A last cup of tea with Gotthard Richter (1924–2021)

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On March 24, 2021, Gotthard Richter, aged 96, passed away in Wetzlar after a short severe illness (Fig. 1). We both had the privilege of knowing him from our mutual time at the Senckenberg Research Institute in Frankfurt am Main, where Gotthard headed the Department ‘Zoologie II’ (Marine Invertebrates).

Born between the two World Wars, Gotthard experienced the Nazi regime during his childhood and fought both on the East and the West Front as a young man. He studied Biology at the University of Giessen where Professor Wulf Emmo Ankel became his highly valued teacher. It was Ankel, who sparked his interest in marine planktonic gastropods as well as his love for Italy. After his PhD on the ‘Functional morphology of the radulae of the Atlantidae (Heteropoda, Prosobranchia) and their significance for the systematics and evolution of this animal group’ (Richter 1961), Gotthard started his career at ‘Senckenberg am Meer’ in Wilhelmshaven as a research assistant and head of the Section ‘Meereszoologie’ (1961–1963). In continuation of his employment by Senckenberg, he was sent to the Stazione Zoologica di Napoli in 1964 in order to build a separate marine laboratory on the Island of Ischia on behalf of the German Research Foundation DFG. This lab is still an important research facility known today as the Laboratorio di Ecologia del Benthos of the Stazione Zoologica di Napoli that one of us (DF) had the chance to visit in 2011 for a research stay (Fig. 2). Besides successfully fulfilling this challenging task Gotthard used the opportunity to continue his research on holopelagic gastropods and meroplanktonic gastropod larvae starting with a census of the respective fauna of the Gulf of Naples (e.g.

Richter 1968; Richter and Thorson 1975). After 7 years in Ischia, Gotthard returned to Germany in 1971 and became head of the newly established Section ‘Marine Evertebraten II’ at the Senckenberg Research Institute in Frankfurt am Main and later head of the department ‘Zoologie II’ (1980). Although now far away from the sea, he continued his research on the systematics, ecology, zoogeography and functional morphology of planktonic marine gastropods (e.g. Richter 1972, 1973a, b, 1974, 1979) and participated in cruises M 19 and M 51 of the German research vessel ‘Meteor’ to the Great Meteorbank and the equatorial Atlantic. In cooperation with his colleague Michael Türkay, he initiated a series of annual collecting trips with RV ‘Senckenberg’ to monitor the benthic fauna of the North Sea, a project still ongoing today in modified form.

It was early in 1989 when I (DF) visited Gotthard in his lab in Frankfurt. As a PhD student studying pelagic marine gastropods, I had read some of his articles published in the Senckenberg journal *Natur und Museum* with great interest (e.g. Richter 1972, 1973b, 1977), happy to have discovered an established researcher inside Germany, who shared my interest in these fascinating animals. I came to Frankfurt looking for advice on the determination of planktonic gastropod larvae that I had collected for my PhD-research at the French marine labs of Villefranche and Banyuls on the coast of the Mediterranean Sea. After a day full of microscopy and discussions, I left impressed and quite happy with most of my identifications confirmed and stunned by Gotthard’s suggestion to present some of my results at the upcoming annual meeting of the American Malacological Union in Los Angeles later the same year, to which he had been invited as a keynote speaker. It was a pleasure to meet him there again among his peers. At that time, however, none of us would have thought that I would succeed Gotthard in his position as Section head about a year later following his retirement—assigned with research on Polychaeta, a completely different group of animals.

It was likewise in 1989 when I first knocked on his door and said: “My name is Sven Baszio, and I would like to apply for a student internship with you.” I clumsily went

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Fig. 1 Gotthard Richter (centre) enjoying conversation over tea with colleagues at Senckenberg (Ronald Janssen, left, and Karl-Otto Nagel, right) in 2014. Foto J. Scholz

on about my interest in palaeoecology, while Gotthard listened to me absentmindedly. It was a rather one-sided conversation, and I was getting ready to see myself out, when I incidentally mentioned that next to my studies of Biology I was pursuing a degree in Computer Sciences. All of a sudden, I had Gotthard's full attention, found myself sitting down with him between huge boxes of unpacked computers with a cup of tea in my hand, graciously presented by his technical assistant, Mrs. Marie-Louise Tritz. I ended up installing Gotthard's computers, teamed up with Marie-Louise to teach him the basics of what was then the new world of data processing, making him the first head of department at Senckenberg who understood the potential of digitalization and got others to see it as well. Gotthard was a man with a vision—in science and beyond—thrilled by novelty and always eager to explore new paths. Once the computers were installed, we started discussions of my project: 'An analysis of the intestinal contents of the fossil dog-sized predecessor of today's horses from the Messel Pit Fossil Site, a leaf-eater'. This was the beginning of

Fig. 2 The Laboratorio di Ecologia del Benthos of the Stazione Zoologica di Napoli (2011) situated next to the entrance to the harbour of Ischia. Foto D. Fiege

Gotthard's long scientific mentorship and personal friendship. We spent eight years working together, and I benefited from his enormous knowledge that was by no means limited to the 'hard sciences', but extended to history and literature as well. He was open-minded, interested in others, warm-hearted, and loved to exchange viewpoints.

Microscoping, discussing, smoking and not caring very much about how things were usually done and what others thought of him: These were the secrets of Gotthard's success. Add to this his unfaltering discipline and strict adherence to his daily schedule. Microscoping from 8.00 to 10:00 a.m.; a cup of strong tea with exactly one cigarette; further microscoping until noon; a delicious lunch with self-grown tomatoes or self-made Italian delicacies with bread, reminiscent of his years on the Island of Ischia. After an espresso, there would be further microscoping from 12:30 to 5:00 in the afternoon, again interrupted by a single cigarette accompanied by a cup of strong tea. During these cigarette and lunch breaks, he sometimes would ask: "What have we got?" And we repeatedly put together our facts, findings and analyses on what we were working on several times a week.

About once a week, Gotthard would hold tea rounds, one of his inventions that became legendary and showed his skill as a convener. The tea was the strongest I have ever had. Everybody—including guest researchers and even students like myself—was invited for an exchange of ideas. The round of usually four to eight people had no agenda. Topics covered were recent scientific discoveries—and more importantly—setbacks, administration and politics. Discussions were always intense, more often controversial than not—and sometimes loud. The questions raised by marine biologists, geologists, palaeontologists and arachnologists and their technical assistants were many times eye-opening for everyone present.

Gotthard's main research tool was microscopy—both light and scanning electron microscopy (SEM). He used anything tiny to reconstruct the big picture, e.g. morphology and its functional adaptations to life in specific habitats or undigested food remains in visceral tracts of fossils to reconstruct past ecosystems. This is what characterised his work on marine pelagic gastropods as well as his later work on the fossil fauna of the Messel Pit. In fact, both his research fields benefited from his skills to use the SEM provided by the German Research Foundation (e.g. Richter 1982, 1987; Richter and Baszio 2001a).

Gotthard made significant contributions to understanding the palaeoecology of the Messel Pit—a UNESCO World Heritage Site. This is the richest site in the world for understanding the living environment of the Eocene, 48 million years ago. In vertebrate palaeontology, it is quite normal to identify members of a fossil ecosystem by their body parts preserved as microfossils, such as teeth. Gotthard successfully transferred this principle to the intestinal contents of insectivorous vertebrates from the Messel Pit that had been

preserved in all details. He identified new morphological features on microscopic and ultrastructural scales of the fossil insect cuticula and searched for analogues by extensive comparisons with recent insects. This approach found positive response in the American standard work 'Evolutionary Paleobiology of Behavior and Coevolution' by Boucot (1990). In one of his research projects, caddisflies and moths could be identified for the first time from intestinal remains of 48-million-year-old bats from the Messel Pit (Richter and Storch 1980; Habersetzer et al. 1994).

His palaeoecological research focused also on the reconstruction of the freshwater food web from fossil Lake Messel based on fossil fish excrements, so-called coprolites. They contain concentrations of remains from aquatic insect larvae as well as small crustaceans and give an idea of a certain spectrum of the aquatic arthropod fauna from Lake Messel. Their study resulted in important contributions to our understanding of the palaeoecology of Messel and the description of isolated finds of mayflies, caddisflies as well as the investigation of the sponge fauna from Messel complete the topic of his palaeolimnic studies (e.g. Richter and Baszio 2001b; Richter et al. 2012; Richter and Baszio 2009; Richter et al. 2017).

Maybe the interest of a lifelong marine biologist in the Messel Pit was a piece of luck. Possibly he saw the 48-million-year-old fossil lake sediments as just another ocean that waited to be explored with the methods of taking samples and scrutinizing everything that comes to light. In the process, we had a collection of photographs labelled 'UPOs'—Unidentified Palaeontological Objects. One of the advantages of a huge research institute like Senckenberg is the presence of specialists from many fields. Gotthard would show his UPOs to specialists of all fields and ask what they reminded them of. This unconventional method led to unexpected success in some instances. The caddisfly thorns or moth scales from intestinal contents of fossil bats from Messel would otherwise not have been identified. Nevertheless, many UPOs still remain unresolved.

One would think that after Gotthard's retirement, his scientific work would slow down. But far from it. Senckenberg usually offers its retired scientists workspace and the opportunity to apply for funds from the German Research Foundation DFG. In total, Gotthard successively pursued three DFG projects during his retirement, resulting in a total of 16 peer-reviewed publications (e.g. Richter and Baszio 2006; Richter and Wuttke 1999; Richter and Wedmann 2005).

His passion for science made him an excellent scientist, who conducted about 60 years of research and became part of Senckenberg bedrock. He will be missed as a bright and critical mind with a great sense of humor, a hard, disciplined worker who thought out of the box and led us to new insights (Fig. 3). His great talent of combining facts no one else thought of putting together, of developing and rejecting his

Fig. 3 Gotthard Richter in the field

hypotheses as well as his controversial opinions are a huge loss. Gotthard was one of the most generous, creative, charismatic and unpretentious persons we know. We will miss a great scientist and friend.

References (selected works):

- Boucot, A.J. (1990). *Evolutionary Paleobiology of Behavior and Coevolution*. Elsevier Science.
- Habersetzer, J., Richter, G., & Storch, G. (1994). Paleocology of early middle Eocene bats from Messel, FRG. Aspects of flight, feeding and echolocation. *Historical Biology*, 8(1–4), 235–260. <https://doi.org/10.1080/10292389409380479>.
- Richter, G. (1961). Die Radula der Atlantiden (Heteropoda, Prosobranchia) und ihre Bedeutung für die Systematik und Evolution der Familie. *Zeitschrift für Morphologie und Ökologie der Tiere*, 50, 163–238. <https://doi.org/10.1007/BF00408284>.
- Richter, G. (1968). Heteropoden und Heteropodenlarven im Oberflächenplankton des Golfes von Neapel. *Pubblicazioni della Stazione zoologica di Napoli*, 36, 346–400.
- Richter, G. (1972). Marine Planktonforschung im Binnenland. *Natur und Museum*, 102(7), 255–264.
- Richter, G. (1973a). Field and laboratory observations on the diurnal vertical migration of marine gastropod larvae. *Netherlands Journal of Sea Research*, 7, 126–134. [https://doi.org/10.1016/0077-7579\(73\)90039-2](https://doi.org/10.1016/0077-7579(73)90039-2).
- Richter, G. (1973b). Zur Stammesgeschichte pelagischer Gastropoden. *Natur und Museum*, 103(8), 265–275.
- Richter, G. (1974). Die Heteropoden der “Meteor”-Expedition in den Indischen Ozean 1964/65. *Meteor-Forschungsergebnisse, Reihe D*, 17, 55–78.
- Richter, G. (1977). Jäger, Fallensteller und Sammler. Zur Ernährung planktischer Schnecken. *Natur und Museum*, 107(8), 221–234.
- Richter, G. (1979). Die thecosomen Pteropoden der “Meteor”-Expedition in den Indischen Ozean 1964/65. *Meteor-Forschungsergebnisse, Reihe D*, 29, 1–29.
- Richter, G. (1982). Mageninhaltsuntersuchungen an *Oxygyrus keraudreni* (Lesueur) (Atlantidae, Heteropoda). Beispiel einer Nahrungskette im tropischen Pelagial. *Senckenbergiana maritima*, 14(1/2), 47–77.
- Richter, G. (1987). Untersuchungen zur Ernährung eozäner Säuger aus der Fossilfundstätte Messel bei Darmstadt. *Courier Forschungsinstitut Senckenberg*, 91, 1–3.
- Richter, G., & Baszio, S. (2001a). First proof of planctivory/insectivory in a fossil fish: *Thaumaturus intermedius* from the Eocene Lake Messel (FRG). *Palaeogeography, Palaeoclimatology, Palaeoecology*, 173, 75–85; Amsterdam. [https://doi.org/10.1016/S0031-0182\(01\)00318-2](https://doi.org/10.1016/S0031-0182(01)00318-2).
- Richter, G., & Baszio, S. (2001b). Traces of a limnic food web in the Eocene Lake Messel - A preliminary report based on fish coprolite analyses. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 166, 343–368; Amsterdam. [https://doi.org/10.1016/S0031-0182\(00\)00218-2](https://doi.org/10.1016/S0031-0182(00)00218-2).
- Richter, G., & Baszio, S. (2006). First evidence of size-related change of diet (“switching”) in a fossil fish. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 237, 270–279. <https://doi.org/10.1016/j.palaeo.2005.12.005>.
- Richter, G., & Baszio, S. (2009). Geographic and stratigraphic distribution of spongiolids (Porifera) and the leit value of spiculites in the Messel Pit Fossil Site. *Palaeobiodiversity and Palaeoenvironments*, 89, 53–66. <https://doi.org/10.1007/s12549-009-0003-7>.
- Richter, G., & Storch, G. (1980). Beiträge zur Ernährungsbiologie eozäner Fledermäuse aus der „Grube Messel“. *Natur und Museum*, 110, 353–367.
- Richter, G., & Thorson, G. (1975). Pelagische Prosobranchier-Larven des Golfes von Neapel. *Ophelia*, 13, 109–185. <https://doi.org/10.1080/00785326.1974.10430594>.
- Richter, G., & Wedmann, (2005). Ecology of the Eocene Lake Messel revealed by analysis of small fish coprolites from a drilling core. *Palaeogeography, Palaeoclimatology, Palaeoecology*, 223, 147–161. <https://doi.org/10.1016/j.palaeo.2005.04.002>.
- Richter, G., & Wuttke, M. (1999). *Lutetiospongilla heilii* nov. gen., nov. sp. und die eozäne Spongiillidenfauna von Messel. *Courier Forschungsinstitut Senckenberg*, 216, 183–195.
- Richter, G., Schiller, W., & Baszio, S. (2012). A green alga of the genus *Coelastrum* Naegeli from the sediments of the Tertiary Lake Messel. *Palaeobiodiversity and Palaeoenvironments*, 93, 285–298. <https://doi.org/10.1007/s12549-012-0105-5>.
- Richter, G., Baszio, S., & Wuttke, M. (2017). Discontinuities in the microfossil record of Middle Eocene Lake Messel: Clues for ecological changes in lake’s history? *Palaeobiodiversity and Palaeoenvironments*, 97, 295–314. <https://doi.org/10.1007/s12549-016-0254-z>.

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