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A history of the research on ostracodes from the Paleogene and Neogene of Austria (1839–1999)

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4 text-figures and 1 table

Ostracoda
Austria
Paleogene
Neogene
History of research
Bibliography
Taxa erected on Austrian material

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160 Jahre Erforschungsgeschichte der paleogenen und neogenen Ostracoden aus Österreich (1839-1999)

Zusammenfassung

In der vorliegenden Arbeit wird die Erforschungsgeschichte der paleogenen und neogenen Ostracoden aus Österreich dargestellt. Die erste Angabe von Ostracodenarten in der Literatur stammt aus dem Jahr 1839 und liegt somit 160 Jahre zurück. Die erste systematische Monographie mit der Beschreibung von 80 neuen Arten aus dem Miozän des Gebietes der Österreichisch-Ungarischen Monarchie wurde von August Emanuel REUSS im Jahr 1850 verfaßt. Es folgte eine lange Zeit, in der keine systematische Forschung betrieben wurde und Ostracoden nur in wenigen Publikationen erwähnt wurden. Erst Franz TOULA beschrieb wieder neue Arten in den Jahren 1914 und 1915.

Von den vierziger Jahren dieses Jahrhunderts an begann die Anzahl der Publikationen über Ostracoden anzuwachsen und an der Universität Wien wurden seit dieser Zeit auch Dissertationen verfaßt, in denen Ostracoden bearbeitet wurden. In der Mehrzahl der Publikationen wurde das Gewicht auf die Biostratigraphie der Ostracoden gelegt, da dies von Interesse für die Erdölindustrie war. Die paläoökologische Forschung war anfänglich mit der biostratigraphischen Forschung im Wiener Becken verbunden, da die ökologisch bedingten Faunenwechsel im späten Miozän lokal für Altersdatierungen herangezogen werden konnten. In den sechziger und siebziger Jahren waren Kurt KOLLMANN (1960, 1971) und Tillfried CERNAJSEK (1971a, 1974) die Wissenschaftler, die die meiste systematische Forschung betrieben.

Von Anfang an konzentrierte sich die Forschung auf neogene und im speziellen miozäne Lokalitäten des Wiener und Steirischen Beckens und später auch auf die Molassezone. Jan E. van HINTE war der einzige Bearbeiter, der 1962 und 1964 neue Arten aus dem Eozän beschrieb.

Zusätzlich wird eine Bibliographie über die Ostracodenforschung im österreichischen Paleogen und Neogen sowie eine Liste mit Arten, die anhand von österreichischem Material aufgestellt wurden, angeführt.

Abstract

The present paper deals with the history of research on Paleogene and Neogene ostracodes from Austria. The first record of ostracode species in scientific literature dates from 1839, that is 160 years ago. The first systematic monograph containing a description of 80 new species from the Miocene of the area of the Austrian-Hungarian Monarchy was written by August Emanuel REUSS in 1850. There followed a long period without systematic research, during which ostracodes were mentioned only in a few publications, i. e. Franz TOULA described new species in 1914 and 1915.

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Since the forties of this century the number of publications on ostracodes began to increase and it is since that time that theses dealing with ostracodes have also been written at the University of Vienna. In the bulk of publications the main emphasis has been on the biostratigraphy of ostracodes since it was of great interest for the oil industry. The paleoecological research initially was connected with the biostratigraphical research on the Vienna Basin because the ecologically influenced faunal changes in the Late Miocene are locally useful for age determinations. The scientists who did most of the systematic research in the sixties and seventies were Kurt KOLLMANN (1960, 1971) and Tillfried CERNAJSEK (1971a, 1974).

From the very beginning the research was focussed on Neogene and especially on Miocene localities of the Vienna and the Styrian Basin and later also of the Molasse Zone. Jan E. van HINTE was the only specialist who described new species from the Eocene in 1962 and 1964.

Additionally a bibliography on ostracode research in the Austrian Paleogene and Neogene and a list of species erected on Austrian material is given.

1. Introduction

A nice coincidence is the almost coeval 150 years anniversary of the founding of the Geological Survey in Austria (former "k. k. *Geologische Reichsanstalt*") in 1849, which shall be celebrated with this volume and the beginning of the systematic research on ostracodes from the Neogene of Austria in 1850. In that year the pioneer in this field of research – August Emanuel REUSS – wrote the first systematic monograph on Neogene ostracodes from the area of the Austrian-Hungarian Monarchy. He did not belong to the staff of the Geological Survey, but was encouraged to work on ostracodes by Franz von HAUER, who was a member from the first day and later the second director of this institution. HAUER was the person from whom REUSS got the main part of his samples.

The date of publishing of the monograph of REUSS falls within the time which OERTLI (1982) named the "period of explosive development in ostracode research" (1830–1900) summarising Recent and fossil contributions. It is as well the time when the stratigraphic usage of ostracodes began (HARTMANN, 1966). In the preceeding time since LINNÉ'S first description of an ostracode in the year 1746 the research was focussed mainly on Recent ostracodes. The first description of a fossil ostracode was given by DESMAREST in the year 1813 within the "French period in ostracode research" (see OERTLI, 1982).

In the following historical synopsis the author does not include the overall research on ostracodes by Austrian ostracodologists but concentrates on the research of ostracodes from Paleogene and Neogene sediments of Austria as it is the author's own field of work. Despite historical aspects, this paper treats only the territory of Austria in its present-day boundaries. Since monographs and systematic descriptions are rare in Austria, small contributions containing at least determinations at a generic level are included. Important unpublished manuscripts are also referred to.

The very early days of ostracode research in Austria have already been considered in MALZ (1987) and ZORN (1999b). Some of the persons mentioned in the present paper are also considered in ZORN (in press) as they are/were members of the Geological Survey of Austria. The biographic data used in the present paper are taken from ZAPFE (1971, 1987).

2. The early days and first 100 years of ostracode research in Austria

The first documentation of ostracodes from Austria in the scientific literature dates back 160 years. Joseph von HAUER – the father of Franz von HAUER – sent a letter to Heinrich G. BRONN, which was published in the "Neues Jahrbuch für Mineralogie, Geognosie, Geologie und Petrefaktenkunde" (J. v. HAUER, 1939), of which BRONN was one of the editors. In this letter J. v. HAUER mentioned his collection of microfossils from Nußdorf (nowadays part of Vienna) which he had sent in advance to **Alcide d'ORBIGNY** in order for him to determine the material. To BRONN he sent a duplicate collection of specimens. At that time six ostracode species were distinguished by d'ORBIGNY from Nußdorf, which later turned out to be one of the localities with the most diverse ostracode fauna of the Badenian (Middle Miocene). It was also one of the most important localities for the first monograph on ostracodes which had been written by REUSS (1850).

BRONN sent the ostracode collection for comparison to **Friedrich Adolph ROEMER** who at the same time was working on the ostracodes from Northern Germany. Two pages further on in the same volume of the "Jahrbuch ..." which is cited above, a letter from ROEMER to BRONN is printed in which ROEMER noted some synonymies (ROEMER, 1839). He also erected the species *Cytherina haueri*, but neither figured nor decribed it. The material of this collection is still housed in the "Roemer-Pelizaeus-Museum" at Hildesheim (Germany) as stated by **Heinz MALZ** (1987) who reinvestigated the material and gave some systematical and historical remarks.

Eleven years later **August Emanuel REUSS** <*1811–†1873> wrote his famous monograph "Die fossilen Entomostraceen des österreichischen Tertiärbeckens" (REUSS, 1850), the first systematic monograph on ostracodes from the Vienna Basin and other areas of the Central Paratethys. Of the 28 localities which yielded ostracodes, 21 are now within present-day Austria (Vienna, Lower Austria, Styria, Burgenland). REUSS described 90 species of ostracodes of which 80 were new, including *Cytherina haueri*, which became valid under his authorship (see above). These species the reader will find in table 1. A portrait of REUSS at the age when his monograph had been published and his signature are given in text-figure 1. F. von HAUER reported on the mo-

Text-fig. 1:
August Emanuel REUSS, in his first years as Professor of Mineralogy in Prague; Photo: Bildarchiv, Österr. Nat.–Bibl. Wien.

Text-fig. 2:
Franz TOULA in 1903; Photo: Archive Geol. Surv. Austria.

nograph of REUSS during two meetings of the "Freunde der Naturwissenschaften in Wien" (HAUER, 1948, 1949) in whose "Berichte" it was later published.

For at least the following 100 years the monograph of REUSS remained the most important source for ostracode determination concerning the Middle and Late Miocene (nowadays Badenian to Pannonian) in Austria. During the years 1849 to 1906 CŽJŽEK (1849, 1851a, b, 1853), GOBANZ (1854), HILBER (1893), KARRER (1859, 1863, 1877), ROLLE (1855, 1856), SCHAFFER (1906) and ŠTÚR (1867) mentioned ostracodes at a genus or species level from Neogene Austrian localities of the Vienna and Styrian Basin. CŽJŽEK (1849) was allowed to use the results of REUSS although the monograph of REUSS had not yet been published. REUSS in part did the determinations for the other publications himself, as mentioned for instance by ROLLE (1855) and KARRER (1859). The authors partly used the monograph of REUSS for determination or they merely cited his results, as for instance was done by KARRER (1877) after the death of REUSS. The species *Cythere venulosa* REUSS n. sp. from the locality Eichkogel mentioned in KARRER (1859) is considered a nomen nudum as it was neither figured nor described.

The German ostracode specialist **Ernst LIENENKLAUS** gave in his monograph of the Tertiary ostracodes from Northwestern Germany few remarks on the ostracode collection of REUSS in Vienna and mentioned *Xestoleberis tumida* (REUSS, 1850) from Nußdorf (LIENENKLAUS, 1894). In his paper on the Middle Oligocene ostracodes from the Paris Basin (LIENENKLAUS, 1895) he included several Austrian species of the REUSS collection in his descriptions, especially those which are today assigned to the Hemicytheridae.

Until the Second World War the famous monograph of REUSS (1850) was the only relevant systematic paper on ostracodes from Austria. **Franz TOULA** <*1845–†1920> was the first paleontologist after REUSS to do systematic studies on ostracodes. He erected the species *Cytherina ottnangensis* from the Ottnang Schlier of the Molasse Zone in Upper Austria (TOULA, 1914). This species later became the most important stratigraphic index fossil for the Ottnangian stage. A further species he erected is *Cythere moedlingensis* from the Middle Miocene (Badenian) from a well core near Vienna in Lower Austria (TOULA, 1915). In 1913 TOULA examined another well core in Vienna which also contained ostracodes. A portrait of TOULA is given in text-figure 2.

During the time between the two World Wars the only relevant contribution to ostracode research was the one by **Adalbert LIEBUS** <*1876–†1948?> – more famous for his foraminifera research – on the Eocene Fauna of the Krappfeld in Carinthia in which he considered eight ostracode species (LIEBUS, 1927).

3. Advanced research on ostracodes in Austria since the Second World War

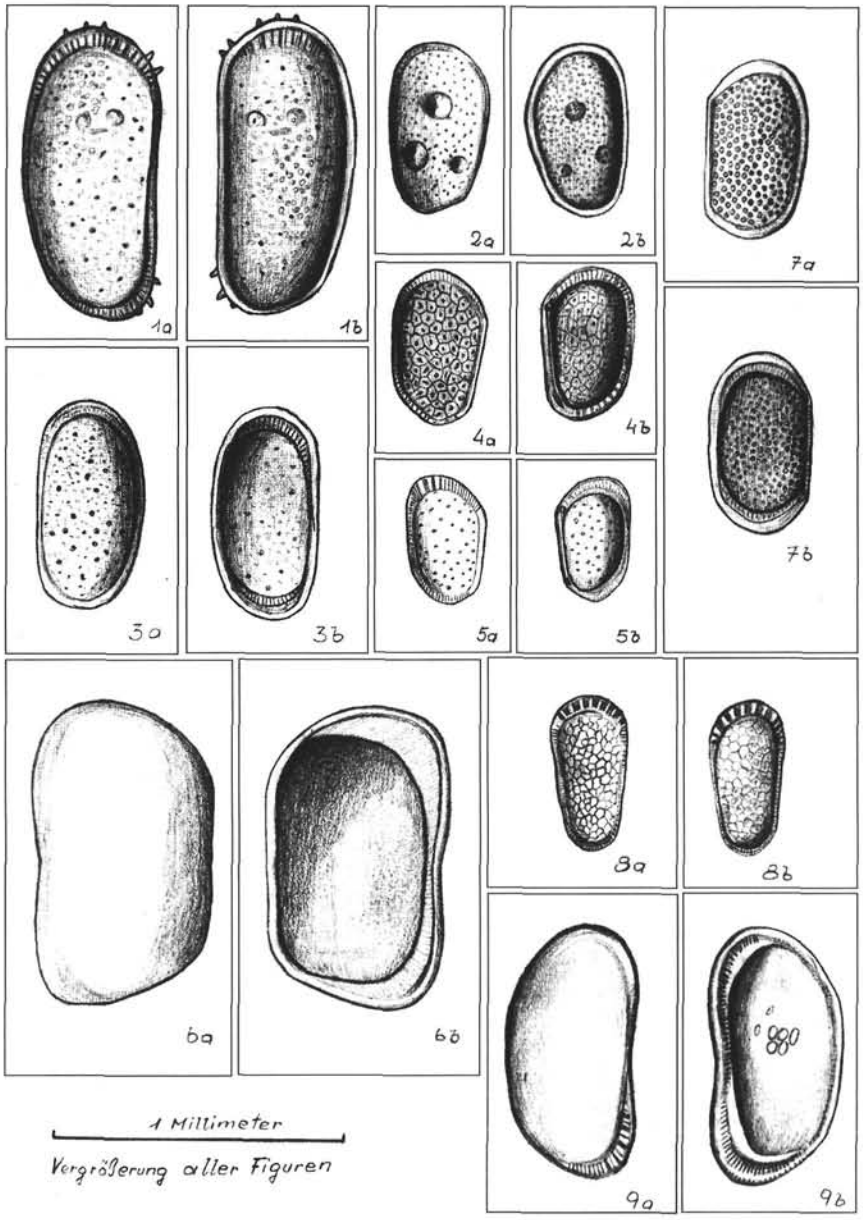
From the forties of this century research on ostracodes became more relevant for stratigraphic purposes, as it was required by the oil companies. But the state of systematic research on ostracodes in Austria at that time was not up to standard. HARTMANN (1966) had already stated these circumstances in the general development of ostracode research in Europe. The paper of **Helmut FAHRION** (1941) on the stratigraphy of the Pannonian demonstrates this problem very well. He did not use systematic units such as species, which are described, defined and binominally named, but used forms of ostracodes which he named with characters from A to H. Two years later he published a microfaunistic comparison of the southeastern European Pannonian (FAHRION, 1943).

At the same time ostracode research started at the University of Vienna and from then on several theses focussed on ostracodes. To date the following persons have put the main emphasis on ostracodes in their theses: Edmund SCHUBERT (1944), Erhard WINKLER (1945), Franz SAUERZOPF (1950), Heribert PLACHY (1965), Tillfried CERNAJSEK (1971) and Irene ZORN (1997), as well as the ongoing thesis of Martin GROSS. Theresia HUBER started her thesis in the eighties but unfortunately never finished it. All these theses focussed on ostracodes from the Miocene.

Edmund SCHUBERT <*1907> tried to overcome the gaps between the zoological and paleontological methods in ostracode research. In his thesis "Neue Untersuchungen an fossilen Ostracoden" (SCHUBERT, 1944) he put the main emphasis on the internal characters as they mirror the morphology of the living animal. He was the first researcher in Austria to make thin sections of ostracode shells and to document his results by photography, trying to find out the taxonomical and stratigraphical value of the development of the marginal area of the inner and outer lamella. The first reports on his research he gave in the "Anzeiger der Österreichischen Akademie der Wissenschaften" (SCHUBERT, 1943a, b). For a short time SCHUBERT worked as a micropaleontologist in the oil company "Rohölgewinnungs AG" (RAG).

At the same time **Erhard WINKLER** <*1921> started to work on ostracodes. Before he finished his university studies at the Geological Institute of the "Technische Hochschule" in Vienna he published on a Badenian fauna from Vienna-Perchtoldsdorf (WINKLER, 1942) and on an examination of the Sarmatian of a borehole in the third district in Vienna (WINKLER, 1944). Several years later he published his important research on the stratigraphic value of the ostracodes in the Pannonian of the Vienna Basin (WINKLER, 1949) which he had previously submitted as his thesis (WINKLER, 1945). In this publication he tried to assign FAHRION'S ostracode forms to dinstict genera and species. For the first time someone in Austria used statistical methods (width/length-ratio) on ostracodes for stratigraphic purposes. Additionally he gave a short review of ostracode research up to his time.

WINKLER mentioned that **Erich TRIEBEL** from the Senckenberg-Museum in Frankfurt at the same time was trying to evolve



Text-fig. 3:
Ostracode plate of an unpublished manuscript by Kurt TURNOVSKY (1949), drawings by Adolf PAPP; Archive Geol. Surv. Austria.

a new systematic classification on Neogene ostracodes from the Vienna Basin. This was also stated by JANOSCHEK (1943). The present author does not know a separate paper by TRIEBEL on this topic, but recognised that TRIEBEL used Badenian ostracodes from classical sites of the Vienna Basin (e. g. Nußdorf) for comparison as he included this material in several papers on other subjects (TRIEBEL, 1941, 1947, 1949, 1950).

A further paper of WINKLER (1954) on "Statistical methods and techniques for the measurement of average index ratios of ostracod carapaxes", written when he was already Professor at the department of Geology/University of Notre Dame (Indiana, USA), includes material of the Vienna Basin, viz. the species *Cytheridea pannonica* MEHES, 1908, which he had already studied in his paper from 1949.

Franz SAUERZOPF studied molluscs and ostracodes within the scope of his thesis "Fauna und Gliederung der Schichten des Pannon im südlichen Burgenland" and evaluated the faunas stratigraphically (SAUERZOPF, 1950). He documented 21 ostracode species which he described concisely and illustrated on four plates. He published a summary of his results two years later (SAUERZOPF, 1952).

In the forties and fifties several papers by **Rudolf GRILL** <*1910–†1987>, which mostly were connected with his mapping activities, often contained some data on Neogene ostracodes (GRILL, 1943, 1948, 1951, 1953a, b, 1954, 1957; FINK et al., 1958). In the sixties and seventies the ostracode determinations in GRILL'S publications (GRILL, 1962, 1968, 1970, 1972, 1974, 1977, 1979; GRILL et al., 1963) in many cases were done by Kurt KOLLMANN. A summary of GRILL'S micropaleontological research may be found by the reader in ZORN (in press).

Kurt TURNOVSKY <*1913–†1976> worked as a micropaleontologist in the oil company "Österreichische Mineralölverwaltung" (OMV). He focussed his studies on Neogene foraminifera and cooperated very much with Adolf PAPP from the University of Vienna. TURNOVSKY did not publish many papers on ostracodes but for a while concentrated his research activities very much on Miocene ostracodes. Two unpublished manuscripts from the archives of the Geological Survey in Vienna (TURNOVSKY, 1949a, b) demonstrate that he worked on a monograph of Middle Miocene ostracodes the basis of which was the revision of the ostracode collection of REUSS. He selected many lectotypes and several neotypes the whereabouts of which unfortunately are unknown. Furthermore he wanted to erect the new species *Loxoconcha subgranifera* and *Lineocypris fahrioni* from the Pannonian. He published these two species in another publicaton, in which he contributed only a plate and its captions with the drawings made by PAPP. This was done within the scope of the "Erläuterungen zur geologischen Karte der Umgebung von Wien" (TURNOVSKY in GRILL & KÜPPER, 1954: pl. 14). Text-figure 3 shows one of five plates from the two unpublished manuscripts in which the two new species are included (Figs. 5 and 9). Also the other drawings of this plate were part of plate 14 from 1954.

Furthermore TURNOVSKY studied the Badenian ostracodes of the Mühldorfer Schichten in the Carinthian Lavanttal which are cited in GRILL (1952) and published a short paper about the molluscs and ostracodes from the Pannonian together with PAPP (PAPP & TURNOVSKY, 1954). In several other publications from the time of the early research of **Adolf PAPP** ostracodes were biostratigraphically taken into consideration or faunal lists were given (MILLES & PAPP, 1957; PAPP, 1955, 1956; PAPP & THENIUS, 1954).

An unpublished report by TURNOVSKY contains little data on ostracodes from the area of Eggenburg (TURNOVSKY, 1951). His first paper which included ostracodes was on methods of

advanced micropaleontology (TURNOVSKY, 1948) in which he stressed the biostratigraphical value of ostracodes together with that of foraminifera. In the seventies some of TURNOVSKY'S determinations on ostracodes were published in mapping reports (BRIX, 1975, 1976, 1977, 1979) and articles on stratigraphy (PAPP et al., 1973).

Reinhard FUCHS and Kurt TURNOVSKY studied the Miocene ostracodes given in the explanations of the geological map 1:50 000, sheet 76, Wiener Neustadt (BRIX & PLÖCHINGER, 1988). FUCHS gave some more contributions in geological mapping reports (BRIX, 1981; FUCHS, 1985) and in FUCHS & SCHREIBER (1985, 1988) and FUCHS (1980). **Otto SCHREIBER** determined and illustrated the Pannonian ostracodes from the sand pit in Steinbrunn and the Sarmatian ostracodes from Wolfsthal (in: SAUER et al., 1992).

One of the most important ostracode specialists from Austria was **Kurt KOLLMANN** <*1915–†1982>. From 1939 to 1978 he was employed by the oil company "Rohöl-Aufsuchungs-Ges.m.b.H.". Besides his profession as petroleum geologist he studied intensively Mesozoic and Cenozoic ostracodes. He published several systematic papers and many faunal lists. Herein his work on Paleogene and Neogene ostracodes shall be stressed. A more complete list of his scientific publications is included in his obituary (JANOSCHEK, 1983).

KOLLMANN'S studies began with the Lower Miocene ostracodes of the area of Eggenburg in Lower Austria. The species listed and illustrated in TOLLMANN (1957a) and STEININGER (1963a, b) had been contributed by KOLLMANN. Later he published a monographic and stratigraphic study on the ostracodes of the Eggenburgian stage within the scope of the new stratigraphic subdivision of the Neogene of the Central Paratethys (KOLLMANN, 1971), the results of which are presented in the volumes "Chronostratigraphie und Neostratotypen". In this publication he described more than 60 species and subspecies from the Eggenburgian of the Molasse Zone in Lower Austria, of which 2 species (*Aurila praecicatricosa*, Gen. indet. *gauderndorfensis*) and 1 subspecies *(Quadracythere confluens felsensis)* were new. A first report on ostracodes from the Hall Schlier of Upper Austria was included. Furthermore he erected the subgenus *Amphischuleridea*. KOLLMANN also included some systematic research on Badenian ostracodes and selected neotypes for *Callistocythere canaliculata* (REUSS, 1850), *Loxoconcha hastata* (REUSS, 1850) and *Aurila cicatricosa* (REUSS, 1850).

For the Ottnangian stage he examined the ostracode fauna from the stratotype Ottnang-Schanze in Upper Austria (In: RÖGL et al., 1973). KOLLMANN'S results on the Neogene of the Styrian Basin can be found in his publications from 1960 (a, c) and 1965, in FLÜGEL (1972) and FLÜGEL & HERITSCH (1968). Later he contributed to the "Badenien" volume of the series "Chronostratigraphie und Neostratotypen" (KOLLMANN & RÖGL, 1978a, b).

With his study on the Cytherideinae and Schulerideinae of the Neogene from Eastern Austria (KOLLMANN, 1960a) KOLLMANN left behind him one of the most important systematic and stratigraphic contributions on Neogene ostracodes from Austria including Pleistocene and Recent species. He described 50 species and subspecies, 12 of which were new *(Cytheridea lacunosa, C. paracuminata paracuminata, C. paracuminata verrucosa, C. eggenburgensis, C. josephinae, C. neapolitana, Cyamocytheridea leptostigma foveolata, Cyprideis macrostigma macrostigma, C. macrostigma ventricosa, C. heterostigma major, C. alberti, Miocyprideis janoscheki)*. The genus *Miocyprideis* was also erected by him. Additionally he selected lectotypes for *Cyamocytheridea leptostigma leptostigma* (REUSS, 1850), *Cyprideis heterostigma heterostigma* (REUSS, 1850), *C. heterostigma obesa* (REUSS, 1850) and *Cyprideis seminulum* (REUSS, 1850).

In FINK et al. (1958) KOLLMANN mentioned several species from the Badenian, Sarmatian and Pannonian of the Northwestern part of Vienna. In one of his publications on Triassic ostracodes he illustrated *Bairdia* from Nußdorf (KOLLMANN, 1960b). KOLLMANN aided Tillfried CERNAJSEK (1971) and Heribert PLACHY (1965) in the taxonomic investigations for their thesis (see below) and helped Godfrid WESSELY in the determination of the Neogene ostracodes from the area of Hainburg (WESSELY, 1959, 1961).

KOLLMANN also investigated Paleogene ostracode faunas from Austria. He published on an Oligocene fauna from Rogatsboden in Lower Austria (KOLLMANN, 1958; PREY, 1957) and determined the Eocene ostracodes from the area of Abtenau and Salzburg which are cited in ABERER (1958) and WILLE (1968). The ostracodes from the Danian fine sand of Bruderndorf in SCHMID (1962) were also determined by him. Furthermore he contributed the occurrence of *Cytheridea ventricosa* from the Oligocene of Vorarlberg (In: PLÖCHINGER, 1958).

The "8th European Micropaleontological Colloquium" took place in Vienna in 1963 and KOLLMANN was one of the organisers. In the excursion guide (GRILL et al., 1963) he presented ostracodes from Triassic, Paleogene and Neogene localities, such as Nußdorf, Siebenhirten and Vösendorf, and gave stratigraphic information on the faunas.

Unfortunately KOLLMANN could not finish his last study "Zur Stratigraphie und Fazies der Ostracodenfauna von Langau in Niederösterreich" (JANOSCHEK, 1983). His extensive collection of Paleozoic to Recent ostracodes is kept in the collections of the Museum of Natural History in Vienna. KOLLMANN had contact with many famous ostracode specialists of his time as can be demonstrated by the ostracode material he got

Text-fig. 4:
Kurt KOLLMANN on the right (Robert JANOSCHEK on the left), "Wandertagung" 1970 of the "Österr. Geol. Ges." at Wildon, Styria; Photo by courtesy of Heinz A. KOLLMANN.

from all over the world and by the dedications on the offprints he collected. A photograph of KOLLMANN which shows him during a geological excursion is given in text-figure 4.

Werner FUCHS cited the occurrence of *Haplocytheridea dacica* (HÉJJAS, 1894) in the Pielach Tegel (Egerian) near Melk in Lower Austria (FUCHS, 1963, 1964). Further Egerian ostracodes are documented only in STEININGER (1969), who mentioned a rich but undetermined ostracode fauna from the Linz Sands at Plesching in Upper Austria and illustrated *Leguminocythereis* sp. (det. K. KOLLMANN). In his thesis FUCHS studied several Neogene (Badenian–Pannonian) and Quaternary ostracodes from the surroundings of Rust (Burgenland) under the supervision and guidance of KOLLMANN. A summary of his results he presented some years later (FUCHS, 1965).

Besides LIEBUS and KOLLMANN only **Jan E. van HINTE** examined Eocene ostracodes. His studies were concentrated on the Sonnberg area in Carinthia. He described several new species from this locality, viz. *Bairdia keyi* HINTE, 1962, *Krithe sonnbergensis* HINTE, 1962, *Trachyleberis* ? *aculeata modesta* HINTE, 1962, *T.* ? *kahleri* HINTE, 1962 and *Occultocythereis droogeri* HINTE, 1964.

Alexander TOLLMANN and especially his wife **Edith KRISTAN-TOLLMANN** <*1938–†1995> studied also ostracodes from the Neogene as part of of their many-sided research in earth sciences. TOLLMANN gave some faunal lists of ostracodes from the Neogene of Burgenland at the beginning of his career (BACHMAYER & TOLLMANN, 1953; TOLLMANN, 1955, 1957b). In his famous book "Geologie von Österreich" (TOLLMANN, 1985) he mentioned ostracodes from the Paleogene and Neogene. KRISTAN-TOLLMANN also started to work on ostracodes from the Neogene of Burgenland (KRISTAN-TOLLMANN, 1964). There followed a long time during which she focussed on Mesozoic ostracodes and for this research she is well known among the experts in the field. During her last years of research she returned to studying Neogene ostracodes. In the excursion guides for the scientific symposia "Shallow Tethys 4" and "3. Treffen deutschsprachiger Ostracodenforscher", which were organised by TOLLMANN and KRISTAN-TOLLMANN, she presented ostracodes from the Eg-genburgian and Badenian of the Molasse Zone in Lower Austria (TOLLMANN & KRISTAN-TOLLMANN, 1991, 1994). In her obituary the reader will find a more complete presentation of her overall research (LOBITZER, 1996).

Heribert PLACHY studied the systematics, biostratigraphy and paleoecology of Sarmatian ostracodes of the Vienna Basin for his thesis entitled "Die Ostracodenfauna aus dem Sarmat des Wiener Beckens" (PLACHY, 1965). He investigated the distribution of 21 ostracode species from 28 localities. Furthermore PLACHY determined the Badenian and Sarmatian ostracodes from St. Margarethen included in the thesis of UDIN (1964) and from Sauerbrunn cited in the paper by STEININGER & THENIUS (1965). Both localities are in Burgenland.

During the years 1964–1969 the "Post graduate Training Center for Geology" was organised by the University of Vienna and the Geological Survey of Austria. Within the scope of these courses which were sponsored by UNESCO, geologists from the third world countries were trained in different fields of earth sciences, as for instance in micropaleontology. PLACHY instructed the participants on Neogene ostracodes shortly after he finished his thesis. Three participants of the UNESCO-courses studied Miocene ostracodes in more detail. **HAMDI** (1966) studied the Badenian ostracodes from Sooss and Nußdorf and **HONNAPPA** (1967) the Sarmatian species *Miocyprideis janoscheki* KOLLMANN, 1960. **BOKHARI** (1967) carried out research on several species of the genus *Aurila* from Nußdorf. The descriptions and plates of this study are only in an unpublished manuscript (BOKHARI, 1968). In the "Refresher Colloquium 1971 in the fields of stratigraphy and micropaleontology" KOLLMANN gave a lecture on "New Information on the Microstructure of Ostracods as obtained by means of the Scanning Electron Microscope" (KOLLMANN, 1972).

The studies by **Tillfried CERNAJSEK** began with his thesis on the genus *Aurila* in the Neogene of Austria (CERNAJSEK, 1971a, b). He focussed his studies on the systematics, paleoecology and biostratigraphy of Miocene ostracodes from the Vienna Basin and the Molasse Zone. The paleoecology of the ostracodes from the Western margin of the Vienna Basin he published in a separate paper (CERNAJSEK, 1972). CERNAJSEK used the Scanning Electron Microscope for the examination of the sculpture and the internal characters and documented for the first time sieve pores for Austrian material (CERNAJSEK, 1971a, 1973).

Within the scope of the new stratigraphic subdivision of the Neogene in the Central Paratethys he examined the ostracodes of the Sarmatian stage and erected three new species: *Aurila kollmanni*, ? *Bythocypris pappi* and *Loxoconcha schmidi* (see CERNAJSEK, 1974). The ostracodes from Vösendorf (stratotype of the Pannonian stage) cited in PAPP (1985) were also studied by CERNAJSEK (see also PAPP & CERNAJSEK, 1985).

Besides his employment as head of the library of the Geological Survey of Austria (since 1972 in the staff of the Survey) CERNAJSEK was also project leader of two projects funded by the Austrian Science Foundation, in which Theresia HUBER and the author took part (projects P4458 "Systematic and biostratigraphic studies on Tertiary ostracodes with regard to their usage for the exploration of primary energy sources in Austria" and P12229-GEO "Systematic, paleoecologic and biostratigraphic studies on marine ostracode faunas from the Early Miocene of Austria"). The first project he led together with Karl NEBERT and the second with Fritz STEININGER.

Paul HERRMANN has studied Neogene ostracodes since he carried out his thesis on the geology of the Eastern part of the "Leithagebirge" in Burgenland (HERRMANN, 1970). Within the scope of the geological mapping programme of the Geological Survey of Austria, where he has been employed since 1973, he focusses on the biostratigraphical aspects of ostracodes in the Neogene and especially in the Pannonian of the Burgenland. In several mapping reports (HERRMANN, 1974, 1985, 1988) and in explanations of geological maps (PAHR, 1984; HERRMANN & PAHR, 1988) he has mentioned Miocene ostracodes from Burgenland.

Furthermore he studied the Neogene (Badenian, Sarmatian, Pannonian) and Quaternary ostracodes of the Mattersburg Basin (In: PASCHER, 1988, 1991) and the Sarmatian ostracodes cited in NEBERT et al. (1980) and NEBERT (1985). HERRMANN determined the ostracodes from the Northern part of the Oberpullendorf Basin (In: MOSTAFAVI, 1978) and from the Western part of the "Ödenburger Pforte" (In: CHAHIDA, 1970). HERRMANN took part in the working group of the fauna and flora of the Pontian from Götzendorf in Lower Austria where also primates have been found (RÖGL et al., 1993). Additionally he gave several contributions on the Neogene of the Styrian Basin (RIEPLER, 1986; LOBITZER et al., 1988; DRAXLER et al., 1994).

The "International Symposium on Ecology and Zoogeography of recent and fossil Ostracoda" took place in 1976 in Saalfelden (Salzburg) and was organised by several Austrian ostracode specialists, viz. Dan DANIELOPOL, Heinz LÖFFLER (Recent ostracodes), Edith KRISTAN-TOLLMANN (Mesozoic ostracodes), Tillfried CERNAJSEK and Paul HERRMANN (Neogene ostracodes). CERNAJSEK and HERRMANN organised an excursion to several localities of the Vienna Basin. They led to Pannonian (Hennersdorf), Sarmatian (Nexing, Siebenhirten) and Badenian (Nußdorf/Vienna, Sooß and Rauchstallbrunngraben near Baden) localities and presented their research in an excursion guide (CERNAJSEK & HERRMANN, 1976).

In the eighties **Theresia Huber** started for her thesis on Badenian ostracodes which however was not completed. She studied cores from the Hainburg area in the Vienna Basin. A publication on the new species *Pseudolimnocythere hainburgensis* Danielopol, Piller & Huber, 1991 resulted from these investigations. The paleoecology of the studied material was evaluated by **Dan Danielopol**. At the same time she worked in a project of the Austrian Science Foundation (see above). Her reports were about the systematics and ecology of the Eggenburgian ostracodes from Fels am Wagram in Lower Austria (Huber, 1982), the Badenian ostracodes from several localities of Lower Austria and Burgenland (Huber-Mahdi, 1984) and Badenian and Sarmatian ostracodes from the Lavanttal in Carinthia (Huber-Mahdi, 1986). In the same project Roman Lahodynsky (1986) gathered literature data on Pannonian ostracodes. The final report was written by Zorn (1993).

Jaromir Zelenka studied the collection of Reuss in the Museum of Natural History in Vienna. He published a list of the species with their proper genera (Zelenka, 1989, 1990). In his review of the Sarmatian ostracodes of the Vienna Basin (Zelenka, 1993) he included Czech and Austrian material.

In recent years the author, **Irene Zorn**, has studied the systematics, paleoecology and biostratigraphy of Early Miocene ostracodes, especially from the Ottnangian of the Molasse Zone in Upper Austria (Zorn, 1994a, 1995a, 1997b; in: Hofmann, 1997; in: Kohl & Krenmayr, 1997; in: Krenmayr & Roetzel, 1996; in: Rögl & Rupp, 1996) and from the Karpatian of the Korneuburg Basin in Lower Austria (Zorn, 1994b, 1995b, 1998). In the last paper four new ostracode species were erected *(Callistocythere karpatiensis, Cyamocytheridea gracilis, Heliocythere leobendorfensis, Cytherura teiritzbergensis)*. The results of these studies which Zorn carried out within the scope of a project funded by the Austrian Science Foundation (see above) were submitted as a doctoral thesis (Zorn, 1997a). Karpatian ostracodes from Laa/ /Thaya in the Molasse Zone of Lower Austria have been cited in Rögl et al. (1997).

Within the scope of her research at the Geological Survey, to whose staff she belongs since the end of 1997, Zorn has examined the ostracodes of map sheet 22 (Hollabrunn) of the geological mapping programme. This study includes samples from the area of Hollabrunn, Ziersdorf (Sarmatian), Retz (Eggenburgian) and Grund (Badenian) (Zorn, 1999a). Several drillings in Vienna have been analysed by Zorn (in: Homayoun et al., 1998).

The most recent research subject is the ongoing revision of the ostracode fauna of the classical sites and the collection of Reuss (1850). These studies and the studies of Martin Gross (see below) are the basis for the revision of the ecology and biostratigraphy of the Badenian ostracodes in Austria and are part of another project funded by the Austrian Science Foundation (P12229-GEO). In 1998 Zorn gave a presentation of Neogene ostracodes from the Molasse Zone and the Vienna Basin during a meeting of the German speaking ostracodologists in Mondsee.

Recently **Martin Gross** started to study ostracodes. As part of his diploma work he described several species from the Pannonian of the Styrian Basin (Gross, 1997). In his ongoing thesis he is investigating the systematics and paleoecology of Badenian ostracodes from several boreholes of the area of Hainburg in the Vienna Basin. He has presented preliminary results at two congresses (Gross, 1998; Gross & Piller, 1998).

Additionally it should be mentioned here that Carbonnel (1982, and in: Steininger et al., 1982) gave a faunal list and illustrations of Eggenburgian ostracodes from Vorarlberg. Kempf & Nink (1993) revised *Henryhowella asperrima* (Reuss, 1850) from the type region Baden (Lower Austria, Vienna Basin). In several papers by Wank ostracodes from the Lavanttal in Carinthia are mentioned (Wank, 1979, 1987, 1988). Weinhandl (1952, 1956) cited Pannonian and Sarmatian ostracodes from Vienna and Styria (1967) and probably contributed to some papers by Küpper (1957, 1968; Küpper et al., 1952, 1955). Reichenbacher included in her research on the micro faunas of the Western Paratethys also several species from the Ottnangian of Austria (Reichenbacher, 1993).

Lueger (1980) studied the Pannonian ostracodes from the Eisenstadt area in Burgenland for stratigraphic purposes. Pipik determined and illustrated the Pannonian ostracodes from the Oberpullendorf Basin (Burgenland) which are mentioned in Milicka et al. (1995a, b). Two contributions to the knowledge of Miocene ostracodes were given by Friebe, who determined several species from Styria and Burgenland (Friebe, 1994; Friebe & Poltnig, 1993). Krainer (1984) presented preliminary results of his thesis on stratigraphy and tectonics in Eastern Styria including several data on ostracodes which had been identified with the help of Cernajsek. Nebert mentioned several Neogene ostracode species from the Styrian Basin (Nebert, 1951, 1985). The microfossils in Nebert (1985) were determined by Manfred Schmid.

In several publications on the systematics of ostracodes from European countries other than Austria few specimens from Austrian localities have been illustrated. Brestenská & Jiříček (1978) illustrated *Callistocythere canaliculata* (Reuss, 1850), *Verrucocythereis verrucosa* (Reuss, 1850) and *Eucytherura pygmaea* (Reuss, 1850) from Nußdorf in their contribution on the Badenian ostracodes of the Central Paratethys. The first cited species and *Callistocythere daedalea* (Reuss, 1850) from the same locality have been illustrated by Pietrzeniuk (1973) in a paper about *Callistocythere* from the Sarmatian of Hungary. Goerlich (1953) illustrated *Cytheridea acuminata* Bosquet, 1852 from Nußdorf. Liebau (1991) described *Pataviella (Pataviella) molassica* (Witt, 1967) and *P. (P.) felsensis* (Kollmann, 1971) from Fels am Wagram when erecting his new genus *Pataviella*. Malz & Jellinek (1984) illustrated *Bosquetina carinella* (Reuss, 1850) and *Grinioneis haidingeri* (Reuss, 1850) from Nußdorf and *Acanthocythereis hystrix* (Reuss, 1850) from Baden. Witt (1967) illustrated *Falunia* aff. *plicatula plicatula* (Reuss, 1850) from the Ottnang Schlier. Moos (1965) described *Hermanites haidingeri haidingeri* (Reuss, 1850) from Grusbach. Jiříček (1975b) illustrated *Caspiolla unguiculus* (Ruess, 1850) from Vösendorf and *Neomonoceratina helvetica* Oertli, 1958 from Eggenburg.

The following papers also contain data on ostracodes: Cícha & Rudolský (1993), Jiříček (1975a), Lindenberg (1965), Machac & Penz (1996), Papp & Rögl (1973), Papp et al. (1971), Piller & Vávra (1991), Reiter (1986), Riepler (1985), Roetzel et al. (1991, 1999), Rögl (1975), Salvermoser (1989), Sieber (1953a, b), Steininger et al. (1975), Stürmer (1991), Tauber (1952), Thenius (1974, 1983), Weiss (1998).

4. Ostracode taxa with type material from Austrian localities of the Paleogene and Neogene

In table 1 species and subspecies with type material from Austrian localities of the Neogene and Paleogene are given in alphabetical order. The original generic names are retained and the systematical units which have been described as new by the relevant author are in bold. The type locality and the modern stratigraphical ages are added when known. This is not true for the species erected by Reuss. For these species the Austrian localities are given as indicated by

Table 1:
Species and subspecies with type material from Neogene and Paleogene localities of Austria.

Aurila angulata ***teiritzbergensis*** CERNAJSEK, 1971	Teiritzberg near Stetten, Lower Austria, Karpatian, Korneuburg Formation
Aurila ***kollmanni*** CERNAJSEK, 1974	Vienna, 17. district, Gschwandtnergasse 56, Lower Sarmatian, Hernalser Tegel, Elphidium reginum Zone
Aurila ***praecicatricosa*** KOLLMANN, 1971	Sand pit Hammerschmid SE Gauderndorf, Lower Austria, Eggenburgian, Gauderndorf Formation
Bairdia ***keyi*** HINTE, 1962	Sonnberg, Carinthia, Eocene
? *Bythocypris* ***pappi*** CERNAJSEK, 1974	Nexing, Lower Austria, Upper Sarmatian, Nonion granosum Zone
Callistocythere ***karpatiensis*** ZORN, 1998	Teiritzberg near Stetten, Lower Austria, Karpatian, Korneuburg Formation
Cyamocytheridea ***gracilis*** ZORN, 1998	Teiritzberg near Stetten, Lower Austria, Karpatian, Korneuburg Formation
Cyamocytheridea leptostigma ***foveolata*** KOLLMANN, 1960	Aframberg NE Wildon, Styria, Lower Sarmatian, Elphidium reginum Zone
Cyprideis ***alberti*** KOLLMANN, 1960	Siegendorf near Eisenstadt, Burgenland, Middle Pannonian D
Cyprideis heterostigma ***major*** KOLLMANN, 1960	Clay pit Inzersdorf, Vienna, Middle Pannonian D
Cyprideis ***macrostigma macrostigma*** KOLLMANN, 1960	Clay pit Inzersdorf, Vienna, Middle Pannonian D
Cyprideis ***macrostigma ventricosa*** KOLLMANN, 1960	Siegendorf near Eisenstadt, Burgenland, Lower Pannonian C
Cypridina ***angulata*** REUSS, 1850	Grinzing, Vienna
Cypridina ***asperrima*** REUSS, 1850	Vienna: Grinzing, Lower Austria: Möllersdorf, Moosbrunn, Baden
Cypridina ***bituberculata*** REUSS, 1850	Brunn, Lower Austria
Cypridina ***brunnensis*** REUSS, 1850	Brunn, Lower Austria
Cypridina ***canaliculata*** REUSS, 1850	Vienna: Meidling, Grinzing, Lower Austria: Gainfarn, Styria: Wurzing
Cypridina ***carinella*** REUSS, 1850	Vienna: Grinzing, Nußdorf, Atzgersdorf, Lower Austria: Möllersdorf
Cypridina ***cicatricosa*** REUSS, 1850	Grinzing, Vienna
Cypridina ***corrugata*** REUSS, 1850	Wurzing, Styria
Cypridina ***deformis*** REUSS, 1850	Vienna: Nußdorf, Lower Austria: Steinebrunn, Styria: Freibühl, St. Nikolai, Wurzing
Cypridina ***folliculosa*** REUSS, 1850	Brunn, Lower Austria
Cypridina ***galeata*** REUSS, 1850	Vienna: Grinzing, Styria: Freibühl, St. Nikolai, Wurzing
Cypridina ***granifera*** REUSS, 1850	Brunn, Lower Austria
Cypridina ***haidingeri*** REUSS, 1850	Vienna: Nußdorf, Grinzing,Styria: Freibühl, St. Nikolai
Cypridina ***hastata*** REUSS, 1850	Vienna: Nußdorf, Grinzing,Styria: St. Nikolai, Wurzing, Lower Austria: Gainfarn
Cypridina ***hispidula*** REUSS, 1850	Vienna: artesian well, Meidling
Cypridina ***kostelensis*** REUSS, 1850	Vienna: Grinzing, Nußdorf, Atzgersdorf, Lower Austria: Steinebrunn
Cypridina ***lacunosa*** REUSS, 1850	Brunn, Lower Austria
Cypridina ***loricata*** REUSS, 1850	Heiligenberg, Lower Austria
Cypridina ***notata*** REUSS, 1850	Mauer, Vienna, Brunn, Lower Austria
Cypridina ***omphalodes*** REUSS, 1850	Mauer, Vienna
Cypridina ***plicatula*** REUSS, 1850	Vienna: Nußdorf, Grinzing, Lower Austria: Gainfarn
Cypridina ***punctatella*** REUSS, 1850	Vienna: Nußdorf, Grinzing, Styria: Wurzing, Freibühl
Cypridina ***pygmaea*** REUSS, 1850	Vienna Basin, locality unknown
Cypridina ***reniformis*** REUSS, 1850	Vienna: Nußdorf, Lower Austria: Brunn
Cypridina ***rostrata*** REUSS, 1850	Vienna: Grinzing
Cypridina ***similis*** REUSS, 1850	Vienna: Grinzing, Styria: Freibühl
Cypridina ***spinulosa*** REUSS, 1850	Vienna: Grinzing
Cypridina ***sulcatopunctata*** REUSS, 1850	Vienna: Nußdorf, Lower Austria: Steinebrunn, Styria: St. Nikolai
Cypridina ***tricostata*** REUSS, 1850	Vienna: Nußdorf
Cypridina ***trigonella*** REUSS, 1850	Vienna: Nußdorf, Grinzing, Styria: Wurzing, Freibühl
Cypridina ***truncata*** REUSS, 1850	Vienna: Grinzing
Cypridina ***ungeri*** REUSS, 1850	Styria: St. Nikolai
Cypridina ***verrucosa*** REUSS, 1850	Vienna: Nußdorf, Grinzing, Styria, St. Nikolai
Cypridina ***vespertilio*** REUSS, 1850	Vienna: Grinzing
Cythere ***moedlingensis*** TOULA, 1915	Mödling in Vienna, Badenian
Cythere ***venulosa*** REUSS in KARRER, 1859	Eichkogel, Sarmatian or Pannonian
Cytheridea ***eggenburgensis*** KOLLMANN, 1960	Eggenburg, Kremserberg, Eggenburgian
Cytheridea ***josephinae*** KOLLMANN, 1960	SSE Dillach, N Wildon, Middle Badenian
Cytheridea ***lacunosa*** KOLLMANN, 1960	Clay pit Stransky near Eggenburg, Eggenburgian
Cytheridea ***paracuminata paracuminata*** KOLLMANN, 1960	Flüssig NE Preding, Styria, Lower Badenian, Lagenid Zone
Cytheridea ***paracuminata verrucosa*** KOLLMANN, 1960	SW Ob. Tilmitsch NW Leibnitz, Styria, Lower Badenian, Lagenid Zone
Cytherina ***abbreviata*** REUSS, 1850	Moosbrunn, Lower Austria
Cytherina ***abscissa*** REUSS, 1850	Vienna: Atzgersdorf, Lower Austria: Brunn, Möllersdorf, Vöslau
Cytherina ***auriculata*** REUSS, 1850	Vienna: Atzgersdorf, Lower Austria: Heiligenberg
Cytherina ***crystallina*** REUSS, 1850	Grinzing, Vienna
Cytherina ***expansa*** REUSS, 1850	Moosbrunn, Lower Austria
Cytherina ***dilatata*** REUSS, 1850	Vienna: Grinzing, Lower Austria, Möllersdorf
Cytherina ***haueri*** ROEMER, 1839	Nußdorf, Vienna, Badenian
Cytherina ***heterostigma*** REUSS, 1850	Vienna: Nußdorf, Lower Austria: Moosbrunn, Brunn, Heiligenberg
Cytherina ***leptostigma*** REUSS, 1850	Mauer, Vienna
Cytherina ***longa*** REUSS, 1850	Freibühl, Styria
Cytherina ***mytiloides*** REUSS, 1850	Grinzing, Vienna
Cytherina ***obesa*** REUSS, 1850	Vienna: Atzgersdorf, Lower Austria: Brunn, Vöslau
Cytherina ***ottnangensis*** TOULA, 1914	Ottnang, Upper Austria, Ottnangian
Cytherina ***ovulum*** REUSS, 1850	Gainfarn, Lower Austria
Cytherina ***pilosella*** REUSS, 1850	Mauer, Vienna
Cytherina ***recta*** REUSS, 1850 (three varieties)	Lower Austria: Vöslau, Brunn, Moosbrunn
Cytherina ***semicircularis*** REUSS, 1850	Vienna: Atzgersdorf, Lower Austria: Brunn, Vöslau
Cytherina ***seminulum*** REUSS, 1850	Vienna: Atzgersdorf, Lower Austria: Moosbrunn, Brunn, Heiligenberg
Cytherina ***setigera*** REUSS, 1850	Brunn, Lower Austria
Cytherina ***strigulosa*** REUSS, 1850	Heiligenberg, Lower Austria

Cytherina ***sublaevis*** REUSS, 1850	Döbling, Vienna
Cytherina ***subteres*** REUSS, 1850	Mauer, Vienna
Cytherina ***tenuis*** REUSS, 1850	Vienna: Meidling, artesian well
Cytherina ***tribullata*** REUSS, 1850	Moosbrunn, Lower Austria
Cytherina ***trichospora*** REUSS, 1850	Vienna: Grinzing, Meidling
Cytherina ***tumida*** REUSS, 1850	Vienna: Mauer, Nußdorf, Grinzing, Styria: St. Nikolai
Cytherina ***unguiculus*** REUSS, 1850	Vienna: Atzgersdorf, Lower Austria: Brunn, Vöslau
Cytherura ***teiritzbergensis*** ZORN, 1998	Teiritzberg near Stetten, Lower Austria, Karpatian, Korneuburg Formation
Gen. indet. ***gauderndorfensis*** KOLLMANN, 1971	Sand pit Zimmermann, SE Gauderndorf, Eggenburgian, Gauderndorf Formation
Heliocythere ***leobendorfensis*** ZORN, 1998	Leobendorf, Lower Austria, Karpatian, Korneuburg Formation
Hemicytheria reniformis ***maior*** CERNAJSEK, 1971	borehole Karlsplatz, Vienna, Middle Pannonian
Krithe ***sonnbergensis*** HINTE, 1962	Sonnberg, Carinthia, Eocene
Lineocypris ***fahrioni*** TURNOVSKY in GRILL & KÜPPER, 1954	Meidling in Vienna, Middle Pannonian
Loxoconcha ***schmidi*** CERNAJSEK, 1974	Vienna 17. district, Gschwandtnergasse 56, Lower Sarmatian, Hernalser Tegel, Elphidium reginum Zone
Loxoconcha ***subgranifera*** TURNOVSKY in GRILL & KÜPPER, 1954	drillings from the Vienna Basin, Pannonian
Miocyprideis ***janoscheki*** KOLLMANN, 1960	Gleisdorf, Styria, Upper Sarmatian, Nonion granosum Zone
Occultocythereis ***droogeri*** HINTE, 1964	Sonnberg, Carinthia, Eocene
Pseudolimnocythere ***hainburgensis*** DANIELOPOL, PILLER & HUBER, 1991	borehole Hainburg, Lower Austria, Badenian
Quadracythere confluens ***felsensis*** KOLLMANN, 1971	Dornergraben, Fels am Wagram, Lower Austria, Eggenburgian, Fels Formation
Trachyleberis ? aculeata ***modesta*** HINTE, 1962	Sonnberg, Carinthia, Eocene
Trachyleberis ? ***kahleri*** HINTE, 1962	Sonnberg, Carinthia, Eocene

REUSS, but not the age. This will be done in a forthcoming paper. No critical remarks are given where species have been systematically revised by later authors as this would be beyond the scope of this historical paper.

Furthermore the genera *Miocyprideis* KOLLMANN, 1960 and *Pataviella* LIEBAU, 1991 and the subgenus *Schuleridea (Amphischuleridea)* KOLLMANN, 1971 are based on Austrian material. The subfamily Schulerideinae was erected independently by KOLLMANN (1960) and MANDELSTAM (1959).

5. Ostracode taxa named in honour of ostracode specialists from Austria

In this chapter ostracode taxa named in honour of ostracode specialists who worked on Austrian Tertiary ostracodes are brought together. Not only new species but also new names are listed. The data are taken from KEMPF (1986) and ELLIS & MESSINA (1995). The various names are ordered chronologically for every person. The taxa are not restricted to the Tertiary.

A. E. REUSS was honoured many times not only by ostracodes being named after him but with new species in other fossil groups he studied, such as the foraminifera. Several genera and more than 30 foraminifera species are named after him. Among the ostracodes one genus and 13 species have his name, two of them are new names.

K. KOLLMANN was honoured with 7 ostracode species and one genus, E. KRISTAN-TOLLMANN with two species and D. DANIELOPOL with 3 species.

Cythere reussiana BOSQUET, 1852
Cythere (Bairdia) reussiana KIRKBY, 1858
Cythere (Bairdia) reussi SPEYER, 1863
Cythere reussi BRADY, 1869
Beyrichia reussi ALTH, 1874
Cytherella reussii JONES & SHERBORN, 1887
Bythocypris reussiana JONES & HINDE, 1890
Cythere reussi PROCHÁZKA, 1893
Paracytheridea reussi SCHNEIDER, 1939
Leptocythere reussi SCHEREMETA, 1961
Bairdia reussites CORYELL, 1963 n. n.
Cythere reussites CORYELL, 1963 n. n.
Reussicythere BOLD, 1967
Flexus reussianus RUGGIERI, 1992

Kollmannia BOLD, 1963
Cytheridea kollmanni BOLD, 1963
Pseudopsammocythere kollmanni CARBONNEL, 1966
Aurila kollmanni CERNAJSEK, 1974
Miocyprideis kollmanni JIRICEK, 1974
Cyamocytheridea kollmanni BASSIOUNI, 1979
Krithe kollmanni POKORNY, 1980
Neomangaloria kollmanni HONNAPPA, PATHY & ABRAR, 1984

Ptychobairdia kristanae KOLLMANN, 1960
Leviella ? kristantollmannae SCHALLREUTER, 1987

Pusella danielopoli MADDOCKS, 1976
Urocythereis (Drobetiella) danielopolui OLTEANU, 1976
Ruggieria ? danielopoli BONADUCE, MASOLI & PUGLIESE, 1978

6. Bibliography on ostracode research in the Austrian Paleogene and Neogene

The following reference list with more than 200 citations is a bibliography on ostracodes from the Neogene and Paleogene of Austria. It is based on a report by HUBER-MAHDI (1986) which contains 75 references. Certainly, the list is not complete as except for monographs also publications are considered which contain names of ostracodes at least at generic level. Unpublished theses and several unpublished manuscripts are included. The list contains the literature which is cited in the text when it concerns the subject. Additional literature is cited in the references. Publications with systematic importance are marked by an asterisk.

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