944). According to **Jan May** (May, 1959), in 1937, O. Šustera found one worker of *Bombus laesus* in the vicinity of Nové Zámky.

Zdeněk Pádr (12th February 1923 Svinistany – 10th March 1997, Praha), Czech biochemist). Zdeněk Pádr attended the high school in Prague. His studies were interrupted by the 2nd WW. After the war, he began to study chemistry at Faculty of Science of Charles University and received his doctorate in 1947, in organic and analytical chemistry. After his graduation, for a short period, he was employed by a private company. In the socialist era, he worked for the State Pharmaceutical Research Laboratory till his retirement in 1985. In 1961, he became manager of Department of Biochemistry, which specialized for hormone research, particularly insulin, glucagon and Pádr published in this field more than 50 scientific publications. In hymenopterological point of view, his main work the series titled "*Enumeratio insectorum Bohemoslovakiae III*". In this monograph, he completed the national lists of Chrysididae, Scolioidea, Vespoidea and Sphecoiodea (PÁDR 1989a, b, c, d). Other important project was the faunistic investigation of the Pálava Biosphere Reserve. In the frame of this project, Pádr completed the Apoidea, Scolioidea, Vespoidea, Pompiloidea and Sphecoidea parts (PÁDR 1995a, b). PÁDR (1990a,b, and 1993) also contain valuable faunistic records, these records com¬prise data from large territories of theCzeh and Slovak part of the Carpathian Basin. With many co-authors, he completed the Hymenoptera part of the monograph, titled: "*Klíc zvyreny*" (Keys for the wildlife) (BOUČEK et al. 1957). With Jozef Lukáš, they investigated the Hymenoptera fauna of High Tatras as well (LUKÁŠ and PÁDR 1994).

Heinrich Wolf (24th April 1924 Siegen –) In his hometown Siegen, Heinrich Wolf attended his elementary and grammar schools. His studies were interrupted by the military service between 1943 and 1945, and this time, he wounded in Russia. Returning from the war, from 1947 to 1953, Heinrich Wolf studied biology, chemistry and geology at Philipps-Universität in Marburg and received his teacher degree. Wolf started to work at Albert Schweitzer Gymnasium in Plettenberg, 14 years later, he appointed director of studies (Studiendirektor, special title valid only in Germany). The Aculeata collection of Heinrich Wolfs includes 100 boxes with more than 50 000 specimens, with many holotypes. In the

series titled "*Prodromus insectorum Bohemoslovakiae*", Wolf completed the list of spider wasps (WOLF 1971) for Czechoslovakia. Another work of him is the paper on *Andrena potentillae* Panzer, in which he mapped the European distribution of this species providing numerous data for the countries of the Carpathian Basin (WOLF 1982).

Josef Šedivý (11th September 1925 Lístany bei Louny – 2008) DSc. VÚRV Praha (Crop Research Institute). In Aculeata, far the most important activity of Josef Šedivý is the management and edition of the 3rd book of the series titled: "*Enumeratio Insectorum Bohemoslovakiae*". In this monograph, different authors (discussed separately) listed the groups of Hymenoptera in the following division: letter "B" means Bohemia (Czech, Eastern part of the present Czech Republic), letter "M" means Moravia (Western part of Czech republic) and letter "S" means Slovakia (ŠEDIVÝ 1989b). In these books, Šedivý elaborated one Aculeata group: the spider wasps (ŠEDIVÝ 1989a). Josef Šedivý graduated at Faculty of Natural Sciences of Charles University in Prague in 1949 and received teacher degree in natural sciences and geography for secondary schools. After one year, Šedivý defended his doctoral thesis and started his career at Hop Research Institute at Zatec. One more year after, he received a job offer from Crop Research Institute in Prague-Ruzyne where he worked till his death. From 1953–1990 he was head of Department of Entomology and, till 1985, he was deputy director of Division of Plant Medicine. In 1960, he defended his PhD. "candidate" dissertation in Plant Protection and 24 years after, he merited the DSc. title in Agricultural and Forestry Sciences. In 1992, Šedivý habilitated as lecturer of Agricultural Entomology at the Czech University of Life Sciences in Prague. Josef Šedivý retired in 2004, but remained active nearly till his death. The scope of his research was broad, included applied entomology, acarology and nematology with a special focus on biology of pests attacking permanent cultures and crop plants. In addition, he devoted time to systematic entomology of Ichneumonidae.

Zdeněk Bouček (8th January 1924 Hradec Králové – 17th July 2011 Prague) Czech hymenopterologist, Chalcidoidea specialist, we only mention him here, since he was one of the co-author (actually first author) of "*Rád blanokrídlí – Hymenoptera, In: Kratochvíl, J. Klíc zvíreny CSR*" (Hymenoptera: Keys for the wildlife of Czechoslovak Republic). Zdeněk Bouček, with Oldřich Šustera completed the monograph of Vespoidea of Czechoslovakia in 1956 (BOUČEK and ŠUSTERA 1956) either. Bouček's career started at the Charles University in Prague, later at Agricultural Research Center and, finally, at the Museum of Natural History in Prague, where he completed his doctorate in 1969 and received it from the Czechoslovak Academy of Sciences, for his thesis, titled "*Revision of Chalcidoidea of Europe*". The crucial event in his life was the Soviet invasion of Czechoslovakia. After this, he had to immigrated to the UK, where he obtained job first at the University of Oxford (Hope Department) and later in the Commonwealth Institute of Entomology of the Natural History Museum, the institution where he remained till his retirement in 1989. When the democratic political system established in Czechoslovakia, Bouček and his wife returned to their homeland, Czech Republic.

Further coauthors of the Hymenoptera part of "*Klíc zvíreny CSR*": **Lubomír Masner** (18th April 1934, Czech Proctrutopoidea specialist, now he lives in Canada, in 1968, he emigrated there) and **Radoslav Obrtel**, Ichneumonidae specialist.

Adela Beláková (23rd July 1932 Hornany –) associate professor of entomology at Comenius University, Bratislava, finished grammar school in Trencsény. She obtained PhD. in 1965, her thesis titled: "*Some of the pollinators of Agricultural Plants in South*

and Middle Slovakia". She investigated the Apoidea as environmental indicators of the most argued project of Czechoslovakia like Mohovce (Mohi) nuclear power plant or Gabcikovo Hydroelectric Power Plant (BELÁKOVÁ and SMETANA 1994a, 1994b, BELÁKOVÁ 1986a). Other papers of her discuss the distribution of rare Apoidea species, studying their status in nature in conservation point of view and investigating their vulnerability (BELÁKOVÁ, SMETANA and VALENCIK 1979, BELAKOVÁ 1994, 1996, BELAKOVÁ and LUKÁŠ 1994). Beláková did faunistic investigations on Apoidea in the following regions of Slovakia: Nitra (BELÁKOVÁ and LUKÁŠ 1991), mountainuos areas of Slovakia (BELÁKOVÁ 1980), Rozsutec (BELÁKOVÁ 1981), Natural Reserves in the Danube region (BELÁKOVÁ 1991), Stiavnica Mts. (Selmeci Mts.) (BELÁKOVÁ and KOOENKOVA 1979). She, with Ilja Okáli identified and published the Apoidea in the collection of the Slovak National Museum (BELÁKOVÁ and OKÁLI 1993).

Miroslav Kocourek (21st August 1923 Kosice (Kassa) – 6th February 1994 Vyskov). Miroslav Kocourek was military officer, therefore they had to be relocated several times. With his family he lived in Jeseník, Levice (Léva), Hodonín and finally in Vyskov. In 1970, following the events of August 1968, for political reasons, he left the army and until his retirement (age 60), he worked as a warehouseman for LPG. His Hymenoptera collection is now owned by Maximilian Schwarz and the Biology Center Linz. More than 60 000 individuals, primarily aculeata are collected from southern Moravia and southern Slovakia. Some groups of bees (eg. genera *Andrena* and *Osmia*) identified himself. In 1985, he described *Nomada bouceki* sp.n. from 2 localities, namely Párkány: Hegyfarok (Štúrovo) and Bulgaria. Kocourek completed the Apoidea part in Šedivý "*Enumeratio insectorum Bohemoslovakiae*" (KOCOUREK 1966) and later, he published a new Apoidea monograph edited also by Jozef Šedivý in the series "*Check-list of Czechoslovak insects"* (KOCOUREK 1989).

Jiří Zahradník (12th August 1928 in Lomnice nad Popelkou –), Czech zoologist, author of insect books and artistic director of the Collegium Musicum of Bohemian Paradise Cesky Ráj. He is honorary citizen of his hometown Lomnitz, in which he lives. His books were translated into different languages. Jirí is the brother of the Czech composer Zdeněk Zahradník. Zahradník completed a monograph on hymenoptera of Czechoslovakia (ZAHRADNÍK 1987), illustrated by **František Severa** (1924 –).

Dušan Vepřek (1936, Opava –) Independent researcher, living in Prerov Czech Republik. Dušan studied at University of Chemistry and Technology in Prague. After his graduation, he started his career as designer technologist, later as teacher of chemistry at various vocational schools. He retired in 1996. His special field in entomology is the faunistics of Hymenoptera. Between 1997 an 2008, Dusan Vepřek worked in cooperation with nature protection authorities in researches and inventories of protected areas in Stredocesky, Jihomoravsky and Zlínsky region. In his work, titled *První doplnek Check list of Czechoslovak Insects III. (Hymenoptera: Sphecoidea), The first appendix of the Check list of Czechoslovak Insects III (Hymenoptera: Sphecoidea,)* he added 12 new records to the list of Pádr (VEPŘEK 2000). Vepřek firstly recorded *Ferreola diffinis* (Lepeletier, 1845) from White Carpathian Mts. (VEPŘEK 2001a). He investigated the following regions: Natural Monument Bzenec and Bzenec region (VEPŘEK 1996, 1998b), Borská nízina (TYRNER et al. 2010), Vysenské hills (DVOŘÁK et al. 2007). With **Jakub Straka**, he completed the Spheciformes part in "*Annoted checklist of the Aculeata (Hymenoptera) of the Czech Republic and Slovakia*" (VEPŘEK and STRAKA 2007). He provided various faunistic records from Moravia and Czech Republic (VEPŘEK 1994,

1998a, 2000, 2001b, STRAKA et al. 2004, 2011, BOGUSCH et al. 2009) either including different localities from the Carpathian Basin.

Vladimír Ptáček (Vladimír Ptáček, 18th August 1944 Brno –) Associate professor of Masaryk University at Brno, Department of Animal Physiology and General Zoology. He graduated at Masaryk University, Brno, in 1967 and employed by the Institute of Biophysics, Czech Academy of Science in Brno and later at Research Ins. for Fodder Crops, Troubsko. Now, Vladimir Ptáček is university teacher at the Masaryk University, where he graduated, nearly 50 years ago. Professor Ptáček is the leader of Troubsko bumblebee ecology group. They study the laboratory rearing of bumblebees for research purposes and pollination, the hibernation and aestivation physiology of bumblebees, bumblebee parasites, bumblebee microflora of the digestive tract and their immune system, management of bees (honey-, bumble- and solitary-) with respect to their use in seed production in agricultural enterprises and/or in breeding processes. Troubsko is near Brno, only few kilometers away from the Carpathian Basin, this is why, we can't discuss their results here. However, they have one papers in which they mention some localities in the Carpathian Basin, titled "*Notes on distribution of Bombus cryptarum (Hymenoptera, Apoidea) in Moravian territory (Czech Republic) and its laboratory rearing*" (see also **Alena Votavová**).

Jozef Lukáš senior (4th February 1920 Jinosove – 30th March 1993 Trenčín (Trencsén)). Jozef Lukáš spent his childhood and young years in Schonwalde at Jinosov and Námesti, where his father was head gardener at Hautquitza count. He graduated at Trade and Economic Vocational School in Trebic. From his age of 18, he worked as land surveyor for Ing. Emil Faltus in Brno. During the years of World War II, Lukáš was in captivity and the various camps destroyed his health. Therefore he became seriously ill with TB, after his treatment, Lukáš soon returned to work at the cartographic office in Brno, but never recovered perfectly. In 1947, he came to Trenčín (Trencsén), where he married and established his family. Despite the fact that he was seriously ill, reasoned by the bad condition of his captivity during WW 2 , Jozef Lukáš worked with superhuman efforts and finally he had to be on a disability pension at his age of 38 but he never was inactive in his next years. Till 1973, he worked as district inspector for nature conservation and volunteer for Trenčín Museum. His merit was to rescue the remains of the entomological collections of the "*Trencsén Vármegyei Természettudományos Egyesület*" (Society of Natural Sciences in Trencsén County) which were professionally disinfected and treated again, thus he saved one of the oldest zoological collection of Slovakia and the Historical Hungary (see also **Károly Brancsik**). So, the Trenčín Museum reopened in 1969. He kept lectures for school student whenever he was requested to do it. He also participated in several research programs of the Zoological Institute of Comenius University in Bratislava and Trnava through the museum in Hlohovci. These projects were the investigation of Prepadlisko Nature Conservation Area, Turkish Hill Nature reserve, Cachtice castle hill (PR), Plesivec Nature Reserve, Beckovská Castle Rock, Zihlavník-Baske, Omsenská Baba and Krasín Nature Reserve. The extraordinary significance of lifework of Jozef Lukáš senior is not his publications, but his collection activity, his intense work for nature conservation, nature conservation education and museology. However, we know one paper of him that he wrote in co-authorship with **Adela Beláková**, titled: "*Vcely (Apoidea) blizkeho okolia Nitry*" (Wild bees of Nyitra region). (BELÁKOVÁ and LUKÁŠ 1991).

Jozef Lukáš junior (Trenčín, 1949 – , entomologist at Comenius University in Bratislava, PhD. (candidate)). From 1986, he is researcher of Natural Sciences Faculty,

Comenius University in Bratislava. Jozef Lukáš is far the most known Slovak Hymenopterologist abroad, the reason of this, he has high number of papers on all 3 major groups of Hymenoptera, namely: Symphyta, Aculeata and Parasitica, although he is specialized for Braconidae. In Aculeata, Jozef Lukáš investigated and published the fauna of Nature conservation area of Devínska Kobyla (Pozsony: Dévény), Bielych Karpát (Fehér-Kárpátok), Hohen Tatragebirges (Magas-Tátra), Cachtickych vrchov (Csejtei-hegyek), Krasin Nature Reserve, Jaktar Nature Reserve, old orchards around Bratislava (Pozsony), Trencianske Bohuslavice (Bogoszló), Trencianska Skalka (Vágsziklás), Jursky Sur, Zobor pri Nitere (Zobor) (LUKÁŠ and SCHLARMANNOVÁ 1998, 2003, LUKÁŠ and PADR 1994, LUKÁŠ and OKÁLI 1998, LUKÁŠ, LUKÁŠOVA and SCHLARMANNOVÁ 1999, LUKÁŠ and LISKA 2005a, LUKÁŠ 1987, 1991a, b, 1992a, c, 1997, 1998, 2002, 2003, 2005, 2008, 2010, LUKÁŠ and TYRNER 2000).

Jozef Lukáš also took part on the nationwide investigation of the invasive sphecid wasp *Sceliphron curvatum* (Smith 1870) (BOGUSCH et al. 2005) and also the native *Sceliphron destillatorium* (Illiger, 1807) (LUKÁŠ, BOGUSCH and LISKA 2006). With Peter Liska, they summarized the history of digger wasp research in Slovakia and added new species to the existing lists (LUKÁŠ and LISKA 2004, 2005).

Other important group of his publications of nature conservation studies. In LUKÁŠ, (1996, 2001), he compiled the red-book list of Slovak hymenoptera and categorized them according to the IUCN categories. Other nature conservation papers of Jozef Lukáš are studies on rare wild bees (LUKÁŠ 1979), *Larra anathema* (Rossi, 1790) and *Anthocopa mocsaryi* (Friese, 1895) (LUKÁŠ 1992).

Pavel Hrubík (1941 Senné (near **Veľký Krtíš**), **Ján Kollár** and **Silvia Tkáčová** all of them form the Agricultural University in Nitra) published a paper titled: *Monitoring of Harmful Insect Species in Urban Conditions in Selected Model Areas of Slovakia.* In this paper, they mention *Vespa crabro* and *Megachile centuncularis* (HRUBÍK et al. 2009).

Oto Majzlan (15th August 1950 Martin –) dean of Pedagogical Faculty of Bratislava University. Oto Majzlan finished primary and secondary schools in Nitra (Nyitra) and graduated at Faculty of Natural Sciences of Bratislava University and spent additional 2 year in Ulm University in 1982-83 financed by scientific research fellowship. From 1975, Oto Majzlan works for Bratislava University at first, as assistant Professor at the Department of general and Animal Physiology than as associate professor of entomology at the Department of Zoology later as associate Professor at Department of Biology and Pathology at Pedagogical Faculty and now, Oto Majzlan is the dean of the faculty. He did several entomological expedition to Mongolia, Greece, Ecuador, Morocco and Australia. With **Ivo Rychlík** (Katedra psychológie Filozofickej fakulty UK, Bratislava) and **Pável Deván** they investigated Cenkovska lesostep Nature Reserve and published the collected beetles, digger wasps, spider wasps and wasps. Altogether 96 Hymenoptera species were collected, majority of them indicated the xerothermic character of this habitat (MAJZLAN, RYCHLIK and DEVÁN 1999). Also with Pável Deván, they investigated the Chrysididae fauna of Moltra hill (Nature Reserve Moltra) in the Stiavnické Mts. (Selmeci Mts.) and sand-biotopes of Zahorie (Erdőhát) (MAJZLAN and DEVÁN 2004, DEVÁN and MAJZLAN 2002).

Vladimír Smetana (18th May 1954 Bratislava –) His childhood and school years were in Myjava. This is the time, his interest in entomology raised during the butterfly-collecting trip with his sister and friends (ŠIMA 2014). Vladimír graduated at Faculty of Natural Sciences of Comenius University in Bratislava and completed his thesis on

Bombus species around Bratislava under the scientific supervision of **Adela Beláková**. After completing his university studies, he worked a year at Slovak Academy of Sciences and in November 1980 he started to work for the Tekov Museum in Levice (Léva), where he's been working. Significant part of his life-work the faunistic surveys of Aculeata of various regions of Slovakia. These are: South Slovakia where he tested insect traps (SMETANA and ŠIMA 2007, SMETANA et al, 2006), Dobsina (SMEATANA 1996), North-East Slovakia (SMETANA 1999b), Muranska Planina (SMETANA 2004d) Borská nízina (SMETANA et. al, 2010), Levice (Léva) (SMETANA 1990b), South-East Slovakia (SMETANA 1992a), Mochovce-Mohi (SMETANA et al. 1992; BELÁKOVÁ and SMETANA 1994a, b), River Ipoly-Ipel (SMETANA 1995), Snina-Szinna (SMETANA 1996a), Dobsina (SMETANA 1996c), Strazovské vrchy Hills (SMETANA 1996d), Ponitrie Protected Landscape Area (SMETANA 1996e), Stiavnické vrchy Hills (SMETANA 1998b, SMETANA AND SMETANOVÁ, 1999B, Vrbovce (Verbóc) (SMETANA 1998c), Vtacnik Mountains (SMETANA 2000a), Cejkov (Céke) (SMETANA 2001), Choc Mountains (SMETANA 2004a), Streda nad Bodrogom-Bodrogszerdahely (SMETANA 2005a), Besa (Bés) (SMETANA 2005b), Small Carpathian Mountains (DVOŘÁK and SMETANA 2005), Ostrava region (DVOŘÁK et. al, 2006), Vysenské kopce (DVOŘÁK et al. 2007), Hronská pahorkatina (SMETANA 2006a), Tvrdosovce (Tardoskedd) (ŠIMA and SMETANA 2007), Fátra National Park (SMETANA 2008a) Huta Slanská (Szalánchuta) (SMETANA 2008c), Hády Hill at Brno (DVOŘÁK et al., 2008), Low Tatras National Park (SMETANA 2009a), Slovak Paradise National Park (SMETANA 2009b), Králicky Snezník (DVOŘÁK et. al, 2009), Poiplie (SMETANA 2010a), Levická Kalvária (Léva Kálvária-hegy) (SMETANA 2010b), Borská nízina (Erdőháti síkság) (SMETANA et al. 2010), Moravy a Slezska (DVOŘÁK et al., 2010), Slovak Karst (SMETANA and ŠIMA 2011), Sub-Tatra Basin (SMETANA and ŠIMA 2012) Hronská niva and Zitavská niva (SMETANA 2013), Bohunice-Apátszentmihály (SMETANA and SMETÁNOVÁ 2013), Stary Hradok (Kisóvár), Stary Tekov -Óbars, Devicany-Baka (SMETANA and SMETANOVÁ 2014a,b,c), Levice and Kremnica (Léva and Körmöcbánya) (SMETANA et al. 2015). During the past more than two decades, an important part of his life work was devoted the research of bumblebees almost in the whole territory of Slovakia and also some parts of Czech Republic. Many years of research activity brought valuable information on the species composition of bumble bee fauna of Slovakia, their ecology, pollination and food choice. We can say, thanks to his many years of systematic field work, the bumble bee fauna is well studied in Slovakia (ŠIMA and SMETANA 2009, 2010, 2011, 2012, SMETANA, BELÁKOVÁ et al. 1979, SMETANA and MILE 1993, PAVELKA and SMETANA 2001, SMETANA and ŠIMA 2005, 2009, 2014, ŠIMA, SMETANA and ČÍZEK 2014, MAZALOVÁ et al. 2010, SMETANA 1983, 1984a, b, 1986a, b, c, d, 1987, 1989a, b, 1990a, 1991a, b, c, 1992b, c, d, 1993a, b, 1994a, b, c, 1996 b, 1998, 1999a, b, 2000b, c, 2002a, b, 2003, 2004b, c, 2005a, b, c, 2006a, 2008b, 2014). Smetana studied the effect of the global climatic change for the hymenoptera fauna especially for social wasps and bumble bees (SABO et al. 2007, SMETANA and ŠIMA 2008) and the distribution and life history of 2 *Dolichovespula* species (SMETANA 2000d) finally distribution of *Polistes gallicus* in Slovakia (DVOŘÁK and SMETANA 2007).

Elena Smetanová (born in Myjava, Slovakia, 1955 –) She currently works as botanist in the Museum of Tekov, Levice (Léva), Slovakia. Elena Smetanová has 3 papers, written with co-authorship of Vladimír Smetana on Vespidae of Mohovce (Mohi) Stianvnickych vrchov (Selmeci-hegyek) (SMETANA, SMETANOVÁ and LEHOCKY 1992, SMETANA and SMETANOVÁ 1999).

Anna Smetanová, PhD. (born in Levice, Slovakia, 1984 –). She studied wasps during her high school, where she completed a study on Vespidae (SMETANOVÁ 2001) which were published by the High School Andreja Vrábla in Levice (Léva), after this, she stopped studying Aculeata. Thirteen years later, she completed a short work with Vladimír Smetana on the natural values of Devicany (Baka) (SMETANOVÁ and SMETANA 2014). She currently works in the sustainable soil management in multifunctional landscapes (LISAH, INRA in Montpellier, France).

Zdeněk Šafařík (1960 –) studied at the Faculty of Biology of Lomonosov University in Moscow (1984) and received his PhD title from Comenius University in Bratislava, Faculty of Science in 2009. Zdeněk Safarik started his career at ONV, Department of Culture in Ziar nad Hronom as inspector of nature protection and became deputy manager of the Department of Culture. From 1991, in the next 10 years, he managed the District Environmental Office in Banská Stiavnica (Selmecbánya). In the next 9 years, Zdeněk Safarik worked for Matej Bel University in Banská Bystrica (Besztercebánya) as University lecturer, assistant professor and finally as head of department. From 2011, Safarik works for Tomas Bata University in Zlin, Faculty of logistic and crisis management. Šafařík did research on bumble bees and honey bees in the localities around Banská Stiavnica: Banská Stiavnica (Selmecbánya), Beluja (Béla), Banská Belá (Bélabánya). His results were published in a small soft-cover book "*Etológia a ekológia vcely medonosnej (Apis mellifera Linnaeus, 1758) a divo žijúcich vciel na vybranom území Slovenska*", in which Safarik discusses the ecology, life history and ethology of bumble bees and honeybees (SAFARIK 2013). With very similar title, his results were also published in Cluj Napoca (Kolozsvár) in shortened form (SAFARIK 2014).

Libor Dvořák, Malacologist, Dipterologist and Hymenopterologist. Since 2009, curator of Mestské Museum Mariánské Lázne. Before this, he had 15 years of experience as assistant professor at the Scientific Department of NP Administration of Sumava Protected Landscape Area.

In the following faunistic projects he participated: Borská nízina (SMETANA et al. 2010), Ostrava region (DVOŘÁK, SMETANA and TYRNER 2006), Vysenské kopce Nature Reserve (DVOŘÁK et al. 2007), Hády Hill (DVOŘÁK et al. 2008), Králicky Snezník (DVOŘÁK, BOGUSCH and SMETANA 2009), Moravian and Silezian border (DVOŘÁK et al. 2010), Malé Karpaty (Kis-Kárpátok) (DVOŘÁK and SMETANA 2005). With Viktória Répási and Enikő Havas, he contributed to complete the checklist of Vespidae of Hungary (RÉPÁSI, HAVAS and DVOŘÁK 2009) and recorded firstly from Romania *Dolichovespula adulterina* (DVOŘÁK 2006). His fermented fruit syrup for trapping wasps was tested in Bratislava (DVOŘÁK 2006). With Vladimír Smetana, they provided data on distribution of *Polistes gallicus* in Slovakia *Dolichovespula media* and *Polistes bischoffi* in the Czech republic and in Slovakia (DVOŘÁK and SMETANA 2007, DVOŘÁK et.al., 2006, SMETANA, DEVÁN and DVOŘÁK 2006). With Jakub Straka, they compiled the list of Vespoidea of Czech, Moravia and Slovakia: 80 species are known from the Czech Republic (69 from Bohemia, 76 from Moravia), and 87 from Slovakia. *Eumenes coronatus* (Panzer, 1799) was new for Moravia; *Stenodynerus clypeopictus* (Kostylev, 1940), *Ancistrocerus renimacula* (Lepeletier, 1841), *Eumenes coarctatus lunulatus* Fabricius, 1804, and *Eumenes coronatus* (Panzer, 1799) were new for Slovakia (DVOŘÁK and STRAKA 2007). Libor Dvořák published the Vespoidea collection of the Moravian Museum in Brno (DVOŘÁK 2006c).

Jan Macek (1953 –), since 1978, curator of the Hymenoptera collection in the Entomological Department of the National Museum in Prague, Czech Republic. His main research fields: European Symphyta (taxonomy, larval ecology and morphology, faunistics); recent and fossil Diapriidae (taxonomy) and Dryinidae (faunistics). In (MACEK, STREJČEK and STRAKA 2007) the checklist of Bethylidae of the Czech Republic and Slovakia, 37 species are presented from the Czech Republic (27 from Bohemia, 26 from Moravia), and 29 from Slovakia. *Codorcas cursor* (Kieffer, 1906), *Heterocoelia halidayella* (Westwood, 1874), *Rhabdepyris fuscipes*, and *R. pallidinervis* were new for Slovakia. In the checklist of Dryinidae and Embolemidae of the Czech Republic and Slovakia (MACEK 2007), 38 species are listed from the Czech Republic (33 from Bohemia, 34 from Moravia), and 32 from Slovakia. *Anteon faciale* (Thomson, 1860), *A. fl avicorne, A. scapulare, Echthrodelphax tauricus* Ponomarenko, 1970, and *Dryinus niger* Kieffer, 1904 were new for Slovakia. In the following faunistic projects he participated: Borská nízina (SMETANA et al. 2010), Hády Hill (DVOŘÁK et al. 2008), Moravian and Silezian border (DVOŘÁK et al. 2010), Lőcse (Levoca) and Körmöcbánya (Kremnica) (SMETANA et al. 2015).

Pavol Berec (1958 Trenčín – , entomologist). In Berec, 1997, he listed the results of his collecting trips in 1995, to Nature Reserve Krasín: he recorded firstly *Crossocerus congener* (Dahlbom, 1844) for Slovakia. In his other work (BEREC 1998), he listed the Pompilidae species of Devinska Kobyla Nature Reserve.

Pavel Deván (14th September, 1954 Myjava – 6th June 2009 Trenčín (Trencsén). Pavel graduated at Faculty of Natural Sciences of Comenius University in Bratislava "*After graduation at the Faculty of Natural Scientists in Bratislava he worked in the State Nature Conservancy, during the last 22 years as a zoologist at the Administration of Protected Landscape Area Biele Karpaty. He studied various groups of invertebrates like Ephemeroptera, Lumbricina, numerous groups of Hymenoptera and Lepidoptera. His activities for conservation of grasslands were especially important. By mobilization of young people, Pavel established the tradition of summer camps and weekend voluntary works which were devoted to maintenance of species-rich grasslands in the Biele Karpaty Mts. He devoted much time to maintain the species-rich meadows. In June 2009, aged 54, he left his beloved Carpaths and grasslands forever.*" (from the brochure of the 7th European Dry Grassland Meeting). In Aculeata, he intensively studied and collected Sphecoidea (digger wasps), Chrysididae (cuckoo wasps) and Pompilidae (spider wasps) and the following areas he investigated: Nature Monument Tomásovica (DEVÁN 2004b), Censková Nature Reserve (MAJZLAN et al. 1999), Biele Karpaty (Fehér Kárpátok) (DEVÁN 1999a, b, 2002b), Slovak lowlands (DEVÁN 2000), Krasin Nature Reserve Area (DEVÁN 2001a), Nové Mesto nad Váhom (Vágújhely) (DEVÁN 2001b, 2002c), Prírodná pamiatka Mitická slatina (DEVÁN 2001c) Skalka pri Trenčíne (DEVÁN 2002), Nature Reserve Moltra (DEVÁN and MAJZLAN 2002), Pekelnej doline (DEVÁN 2002d), Omsenská dolina (DEVÁN 2003a), Krivoklátská Valley (DEVÁN 2003b), Lúka: Knázi vrch (Vágluka) (DEVÁN 2004a), Záhorie (MAJZLAN and DEVÁN 2004), NPR Parízske swamps (DEVÁN 2005), Tematínske vrchy (DEVÁN 2006a), Drietomica (DEVÁN 2006b), Vrsatské bradla (DEVÁN 2006c), PP Pavúkov jarok (DEVÁN 2006d), PR Nad Senkárkou (DEVÁN 2006e), PR Beckovské Skalice (DEVÁN 2006f), Brehové porasty Dubovej (DEVÁN 2008). Pável Deván also studied the fauna of old orchards (DEVÁN and BUKOVAN 2007, DEVÁN 2002a) and ethology and biology of Pompilidae and Chrysididae (DEVÁN 2001d, 2005). He collected data to complete the studies on the present distribution of the paper wasp *Polistes bischoffi* Weyrauch, 1937 (DVOŘÁK et al. 2006) and *Dolichovespula media* (Retzius, 1783) (SMETANA et al. 2006) in Slovakia.

Peter Liška Faculty of Natural Sciences, Comenius University of Ecosozoology in Bratislava. Peter Liska took part of several faunistic investigations of Aculeata, mainly digger wasps of different regions like Hády Hill (DVOŘÁK et al. 2008), Krasin Nat. Res. (LUKÁŠ and LIŠKA 2005). With Józef Lukáš, they summarized the history of digger wasp research in Slovakia and added new species to the existing lists (LUKÁŠ and LIŠKA 2004, 2005). They studied the distribution of *Sceliphron* species, including the invasive *Sceliphron curvatum* (Smith, 1870) (BOGUSCH et al. 2005, LIŠKA and LUKÁŠ 2004, LUKÁŠ, BOGUSCH and LIŠKA 2006).

Antonín Přidal (1972 Brno –, teacher at Mendel University in Brno, Section of Apiculture). He is interested in Apoidea: Apiformes, their faunistics and beekeeping and population management (honey bee, bumble bees and solitary bees) either. Antonín Přidal with Bořek Tkalců recorded *Bombus sichelii* Radoszkowski, 1859 from the Czech and Slovak border (PŘIDAL and TKALCŮ 2003). He published several faunistic papers on the White Carpathian Mts. (PŘIDAL 1998a) and various places from the Czech and Slovak Republic (PŘIDAL 1998b, 2014, PŘIDAL and KOMZÁKOVÁ 2009). Important part of his publications the national checklists on the Apoidea of Czech Republic and Slovakia (PŘIDAL 2001, 2004). Antonín took part in the project titled "*Annotated checklist of the Aculeata (Hymenoptera) of the Czech Republic and Slovakia*", in which he took part in the Apoidea part (STRAKA, BOGUSCH and PŘIDAL 2007).

Petr Bogusch According to Peters's self-biography: "*My name is Petr Bogusch and I was born in Strakonice, Czech Republic, on August 21st 1980. I studied Charles University in Prague, where I got MSc. degree of Zoology (2003) and Ph.D. of Evolutionary Biology (2006). In 2015, I got Doc. (associate professor) degree in Masaryk University in Brno in Zoology. I work in University of Hradec Králové, Faculty of Science, Department of Zoology, where I am head of Division of Zoology since 2012. I teach several zoological subjects – Evolutionary Biology, Field Excursions of Zoology and Phylogeny of Invertebrates. I lead students with their MSc. and Ph.D. theses, especially of parts of my projects. My research is focused on the Aculeata (Hymenoptera). I started with the phylogeny and ecology of cuckoo bees in 1999, as well as with the taxonomy and ecology of European Aculeata. Recently, I work with my team of students and colleagues mostly on the studies on the Aculeata of post-industrial sites, hymenopterans in reed galls and starting a project about hymenopterans in empty snail shells. I have published 46 reviewed scientific papers, of which 18 are with Impact Factor. I am author of 3 books – checklist of the Aculeata of the Czech Republic and Slovakia (2007, and I am here also the main editor), atlas of Czech Aculeata (2010) and European Red List of Bees (2014). Recently, I work on Czech Red List of Aculeata, which should be published in 2016. I am also author of many popular papers in Czech magazines, conference abstracts, book chapters about Hymenoptera of post-industrial sites (both in Czech and English) and lectures about the Aculeata.*" Very important part of his publications are the various check lists: Petr Bogusch is one of the editors of "*Annotated checklist of the Aculeata (Hymenoptera) of the Czech Republic and Slovakia*" in which they reported 1453 species from the Carpathian Basin (Slovakia and Moravian Carpaths). In this monograph (BOGUSCH, STRAKA and KMENT 2007), he participated in the Apiformes (STRAKA, BOGUSCH and PŘIDAL 2007) part. We may find also important faunistic data on Mutillidae in BOGUSCH 2006a,b. Three papers of him discuss the distribution of *Sceliphron* species, 2 of them study the spreading of the invasive *Sceliphron curvatum* (Smith, 1870) in the Carpathian Basin (BOGUSCH et al. 2005, ĆETKOVIĆ et al. 2005 and LUKÁŠ, BOGUSCH and LISKA 2006). In "*Hosts, foraging behavior and distribution of six species of cleptoparasitic bees of the subfamily Anthophorinae*",

several species are reported from Turna nad Bodvou (Torna) (Slovakia) (BOGUSCH 2003), also we may find data from the Carpathian Basin in BOGUSCH et al. 2009. He discusses the distribution of *Coelioxys alata* Förster, 1853 (BOGUSCH 2005) providing data from the Carpathian Basin. In (OLSZEWSZKY et al. 2016) they provided valuable historical and present data of Scolitidae species partly from the Carpathian Basin part of Czech Republic and partly from Poland. From his works dealing with the Czech and Slovak parts of the Carpathian Basin, firstly we mention the faunistic investigation of various areas of Czech (South-East Moravia) and Slovak Republik, these are: Borská nízina (SMETANA et al. 2010), Hády Hill (DVOŘÁK et al. 2008). Petr also compiled the Scolioidea fauna of Czech Republic and Slovakia recording 3 new species for Moravia and 5 for Slovakia (BOGUSCH, 2007).

Mario Boni Bartalucci, Museo di Storia Naturale dell'Università degli Studi di Firenze. Baralucci in his monograph, titled "*European Myzininae (Hymenoptera: Tiphiidae)*" reported data of 2 species from various localities of Slovakia: Štúrovo (Párkány), Nitra (Nyitra), Chotín (Hetény), Somotor (Szomotor) etc. (BARTALUCCI 2012).

Peter Šima (1977 Nové Zámky (Érsekújvár), in the former Czechoslovakia, now Slovakia –). According Peter's personal biography: "*Nature, and particularly entomology fascinated me since my childhood. Deep interest in aculeate Hymenoptera started during my university studies. Beside others, I studied bumblebee biology, faunistics, zoogeography and trophic interactions under supervision of Assoc. Prof. Jana Schlarmannová (Constantine the Philosopher University in Nitra, born in Nitra, Slovakia, 1963) and with great support of Dr. Vladimír Smetana (Tekov Museum in Levice). In the same time, I started to work in the field of modern bumblebee rearing and breeding (bombiculture), and later finished my PhD in applied biology at the Constantine the Philosopher University in Nitra. Currently I work as entomologist at the bumblebee production of Koppert Biological Systems in Nové Zámky (Slovakia).* " About Peter's work on Hymenoptera, we may say: Peter is young but his work is very significant due to high number of papers that he has already published. Also, he is very good in cooperation with authors dominantly from Czech Republic and Slovakia. From these works, firstly we mention the faunistic investigation of various areas of Slovak Republik, many of them are nature reserves, these are: Nové Zámky (Érsekújvár) (ŠIMA and SCHLARMANNOVÁ 2007), Southern territories of Slovakia (SMETANA and ŠIMA 2007), Borská nízina (SMETANA et al. 2010), Hády Hill (DVOŘÁK et al. 2008), Moravian and Silezian border (DVOŘÁK et al. 2010), Slovensky Kras (ŠIMA and SMETANA 2011), Tvrdosovce (Tardoskedd) (ŠIMA and SMETANA 2007), Podtatranska kotlina (Sub-Tatra Basin) (SMETANA and ŠIMA 2012), Lőcse (Levoca) and Körmöcbánya (Kremnica) (SMETANA et al. 2015) and Turzovka (Turzófalva) (SMETANA and ŠIMA, 2014). Other important group of Peter's work are the distributional studies of various Hymenoptera species, namely *Bombus haematurus* Kriechbaumer, 1870; *Bombus semenoviellus* Skorikov, 1910 and *Bombus argillaceus* (Scopoli, 1763) (ŠIMA and SMETANA 2009, 2012; ŠIMA, SMETANA and ČÍŽEK 2014). With Vladimír Smetana, they have one paper on parasite ecology (*Sphaerularia bombi* Dufour, 1837) parasiting bumble bees (ŠIMA and SMETANA 2011). They also made a conference presentation summarizing our knowledge on the bumble bee fauna of Slovakia (SMETANA and ŠIMA 2009). Peter Šima is co-author of the multiauthored monograph on bumble bee subgenus *Bombus* s. str. species (WILLIAMS et al. 2012). With Vladimír Smetana, they studied the effect of global warming for hymenoptera fauna (SMETANA and ŠIMA 2008) either.

Jakub Straka (28th February 1981 Brandys nad Labem –) is associate professor of Department of Zoology, Faculty of Sciences, Charles University in Prague. Under the supervision of Jitka Vilírnová, he defended his PhD. thesis in the same university in 2009. Jakub is member of the Czech Entomological Society, editor of European Journal of Entomology, member of editorial board of Folia Heyrovskiana. Till now, he is author and co-author of 28 scientific papers and 2 books, many of them provide data from the Carpathian Basin, mainly from the Moravian Carpaths and also from Slovak territories in which, we mention firstly his series titled: "*Faunistic records from the Czech Republic*" (STRAKA and FARKAČ 2002; STRAKA 2000; STRAKA et al. 2011). In Straka et al. 2004, they provide many Hungarian data either. In 2007, with Petr Bogusch and Petr Kment (chief editor) they compiled the "*Annotated checklist of the Aculeata (Hymenoptera) of the Czech Republic and Slovakia*" in which they reported 1453 species which belongs to the Carpathian Basin (Slovakia and Moravian Carpaths). In this monograph (BOGUSCH, STRAKA and KMENT 2007), he participated in the Spheciformes (VEPŘEK and STRAKA 2007) and Apiformes (STRAKA, BOGUSCH and PŘIDAL 2007) parts. Jakub Straka also took part in the investigation of several areas, some of them are nature protected areas, these are Borská nízina (SMETANA et al. 2010), Národní prírodní rezervace Vysenské kopce (DVOŘÁK et al. 2007), Hády Hill (RIHA et al. 2008), border area of Moravia and Silezia (DVOŘÁK et al. 2010), Levoca (Léva) and Kremnica (Körmöcbánya) regions (SMETANA et al. 2015). On the other hand, Jakub Straka with his co-authors provided valuable data on the distribution inside the Carpathian Basin of *Polistes bischoffi* Weyrauch 1937 (DVOŘÁK et al. 2006). Also we may find interesting data on the work of MACEK et al. 2007 in which Jakub Straka also participated. Finally, Jakub represents our region amongst the authors of the monograph on European bumblebees of RASMONT et al. 2015.

Pavel Tyrner Litvínov, Czech Republic, private researcher, till his retirement biology and chemistry teacher of Litvínov high school T. G. Masaryka and director between 1999 and 2006. He was born on 23th March 1941 in Prague, where Pavel finished his school years. Pavel Tyrner graduated at Charles University in 1962 (Mgr.). After his studies, he moved to Litvínov where he taught at the local high school till 1999, when he was appointed headmaster of this school till 2007. Now, he is retired. His latest expeditions were to Mongolia (2005, 2007) and Iran (2010). Another expeditions he did in various European countries and Turkey. His special field of interest inside Aculeata, is Chrysididae. Several scientific papers of him are dealing with the Carpathian Basin either. In BOGUSCH et al. 2009, and STRAKA et al. 2011, faunistic records of various Aculeata groups and species are reported by Pavel Tyrner, some of them in the Czech part of Carpathian Basin. He has a paper focused on the Aculeata fauna of Borská nízina (TYRNER et al. 2010) . Pavel Tyrner completed the checklist of Chrysididae inside the "*Annotated checklist of the Aculeata (Hymenoptera) of the Czech Republic and Slovakia.*" (TYRNER 2007). With **Libor Dvořák** and **Vladimír Smetana** they studied the Vespidae, Apidae and Chrysididae fauna of Ostrava region, which is in touch with the Czech part of Carpathians (DVOŘÁK, SMETANA and TYRNER 2006). In STRAKA et al. (2004) (co-authored by Pavel Tyrner) we may find not only Czech, but high number of Slovak and Hungarian Aculeata faunistic data (STRAKA et al. 2004). In a series, titled "*Faunistic records from the Czechoslovakia*" Tyrner provided data on Tiphiidae and Sphecidae (TYRNER 1987), Sphecidae (TYRNER 1988) and Apidae and Chrysididae (TYRNER 1991) with numerous records from the Carpathian Basin. In TYRNER 1980, *Chrysis lanceolata* Linsenmaier were firstly recorded for Slovakia. With **Jozef Lukáš**, Pavel Tyrner studied the Chrysididae fauna of Devínská Kobyla.

Alena Votavová (before her marriage Alena Bucánkova, 28th March 1983 Ostrava –) Alena graduated at Masaryk University in Brno in 2007, Faculty of Science, where she received her PhD as well. She started her career at Research Institute for Fodder Crops, Ltd. Troubsko and now, Alena works for the Agricultural Research, Ltd. in Troubsko, Czech Republik. Her research area are: laboratory rearing of bumble bees for research purposes and pollination; comparison of hibernation and aestivation physiology in bumble bees, based on changes in lipids in the lifespan of *B. terrestris*; study of bumble bee parasites, bumble bee microflora of the digestive tract and their immune system and research of methods that support the occurrence of bumble bees in the landscape. Her co-authors are **Vladimír Ptáček** (18th August 1944 in Brno – , Assoc. professor, Masaryk University in Brno, Faculty of Science: Dept. Animal Physiology and General Zoology before he took his present position he worked for the Institute of Biophysics, Czech Academy of Science in Brno and later for Research Ins. for Fodder Crops, Troubsko), **Tereza (Cholastová) Sabolová** (Laboratory manger, Research Institute for Fodder Crops Department of Plant Physiology and Genetics, Laboratory of Molecular Biology, Troubsko) and **Olga Komzáková** (Research worker of the Research Institute for Fodder Crops, Ltd. Troubsko and PhD Student of Masaryk University in Brno, graduated in 2000 at Masarik university, she is specialized for Diptera: Anthomiidae). In BUCÁNKOVÁ et al. (2011), they studied several places in and around the Carpathian Basin. Two sampling places were in the Carpathian Basin, namely NP Podyjí, pod Sobesem and CHKO Bílé Karpaty, Strání. The species which were captured here, only morphologically looked *Bombus cryptarum* (Fabricius, 1775) after checking with molecular analysis of a part of the mtDNA CO1 gene using RFLP, they proved to be *Bombus terrestris* Linné, 1758. The presence of Bombus cryptarum (Fabricius, 1775) was confirmed only out of the Carpathian Basin.

History of the Aculeata research in Croatia, Serbia, Bosnia, Slovenia and in the former Yugoslavia from 1920

Vatroslav Vogrin (4th January 1886 Stridóvár (now Strigova) – 5th February 1956 Zagreb) Most of his species descriptions belong to the Dalmatian sea-side. From the Southern Carpathian Basin, Vogrin described 3 new species and 1 new color variation, namely *Discolia trifasciata* Vogrin, 1954, *Cleptes semiauratus* var. *pallipes* Vogrin, 1955, *Harpactus picticornis* Vogrin, 1954 and *Harpactus croaticus* Vogrin, 1954. The latest 2 names are still valid (VOGRIN 1954, 1955). In his paper, titled "*Arten der Gattung Scolia Fabr. Kroatiens, Slavoniens, Dalmatiens und Istriens*", Vogrin described scolitid wasps of these region and provided their distribution data including northern regions of Croatia and Slavonia (VOGRIN 1915). In 1918, he published a faunistic paper on his hometown in Hungarian language, titled "*Adatok Stridóvár környékének Hymenoptera-faunájához"* (*Data to Hymenoptera fauna of Stridóvár and its surroundings*) in which he provides data of high number of Apoidea, Vespoidea and Sphecoidea species (VOGRIN 1918). Vatroslav Vogrin finished the high school in Varasd (now Varasdin). After his graduation in Zagreb and Prague universities, he worked for the Zoological Museum of Zagreb and became head of Entomological Department. Later he continued his career as professor of the high school in Zengg (Senj).

Hermann Haupt (24th January 1873 Langensalza – 2nd June 1959 Halle) German high school teacher, homoptera and hymenoptera specialist. In 1938, he described *Poecilagenia nigrina* Haupt, 1938 from Podcetrtek and Shanghai. The Slovenian specimen (holotype) proved to be identical with *Poecilagenia sculpturata* (Kohl, 1898) (HAUPT 1938).

Evgen Jaeger (20th August 1892 Miljana – 1959 Podcertek). Evgen Jaeger was medical doctor of Podcertek and very talented naturalist who studied not only entomology, but balneology, plankton of hot radioactive springs, speleology. He finished his secondary school in Maribor and studied medical sciences at Graz University. During the World War 2, he cooperated with anti-nazi resistance fighters and provided local medical aid. After the war, he established a local health center in Podcertek in a private house. He remained in Podcertek as medical doctor. Evgen Jaeger retired in 1950. His death was caused by his long lasting stomach disease which started in the time of his retirement and caused his early death in 1959. On Aculeata, he has one paper, titled "*Zur Kenntnis der Hymenoptera aculeata des Sotlatales (Jugoslavien) I.*" (the second part was never completed) (JAEGER, 1933). In this paper, he published occurrence and description of 3 interesting Sphecoid species around Podcertek. More important his large entomological collection which is deposited in the Natural History Museum in Ljubljana.

Francisco Javier Suárez (1926-1985) Spanish hymenopterologist. Suárez graduated at Faculty of Sciences of Universidad Central de Madrid. Francisco Suárez was at first, professor of Instituto Femenino “Celia Vinas” de Segunda Ensenanza de Almería ("Celia Vinas" High School for girls in Almeria). Later, he became scientific researcher of Instituto de Aclimatación de Almería (Institute of Climatic Research in Almeria). *Myrmosa moesica* Suárez, 1982 was described by him from Kaptaza, Zajecar in Serbia (SUÁREZ 1982).

Guido Nonveiller (5th June 1913 Fiume – 7th April 2002) According to: Ćetković et Pavicevic, 2008: "*Nonveiller lived adventurous life in several countries. During his long life, some of the places where he lived in the turbulent Balkan area, changed their official country affiliation. Hence, he lived in Austro-Hungary, Yugoslavia, France, Cameroon etc. Nonveiller's annotated biography sketched as follows: primary school studies in Fiume, later in Wien, high schools in Wien, later Split, university studies Faculty of Agronomy at University of Zagreb later at Belgrade University, Faculty of Agriculture in Zemun. First job at the Faculty of Agronomy and Forestry, University of Belgrade. He was soldier than officer in “Interbrigades” of the Spanish Republican Army, post-war internship and officer in the Resistance Movement in France. For a period, he was Yugoslav diplomatic representative in France (Lyon and Paris); founder and director of the Federal Institute of Plant Protection of Yugoslavia than professor of Entomology at the Faculty of Agronomy, University of Belgrade later head of the Plant Protection Service, Yugoslav Federal Ministry of Agriculture and Forestry. Nonvellier was also plant protection officer in Tunis; professor of Agricultural Entomology at l'Ecole Nationale Superieure Agronomique, University of Yaounde, Cameroon, he was engaged as a FAO expert for tropical crop protection. After his retirement, Nonvellier returned to his home in Zemun and to his summer house in Trogir. During the Yugoslav War, he spent 4 years as refugee in France.*" With **Franjo Perovic** (Symphyta specialist of Zagreb Natural History Museum) and **Gordana Gjerapic** (wife of Franjo Perovic), they completed a work, titled "*New data on the Mutillidae of Croatia, with a list of so far recorded species (Hymenoptera, Mutillidae)*". In this work, 23 Mutillidae species are

listed from the former Yugoslavia including its northern territories (NONVELLIER, PEROVIC and GJERAPIC 1998).

Jelena Grozdanović (Biological Institute, Beograd Yugoslavia) In her paper, titled "*Sphegidae okoline Beograda*" confirmed the presence of 53 Sphecoidea species in 22 genea around Belgrade (GROZDANOVIĆ 1957).

Svetislav Živojinović coleoptera specialist, faculty of Forestry, University of Belgrade. On 3rd of December 1966, Svetislav Živojinović, professor of forest entomology died. He was killed returning to his car from a business trip to Belgrade. Prof. Živojinović was born on 7th of August in 1907, in Zenta (Senta) where he finished his primary and secondary schools and graduated at Faculty of Forestry of Belgrade University. He specialized for applied zoology and entomology. After completing his military service, he became assistant in Forest Entomology of Agriculture and Forestry University In Belgrade. Svetislav Živojinović spent the war years in German captivity. After the war, he became assistant professor, associate professor and finally full professor of Forest Protection and Forest Entomology Department of the University of Belgrade, Faculty of Agriculture in Zemun. In 1963, the Serbian Academy of Sciences and Arts elected him to corresponding member. The title of his monograph is "*Fauna insekata sumske domene Majdanpek*" which includes Hymenoptera, Aculeata part as well with rich and detailed faunistic list (ŽIVOJINOVIĆ 1950). Majdanpek region is close to the Romanian border, on the southern projection of Carpathian Mts.

Jelena Pavlovič published the Vespoidea collection of the Natural History Museum Belgrade. She listed 12 species, some of them from the Southern border of the Carpathian Basin: Beograd, Obedska Bara (PAVLOVIČ 1958).

Anna Zacharova Osytshnjuk (originally: Hanna Kolmas, 25th September 1926 Bandurovka (next to Kirovograd) - 13th May 1998 Kiev). See her biography in the Soviet part of this monograph described *Andrena grozdanici* Osytshnjuk, 1975 from Beograd region.

Simeon (Sima) Grozdanić (15th February 1896 Svica – 1972 Belgrade) Apidologist. He was pupil of Sremski Karlovci (Karlóca) Highschool and graduated at Zagreb and Beograd universities. During the first world war Sima Grozdanić fought on the battlefields of Galicia, Poland and Russia. Returning home, he started to teach at Sremski Karlovci (Karlóca) High School where he became director either. For a year, he was manager of the Station of Apiculture in Vrbas (Verbász) than continued his career at Faculty of Philosophy and later at Faculty of Natural Sciences of Belgrade University as professor of zoology (see the entry on Gyula Szöllősi). Professor Grozdanić described *Apis mellifica* var. *banatica* Grozdanić, 1926 from the Carpathian Basin (Bánát). This species is not included in the list (species described from the Carpathian Basin) since, apiculture is not our topic. There is an other species that he described from the forest of Kosutnjak (next to Belgrade) but unfortunately he didn't give name this species, only he mentioned it as *Osmia* (*Helicosmia*) nov. spec. aff. *gracilicornis* Perez (GROZDANIĆ 1971a). Simeon Grozdanić studied the life history and ecology of *Vespa crabro* L., *Ceratina* spp. Latr., *Eucera excisa* Mocs., *Osmia rufohirta* Latr., *O. bicolor* Schr., *Xylocopa violacea* L., *X. valga* Gerst., *X. cyanescens* Br., *Osmia bidentata* Mor., *Anthophora pubescens* F., *Halictus malachurus* K., *H. maculatus* Sm., *Halictus asperulus* Pz., *Anthophora acervorum* L., *A. parietina* F., *A. crinipes* Sm., *Systropha planidens*

Gir., *Pompilus viaticus* L., *P. viaticus* L. *var paganus* Dahlb., *P. plumbeus* Fabr., *Cerceris rybyensis* L., *Tetralonia nana* Mor. and *Tetralonia lyncea* Mocs. (GROZDANIĆ 1965, 1968, 1969a, b, 1971a, b, 1972, GROZDANIĆ and VASIĆ 1965a, c 1967a, b, 1968, 1970, GROZDANIĆ and MUCALICA 1966, 1969, 1973, GROZDANIĆ and RADIVOJEVIC 1972). Simeon Grozdanić and Zivomir Vasić published in 2 papers on their entomological investigations around Belgrade in Rakovica and Kosutnjak and in their faunistic list, they published 25, in the other paper 22 Apoidea species (GROZDANIĆ and VASIĆ 1965b, 1966a).

Živomir Vasić (1925 Jakovlje (Aleksinac) – 9th February 1983 Beograd). Director of the Natural History Museum Belgrade. Živomir Vasić graduated at the Faculty of Sciences and Mathematics of Belgrade University and worked for few years at the Commission of Scientific Works of the Executive Council of SR Serbia and at the Secretary of the Committee for Biological Sciences, Council of Scientific Works SR Serbia. From 1961, he joined to the Natural History Museum Belgrad where he soon, became director. Vasić studied the life history and biology of *Halictus marginatus* Brullé, *Halictus quadricinctus* F., *Halictus scabiosae* Rossi, *Megachile sericans* Fonsc., *Vespula germanica* F. (VASIĆ 1966, 1967, 1968a, b, 1970, 1979a, b). He was also co-author of Sima Grozdanić (see him separately).

Zoran Mučalica full professor of Faculty of Agriculture of Belgrade University in Zenum (Zimony). Zoran Mučalica published a book on the pests and enemies of honey-bees (MUČALICA 2003). In this book he discusses the biology, life history and ecenomic importance of *Bombus* spp. Sphecoidea, Vespoidea spp. in the apiculture point of view (MUČALICA, 2003). He also studied the biology and life history of *Halictus fulvipes* Klug, *Sceliphron destillatorium* Ill., *Anthophora parietina* F. and *Megachile willughbiella* Kby. (MUČALICA 1968, 1979, 1987, MUČALICA and STANIVLJEVIC 2005). In few papers, he is co-author of Simeun Grozdanić.

Gyula Szöllősi (14th February 1926 Bajmok –), Gyula Szöllősi spent his childhood in Ludas. High school in Szabadka. Higher education: Újvidék (now Novi Sad) Pedagogical College later Beograd University, Faculty of Natural Sciences. Gyula Szöllősi is a hydrobiologist, naturalist, author of 7 books and 62 scientific papers published between 1955 and 2006. He is honorary citizen of Szabadka. Gyula Szöllősi started his career as biology teacher of Hungarian languages classes at Szabadka High School. Later, he was hydrobiologist at Szabadka Water Supply Management. From this position, he was appointed manager of Department of Hydrobiology of Szabadka Architectural Research Institute. He retired in 1990, as full professor of Department of Hydrobiology of Faculty of Architecture Sciences at Szabadka University. In 1990, before starting the Yugoslav Wars, Gyula Szöllősi moved to Hungary at first to Eger later to Szeged where he is living till now. On Aculeata and about the discovery of the Taubert collection, in his paper published in Bácsország, he wrote the following: "*I was a student of the Faculty of Natural Sciences and Mathematics of Beograd University when I was called by my professor, Dr. Sima Grozdanić at the end of his lecture. I was asked, if I knew the name of Alfred Taubert. "No, this is the first time I'm hearing this name" I answered. My professor told me, that he'd received an inquiry from Naumburg, from the famous entomologist Paul Blüthgen asking where was the Taubert collection and what'd happened with it. Professor Grozdanić knew, that I was from Szabadka and asked me to find the Taubert family and to learn whether the old Taubert was still in alive. I was happy to do this and visited the Taubert family in Szabadka. Unfortunately, for this time*

Alfred Taubert had died, I met his widow and his younger son living in their old family house. The collection was still intact and placed in its original place... I informed my professor and he reacted immediately expressing his intention to travel to Szabadka and check the collection personally..... His suggestion was that, if I return to Szabadka, and I willing to publish the collection, he would help to publish it. The task seemed to be enourmous but also magnificent, since there was no similar collection in town. I told everything to my college, Aleksandar Rafajlović, who worked for the museum as volunteer either. With his help, we transferred the collection to the museum and started to publish it which took 5 years besides our work in the highschool" (SZÖLLŐSI 2006). Gyula Szöllősi and Aleksandar Rafajlović published the Taubert collection in 2 papers (RAFAJLOVIĆ and SZÖLLŐSI 1958, 1963).

Aleksandar Rafajlović (1915 Szolnok – 13th June 2007 Szabadka (Subotica)) Biology teacher of the high school in Szabadka (Subotica). President of the Subotica local organisation of the Serbian Biological Society. His father worked for the Hungarian railway therefore the family moved frequently from place to place. His mother was Hungarian. After the Trianon peace treaty, the family moved to the Serbo-Croatian-Slovenian Kingdom. Aleksandar graduated at the Highschool of Szabadka (Szabadka State Highschool for Boys) in 1933 and continued his studies at the Faculty of Natural Sciences and Mathematics of the Belgrade University. He spent his full career at Szabadka Highschool as biology teacher and when was necessary, he also taught French language. Till 1980, he worked as voluntier for the Szabadka Museum. Besides the publication of the Taupert collection, he founded the ornithological collection of the museum as well. He had 2 daughters, all what we know about him is from a few lines from one of his daughter, Natalja Maglaic. He spent his last years in Dusan Petrovic street of Szabadka, and now, he rests in the Sétaerdei Orthodox Cemetery. Bogomir Milosevic wrote in his internet page titled: *index bio-bibliographicus notorum hominum Nonveilleriana The Bio-bibliographic Index of Names - Entomologists in Croatia*: " biolog, a Institut za biologiju Sveucilicta Novi Sad" (however this information is not confirmed, probably incorrect). Aleksandar Rafajlović wasn't specialised for Hymenoptera. Gyula Szöllősi was asked by professor Grozdanić to publish the Taupert collection. Gyula Szöllősi requested him to work in cooperation. The result of this cooperation is 2 papers. These papers are the first monograph on the Aculeata fauna of Serbian territories inside the former Yugoslavia (RAFAJLOVIĆ and SZÖLLŐSI 1958, 1963).

Alfréd Taupert (sometimes his name is written Taubert, 1879 Oravicabánya (now Oravica) - 1945 Szabadka (now Subotica). Teacher of Szabadka highschool. After his primary and secondary schools in his hometown, Alfred Taubert studied in Budapest University and graduated as biology and geography teacher. During his university years, he met **Sándor Mocsáry** and **Lajos Lóczy** (geographist, member of the Hungarian Academy of Sciences) who took him to his expedition to Dardanelles and to Thrace. After his graduation, Alfred Taupert started to teach at first in Dés, than in Petrozsény and from 1905 in Szabadka Highschool. In 1911, he was appointed the first curator of natural history collection of the Szabadka Museum which was freshly separated from the town library. During the WW2, he had to figth on the Russian battlefields. After his returning from the world war, Alfred Taupert was cruelly massacred by Yugoslav partisans in 1945. The Taubert collection contained approximately 25 000 Aculeata specimens of 789 species. They were originally stored in 29 boxes (sizes: 60x60, 60x70, 60x80 and 112x54 cm). The earliest date of his collection was 5th of July 1911 and the

last from August of 1944. The collection contains specimens mainly from Szabadka and it's surroundings but also many places of the former Yugoslavia and also from Hungary and Transylvania. Alfred Taubert planned to publish his collection, but his and his family's tragic death made it impossible. His collection was scrapped by the Museum because of *Anthrenus* infection. The collection was identified by Alfréd Taupert himself (probably with help of Paul Blüthgen). He published one scientific paper, which is discussed in the Hungarian part of this work.

Stjepan Krčmar (16th February 1965 –) Professor at Dept. of Biology of Osijek University, Diptera specialist. Stepjan Krčmar started his career, after his graduation in Osiek University, as primary school teacher in Macinec, later he worked for a secondary school in Zagreb where he was chemistry teacher. He continued his studies at Zagreb University, where he received his PhD in 1998. Stjepan Krčmar compiled the list of insect of Kopacky Rit Nature Park. In this list, hardly any Aculeata species are listed, only 2, namely *Cephalonomia nidicola* Szelényi, 1944 and *Vespa crabro* Linnaeus, 1758 (KRČMAR 2014). The first species were included on the basis of MIHALJEVIC et al. 1999 (**Melita Mihaljević** Dept. of Biology of Josip Juraj Strossmayer University in Osijek and her colleagues: **Darko Getz**, **Zdenko Tadić**, **Branka Živanović**, **Dragica Gucunski**, **Jasenka Topić**, **Irma Kalinović** and **József Mikuska**).

Aleksandar Ćetković (28th February 1961 Krusevac –) University of Belgrade, Faculty of Biology, entomologist, specialized for Vespoidea. Aleksandar Ćetković investigated the Kopaonik Mountains, Durmitor Mountains and provided the list of Vespoidea of these territories (southern region of the Carpathian basin) (ĆETKOVIĆ 1988, 1996). "*Taxonomic and biogeographical review of the social wasps (Vespidae, Hymenoptera), with special reference to the fauna of Serbia*" was the title of his graduating thesis at University of Belgrade (ĆETKOVIĆ 1985). In 2002, Aleksandar defended his PhD thesis titled "*Diversity of the social wasps in the Balkan Penninsula and the adjacent regions*" in the same institution. Furthermore, with co-authors, he has 3 papers on the recently introduced invasive Sphecoidea species providing faunistic data on their occurrence and distribution in the Southern parts of the Carpathian Basin. These species are: *Sceliphron deforme* Sm.*, S. curvatum* Sm. and *Isodontia mexicana* Saussure (ĆETKOVIĆ, RADOVIĆ and DOROVIC 2004, ĆETKOVIĆ et al. 2011, 2012).

Ozren Polašek (1979 Bjelovar –) Doctor of medicine, researcher, project leader "10001 Dalmatians", head of the Department of Public Health at the Medical School in Split. About himself "*In high school I was involved in the research of insects, especially wasps, which I published in my first scientific paper in an Austrian scientific journal. But then it was time to enter college and despite my love of zoology, I enrolled at the Faculty of Medicine in Zagreb*". Dr. Polašek graduated at the Zagreb University School of Medicine in 2003 and worked on his PhD thesis at the same institution which was completed at University of Edinburgh, UK in 2009. He currently works for the Medical School of Split University as an assistant professor of public health. He is also Director of the Croatian Center for Global Health. Ozren Polašek published 2 papers on Vespoidae. One on *Polistes sulcifer* Zimmermann (POLAŠEK 2000) and the other on the variability of *Polistes dominulus* (Christ, 1791) in Croatia (POLAŠEK 1997).

Raymond Wahis Belgian entomologist. He lives in Chaudfontaine, Belgium. In publication, Raymond Wahis has been active since 1948. He is specialized for Pomilidae. *Pepsis wahisi* Vardy is dedicated to his honor. He is member of editorial board of

Faunistic Entomology and research associate at Faculty of Agricultural Sciences, Functional and Evolutionary Entomology Unit of University of Liége. In one of his publication, titled "*Nouvelle contribution a la connaissance des Hymenopteres Pompilides de la Yougoslavie*" he provides valuable faunistic data on the Southern part of the Carpathian Basin (WAHIS 1970). Raymond Wahis in this paper published distribution data of 67 species from various places of the former Yugoslavia. These data are dominantly from the Southern regions, but we may find high number of data from the northern or middle territories like Bánát, Podcetrtek, Kranjska Gora, Slovenska Bistrica. In the end of the paper, Wahis provided the check list of Pompilidae of Yugoslavia, including those, which he'd already recoded in his previous paper on the Pompilidae of Yugoslavia in 1963 (WAHIS 1970, 1963).

Andrej Gogala according to his self-biography "*Slovenian Museum of Natural History, Ljubljana. Born in 1962 in Ljubljana. Primary and secondary school in Ljubljana, graduated in June 1981 at the First high school Ljubljana-Bezigrad. Studied biology - research and technical direction at the Biotechnical Faculty of the Ljubljana University, graduated in May 1987. PhD in Biological Sciences in 1997 at the Biotechnical Faculty. Doctoral dissertation: Wild bees of Slovenia: faunistic, biogeographical and ecological analysis. In September 1992, he performed an internship at the Natural History Museum of Slovenia in Ljubljana. Since 1997, the curator of Entomology. He is a member of the Slovenian Entomological Society and editor of the journal Acta Entomologica Slovenica. Explores the Slovenian fauna of true bugs (Heteroptera) and wild bees (Apoidea)*".

Andrej Gogala has 3 important monographs and their additions, namely "*Contribution to the Knowledge of the Bee Fauna of Slovenia (Hymenoptera: Apidae)*" first and second parts, "*Bee Fauna of Slovenia: Checklist of species*" (in this work, Gogala provided zoogeographic map of Slovenia, in which the alpine, subalpine and prealpine regions are part of the Carpathian Basin) (GOGALA 1991, 1994, 1999, GOGALA and JENICE 2003). In the "*Some interesting notes of the Andrena species in Slovenia*" and "*Megachilid bees of Slovenia*" the distribution data are completed with distribution maps (GOGALA, 2011, 2014). Gogala with **Aljaz Jenic** and **Janez Grad** recorded firstly *Bombus haemturus* Kriechb. from Slovenia and provided its distribution in the Southern part of the Carpathian basin inside Slovenia (JENIC et al. 2010). In his monograph, titled "*Sphecid wasps of Slovenia*", he recorded 118 species with their places of capture (GOGALA 2011) and he reported the invasive Sphecoid wasps from Slovenia, namely *Sceliphron curvatum* (Smith, 1870) and *Isodontia mexicana* (Saussure, 1867) either, one of them from Gancani (North Slovenia) the other from Ljubjana (Central Slovenia) (GOGALA 1995). He provided Slovenian data for the paper on the distribution of *Colletes hederae* Schmidt & Westrich in Veckeen et al. 2009. Co-authors of Andrej Gogala: **Par Nicolas J Vereecken** Evolution Biologique & Ecologie, Université Libre de Bruxelles; **Hans Schwenninger** Büro Entomologie und Ökologie Stuttgart; **Stuart Roberts** Center for Agro-Environmental Research (CAER), School of Agriculture, Policy and Development, University of Reading, UK.; **Aljaz Jenic** (Aljaž Jenič) entomologist, living in Ljubjana works for Fisheries Research Institute of Slovenia and **Janez Grad** 1933 Ljubjana - , professor of Faculty of Natural Sciences and Mathematics of Ljubjana University.

Miloje D. Krunić, Hymenopterist, apoidea specialist. In 1971, he spent a research period supported by a postdoctorate fellow from the National Research Council of Yugoslavia at Lethbridge Research Station at Alberta, Canada. Ten years later, between 1981 and 1983 he was head of Department of Zoology of Belgrad University. Professor

Miloje Krunić prematurely retired in 1997, following the university protests in Beograd after invalidating of the 1996/97 municipal elections. Professor Miloje Krunić with his co-authors studied 2 important wild bee pollinators of Serbian orchards, namely *Osmia cornuta* (Latr.) and *Osmia rufa* (L.) in all aspects of their life history, like diapause, overwintering, distribution, population management etc. (KRUNIĆ et al. 1997b, 1998, 2001, 2006, KRUNIĆ and STANISAVLJEVIĆ 2006a, b,c). The other pollinator bee species he studied was *Megachile rotundata* Fabricius (KRUNIĆ et al. 1995, 1997a). He is co-author of a paper, titled "*New and little-known species of digger wasps (Sphecidae Hymenoptera) in the fauna of Yugoslavia"* (RADOVIĆ et al. 1982).

Ljubiša Stanisavljević (5th March 1969 Leskovac –) He attended the primary school in Vucje and secondary school at the high school of Leskovac. Before his military service in 1987, he enrolled as full time student at the Faculty of Biology, University of Belgrade and graduated in 1994. Ljubisa Stanisavljević received job at the Institute of Zoology, Faculty of Biology of Belgrade University. He completed is PhD studies in 1996 and 4 years after he received his PhD title. He became assistant professor at the Department of Morphology, Systematics and Phylogeny of Animals Faculty of Biology. Now, he is associate professor in the same institute. With **Nebojsa Nedić**, (Faculty of Agriculture, Belgrade University in Zemun) they published a paper on the role of bees in Orchard pollination in Serbia (STANISAVLJEVIĆ and NEDIC 2008). **Ljubiša Stanisavljević** is co-author of **Miloje D. Krunić** in further further 7 papers in which they studied *Osmia cornuta* (Latr.) and *Osmia rufa* (L.) as important wild bee pollinator of Serbian orchards (see also the entry on Miloje D. Krunić).

Ivica T. Radović (1950 Risan in Montenegro –); Ivica Radović after his primary and secondary school in Kotor, Montenegro, graduated at the Department of Biology, Faculty of Sciences, University of Belgrade. He completed his PhD thesis at Smithsonian Institute Washington. Now, he is full professor of Faculty of Security Studies, University of Belgrade. From last year, he is the dean of the faculty. Ivica Radović participated in several hymenopterological projects. In Vespidae faunistic, he published a paper with Aleksandar Ćetković on the altitudinal distribution of the Serbian social wasp fauna (ĆETKOVIĆ and RADOVIĆ 1996). The other 2 papers of him deal with Sphecoidea, one of them, with the invasive *Sceliphron caementarium* Drury (ĆETKOVIĆ, RADOVIĆ and DOROVIĆ 2004) in the other paper, they publish new Sphecoid records for the fauna of the former Yugoslavia (RADOVIĆ et al. 1982). In this paper, most of the species are reported from the sea-side only *Cerceris ruficornis* F. is reported from Globulac, southern part of the Carpathian Basin. He is also co-author in one paper, studying the diapause of *Osmia cornuta* (Latr.) (KRUNIĆ et al. 2001).

Miloe M. Brajković (21st February 1949 Tovrljani – 4th April, 2010 Belgrade) Braconidae specialist. After his primary and secondary school studies in Prokuplje he graduated at University of Belgrade. After his graduation, he was appointed Curator at Belgrade Natural History Museum. From 1980, he started his university career at the Department of Morphology, Systematics and Phylogeny of Animals in the Faculty of Biology. For a 4 years period, he served as president of the Entomological Society of Serbia and he was member of the Editorial board of Acta Entomologica Serbica either. Miloe Brajković is co-author of 4 papers on *Megachile rotundata* Fab., *Osmia cornuta* (Latr.) and *Osmia rufa* (L.) (KRUNIĆ et al., 1997a,b, 1998, 2001) and co-author in 1 paper on the Sphecoid fauna of Serbia (RADOVIĆ et al. 1982).

Srdjan Sušić Senior Expert for Sustainable Growth at Regional Cooperation Council, REC Belgrade. In his work, titled "*Fauna bumbara (Apoidea, Hymenoptera) borskog podrucja, Projekat Ekoloka istraivanja Borskog podrucja*", he investigated the bumble bee fauna of the south-western projections of Carpathians close to the Romanian border around Bor (SUŠIĆ 1994). Srdjan graduated as Bs.C. in Belgrade University and got his M.Sc. at London School of Economics and Political Science in 2005-2006. He is active in sustainable growth projects.

Ronald Burger Apoidea specialist of Neustadt Pollichia. It is an entomological work-group, research and nature conservation club focusing for Rheinland-Pfalz. Ronald Burger has one paper on the apoidea fauna of Serbia. In Burger 2010, he wrote: "*I found Colletes hederae Schmidt & Westrich, 1993 in the province of Vojvodina, Serbia. This species had never been found previously in this country and this record indicates that this bee is likely to be more widespread in Southeastern Europe than previously thought.*".

Zsolt Józan (for his biography see the Hungarian part) identified pollinator hymenoptera species for a project on the investigation of the pollinator fauna of Serbia. Their scientific output is titled "*Pollinator diversity (Hymenoptera and Diptera) in semi-natural habitats in Serbia during summer*" (MUDRI-STOJNIĆ et al. 2012). In this paper, he identified 56 pollinator wild bee species from 16 semi natural sampling points in Serbia. Zsolt didn't participated in the field works. His coauthors are: **Sonja Mudri-Stojnić** Department of Biology and Ecology, Faculty of Science, University of Novi Sad, Ph.D. student. This is her first paper on Hymenoptera. She was personally in Mernye, Kaposvár and Budapest. Her mother is Hungarian, therefore she speaks Hungarian very well. She was together with Ante Vujic in Hungary. **Andrijana Andrić** Department of Biology and Ecology, Faculty of Science, University of Novi Sad, young researcher, published few papers on genus Merodon (Diptera: Syrphidae) and Ornithogallum sp. She is not specialized for Hymenoptera. **Ante Vujić** (1960 Becej –) Department of Biology and Ecology, Faculty of Science, University of Novi Sad, PhD. in Biology, Faculty of Sciences, Department of Biology and Ecology, University of Novi Sad, Serbia, in 1992. Ante Vujtic is full professor of Environmental Protection, Department of Biology and Ecology, Faculty of Sciences, University of Novi Sad (research interests: environment protection, conservation biology, endangered species, protected areas). He specialized for Diptera.

History of the Aculeata research in the Romanian part of the Carpathian Basin from 1920

Alfréd Taupert (sometimes his name is written Taubert, 1879 Oravicabánya (now Oravica) - 1945 Szabadka (now Subotica). Teacher of Szabadka high school and martyr of Yugoslav partisans. He spent the July of 1911 in Herkulesfürdő (Herkulesbad) where he collected high amount of Aculeata species. He planned to published them but his and his family's cruel execution by the partisans made it impossible. The Taubert collection was published in 1958 and 1963 by **Aleksandar Rafailovic** and **Gyula Szöllősi** (RAFAILOVIC and SZÖLLŐSI 1958, 1963). See their biographies and the story of the Taupert collection in the Serbian part of this monograph.

Karl Wilhelm Knechtel (10th October 1884, Bucharest – 8th March 1967, Bucharest). Knechtel was Romanian entomologist of german ethnicity, professor at the Faculty of Agronomy, Bucharest (1940), member of the Romanian Academy (1955). He is recognised as founder of the Romanian school of agricultural entomology. In 60 years of intense efforts, Knechtel organised the research of teoretical and applied entomology. His research focused on faunistic, systematic and zoogeographical studies on Thysanoptera, Orthoptera, Coccidae, Formicidae, Vespidae, Apidae and also on the biology and ecology of pests attacting cereals, fruit trees, ornamental plants, etc.

His interest in the field of hymenoptera covers faunistic and systematic research on genera *Bombus* and *Psithyrus* of Romania publishing the first identification key for these genera in the academic series "*Fauna R.S.R.*" (KNECHTEL 1955). He investigated the species of genera *Bombus* and *Psithyrus* of Bucegi Mountains (KNECHTEL 1939), Dobrogea region (KNECHTEL 1962) and published an extensive zoogeographical and ecological study on tribe Bombini living in Romania (KNECHTEL 1954). He also published data regarding bumble bees from Singeorz – Bai (KNECHTEL and PARASCHIVESCU 1962), Peţea (KNECHTEL 1963) (Transylvania) and established valuable collection of wasps and bumble bees containing rare species at European level.

Raymond Benoist (10th June 1881 Vendresse – 17th January 1970) Benoist graduated and doctorated in botany at Paris University. After his graduation, his first job was at the École Pratique des Hautes Études. In the following years, he worked in French Guyana to study tropical forests, leaded 2 scientific expeditions for the Paris Natural History Museum and also for the Institut Scientifique Cherifien de Rabat (Morocco), taught botany at the medical school in Quito in Ecuador. After his return back to France, he was appointed deputy director at Paris Natural History Museum. later he was nominated head of research at National Scientific Research Center and finally, he served as director of botanical services at the Madagascar Scientific Research Institute. In 1947, he was elected president of the French Botanical Society. Besides botany, he studied Hymenoptera as well. In 1929, Benoist described *Osmia jason* Benoist, 1929 from Comana Vlasca (Vlasca county) South-Eastern border of the Carpathian Basin (BENOIST 1929).

Alin Constantinescu (1945-46? –) Constantinescu was member of the technical staff (his duty was mounting insects) of the Natural History Museum "Grigori Antipa" Bucharest, who specialized for Apoidea, and studied Microlepidoptera either. He graduated the Faculty of Biology-Zoology in 1970 and left Romania in 1975 for the USA, Los Angeles. He worked approximately 4 years at Antipa Museum. He was born in 1945 or 1946. When he arrived to the USA, he changed his name to Alyn Constau or Constand. His publication activity restricted to the 70's. We find data for the Carpathian Basin in his monograph on the *Nomioides* Schenck bees of Romania (CONSTANTINESCU 1974).

Ioana Matache (27th April 1943 Murfatlar Basarabi –) Colletidae and Megachilidae specialist of Natural History Museum "Grigori Antipa" Bucharest and also deputy director of the Museum. For now, she is retired. She was responsible for the reorganization and the modernization of the museum for the 100 years anniversary of it's foundation. Ioana graduated at Faculty of Biology of Bucharest University and started her career as biology teacher at the Agricultural-Industrial High-School in Fundulea. After 10 years teaching, in 1976, she joined to “Grigore Antipa” National Museum of Natural History. After 23 years work for the museum, she was appointed deputy general director of the institute. During her management of the Hymenoptera collection, she greatly increased

the collection with 25 thousand specimens of 2319 species from Romania and 2086 specimens of 1212 species from abroad. She is member of *Societatea Romana de Entomologie Generala si Aplicata (SOREGA)* [Romanian Society of General and Applied Entomology], *Societatea Lepidopterologica Romana (SLR)* [Lepidopterological Society of Romania] and *Asociatia Muzeografilor Naturalisti din Romania (AMNR)* [Association of the Natural History Museologists of Romania]. From her numerous paper, we discuss here only 2, the others focus on Dobrodgea and Bucharest region. With **Van Der G. Zanden**, Ioana Matache compiled the monograph of leafcutter bees of the collection of "Grigore Antipa" Natural History Museum (ZANDEN and MATACHE 1986). Her other important paper, which she completed with co-authorship of **Alexandra Florina Levarda** (Alexandra Florina Levărdă, (molecular biology laboratory of Natural History Museum "Grigori Antipa" Bucharest, mollusca specialist), is the catalogue of Romanian Sphecidae (Hymenoptera: Apoidea: Sphecidae) from the Collection of "Grigore Antipa" National Museum of Natural History (LEVARDA and MATACHE 2016).

Gijs van der Zanden (8th June 1915 Amsterdam – 22nd February 1999 Eindhoven) "*Completely unexpectedly, Mr G. van der Zanden died on 22 February, 1999 at his home in Eindhoven from a heart attack. He was born on 8 June, 1915 in Amsterdam; his youth was troubled by the early loss of his father. After finishing the Technical College in Amsterdam he was employed by the Philips company and soon he had management position within the company. His passion for bees started in 1950 when he was forced to stay in bed, because of hernia. Through reading the "Souvenirs Entomologiques" by the famous French entomologist J.H. Fabre, he got life-long interest in Hymenoptera-Aculeata especially Megachilinae. After a successful career, which took him to many places all over Europe, he retired at the age of 58. For 25 years, till the age of 83, he worked with an admirable persistence on the Palaearctic Megachilinae. The result is a large number of publications, some reviews, the descriptions of several species new to science, honorary staff membership of the National Museum of Natural History at Leiden and very importantly, a large and completely identified collection. His collection is an important integrated part of the collection of Hymenoptera in the National Museum of Natural History at Leiden.*" Van der Zanden with co-autorship of **Ioana Matache**, completed the catalogue of megachilid bees of the Natural History Museum Bucharest (ZANDEN and MATACHE 1986).

Károly György Nagy; Carol G. Nagy; Qabir Argaman (15th January 1940 Nagyvárad (now Oradea) – October 2003 Israel). Károly finished the Hungarian College of Nagyvárad and continued his studies at Babes-Bolyai University, Faculty of Biology. After his graduation he spent 13 years at "Marine Research Station" of Agigea. This time, he received a Hungarian scholarship and he was able to study in Szeged at Miklós Móczár. He doctorated in natural sciences at Iasi University. In 1981, through his marriage, he emigrated with his family to Israel and changed his last name first to Grossman and then to **Qabir Argaman**. Argaman worked for the Israeli Ministry of Agriculture, specializing in plant protection and pest control. He was university lecturer either and became curator of the entomological collection of the University of Tel Aviv in Bet Dagan. In his new hometown in Israel, Károly was elected Vice President of the Association of Hungarian-speaking citizens. About the types of Károly Nagy we have one source, published by Marcello Romano: "*Unfortunately, after his death, as I was told by Laibale Friedman, curator of the collections of the Museum Tel Aviv University, the collection has been broken up and partly sold to private by the heirs, partly left at the Ministry of Agriculture, where Argaman worked. However, as I was informed later from Dr. Friedman: for some unknown reason,*

Argaman removed labels from part of the specimens including types, leaving them without any label." We have other resource from him from the kindness of **Dr. Bogdan Tomozei** and professor **Ionel Andriescu**: "*Professor Andriescu was the director of Marine Biological Station of Agigea, until 1970. He said that in that time, Károly Nagy was a student at University of Cluj-Napoca and very interested in entomology, especially in Aculeata group. Professor dr. Ionel Andriescu allowed him to study Aculeata and investigate the sand dunes, where he found very interesting faunistic elements with many new records for Romania. After graduation, due to its special passion for Entomology, Prof. dr. Ionel Andriescu employed him at Marine Biological Station of Agigea (1967 or 1968). Before he left to Israel, he changed his name to Carol (Karol) Grossman and when arrived to Israel he changed his name again to Hebrew name: Quabir Argaman. He worked for the Plant Protection Department, Bet Dagan, Israel. It seems, he took the Aculeata collection with him to Israel. Probably his collection is still there.*" About his years in Israel, a short letter of him to the editors of Sphecos, provides valuable information: "*I am now working on the Catalog of Palaearctic Hymenoptera. I asked Dr. Gordon Gordh for cooperation on Bethylidae, Dr. Borge Peterson for the Scoliidae, and Dr. Kurzenko on Sapygidae. However many authors on the original list of Dr. Papp have not answered positively. During the summer, I searched so much for other Heterogyna unsuccessfully. Dr. M. Day has told me that only with the help of Malaise trap can they be collected, but I possess no such trap. However, I collected many specimens of Miscophus Jurine, some of them elegantly colored, like chrysidids, ampulicids, but without Andrade's work on the Mediterranean Miscophus, I can not identify them. During recent years visiting scientists were here such as Chris O'Toole, D. Brothers and G. Nonveiller, all studying Mutillidae. I have an incomplete collection of Israeli Mutillidae, as a few years of work here are insufficient to collect all of them. The problem is subsequently complicated by the fact there always exists the danger of being killed by a terrorist if one collecting mutillids "on four legs" is concentrating on a special biotope and is "out" from the environment. Thus must someone near him as is customary. Consequently, the regulations prescribe that a "high functioner of the Goverment*" - *I am? - must carry a 37' magnum during field work. Do I pay it? Owing to the fact that our son David was born a year and a half ago and my daughter Naomi is seven years old, the last 2 years we have made no trips to the natural reserves, but collect only in city parks or gardens, so am I handicapped with the Mutillidae. In the Department there was no insect collection or library at all. I began a small one with about 5000 specimens now of identified Coleoptera, Lepidoptera, Orthoptera, Hemiptera and Homoptera, all represented by one pair for subsequent comparison because I have no pins and boxes for a large collection yet, but I hope to get some boxes for them in the next year."* The following species were named to his honor: *Idiasta argamani* Papp, 2012, *Chelonus argamani* Papp, 2012, *Synaldis argamani* Fischer, 1993 and *Argamania aereus* Papp, 1989. During his years in Romania, Károly Nagy described 8 Myrmillidae and Bethilidae species from the Carpathian Basin, see the list separately (NAGY 1968e, 1970). In his early works, he studied the scolitid wasps and velvet ants recording numerous species from Transylvania (NAGY 1965, 1966b, 1970d, NAGY and STAMP 1966). The other group, that he intensively studied was Bethylidae. In faunistic point of view, his following papers contain several valuable records: NAGY 1966a, 1967c, d, 1968a, b, c, f 1969, 1970a, b, c. In one paper, he investigated bethylid wasps in point of view of biological control: "*Bethylidae (Hymenoptera) parasitizing orchard caterpillars*" (NAGY 1976). Also, he summarized his studies and results on bethylid subgenus Mesitiinae (Argaman, 2003). In this work we may find high number Hungarian and smaller number Romanian (Transylvanian) faunistic data of various species.

Stefan Negru (27th January 1923 Epureni – 21st November 1970). Researcher at the Zoological Station of Sinaia, later at Grigori Antipa Natural History Museum in Bucharest, Chrysididae and Cleptidae specialist. Stefan Negru studied at the Faculty of Forestry at Polytechnic Institute of Bucharest. After his graduation, he was appointed teacher-researcher at Forestry Research Institute. Other stations of his career were the Department of Zoology at Faculty of Forestry of Bucharest Polytechnic Institute, Forestry Research Institute of Cimpulung Moldovenesc, Institute of Forestry in Brasov (Brassó), Zoological Station Sinaia. Finally, in 1963, Stefan Negru joined to the Natural History Museum Bucharest. He published the Chrysididae collection of the Kolozsvár (now Cluj Napoca) University (NEGRU 1960) in which high amount of valuable faunistic data were provided (193 specimens of 56 species). Only sporadic data on cuckoo wasps we may find in NEGRU 1955, 1957, 1959 and 1963 from Transylvania, Hungary and the Carpathian Mts.

Victoria Iuga-Raica (23rd April 1900 Tulcea – 1991-1992?) She received her teacher degree at Bucharest University, Faculty of Natural Sciences. After her graduation, she remained at the university, where she became professor. In 1929, she defended her PhD thesis titled "*L'excrétion par l'entremise des chromatocites chez les invertebrates*". In the same year, she started her activity (parallel with her university occupation) at the Natural History Museum Grigori Antipa. In 1940, she decided for the Museum and left her university position. Victoria Iuga-Raica became the first head of entomological department. In the hardest years of the museum, between 1944 and 1947, she worked for restoring and rearranging the systematic collection of the museum which was destroyed by the bombardment. Victoria Iuga Raica has 3 important books and monographs on Anthophoridae and Apidae bees on the fauna of Romania in which we find valuable data on the Carpathian Basin and Romanian Carpaths (IUGA 1944, 1958, 1960). One of them is the Anthophorinae part of "*Fauna Republica Socialista Romania*".

E. V. Sanduléac (Central Research Station for Sericulture and Apiculture, Bucarest-Baneasa, Statiunea Centrala de Cercetari pentru Sericicultura si Apicultura). In his paper, "*Les insectes anthophiles Romanie*" Sanduléac provides a short analysis on the pollination activity of various Apoidea species of the Carpathian-Danube region in genera *Bombus, Halictus, Andrena, Anthophora, Megachile, Eucera, Tetralonia, Osmia* and *Colletes* comparing the Hungarian data with Romanian (SANDULÉAC 1966).

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Xenia Scobiola-Palade (12th January 1911 Moseni – ?, curator of Hymenoptera of Grigore Antipa Museum, Bucuresti, Symphyta and Aculeata specialist). She graduated at University of Iasi at the Faculty of Natural Sciences. After few years practice as high school teacher in Falesti, she was employed by the Kisinau Museum as preparator. From 1945, she worked for the Natural History Museum Grigore Antipa in Bucharest where she became, after one and half decade, head of Department of Entomology and later deputy director of the museum. After 21 years service, she retired but still continued her scientific activity.

Xenia Scobiola-Palade with Victoria Iuga – Raica (head of the Entomological department of Grigore Antipa Museum, Bucuresti) established the Hymenoptera collection after the Second World War cooperating with Romanian and foreign specialists. **Victoria Iuga - Raica** suggested the acquisition of Hymenoptera collection of **Eugen Worell** (doctor of medicine in Sibiu). Thus, in 1953, they established the comparative Hymenoptera collection and the museum's collection was enriched with 758 Hymenoptera species and subspecies. Xenia Scobiola-Palade intensively studied the aculeata fauna of Transylvania and the Romanian Carpathians and published the most interesting Sphecoidea specimens from the collection of G. Antipa Museum, the Brukenthal

Museum in Sibiu (Nagyszeben) and completed the Sphecoidea part of the series titled *"Fauna Republica Socialista Romania"* (SCOBIOLA 1950, 1951, 1954, 1960a, b, 1965, 1967, 1968, 1971, 1974). Later her scope of research expanded to the Pompiloidea and Vespoidea fauna of Romania, including Transylvania (SCOBIOLA 1967, 1973). In her late years, her interest turned to Apoidea and with co-authorship of **Klaus Warncke** she completed the fauna-catalogue of *Andrena* species of Romania including numerous valuable faunistic data from Transylvania (WARNCKE and SCOBIOLA 1980). With **Anna Zacharowa Osythsnjuk** she completed the fauna-catalogue of genus *Halictus* as well (SCOBIOLA and OSYTHSNJUK 1974). Her works based on her personal collectings, the material of the natural history collections in Romania and she were also twice in Budapest (in the early 70's) to study the Transylvanian hymenoptera collection of the Hungarian Natural History Museum as well.

Dinu Aurel Sever Paraschivescu (6th September 1931 Bucharest – May 2001 Bucharest) Dinu Paraschivescu graduated at "Oituz" Theoretical High School in Bacau. After two years attending the Pedagogical Institute of Bucharest he returned to Bacau, where he taught for a while and continued his university studies in Biology again in Bucharest graduating in 1955. His first job was at the Academy Institute of Agronomic Research – Phytopathology Department, under the management of Traian Savulescu. After three years, he joined to the Taxonomy and Ecology Department under the supervision of Mihai Ionescu and Wilhelm Karl Knechtel. In 1965, Dinu Paraschivescu defended his PhD Thesis, titled "*Systematical, ecological and ethological research on some ant species from Romania*". In 1967, he received the "Al. von Humbold" scholarship at Würzburg Z.I. under the scientific supervision of Karl Goswald. He was honorary member of the German Zoological Society, the Forest Health Society of Bavaria and the International Union for the Study of Social Insects. Besides myrmecology, D. Paraschivescu also researched wasps, compiling the list of 49 Vespoidea species of Romania. He also studied bumble bees. Paraschivescu published more than 120 scientific papers. Due to his sudden death in May 2001, he never finished his last monograph: ants and wasps in the series Fauna Romania. Although his main field of research were ants, we know few papers of him on other Aculeata including faunistic data from the Carpathian Basin. With **Karl Wilhelm Knechtel**, **Arascu Raicev** and **Aristia Goaga** they published the bumblebee fauna of Singeorz-Bai, Oradea county (Arad megye) and Bacau county (KNECHTEL and PARASCHIVESCU 1962, PARASCHIVESCU and GOAGA 1994, PARASCHIVESCU and ARCASU 1977). **Cristian Raicev Arcaşu** was poet and in some works co-author of Dinu Paraschivescu.

Vasile Berbece (12th December 1939 Calimanesti – 22nd October 1995 Calimanesti). Vasile Berbece started his career in the high school in Daesti, later, he became professor of the Calemanesti High School of Economics, finally, he worked in Ramnicu Valcea, at the University of Management and Marketing "Constantin Brancoveanu". Although he was professor of geology, he published several scientific papers on zoology: not only on Hymenoptera, but on Coleoptera, reptiles and even on the Carpathian scorpion as well. Furthermore, he published even on botanics and vegetation (Muntelui Cozia). Berbece completed a paper on the Bumblebee fauna of Gyilkos Lake (Lacu Rosu) and Tordai canyon titled "*Contributii la studiul raspandirii bombinelor – Hymenoptera din rezervatiile naturale Cheile Turzii si Lacul Rosu*" (BERBECE 1961).

Elena - Mariana Aftene (10th January 1939, Ploiesti – 19th February 1998, Ploiesti) was curator at Museum of Natural Sciences Ploiesti. She specialized for Megachilidae

and intensively researched Prahova County, publishing species from Teleajenului Valley, Southern Carpathians. In 1972, she published a checklist of family Megachilidae from Romania in which she listed 89 species and 8 variations. Mariana Aftene also studied the Megachilidae collection of the "Gr. Antipa" Museum of Natural History, Bucharest publishing 4 new records for Romanian fauna. In 1996, she defended her PhD thesis at the "Al. I. Cuza" University of Iasi, titled "*Contribution to the study of family Megachilidae (Insecta: Hymenoptera: Megachilidae) from Romania*" including 22 species recorded firstly for the Romanian fauna. She had several papers, in which we may find faunistic data from the Carpathian Basin (some of them from the very South-Eastern margin of Carpaths) from the valley of river Teleajen, Prahova county and Moldavia (AFTENE 1972, 1973, 1976 and 1979b). She also published the Apoidea collection of the Ploiesti Museum of Natural Sciences (AFTENE 1979a).

Goagă (Dima) Aristita (11th July 1942, Onesti, jud. Bacau –). Curator at the "Ion Borcea" Museum of Natural Sciences Bacau between 1969-2002, and she was head of scientific department between 1992 and 2002. Her research was focused on family Halictidae from Moldova region, although she collected and studied material all around Romania. In 1972, she published the first synthesis of Halictidae species of Romania based on compiled literature and personal research in the series "*Fauna Republica Socialista Romania*" (GOAGA 1972). She was particularly interested in Halictid bees as polinators of alfalfa and sunflower (GOAGA 1974, 1998, 1999b). The title of her PhD thesis was "*Bio-ecological study regarding population of wild bees from family Halictidae and their importance in pollination of crops and wild flora from Romania*" (GOAGA 1999a). In her thesis, she completed a lists of 125 species collected from various localities of Romania, 14 species were new records. Her faunistic works include papers on the Apoidea collection of Oltenia Museum, Ceahlau Masiv (Csalhó Mts.), Bisceriani in Nemat county, South West Romania, Bacau district, Moldavia (GOAGÁ, CHIMILIU and TOMOZEI 1999, GOAGA and TOMOZEI 1997, 2000a, b, 2002, GOAGA, 1974, 1983, 1992, 1994, 2003, PARASCHIVESCU and GOAGA 1994). Aristitia Goagá has 2 papers in which she discusses the distribution of *Halictus marginatus* Brulle and *Halictus sexcinctus* F. providing distribution data from the Carpathian Basin either (GOAGA 2000, 2002).

Simona Fesci studied bumble bees from southern Carpathin Mts. She graduated in geography, but later she completed her PhD thesis in ecology of bumble bees from Cîndrel Mountains. Simona Fesci specialized for genera *Bombus (*including *Psythirus)* and *Xylocopa* providing valuable faunistic data from the Carpathian Mts. including Cindrel Mts. (Szebeni Mts.) (FESCI 1971, 1972, 1973, 1979, 1980, 1984a, b).

Mariana Pascu (1951-2011, curator of Hymenoptera, Brukenthal Museum Nagyszeben-Sibiu and assistant director for a period either). Important work of Mariana Pascu for the fauna of the Carpathian Basin is her series of papers in which she published the Aculeata collection of Sibiu (Nagyszeben) Museum (PASCU 1979, 1996, 1984, 1996b, 1997a, 2004, 2006, 2007). Additionally, she has 3 faunistic papers on the wild bee fauna of Sibiu (Nagyszeben) Basin (PASCU 1994, 1996a, 2001). With Dr. **Eckbert Schneider**, they published a common paper on the Schneider entomological collection, as they wrote: "*The Dr. Eckbert Schneider collection includes over 20000 pieces of insects, collected from all over the country and mainly from southern Transylvania.*" (PASCU and SCHNEIDER 1998). The Eckbert Schneider (former curator of Sibiu Museum) collection was donated to Sibiu (Nagyszeben) Museum in 1985.

Mariana graduated at Babes-Bolyai University of Sciences in Kolozsvár (Cluj Napoca) in geology and biology. From 1976, she was employed by the Natural History Department of the Nagyszeben (Sibiu) museum and she worked also for the Heritage Protection Committee (Oficiul de Patrimoniu). She defended her doctoral thesis in 1997, titled "*Taxonomy, ecology and faunistics of Apoidea of the Nagyszeben (Sibiu) Basin*" at the Babes-Bolyai University, her scientific consultant was Prof. Tomescun Nicolae. According to information of Lajos Zombori (Symphyta specialist, former curator of the Natural History Museum Budapest) and László Lőrinc (biologist and zoologist, Nagyenyed Museum, now Oradea): Mariana Pascu was a lovable person with great soul and heart. Mariana died in sclerosis multiplex in 2011, she suffered lot, but till her last moment, she worked and mentally was fresh. Her last years was very hard, not only her mother died but her partner left her and emigrated to the states. According to the letter of László Lőrinc "*when I was at the museum in Sibiu in 2010, she was in very bad condition, she was very skinny and suffered from imbalance but her mind was absolutely intact, and still worked. We miss her very much. Rest in peace- Pax sepulcrum!*". Her mother was Hungarian and she spoke both languages (Hungarian and Romanian).

Libor Dvořák (Libor Dvořák, Malacologist, Dipterologist and Hymenopterologist). Curator of Mestské Muzeum, Mariánské Lázne. He recorded firstly *Dolichovespula adulterina* (du Buysson, 1904) from Borsa (DVOŘÁK 2006b).

Denis Michez (Mons-Hainaut University, Laboratoire de Zoologie, Belgium) and **Connal Eardley** (Plant Protection Research Institute, Pretoria, South Africa) mention only 1 original data of *Melitta wankowiczi* (Radoszkowski) from Nagyszeben, Sibiu from Transylvania. Their other data from the Carpathian Basin are only references of old Hungarian authors (MICHEZ and EARDLEY 2007).

Cristina Maria Calefariu (earlier Cristina Maria Ban, 18th of July 1976 Porumbacu de Jos (Alsóporumbák, Unter-Bornbach) -) Cristina after finishing "Octavian Goga" High-School Sibiu, studied at "Lucian Blaga" University, Sibiu, Faculty of Sciences, Section of Ecology and Environment Protection and she received her master degree in animal taxonomy at Faculty of Biology, University of Bucharest. Here, Cristina defended her PhD. thesis on the Comparative study of two Apoidea families (Megachilidae and Anthophoridae) of the Romanian fauna: morphology, systematics, distribution, under Dumitru Murariu's supervision. Before she started her PhD. studies, Cristina Maria Ban had 3 years teaching experience at "Andrei Saguna" Pedagogic College. From 2004, she joined to the "Grigore Antipa" National Museum of Natural History, where now, she is the curator and scientific researcher of Hymenoptera collection. She is author of 20 scientific papers and 2 books. About her activity in environmental education: there are regular "Summer Schools" for school children where students could participate in field trips, learning collecting methods and how to recognize and sort various groups of insects. Furthermore, she held 4 conferences for the public within the program series titled "Sunday Meetings". Her greatest scientific achievement is a book and monograph titled: "*Megachilidae si Anthophoridae (Apoidea) din fauna Romaniei*" (Ban-Calefariu, 2009c). Her faunistic works expands from Maramures (Máramaros) county, through Fagaras (Fogaras) Mts., Piatra Craiului (Királykő Mountains), Defileul Jiului (Zsil valley) till Dobrodgea (BAN-CALEFARIU 2005, 2006a, 2006b, PETRESCU et al. 2004, BAN and TOMOZEI 2006). Her main interest is the wild bee families Megachilidae and Anthophoridae (BAN-CALEFARIU 2005, 2006b, c, 2008a,b, 2009a, b, c, BAN-CALEFARIU and ILIE 2009, 2010, BAN-CALEFARIU and LJUBOMIROV 2009) but her research interest

expanded to *Bombus*, *Nomada* and Sphecoidea as well (BAN-CALEFARIU 2007, BAN-CALEFARIU and SÁROSPATAKI 2007, LJUBOMIROV and BAN-CALEFARIU 2008).

Co-authors of Cristina Calefariu: **Angela Petrescu** (Ornithologist of Natural History Museum Bucahrest), **Iorgu Petrescu** (marine biologist, Crustacea specialist and Ornithologist of Natural History Museum Bucahrest), **Nastase Radulet** (collection of mammals, Natural History Museum Bucahrest), **Alexandru Ifitime** (fish, amphibian and reptile collection of Natural History Museum Bucahrest) and **Toshko Ljubomirov** (17th February 1971 Vratsa) who graduated at University of Saint Kliment Ochridsky, Sofia. Ljubomirov works for the Institute of Biodiversity and Ecosystem Research, Bulgarian Academy of Sciences. He obtained his PhD degree and from March 2001, he works for the Institute of Zoology. Bulgarian Academy of Sciences.

Bogdan Tomozei (3rd February 1977 Bacau –). Entomologist, curator of Hymenoptera at "Ion Borcea" Museum of Natural Sciences Complex Bacau, Romania. His research interest focuses on systematic and faunistics of Apoidea, Anthophila of Romania, especially those of Moldova region. According to Bogdan's self biography: "*During my activity I have published new distribution data and records for species belonging to families Colletidae, Andrenidae, Halictidae, Megachilidae and Apidae (TOMOZEI 2000a,b, c, d, 2002, 2003a, b, 2008, 2010, 2011, TOMOZEI and PATINY 2006, TOMOZEI and APETREI 2006, TOMOZEI and TOMA 2011, GOAGA, CHIMILIU and TOMOZEI 2009, GOAGA and TOMOZEI 1997). The first checklist of family Andrenidae from Romania compiled and updated during my PhD studies on this group of bees, comprising 160 species recorded in over 150 years of faunistic studies, where 8 species were found as new records for Romanian fauna (TOMOZEI 2010). Data on distribution of family Megachilidae are published, with 21 new records for Moldova region. The checklist of family Colletidae from Romania comprises 55 species; one species (Colletes maidli) is for the first time recorded in the country (TOMOZEI 2008). New distribution data are published in 2 papers dedicated to genera Panurgus and Camptopoeum from Romania, one species Camptopoeum (Epimethea) variegatum it is for the first time recorded in Romanian fauna (TOMOZEI 2011, TOMOZEI and PATYNI 2006). These papers contain diagnosis along with original drawings and photos of the distinctive morphological characters of the species. A catalogue of subfamily Apinae from the Museum of Natural Sciences Piatra Neamt lists 17 species of Bombus and Psithyrus collected mostly from Neamt County (Moldova region). New data regarding genus Andrena from Dobrogea region are published with Ban M. (BAN-CALEFARIU and TOMOZEI 2006), citing Andrena anatolica as new record for Romanian fauna and rare species as Andrena abreviatta ssp. osychniuki Warncke, 1973 and Andrena magna Warncke, 1965, last one being considered Endangered (EN) at European level. My research also covers ecology aspects related to bee pollinators of alfalfa, apple, onion. I was involved in the inventory of bees in protected areas from Romania (Piatra Craiului National Park (Királykő Mountains), Ceahlau National Park (Csalhó Mts.), Vanatori Neamt Nature Park (Németvásár)) (TOMOZEI 2004, 2005, 2006). Another subject of my research was the study of nest architecture and immature stages of some halictid bee species of which I published data regarding Halictus quadricintus F. Together with dr. Goaga A. (GOAGA and TOMOZEI, 2000a,b, 2002) we published new distribution data of family Halictidae in south east and west of Romania (Dobrogea region, Banat region) recording 5 new species: Halictus malachurops Cock., Halictus nigripes Lep., Halictus sajoi Blüthg., Halictus tricinctus Schck., Halictus simplex Blüthg. for Romanian bee fauna. During 2013-2014, I have contributed to the assessment of several species of genus Andrena for the IUCN European Red List of Bees.*" **Maria Apetrei** (director, Muzeul de Stiinte Naturale

Piatra Neamt) is co-author of Bogdan Tomozei. They identified and published the bees of subfamily Apinae in the collection of Museum of Natural Sciences Piatra Neamt (TOMOZEI and APETREI 2006).

Attila Farkas was born in Csíkszereda in 1981. In Csíki Hírlap, Attila published a paper on the harms caused by Vespidae in horticulture, titled: "*Wasps: uninvited guest in the garden*" (FARKAS 2012). Attila is horticultural engineer, graduated at Kolozsvár in 2004. He works for Csíki Hírlap where he provides tips and advices in gardening. His interest in botany was inspired by his teacher in the 5th class of elementary school. Beyond his work, as an amateur naturalist, he deals with nature photography as well.

History of the Aculeata research in the Austrian part of Carpathian Basin from 1760 till present

Hereunder, we discuss the Aculeata research done mainly in Burgenland and in smaller part in Styria (Steiermark) and Niederösterreich (the Carpathian Basin terirtories only). Wien (Vienna) is also part of the Carpathian Basin (its entomological investigation was iniciated by **Franz von Paula Schrank**), however due to our limited possibilities we could not discuss either the Aculeata published and described from the city and from the surrounding area or the prelinnean Austrian literature deposited in the historical archives and libraries in Wien. Furthermore, it is impossible to decide whether the locus typicus of the high amount of old descriptions (loc. typ. indicated as Austria) were Wien or other territories of the Austrian part of the Habsburg empire.

Nikolaus Poda von Neuhaus (4th October 1723 Wien – 29 April 1798 Wien) zoologist, Jesuit priest and professor. He entered to the Jesuits in 1740, after 4 years novitiate, recieved his title of Doctor Philosophiae. In Linz, Klangenfurt and finally in Graz, he taught mathematics. In Graz, Poda established the natural history museum and became director of the local observatory either. From 1760, he moved to Hungary where he spent 13 years till the dissolution of the Jesuits by Maria Theresia. After this time, he returned to Wien, where he worked as an independent professor and researcher till his death. For us, only his early period in Graz is interesting. In this time, he described the following species probably from the Carpathian Basin: *Sphex hortensis* Poda, 1761 (syn. of Ammophila sabulosa L.); *Vespa minima* Poda, 1761 (valid but dubious name) and *Apis minima* Poda 1761 (syn. of *Bombus hypnorum L.*) (Poda, 1761). Poda didn't provid the places of capture but from the title of his book: "*Insecta musei Graecensis*", we may assume, they were captured somewhere around Graz.

Franz von Paula Schrank (21st August 1747 Varnbach - 22nd December 1835 München, botanist, entomologist, Jesuit friar, director of the royal botanical gardens in München). In *Enumeration insectorum Austriae* (Schrank, 1781), He recorded 22 species from the Carpathian Basin, nearly all from Wien except Mutilla europaea L. from the Ötscher mountains. These are his original spelling: *Sphex austriaca, S. vespiformis, S. tricolor, S. boops, S. cribaria, S. clypeata, Chrysis aurata, Apis violacea, A. rufa, A. plumipes, A. fulva, A. bicolor, A. lagopoda, A. atra, A. centuncularis, A. luctuosa, A. convexa, A. cetii, A. leucostoma, A. vespiformis, A. fulviventris* and *Mutilla europaea.*

Seven of them are described by himself: namely *Sphex austriaca* Schrank, 1781;

Sphex boops Schrank, 1781; *Apis fulva* Schrank, 1781; *Apis bicolor* Schrank, 1781; *Apis convexa* Schrank, 1781; *Apis cetii* Schrank, 1781 and *Apis leucostoma* Schrank, 1781. See their current status separately.

The young Schrank after finishig the Highschool Leopoldinum in Passau, joined to the Jesuit Order. After a time as a novice in Vienna, he participated in a mission to Brazil - but he had to return for health reasons - he continued his theological career and in 1776, he received the doctor's degree in theology in Vienna. In the same year, he became professor of mathematics and physics at the Lyceum in Amberg (Bavaria) and in 1784 , he became professor at the first Bavarian university in Ingolstadt. After the transfer of the university in 1800 to Landshut, he continued his activity as university lecturer there. Between 1809 and 1832, Schrank was the first director of the Botanical Gardens in Munich.

Georg Wolfgang Franz Panzer (31 May 1755 Etzelwang – 28 June 1829 Hersbruck) was a German botanist and entomologist. Member of the Academy of Sciences of Erfurt and also the German Academy of Sciences "Leopoldina". Panzer was a physician, he practised at Hersbruck later at Nürnberg. His main work is a series of monographs titled Faunae insectorum germanicae initia (Elements of the insect fauna of Germany), published at Nuremberg between 1796 and 1813. It was illustrated by Jacob Sturm (1771–1848), with more than 2,600 hand-colored plates of individual, lifesize insects. Most of his species has indefinite place of capture, however, few species he described from Wien as they listed separately (Panzer, 1799).

Joseph Etienne Giraud (31st January 1820 Briancon – 28th May 1877 Paris). He was a French doctor of medicine and entomologist specializing in Hymenoptera with an additional interest in Coleoptera. Giraud practised in Vienna and in Paris. He was elecgted to the President of the Société entomologique de France in 1870. His collection is in Museum d'Histoire Naturelle Paris. From Wien he described several nes Aculeata species, mainly wild bees (Giraud, 1856a, 1857, 1861). Hes faunistical and ecological observations from the region around Wien are also valuable (Giraud, 1856b).

Gustav Henschel (25th July 1835 Zell bei Zellhof - 17th March 1895 Wien) Professor and head of the Institute for Forestry and Forest Protection of University of Bodenkultur in Wienna. Specialised for insect pest of agricultur and forestry. In 1887/1888 rector of the university. Henschel described *Megachile villosa* Henschel, 1888 which proved to be a synonym of *Megachile genalis* Morawitz, 1880.

Arnold Förster (20th January 1810 Aachen – 12th August 1884 Aachen). See his biography in the Hungarian part. Förster described 3 Hylaeus species, namely *Hylaeus carbonarius* Förster, 1871; *Hylaeus cofinis* Förster, 1871 and *Hylaeus inaequalis* Förster, 1871 from Wien, Laibach and Piesting (Förster, 1871).

Franz Friedrich Kohl (13th January 1851 St. Valentin auf der Haide – 15th December 1924 Traismauer), see his biography in the Hungarian chapter titled: "*Aculeata research from 1801 till 1920 in Hungary*". Kohl described 2 new Sphecoidea species from Wien region namely: *Diphlebus austriacus* Kohl, 1888 and *Tachysphex austriacus* Kohl, 1892 (Kohl, 1888 and 1892).

Carl Wilhelm Dalla-Torre (14th July 1850 Kitzbühel – 8th April 1928 Innsbruck). Austrian zoologist (entomologist and ornithologist, he has few papers even on microbi-

ology as well). Dalla-Torre studied natural sciences at the University of Innsbruck and remained at the university where he became professor of Zoology in 1895. Two varieties of *Bombus*, he described from the Carpathian Basin, namely *Bombus confusus* var. *paradoxus* Dalla Torre, 1882 from Graz and *Bombus terrestis* var *kristophi* Dalla-Torre 1882 from (Corsica), Tatra and Niederösterreich (DALLA-TORRE, 1982). For the faunistic of Carpathian Basin, his catalogues are important secondary sources, titled: "*Catalogus hymenopterorum hucusque descriptorum systematicus et synonymicus*" (DALLA-TORRE 1892, 1894, 1896, 1897).

Hans Bischoff (30th November 1889 Berlin - 18th March 1960 Berlin, curator of Hymenoptera and neuroptera of Museum für Naturkunde between 1921 and 1951). He spent his holiday in 1940/41 in Eastern Austria and between 19. 08 and 12. 09. 9f 1940 he collected bees between Weiden and Neusiedl See in Burgenland. As a result of this period, he published one paper on the varieties of *Dasypoda argentata* Pz. (Bischoff, 1943).

Adolf Hoffmann Austrian Coleoptera specialist died in 1945 in a concentration camp. Hoffman lived in Wien (14) Nobilegasse 20. He was active in publication between 1907 and 1935. We don't know much about his life. He has only one paper of Hymenoptera, probably it is his last paper: "*Neue Chrysididen*". In this paper he described 2 new Chrysididae variety from Hainburg (and also from Vienna) (HOFFMANN 1935).

Karl Mazek-Fialla, (1936 –) Wien high school professor later director of Bodenschutzes (Soil protection) and Chief Foresrty Comissioner in Niederösterreich. In one paper, Mazek-Fialla studied the life history of *Sceliphron destillatorium* Illig. (MAZEK-FIALLA 1936).

Karl Kusdas (23 February 1900 Linz – 7th May 1974) after finishing his studies, he joined to the Austrian Federal Railway, where he worked till his retirement. As amateur entomologist he collected and studied numerous groups of insects in Austria and abroad. In his work on the Palaearctic Cleptidae, he mentioned few record from Burgerland, Fertő-tó (Neusiedler See) (KUSDAS 1968). In one of his papers (KUSDAS 1956), he publishes data on *Hedychridium krajniki* Balthazar from Štúrovo (Párkány), Kőszeg, Keszthely, Budapest and Podcertek.

Arnulf Molitor (Perchtoldsdorf / Vienna) coleoptera specialist, his privat collection probably lost. For the identification of the Molitor Apoidea data Pittioni and R. Schmidt are responsible (for Chrysididae probably himself). He lived in Perchtoldsdorf. Arnulf Moliter described his observations on the behaviour of *Philantus triangulum* F. in Niederösterreich (Upper Austria) and Burgenland (MOLITOR 1932). In his paper, titled "*Versuche betreffend die „Rotblindheit" solitärer Bienen*" Molitor provides faunistic data of various wild bees, some of them (from Guntramsdorf) are form the Carpathian Basin. He also studied the phenology and ecology of Chrysidae species in Niederösterreich and Burgenland (MOLITOR 1935, 1937).

Hans Malicky (17th July 1935 Wien –) Trichoptera specialist living in Lunz am See. Malicky collected bees especially in Eastern Austria. He studied zoology and botany at the University of Wien; received his PhD and habilitated in the same university either. Hans Malicky was the zoologist of Burgenland, he published numerous papers not only on vertebrata but also on various orders of insects, mainly on lepidoptera, he has even botanical paper as well. In one of his papers, we may find wild bee data from Wiener Neustadt (MALICKY 1975).

Otto Guglia (22nd September 1904 Wien – 29th April 1984 Wien) Guglia was born in Vienna, where he attended his schools. He studied history and geography at the University of Graz, Munich, Würzburg and Vienna, After his graduation in Vienna, Guglia worked for the Ministry of Education until his retirement in 1970. His second love was botany and entomology. Guglia had several excursions to the Pannonian regions of Austria, Hungary and Yugoslavia. He published the zoogegoraphical analysis of Burgenland, where we may find Aculeata faunistic data either, titled: "*Die tiergeographischen Leitelemente der burgenländischen Insektenfauna*" (GUGLIA 1977).

Hermann Priesner (19th November 1891 Linz – 11th August 1974 Linz). After finishing the local High School in Linz, he continued his studies in zoology at the University of Graz, where he defended his PhD thesis either. Priesner started his career as natural history teacher till he received job at the Royal Egyptian Ministry of Agriculture and a guest-professor status at University of Fouad and Ibrahim in Cairo till his retirement in 1957. His extensive privat collections are owned by: Apoidea (without Halictidae) - Maximilian Schwarz, Halictidae - P. Andreas Werner Ebmer, Sphecidae and Ichneumonidae - Natural History Museum Vienna, Proctotrupoidea and Egyptian Tiphiidae - Smithsonian Institution in Washington (USA). *Pompilus minutulus simplicicrus* Priesner, 1960 was described from: Österreich: Burgenland: Winden s. See which is proved to be synonym of *Arachnospila minutula* (Dahlbom, 1842) (PRIESNER 1960). *Auplopus rectus pallipes* Priesner, 1967 described from: Simontornya, Winden, Neusiedl, Wien and Banyuls-sur-Mer is synonym of *Auplopus rectus* (Haupt, 1927) and *Auplopus albifrons crassus* Priesner, 1967 described from Eichkogel bei Mödling is synonym of *Auplopus albifrons* (Dalman, 1823) (PRIESNER 1967). In the Pompilidae part of "*Die Hymenopteren des Nordostalpengebietes und seines Vorlandes*", there are high number of faunistic data from the western part of the Carpathian Basin, like Breitenbrunn, Neusiedl a. See., Winden, Oberweiden etc. (PRIESNER 1982). Further valuable faunistic data we may find in his series titled "*Studien zur Taxonomie und faunistik der Pompiliden Österreich*" (PRIESNER 1966, 1967, 1968, 1969).

Stefan Zimmermann (27th October 1896 Kutna Hora (Kuttenberg) – 4th July 1980). He attended schools in Graz, Klagenfurt, Agram, Vienna (Theresianum), Bolzano, Lviv and Linz. During the war, Zimmermann joined to Linzer Feldhaubitzenregiment No. 3, and from December 1915 till February 1918 without interruption he was at the battlefields. Zimmermann graduated at Faculty of Medicine of the University of Vienna, then specialized in ophthalmology but, he also visited zoological lectures. In zoology, initially, he interested in malacology, later in entomology with special focus for ants and cockoo wasps. As medical doctor, he started his career at Department of Ophthalmology, Rudolf Hospital in Vienna. From 1922, he became correspondent member of the Natural History Museum, Vienna where he specialized for Chrysididae. He completed the Austrian fauna-cataloge (ZIMMERMANN 1954) and further data, we may find, in his 2 papers, titled "*Neue Goldwesepenfunde in Österreich*" (ZIMMERNMANN 1960, 1961).

Bruno Pittioni (4th April 1906 Vienna – 28th july 1972). Pittioni graduated at the University of Vienna in zoology. After several years working as high school teacher, he lost his job in 1938 due to the political situation and emigrated to Sofia, where he found job as assistant at the Royal Bulgarian Museum. Here in Sofia, Pittioni was drafted as Bulgarian interpreter to the Wehrmacht. After his next return to Sofia, he was suspected to be German spy and inprisoned there. Pittioni's Bulgarian years was his most productive years, considering their papers on the Apoidea fauna of Burgenland. Three papers

he published on wild bees of this region from Sofia with **Robert Schmidt** (Wien) (PITTIONI and SCHMIDT 1942, 1943, PITTIONI 1945). In 1945, he was released from the prison and returned home. He was employed in Vienna by a high school and almost a year later he was assigned to the Natural History Museum. This time, Pittioni returned back to the project of wild bees of Burgenland with a 326 pages monograph titled "*Die Bienen des Wiener Beckens und des Neusiedlersee gebietes*" (PITTIONI 1952).

Josef Gusenleitner (17th September 1929 in Hagenberg / Mühlviertel –) Soon after his birth, his family moved to Linz, where the young Josef was educated and grown up. His early interest in natural history inspired by his biology teacher Prof. Gallistl, Upper Austrian botanist. Gusenleitner graduated at the University of Vienna where he completed his PhD thesis. His career started at the Federal Research Institute of Agtrochemistry in Linz. He participated in several entomological expeditions to Sicily, the island of Hvar, Greece (Crete), Turkey, Tunisia, Morocco, Iran, Zimbabwe, Jordan and southern France and built his own private collection which amount approximately 80-90 thousand specimens. Josef Gusenleitner wrote the Vespoidea part of "*Die Hymenopteren des Nordostalpengebietes und seines Vorlandes*" providing faunistic data from the western part of the Carpathian Basin (Niederösterreich and Burgenland) from Apetlon i. Burgenland, Güssing i. Burgenland, Winden a. See, Mannersdorf etc. (GUSENLEITNER 1982). In faunistic point of view, his series titeld "*Bestimmungstabellen mittel- und südeuropäischer Eumeniden*" is also very important (GUSENLEITNER 1997, 1998, 1999, 2000). He was also co-author of the monograph the "*Grabwespen in Burgenland*" (DOLFUSS, GUSENLEITNER and BREGANT 1998).

Hermann Dollfuss (13 April 1939 Mank –) Originally, he devoted his life to music but after their musical studies, he admitted to the Faculty of Natural History and Philosophy of University of Vienna. Hermann Dolfuss specialized for Sphecidae. In his monograph, titled "*Bestimmungsschlüssel der Grabwespen Nord- und Zentraleuropas*", he discusses the Sphecoidea fauna of Central Europe, mainly the species of the Carpathian Basin (DOLLFUSS 1991). In his series, titeld "*The Crabroninae wasps of Biologiezentrum Linz*", very valuable data of Crabroninae are listed from all countries of the Carpathian Basin (DOLLFUSS 2004, 2006, 2008 a, b, 2010 and 2013). Finally, Hermann Dollfuss is the first author of the monograph on the Sphecoid wasps of Burgenland (DOLFUSS, GUSENLEITNER and BREGANT 1998).

Andreas Wimmer Ebmer (8th May 1941 Linz-Urfahr –) Andreas Ebmer graduated at the grammar school of Wilhering. His interest to entomology reaches back to his age of 14 when he started to collect butterflies. The 18 years old boy entered the Cistercian Abbey of Wilhering and studied theology at the University of Innsbruck. Later, professor Priesner and Paul Blüthgen helped him to get deep knowledge in Aculeata and to be specialised for Halictidae bees. Andreas Ebmer is co-author in a paper, discussing wild bees of Niederösterreich and Burgenland (ZETTEL, EBMER and WIESBAUER 2006). In 1969, he described *Halictus veneticus* Ebmer, 1969 from Austria and Hungary and *Halictus pannonicus* Ebmer, 1969 from Oberweiden (Niederösterrich) (EBMER, 1969). Further valuable faunistic data were provided from Niederösterreich and Burgenland in EBMER 1998 and 2005.

Michael Madl (13th November 1957 Frauenkirchen –) He graduated at the University of Vienna where he's been working till now. Michael Madl specialised for the so far neglected groups of Hymenoptera like Gasteruptionidae, Evaniidae, Leucospididae and

Chalcididae. His extensive Apoidea collection mainly from Burgenland was identifed mainly by Ebmer, Schwarz and F. Gusenleitner. He has 2 important papers, one on the Cleptidae and Chrysididae of Burgenland, the other on the Pompilidae of Burgenland (MADL 1989a, b).

Fritz Gusenleitner (27th January 1957 Linz –) Curator of Hymenoptera, Landesmuzeum Linz. His early interest in entomology was inspired by his father Josef Gusenleitner. After his graduation at the University of Salzburg got employment at the Upper Austria Landesmuzeum (Linz) where he specialised in genus *Andrena*. With several co-authors, one of their very important monograph is the "*Katalog der Bienen Österreichs, Deutschlands und der Schweiz (Hymenoptera, Apidae)*". They list the wild bee species of Burgenland in separate table format (SCHWARZ, GUSENLEITNER, WESTRICH and DATHE, 1996). In their series on "*Neue und ausgewählte Bienenarten für Österreich*" or "*Weitere Angaben zur Bienenfauna Österreichs*" they published faunistic records from the Western Carpathian Basin from Niederösterreich and Burgenland (Várvidék, Őrvidék) from numerous places like Esslbachgraben, Mühlgraben, Tauka, Mistelbach, Zwingendorf, Nickelsdorf, Kramerberg S Minihof-Liebau (SCHWARZ, GUSENLEITNER 1997, 1999, 2003, SCHWARZ, GUSENLEITNER and KOPF 2005, GUSENLEITNER, SCHWARZ and KOPF 2001, SCHWARZ, GUSENLEITNER and MAZUCCO 1999).

In Gusenleitner (1984) we find faunistic data on 24 *Andrena* species, not only from Austria, but from Hungary as well. With **Maximilian Schwarz**, they described *Osmia mazzuccoi* Schwarz, Gusenleitner, 2005 from Jois (Nyulas), Štúrovo (Párkány) and Simontornya (SCHWARZ et al. 2005). The third author of this paper was **Timo Kopf** (17th July 1964 Hohenems –) from Innsbruck.

Erwin Scheuchl (12th April 1957 Germany –) Self employed graphic designer and illustrator, amateur *Andrena* specialist. He graduated in München. Scheuchl has teaching experience at 2 universities in Turkey: Hacettepe University in Ankara and Adnan and Menderes University in Aydin. Amongst numerous paper of him, from our point of view, his series of monographs are interesting, titled "*Illustrierte Bestimmungstabellen der Wildbienen Deutschlands und Österreichs"*. Three volume has been published so far, namely "Anthophoridae", part 1st (SCHEUCL 2000), "Megachilidae und Melittidae", part 2nd (SCHEUCHL 2006) and "Andrenidae" part 3 with co-authorship of Christian Schmid-Egger. Although these are not faunistic works, still we find valuable faunistic data from Burgenland and Niederösterreich for rare species. In the volume 1 and 2 he reports 35 rare or sporadic species from Burgenland and 29 from Niederösterreich.

Eugen Bregant (5th January 1937 Graz – 3rd June 2003) Bregant's father was general in the Austrian army and died before his son's birth. He attended his schools in Langegg, then in Gabersdorf and after the war in Graz and graduated at the Montanist College in Leoben. After his marrige, Bregant moved to Graz where he started to study natural history at Graz University but didn't finished it. He strated to work for a construction company and later joined to the Landesmuseum Joanneum at first to Department of Zoology, later to Botany. Bregant died relatively young after longlasting illnes. He has 2 papers on Chrysididae published in series "*Hymenopterologische Notizen aus Österreich*". In these 2 papers (BREGNANT 1997, 1998), high amount of faunistic data we may find from Burgenland. Also, he participated in the project on the investigation of Sphecoidea fauna of Burgenland (DOLFUSS, GUSENLEITNER and BREGANT 1998).

Ulrike Hausl-Hofstätter (29th July 1960 Graz –) She graduated at Karl-Franzens-Universität in Graz. Now, she is researcher of the Universalmuseum Joanneum. Her great series of monographs on the wild bees of Steiermark and Burgenland, based on the collection of the Graz Museum and contains important faunistic data from the very west part of the Carpathian Basin like Graz, Eichberg Trautenburg, Feldbach, Rosenberg b. Wieden, Sernau, Oberhenndorf, Frohnleithen, Messendorf, Hasendorf (HAUSL-HOFSTATTER 1995, 1998, 2000a, b, 2001, 2004, HAUSL-HOFSTATTER and BREGANT 1996).

Herbert Zettel (3rd February 1963 Wienna –) is graduated in Zoology at Wien University. He is heteroptera specialist and curator of Heteroptera collection of Natural History Museum in Wien. He is interested in Coleptera and Hymenoptera as well. Herbert Zettel with **Heinz Wiesbauer** (12. April 1961 – , office for landscape planning and landscape maintenance in Wien), published the first occurence of *Isodontia mexicana* (De Saussure, 1867) in Austria. This paper contains one data from the Carpathian Basin: Langenzersdorf (WIESBAUER et al. 2011). They have other important papers on Apoidea faunistic from Niederösterreich and Burgenland from the following places: Stammersdorf, Neusiedl am See, Panzergraben, Korneuburg, östlich Haselbach, Michelberg, Krems–Land, Gebling bei Rohrendorf, Heiligenstein bei Zöbing, Bruck an der Leitha, Hundsheimer Berg, Eisenstadt–Umgebung, Breitenbrunn, Tennauriegel etc. (ZETTEL, SCHÖDL and WIESBAUER 2004, 2005, ZETTEL, HÖLZLER and MAZUCCO 2004, 2002, ZETTEL, EBMER and WIESBAUER, 2006). His co-author: **Stefan Schödl** 29th April 1957 Sandviken bei Gävle – 20th April 2005 Wienna) Curator of Hymenoptera collection at Naturhistorisches Museum Wien. Zettel with specialists of other insect groups published the entomological results of the 2009 GEO day. They provided list of 148 Aculeata species captured in Pfaffstätten in the "*GEO Day of Species Diversity*" between 5th-6th of June 2009 (ZETTEL et al. 2009). Herbert Zettel described *Dipogon bifasciatus pannonicus* Zettel, 1993 from Neusiedl am See and Illmitz and also recorded firstly *Anoplius alpinobalticus* Wolf from Burgenland (ZETTEL1993).

Christian Schmid-Egger (German media-trainer and communication expert). Christian Schmid-Egger worked for several years as press spokesman at the international pharmaceutical company Novartis, now he is a self made man and founder of Schmid-Egger & Partner. Also, he was freelance consultant for state and federal ecological authorities in landscape and environmental planning. Christian is one of the editors of "Ampulex", journal of hymenoptera research. In their paper with **Michael Kuhlmann** (SCHMID-EGGER and KUHMANN 2008) they published distribution data on *Colletes graeffei* Alfken, 1900 not only from Burgenland but from Slovakia and Hungary as well. High number of Slovak and Burgenland faunistic data we may find in Schmid-Egger, 1995 on *Hedychridium femoratum* Dhlb. and *H. elegantulum* Buys. In their book titled "*Illustrierte Bestimmungstabellen der Wildbienen Deutschlands und Österreichs. Band III: Andrenidae*" they indicate separately the occurrence of wild bees in Burgenland (SCHMID-EGGE and SCHEUCHL 1997). Schmied-Egger was co-author of Arkady Stephanovitch Leley in "*The velvet ants (Hymenoptera, Mutillidae) of Central Europe*" (LELEY and SCHMID-EGGER 2005).

Karl Mazucco (8th January 1939 Salzburg –) Mazucco graduated in chemistry and zoology and doctorated (in ornithology) at the University of Wien. He started to work at Institute of Tumor Biology of the Medical Faculty of Wien University. Beyond his research work on cancer and tumorgenesis, till his retirement in 2004, he spent numerous and various positions at the University including different organisations, offices, comis-

sions, laboratories, comittees etc. Karl Mazucco is active in fileds of ornithology and entomology either (he even filled the chariman position of the Austrian Society of Ornithology). Karl Mazucco in his several papers with coauthorship of **Johanna Ortel** (Wien) and **Gerald Hölzler** (24th November 1970 Judenburg –) investigated the Aculeata fauna of Niederösterreich and Burgenland and reported species from Neurißhof, Felixdorf, Mödling, Ziersdorf, Hollabrunn, Bruck a. d. Leitha, Bad Vöslau, Wolfsthal, Mistelbach a. d. Zaya, Neuenkirchen, Illmitz etc. (ZETTEL, HÖLZLER, and MAZUCCO 2002, MAZUCCO 2011, MAZUCCO and ORTEL, 2011). With Gerald Hölzler they described *Colletes pannonicus* Hölzler and Mazucco, 2011 from Niederösterreich and Burgenland (HÖLZLER and MAZUCCO 2011).

Johann Neumayer, (14th July 1964 Salzburg –) J. Neumayer studied theology and biology and since 1987, he is the environmental manager of the Archdiocese of Salzburg and freelance biologist. He lives in Elixhausen. Neumayer published the first occurrence of *Bombus haematurus* Kriechbaumer, 1870 from Austira including Németújvár (now Güssing) from Burgenland (NEUMAYER 2004). He investigated the Aculeata fauna of National Park Thayatal between 2005 and 2008 and recorded 190 Aculeata species (NEUMAYER 2010). He is also co-author of the paper on the first occurence of *Isodontia mexicana* (De Saussure, 1867) in Austria (WIESBAUER et al. 2011).

Herbert Franz (23 January 1908 Sopron – 1st August 2002 Mödling, professor emeritius, Universität für Bodenkultur Wien) After his graduation at the high school in Mödling, Herbert Franz studied at the University of Agricultural Sciences in Vienna. After receiving his doctorate he accepted an offer for senior assistant position at Imperial Research Institute for Alpine Agriculture in Admont. After his habilitation at the University of Graz, he was appointed professor of the university. After his short stay in Madrid, he worked for the University of Agricultural Sciences Vienna as head of Geology and Soil Science Department. Herbert Franz was exceptionally productive entomologist, during his life, he described 92 genera and more than 3000 species. In Hymenoptera faunistic of the Carpathian Basin, one book of him we sould mention, its title is: *Die Hymenopteren des Nordostalpengebietes und seines Vorlandes* (FRANZ 1982). In this monograph, the Apoidea, Chrysidoidea and Scolioidea parts were written by Franz Herbert himself.

Hymenopterologists in the Carpathian Basin

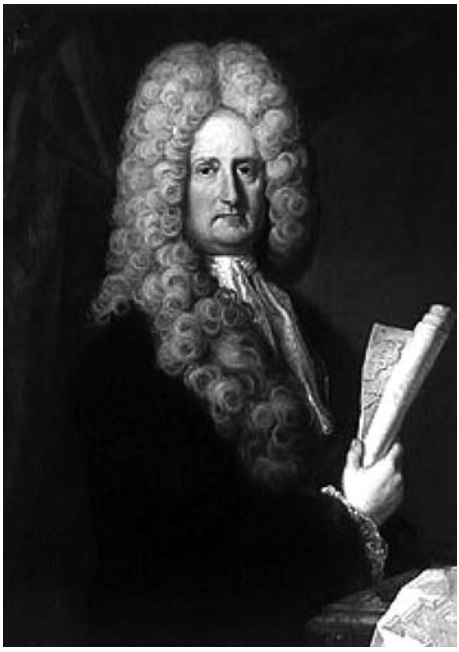

Fig. 8: Luigi Fernando Marsigli

Fig. 9: Daniel Wilhelm Moller

Fig. 10: Giovanni Antonio Scopoli

Fig. 11: Lajos Mitterpacher

Fig. 12: János Frivaldszky

Fig. 13: Ottó Herman

Fig. 14: Anders Gustav Dahlbom

Fig. 15: József Török

Fig. 16: August Schletterer

Fig. 17: Lajos Bíró

Fig. 18: Sándor Mocsáry

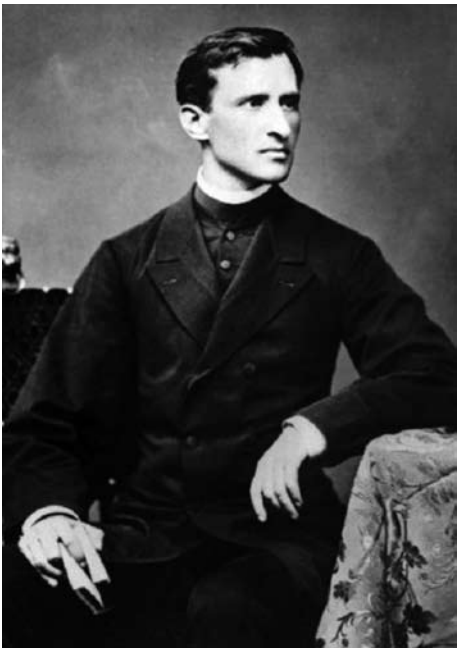

Fig. 19: Tivadar Ortvay

Fig. 20: Kornél Chyzer

Fig. 21: Otto Schmiedeknecht

Fig. 22: Gyula Pungur

Fig. 23: Jenő Vángel

Fig. 24: Franz Friedrich Kohl

Fig. 25: Jean Jacques Kieffer

Fig. 26: Károly Sajó

Fig. 27: Heinrich Friedrich August Karl Ludwig Friese

Fig. 28: Dániel Czekelius

Fig. 29: Anton Handlirsch

Fig. 30: Zoltán Szilády

Fig. 31: Ferenc Pillich

Fig. 32: Frederick Smith

Fig. 33: Edward Feliks Lubicz-Niezabitowski

Fig. 34: Oswald Herr

Fig. 35: Antoni Wierzejski

Fig. 36.: Antun Korlevic

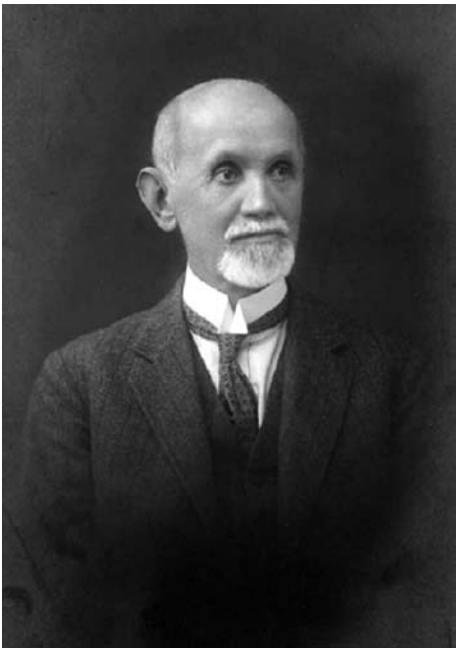

Fig. 37: August Langhoffer

Fig. 38: Johann Dietrich Alfken

Fig. 39: Gusztáv Szelényi

Fig. 40: Miklós Móczár

Fig. 41: László Móczár

Fig. 42: Lujza Pillich

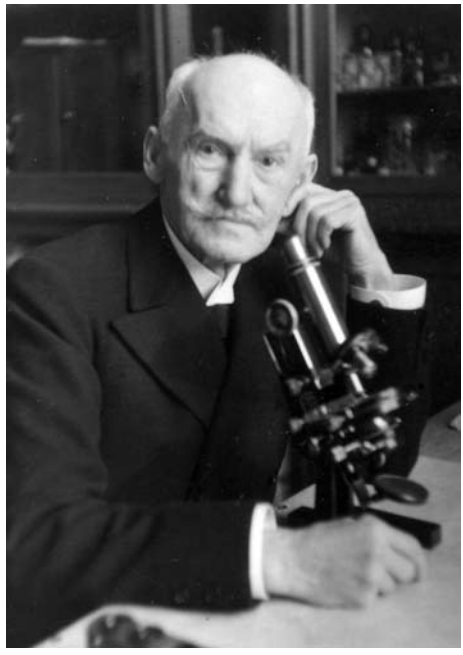

Fig. 43: Lajos Méhely

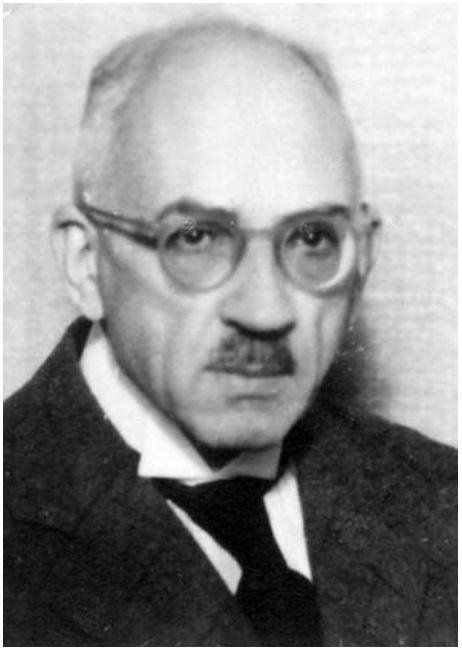

Fig. 44: Paul August Viktor Blüthgen

Fig. 45: Sándor Pongrácz

Fig. 46: János Győrfi

Fig. 47: Jan Noskiewicz

Fig. 46: Erzsébet Bajári

Fig. 49: Walter Linsenmaier

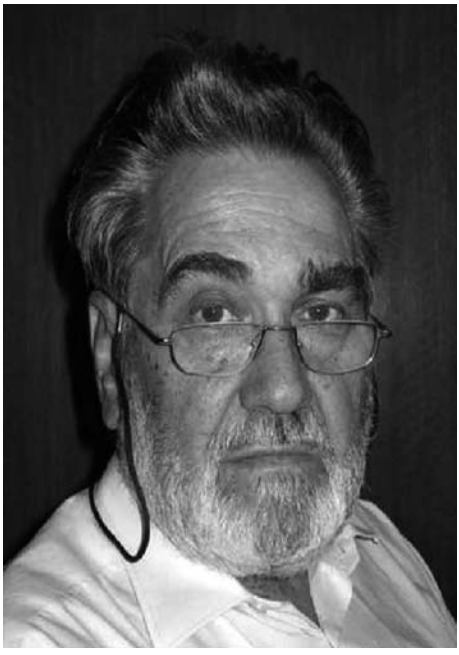

Fig. 50: Maximilian Schwartz

Fig. 51: Massimo Olmi

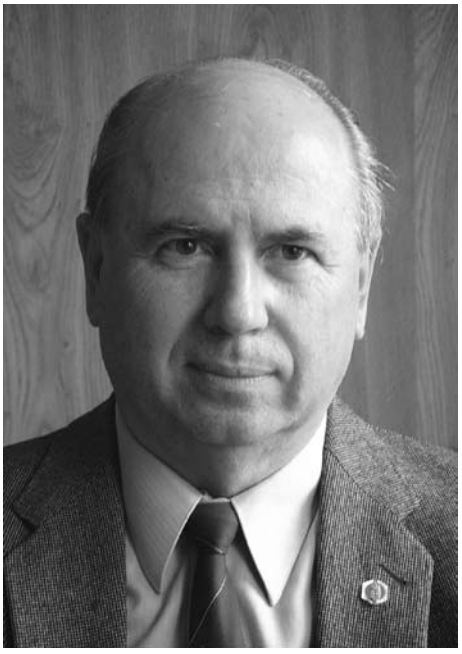

Fig. 52: József Muskovits

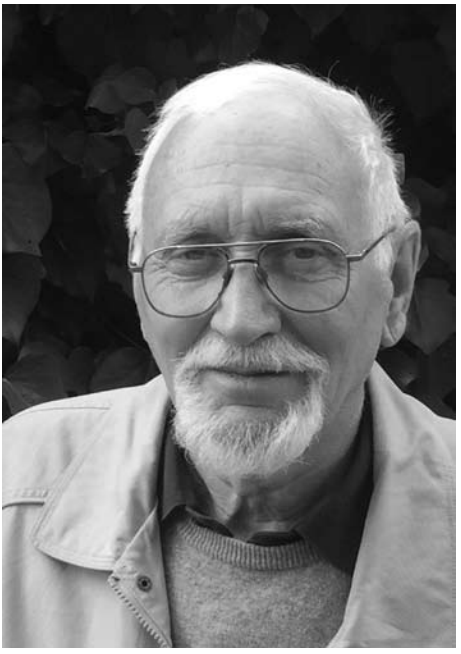

Fig. 53: Zsolt Józan

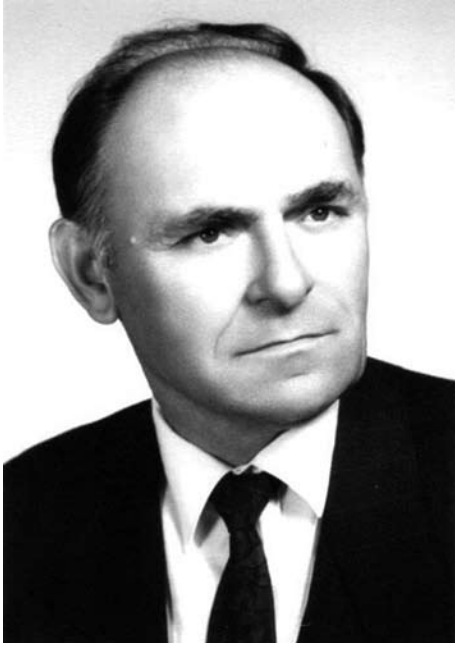

Fig. 54: Lajos Tanács

Fig. 55: Miklós Sárospataki

Fig. 57: Attila Haris

Fig. 58: Paolo Rosa

Fig. 59: Anikó Kovács-Hostyánszky

Fig. 60: Botond Bánk Sípos

Fig. 61: Mirosława Dylewska

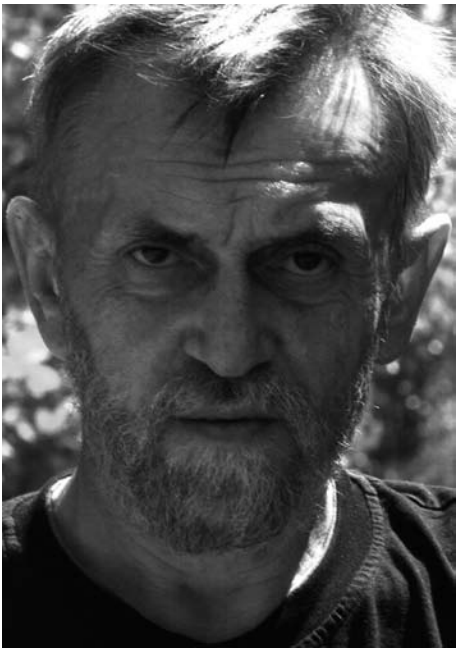

Fig. 62: Waldemar Celary

Fig. 63: Tadeus Pawlikowski

Fig. 64: Yuriy Andreyevich Pesenko

Fig. 65: Bogdan Wisniowski

Fig. 66: Vladimír Balthasar

Fig. 67: Borivoj [Borek] Tkalcu

Fig. 68: Jaromír Strejček

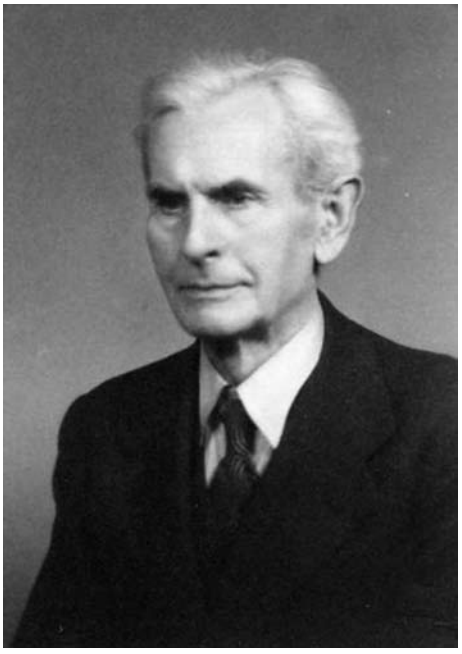

Fig. 69: Oldřich Šustera

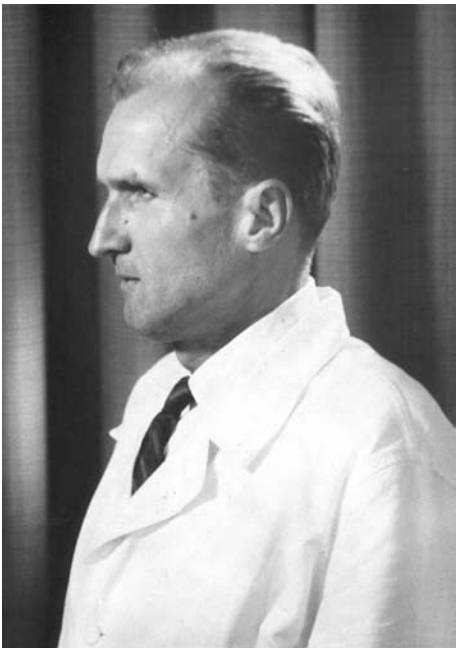

Fig. 70: Zdeněk Pádr

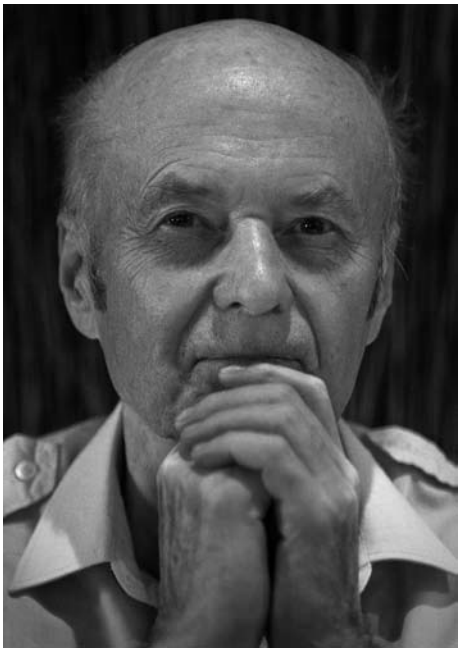

Fig. 71: Dušan Vepřek

Fig. 72: Jozef Lukáš

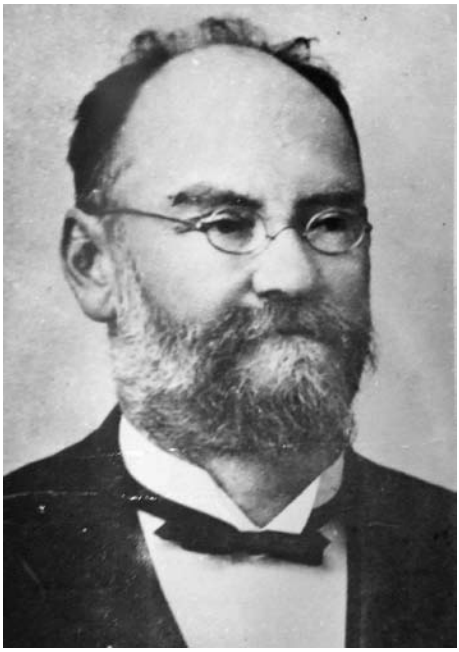

Fig. 73: Károly Brancsik

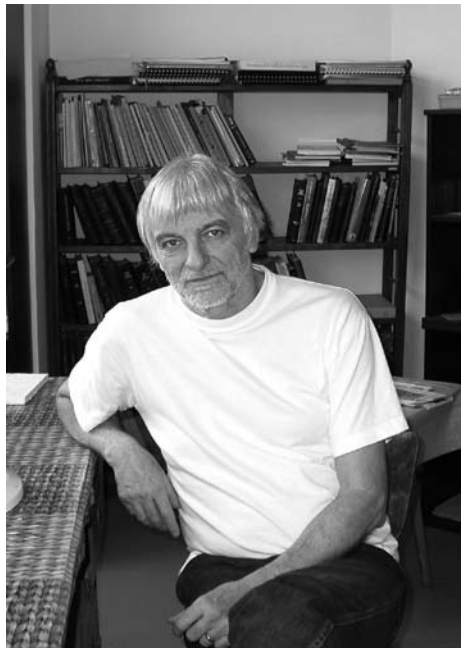

Fig. 74: Jan Macek

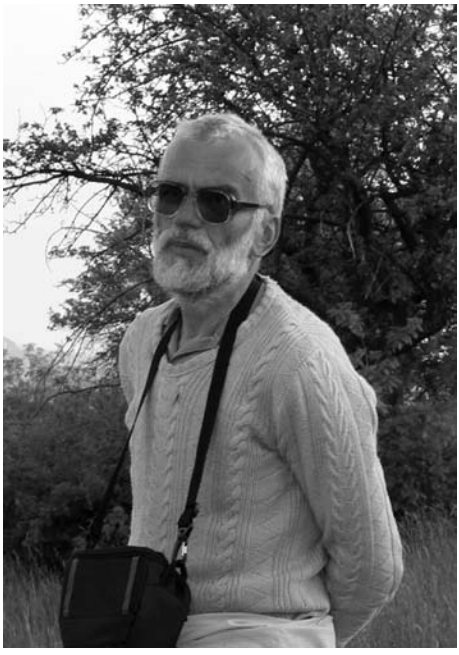

Fig. 75: Pavel Deván

Fig. 76: Vladimír Smetana

Fig. 77: Antonín Přidal

Fig. 78: Petr Bogusch

Fig. 79: Peter Šima

Fig. 80: Jakub Straka

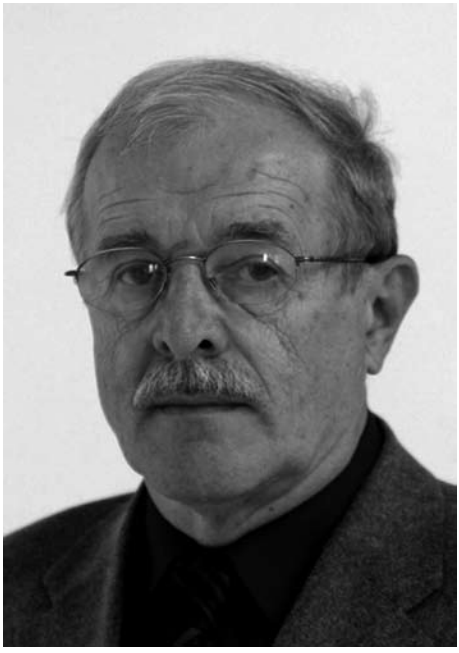

Fig. 81: Pavel Tyrner

Fig. 82: Alena Votavová

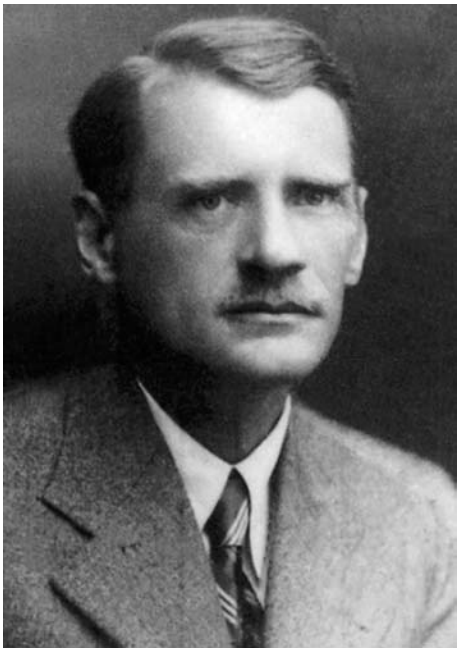

Fig. 83: Evgen Jaeger

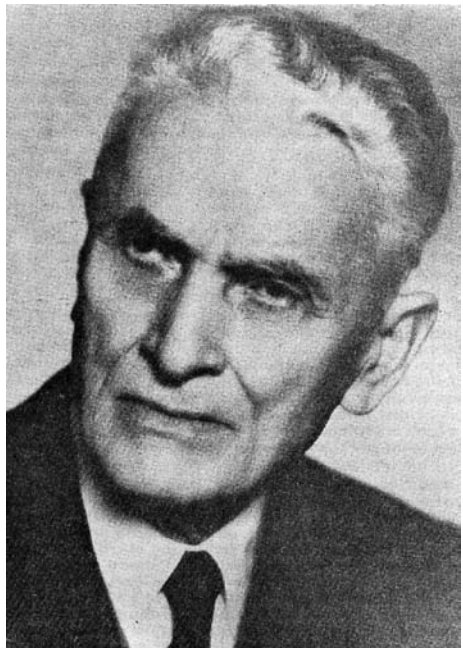

Fig. 84: Simeon Grozdanić

Fig. 85: Gyula Szöllősi

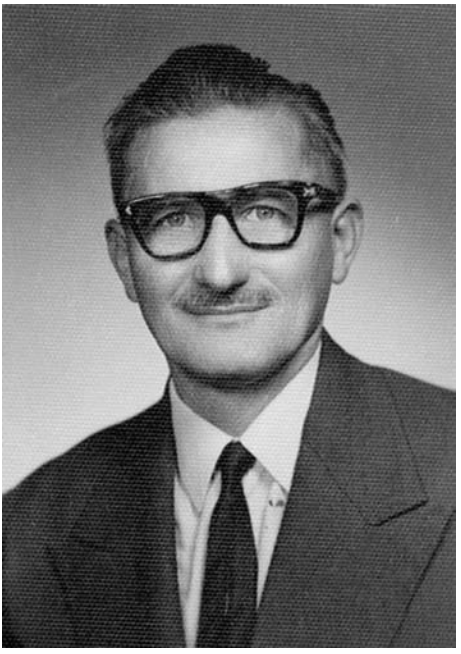

Fig. 86: Aleksandar Rafajlović

Fig. 87: Ozren Polasek

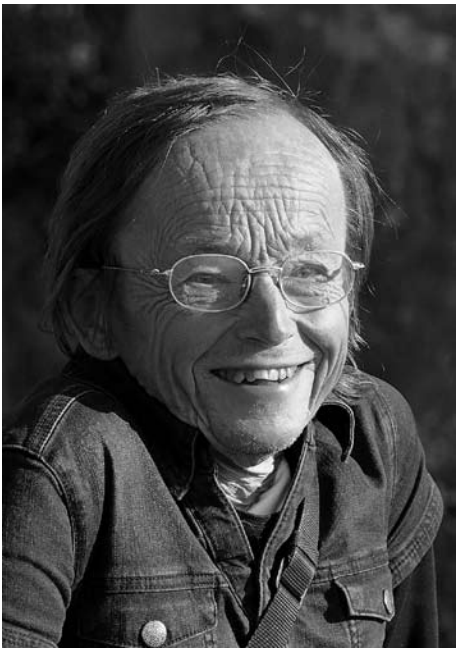

Fig. 88.: Andrej Gogala

Fig. 89: Victoria Iuga-Raica

Fig. 90: Xenia Scobiola-Palade

Fig. 92: Quabir Argaman

Fig. 93: Elena - Mariana Aftene

Fig. 94: Goagă (Dima) Aristita

Fig. 95: Mariana Pascu

Fig. 96: Cristina Maria Calefariu

Fig. 97: Bogdan Tomozei

Fig. 98: Attila Farkas

Fig. 99: Georg Wolfgang Franz Panzer

Fig. 100: Hermann Priesner

Aculeata collections in and around the Carpathian Basin

Austria

Wien, Naturhistorisches Museum

The largest Natural History Museum of the region and also one of the most important in Europe with more than one million specimens. The museum is the successor of the Imperial Natural History Museum, established by Franz Joseph emperor and king of Austria-Hungary in the middle of the 19th century. The oldest entomological collections dated back to the 18th century. The total Aculeata collection is about 250 000 specimens and approximately 75% are from Austria, mainly eastern Austria including Burgenland, Carinthia, Lower Austria, Upper Austria etc. The collectors were mainly Priesner, Franz, Mann, Simony, Graeffe, Zerny, Fischer and Maidl. The Carpathian Basin Aculeata fauna is also represented in the rich type collection: types of Zimmerman, Maidl, Stoeckhart, Kohl, Handlirsch, Schletterer, Dalla Torre and Hoffmann.

Biologiezentrum Linz

The Oberösterreichischen Landesmuseen were founded in 1833 on the initiative of Anton von Spaun. The Natural History Department of the museum complex from 1993, is housed in the Biologiezentrum Linz. The insect collection is the second largest one in Austria with more than 4.5 million individual preparations. Aculeata specimens from the Carpathian Basin are not separated from the other species collected from Austria. Type specimens of 372 Aculeata species are deposited in the collection, some of them are from the Carpathian Basin, like *Priocnemis hauptius* Móczár, 1955.

Graz, Landesmuseum Joanneum

One of the most important regional museum in Austria with 20 departments and institutions. The collection comprises high number of valuable objects of Styrian wildlife, culture and arts. It was founded in 1811. The insect collection mainly consists of pinned and dried exemplares, which are preserved in circa 4,000 drawers and protected from environmental influences. The Aculeata collection counts few thousand specimens identified by Dr. Ulrike Hausl-Hofstätter and published in her serial papers. The bees and wasps were collected mostly in Steiermark and in smaller part from the western Carpathian Basin (Burgenland, SE Steiermark and E. Slovenia). The Aculeata specimens are mostly collected by Karl Maly (1871-1947), Ing. Wolfgang Mensing (1860-1939), Dr. Lothar Panek (1884-1966) und Univ.-Prof. Dr. Maximilian Salzmann (1862-1954), Prof. Gabriel Strobl (1846-1925), and Dr. Ulrike Hausl-Hofstätter.

Hungary

Budapest, Hungarian Natural History Museum

Earlier it was the Natural History Department of the Hungarian National Museum, founded in 1802. The Hymenoptera collection nearly reaches the 1 million specimens and contains types of about 6000 species. All regions of the Carpathian Basin are represented in the collection. Specimens collected from the Carpathian Basin are deposited in the Hungarian Collection (Hymenoptera Hungariae); the others are in the exotic collection (Hymenoptera Orbis Terrarum). The Aculeata collection is in 90% identified. The oldest Aculeata specimens were collected in the mid of 19th century (the hymenoptera of the Koy collection from the late 18th century lost). The Aculeata part of the Carpathian Basin amounts approximately 150 000 specimens. Aculeata types from the

Carpathian Basin: types of Mocsáry, Friese, Frivaldszky, Kieffer, Zilahi-Kiss, Alfken, Szelényi, Bajári, Benedek and Móczár.

Zirc, Bakony Museum of Natural History

The museum was founded in 1972; previously it was the Natural History Department of the Veszprém County Museum. The hymenoptera collection amounts approximately 46 000 specimens including circa 25 000 Aculeata. All species were collected in the Bakony Mountains. The Hymenoptera collection was established by Jenõ Papp and Sándor Tóth.

Kaposvár, Rippl-Rónai Museum (Somogy County Museum)

The museum was founded in 1909 and the natural history department was re-established by Levente Ábrahám in 1985. The Aculeata collection contains 105 000 specimens, mainly from various parts of Hungary. The Józan collection was purchased in 2012, this is the main part of the collection including 60 000 specimens dominantly from Hungary and smaller part from Croatia. It contains one paratype, namely *Nomada platythorax* Schwarz, 1981. Further specimens were collected by Levente Ábrahám from Morocco and Turkey and Attila Haris from Libya and Sicily. The other valuable part of the collection is the Béla Kuthy collection which was acquired by the museum in 2013. It contains only Chrysididae (65 species of 534 specimens) collected between 1920 and 1946 identified by László Móczár an re-identified by Zsolt Józan.

Gyöngyös, Mátra Museum

The museum was founded in 1857. It has large Hungarian and exotic natural history collections, the Hymenoptera collection contains approximetly 35 600 specimens including 1 500 Aculeata.

Pécs, Janus Pannonius Museum

It is established in 1951 by integration of several smaller private museums. It has natural history department containing large and valuable collections. The entomological collection contains 290 000 specimens, the hymenoptera part is small: 10 boxes mainly unidentified Hymenoptera.

Sátoraljaújhely, Ferenc Kazinczy Museum

The Museum was established by Gyula Dókus in 1928. The entomological collection contains 110 000 specimens. The Hymenoptera collection is small, only 65 species of Chrysididea and and Mutillidae are known identified by József Muskovits and László Móczár.

Slovakia

Bratislava, Institute of Zoology, Slovak Academy of Sciences

There is a large amount of insects collected from several parts of Slovakia by Malaise traps, but Aculeata collection doesn't exist. Insects are stored in ethanol. Only few specimens, mainly Vespidae, are identified in species level by Ondrej Kameniar and Libor Dvořák.

Bratislava, Slovak National Museum - Natural History Museum (established in 1924)

Large collection from the former Czechoslovakia was mainly collected and identified by Dr. Zdeněk Pádr and also Miroslav Kocourek. Other specimens were collected by M.

Dvořák, J. Macek, I. Okáli, J. Palásek, K. Pospíšil, J. Strejček and B. Tkalcú. The Hymenoptera collection comprises in total 1 600 species, dominantly Aculeata, the majority from the Czech Republic and about 20% from Slovakia.

Banská Bystrica, Stredoslovenské Múzeum (established in 1889)

The Aculeata collection consist of 2530 specimens and contains the following collections:

Hymenoptera collection of Miroslav Kocourek – 2347 specimens of Aculeata (Andrenidae, Apidae, Colletidae, Halictidae, Megachilidae, Melittidae, Ampucilidae, Crabronidae, Sphecidae, Chrysididae, Mutilidae, Sapygidae, Scoliidae, Tiphiidae, Vespidae);

Hymenoptera collection of Peter Bitušík, Mikuláš Pura, Tomáš Kizek, Anna Kupcová – 83 specimens of Aculeata (Apidae, Sphecidae, Mutillidae, Pompilidae, Vespidae, Formicidae)

Hymenoptera collection of Josef Procházka – 60 specimens of Aculeata (Apidae, Megachilidae, Sphecidae, Chrysididae, Scoliidae, Vespidae)

Hymenoptera collection of Róbert Lačík – 40 specimens of non-identified hymenoptera (leg. R. Lačík in 1956), without labels, without localities

The M. Kocourek collection consists of insects collected mainly from the Czech Republic (Czech and Moravian parts), Slovakia, Bulgaria, marginally from Austria, Finland, Russia, Tajikistan, Japan, Egypt. Insects were collected between 1929 and 1984.

The P. Bitušík, M. Pura, T. Kizek and A. Kupcová collections: 1 specimen from Austria, the rest from central Slovakia. They were collected between 1984 and 1990.

The entomological collection of J. Procházka is from the territory of Fiľakovo, collected between 1954 and 1956. No type material is deposited in the museum.

The hymenoptera collection was established by first of all Miroslav Kocourek (Czech Republic, Vyškov), Peter Bitušík, Mikuláš Pura, Tomáš Kizek, Anna Kupcová (Slovak Republic, Banská Bystrica) and Josef Procházka (Czech Republic, Rokycany).

Bardejov, Šarišské múzeum (established in 1903) and ***Liptovský Mikuláš, Múzeum*** **jaskyniarstva a ochrany prírody** (established in 1904). There are small Aculeata collections in these museums, not more than few thousand specimens.

Hlohovec, Vlastivedné múzeum (established in 1950)

This Aculeata collection consists of 1200 specimens (aprox.), half of the collection are Bumblebees (Bombini). Nearly all of them are collected from Slovakia, only few dozens of specimens are from the Czech Republic (Czech and Moravian parts) and from Austria.

About half of the collection was collected in the region of Dolné Považie (surroundings of Hlohovec (mainly Soroš)). Remaining specimens come mainly from Malá Fatra (Rozsutec), Súľovské vrchy, Veľká Fatra and from the southernmost parts of Slovakia. Majority of the specimens were collected by Mikuláš Valenčík (in 2007, his private collection was purchased by the museum). Specimens from south Slovakia and from abroad were collected by M. Kocourek. Few dozens of exemplares were collected by Adela Beláková, from Hlohovec – Soroš.

Levice, Tekovské múzeum (established in 1927)

This collection contains about 9500 specimens of the following structure:

Vespinae 800 specimens, Polistinae 580 specimens, Eumeninae 300 specimens,

Pompilidae 240 specimens, Spheciformes 1 000 specimens, Bombini 2 800 specimens other Apoidea 3 560 specimens and Chrysididae, Mutillidae, Scoliidae 220 specimens.

They are collected form the whole territory of Slovakia. Only small part is from other countries, mainly from the Czech Republic. Majority, 97,5 % of the collection was collected by Dr. Vladimir Smetana.

Martin, Turčianske múzeum Andreja Kmeťa (established in 1964)

The museum has specimens from different parts of Slovakia collected by M. Kocourek (5 163 specimens of Sphecidae) and Z. Pádr (300 specimens of Chrysididae, and 50 specimens of Scoliidae). Additionally, there are approximately 3 000 Aculeata specimens from various collectors.

half of the 5845 specimens of Hymenoptera collection belongs to Aculeata. One paratype of *Andrena combaella* Warncke, 1966 (Kamenica, Slovakia) deposited in the museum from Kocourek's collection

Trnava, Západoslovenské múzeum (established in 1954)

Currently this museum has not entomologist, but Okáli (1984) noted approx. 3 000 Hymenoptera specimens. At moment, access to the collection in Trnava is not possible.

Podunajské múzeum v Komárne

The museum is established in 1886 and reorganised in 1900. Although the collection is significant and contains 84 000 plant and animal exemplares, the Aculeata collection is very small. There are only few Ammophila, Sceliphron, Vespa, Xylocopa and Bombus species collected mainly by Pál Binder and József Csütörtöky.

Private collection in Slovakia:

Very important is the Hymenoptera collection of Pavel Devan. This collection is in the hands of his family in Adamovské Kochanovce, a village situated between the Nové Mesto nad Váhom and Trenčín. Devan's collection consist of hymenopteran insects preserved in ethanol or formaldehyde, almost nothing is pinned/dried. These hymenopterans come mainly from his study area, Trenčín and the vicinity of this town. Publications refering to this materials are available in his bibliography.

Czech Republic

Praha, Národní Museum

A group of Czech aristocrats, leaded by Count Kaspar Maria Sternberg (1761 – 1838), paleontologist, initiated the foundation of the museum. On 15th April 1818, they established it. The basic Hymenoptera collection includes about 550 000 specimens. The collection consists of donations and purchases from various collectors, the most important are Oldřich Šustera, Vilém Zavadil, František Gregor and Ján Macek who is the present curator of the collection. The type collection is also important, these are the types of Zavadil, Gregor, Šustera, Snoflák, Balthasar, Strejček and Hoffer.

Moravské Zemské Muzeum, Brno

The Moravian Museum, the second largest museum of the Czech Republic, was founded in July 1817 by a decree of Emperor Francis II. More than 1 million dried insect are deposited in the entomological collection. Significant Hymenoptera collection exists from the Moravian region including the parts of the Moravian Carpaths. The type of Bocchus lautereri Olmi, 1998 from Hungary is deposited in this museum.

Romania

Bucharest, "Grigore Antipa" Natural History Museum

The Museum was established on 3rd of November 1834, by prince Mihalache Ghica. The present Hymenoptera collection was created after the Second World War, at the initiative of Dr. Victoria Iuga–Raica, with the support of Dr. Xenia Scobiola–Palade. In 1953 a part of the Eugen Worell Hymenoptera collection was acquired (758 species/8552 specimens), most of them collected in Transylvania and Dobruja. The Hymenoptera collection of "Grigore Antipa" Museum presently includes a number of 92 200 specimens and it is mainly formed of specimens collected in Romania (app. 90 000 specimens). Experts Alin Constantinescu and Ioana Matache contributed to the enlargement and the organization of this collection. In 2009, the Hymenoptera collection was enriched with 5500 specimens from the donation made by Dr. Cornelia Ceianu, daughter of forestry engineer Igor Ceianu, who collected an impressive number of insects.

Nagyszeben (Sibiu), Brukenthal Museum, Natural History

The natural history collection of the Brukenthal Museum was organized by the members of the Transylvanian Society of Natural Sciences (Siebenbürgischer Verein für Naturwissenschaften: Muller, Henrich, Worell, Deubel, Kimakovicz, etc). In total, the whole Hymenoptera collection counts over 18 500 specimens and only the Apoidea collection is about 5528 exemplares of 728 species. The Aculeata collection is approximately 10 000 specimens, collected by the members of the Society since 1894. The collection was partly published by Mariana Pascu. Main collectors are: Carl Riess, M. v. Kimakovicz, D. Czekelius, C. Heinrich, A. Mocsáry, A. Müller and M. Pascu.

Nagyenyed (Aiud, Strassburg am Miresh) Natural History Museum of Gábor Bethlen College

The museum is founded in 1796 by Ferenc Benkő as Raritatum et Rerum Naturalium Museum. The present Hymenopterological collection is founded by Zoltán Szilády who collected insects between 1900 and 1919 but further insects are survived from Pávay and Merkl collections either. From the 80's, Dr. László L. Magor (neurobiologist) collected specimens. Now, in the collection, there are 54 specimens of 17 Vespidae species, 90 specimens of 35 Sphecidae species and 96 specimens of 23 Apidae species.

Kolozsvár (Cluj-Napoca) Babes-Bolyai University, Zoological Museum

The Zoological Museum was established in 1859 as one of the institutes of the Transylvanian Museum Society. The Arthropode collection contains the collected material of Ottó Hermann, Joseph von Franzenau and René Jeannel. The Hymenoptera collection from Transylvania is also significant. The most important collector is Zoltán Szilády. Published output on Chrysididae: Negru, 1960.

Museul de Stinte Naturale Piatra Neamt

The museum was founded in 1965. Vasile Ionescu established the entomological collection by the donation of his private insect collection including 3000 Symphyta specimens. However, the Aculeata maybe only 1000 specimens collected from the mountainous localities of Neamt County. Curator Maria Apetrei is in charge for the entomological collection.

Bacau, "Ion Borcea" Natural Sciences Museum Complex

The collection founded in 1970 and counts over 21 000 specimens with nearly 700

species. The major contribution has Dr. Aristita Goaga (Dima) who worked in this museum till 2003, and now Bogdan Tomozei, her successor, improves the collection. Further Aculeata specimens are donated by Dinu Traian Sever Paraschivescu. Currently the collection is in a revision process and as an output a catalogue will be published next year. The collection represents the Moldova region, but also there are specimens collected from Dobrogea, Muntenia, Oltenia, Banat and Transilvania. They are no type specimens in this collection.

There are other museums with small number of Aculeata in their collections, these are: Muzeul de Stiinte Naturale din Roman, Muzeul Vrancei: Sectia de Stiintele Naturii in Focsani and Muzeul Stiintele Naturii Oltenia in Craiova.

Ukraine

Lviv, State Museum of Natural History

The former Dzieduszycki Museum founded by count Wlodzimierz Dzieduszycki Polish landowner and scientist in 1855. The most famous hymenopterologist of the museum was Noskiewicz. The total entomological collection of the museum is 170 000 specimen, mostly coleoptera and lepidoptera. The present specialist of the museum is Irene Konowalova. Published output: Noskiewicz, M. 1865: Insecta Haliciae Musei Dzieduszyckiani Kraków, Universitatis Jagellonicae.

Museum of Zoology of Uzhgorod National University

The Museum was established in 1946. The entomological collection contains insects dominantly collected from the Ukrainian Carpaths. There are approximately 100 000 specimens in the entomological collection. There are no types. The present curator is Oleksandr Bokotey.

Kiev, Schmalhausen Institute of Zoology

Schmalhausen Institute of Zoology is the collection of the Ukrainien National Academy of Sciences established in 1919. Most of the Apoidea were collected by Osytshnjuk partly from the Ukrainian Carpathians. The type collection is rich but no types of Aculeata from the Carpathian Basin. The Aculeata of the Carpathian Basin are not separated from the other region of Ukraine. Otherwise the Aculeata collection is small, doesn't exceed the 1800 specimens.

Poland

Krakow, Museum of Natural History and Institute of Systematics and Evolution of Animals, Polish Academy of Sciences

The Institute was founded in 1865, as the Physiographic Commission by the Krakow Scientific Society. The Natural History Museum is an integrant part of the Institute, was founded at the same time under the original name of Physiographic Museum. The Polish Aculeata collection (about 2 000 specimens) consists partly historical specimens from Galicia collected by Radoskowski, Wierzejski, Stobiecki, Fudakowski, Nowicki, Niezabitowski and also subrecently collected specimens by Mirosława Dylewska, Andrzej Kosiór, and Waldemar Celary. No types of Aculeata are deposited here from the Carpathian Basin.

Muzeum Przyrodnicze im. prof. Władysława Rydzewskiego Uniwersytetu Wrocławskiego

The museum was established in 1814. The hymenoptera collection exceeds the 100 000 specimens. Aculeata specimens from the Polish Carpaths are also exist including some types of Jan Noskiewicz.

Serbia

Prirodnjački muzej u Beogradu

The museum is founded as "Jestastvenički museum" by the act of the Minister of Education and Religious Affairs of the Kingdom of Serbia in 1895. The total entomological collection amounts 450 000 specimen. We don't have any information on the Hymenoptera collection. According to the publications of Serbian auctors, numerous Aculeata are deposited in the collection from North Serbia. The most important collectors Simeun Grozdanić, Živomir Vasic and Zoran Mućalic.

Slovenia

Ljubjana, Prirodoslovni muzej Slovenije

The museum was founded in 1821 as the Carniolan Estates Museum (Krainisch Ständisches Museum). Five years later, the Austrian Emperor Francis II decided to personally sponsor the museum and ordered its renaming to transfer to the Carniolan Provincial Museum. In 1882, the museum was renamed from Carniolan Provincial Museum to C. P. M. Rudolphinum in honour of Crown Prince Rudolph. Later, its name was changed to National Museum. In 1944, it was divided into the National Museum of Slovenia and the Slovenian Museum of Natural History. The Museum has significant Hymenoptera collection which contains specimens from the Carpathian Basin either. The most important part of the collection are the Aculeata specimen collected by Evgen Jaeger especially around Podčetrtek. The presen curator of the collection is Dr. Andrej Gogala. The total Hymenoptera collection is about 10 800 specimens, mostly from Slovenia. No types are deposited from the Carpathian Basin.

Croatia

Hrvatski prirodoslovni muzej, Zagreb

It was founded in 1846, as the "National Museum". The National Museum was later split up into five museums, three of which were in 1986 merged as departments of the newly named Croatian Natural History Museum. The Hymenoptera collection contains 42 000 specimens in which the most significant is the Korlević collection. Most of the types of Vatroslav Vogrin are also deposited in this collection. The majority of the specimens are from the Dalmatian sea side but there are also specimens from the Carpathian basin (North Croatia).

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