The Sunday’s child of Dutch earth sciences – a tribute to Bert Boekschoten on the occasion of his 80th birthday (introduction)∗

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Abstract

Although not exhaustive, the contributions to the present liber amicorum illustrate the wide range of geological, palaeontological and archaeological subjects that Bert Boekschoten has been interested in during his long, productive career. Not only has he carried out research by himself – often in far-flung and occasionally inhospitable places – he also has that special ability to fuel enthusiasm and zeal in others. ‘Have another look’, ‘What about …’, or ‘But maybe it is just the opposite …’ – typical phrases uttered to one of his former PhD students in distress. Always an eye opener, and always at the right time! The present tome covers the fields of (actuo)palaeontology and prehistoric archaeology, papers having been written by some of Bert’s former PhD students at Groningen and Amsterdam and by a number of close friends, both at home and abroad. Here we present summaries of the various chapters, add pertinent items of literature and note Bert’s involvement in these projects.

Keywords: Geology, palaeontology, archaeology, publications

Introduction

In September of this year, our dear friend Gijsbert (‘Bert’) J. Boekschoten, professor emeritus of general palaeontology at the Rijksuniversiteit Groningen and at the Vrije Universiteit Amsterdam, attains the respectable age of 80 (Fig. 1). Neither hampered, nor discouraged, by his retirement in 1998, Bert has remained an active contributor to his science and been a source of inspiration for many of us. For example, he still gives lectures within the HOVO (Hoger Onderwijs voor Ouderen = Higher Education for Elders) framework at the Vrije Universiteit Amsterdam, continues to publish papers, either by himself or with coauthors (e.g., Jianu & Boekschoten, 1999; Boekschoten, 2000, 2011, 2012), features prominently in Dutch television series (The Beagle Revisited, 2009) and actively pursues such widely divergent subjects as Devonian jellyfish from the Ardennes, milky quartz pebbles in Pleistocene gravels of southern Limburg and ‘yearling’ ammonites. But, above all, the story telling continues (Venhuizen, 2013).

Bert is a prime example of someone who knows how best to combine an impressive erudition, a strong joie de vivre and a great sense of humour. In addition, he has always brought out the best in all of ‘his’ people, be it students, friends or colleagues. The greatest honour bestowed on him, by his peers, came in November 2006, when he was awarded the prestigious Van Waterschoot van der Gracht Medal by the Royal Geological and Mining Society of the Netherlands (KNGMG; Boekschoten, 2006; De Ruiter, 2006).

Fifteen years ago, on the occasion of Bert’s 65th birthday, two of his former PhD students, Paul Lambers and Jo Vergoossen, edited a special issue of Geologie en Mijnbouw (Vergoossen & Lambers, 1999). This included a biographical sketch and an
extensive bibliography (Lambers, 1999a), in addition to papers on subjects close to Bert’s heart, such as vertebrate and invertebrate (actuopalaeontology and prehistoric archaeology, often set in a geological context (Borel Best, 1999; Bromley, 1999; Jagt, 1999; Janssen, 1999; Lambers, 1999b; Leloux, 1999; Marin et al., 1999; Mulder & Mai, 1999; Stapert & Johansen, 1999; Vergeoessen, 1999; Wesselingh et al. 1999). Now, a decade and a half later, we are honoured to present a new tome to celebrate our true Sunday’s child of Dutch earth sciences.

The present volume

A Middle Triassic temnospondyl amphibian sliced up

During the past four decades, the highly fossiliferous ‘Lower Muschelkalk’ (Anisian, Middle Triassic) strata in the Winterswijk area (province of Gelderland) have appealed to amateur palaeontologists and professionals alike (Oosterink et al., 2009). Numerous new finds have been made in recent years, in particular by private collectors, and this team effort has now been crowned by close cooperation with the professional world (e.g., Naturalis Biodiversity Center, Steinmann Institut der Universität Bonn). This is exactly what Bert likes to see happen. In fact, he wishes to extend such co-operation elsewhere in Europe, to southeast Poland in particular. At Krasiejów, near Opole, a mass occurrence of Late Triassic vertebrates, a genuine Lagerstätte, has been attracting students from Poland, the Czech Republic, Russia, Byelorussia, Germany, Belgium and the Netherlands (Voeten, 2009) (Fig. 2). An ideal breeding ground for future palaeontologists, with hands-on experience working in international teams, incorporated into a dinosaur park. The Krasiejów assemblage of Late Triassic age comprises thousands of mostly isolated bones of amphibians and reptiles that are studied not only using conventional methods (thin sections), but also using micro-CT scanning. Konietzko-Meier & Schmitt (2013) present an example of both methods and assess their pros and cons. Needless to say, such non-destructive analysis can do much to intensify contacts with amateur collectors further.
**Paguroid elements**

Bert’s unmitigated ‘appetite’ for out-of-the-ordinary fossils is whetted by the contribution of Fraaije et al. (2013), who record and name dissociated tergites of both symmetrical and asymmetrical hermit crabs from the upper Albian of northern Spain. In the (near-)absence of cephalic shields and/or claws, this may be the only way to assess past paguroid diversity in the fossil record. A prime case of tiny, often overlooked, remains that could help fill the gaps in our knowledge of early hermit crab evolution.

**Fish eating fish**

Actuopalaeontology *pur sang* is illustrated by Mulder (2013), who discusses an example of fossilised cannibalistic behaviour from the renowned Santana Formation (Lower Cretaceous) of Brazil. Museum collections often contain such hidden treasures, ready to be discovered, interpreted and described. Never take things at face value – Bert would be delighted.

**Far East Russian echinoids**

Rare, often ill-preserved and mostly ignored – such are mid- and Late Cretaceous echinoids from Sakhalin. Yet, there appears to be more out there. Jagt et al. (2013) illustrate four species, one of themnew, and call for a reassessment of collections lurking in various basements at geological institutes at St Petersburg. A first step towards a larger picture – unlocking data from existing collections might provide new insights into palaeobiogeographic distribution patterns. Time will tell.

**Mosasaurs diving and eating**

Now that the taxonomic attribution of most latest Cretaceous mosasaurid marine lizards from the Maastrichtian type area of the southeast Netherlands and northeast Belgium has been determined, it is time to focus on other aspects of their physiology. By analysing a large sample set, from the same area and a relatively brief time interval, Schulp et al. (2013b) use carbon isotope composition of tooth enamel to document resource partitioning. Conclusions on their diving and foraging behaviour literally put flesh on their bare bones – another way of doing palaeontology ‘Bert style’.

**Club-shaped bivalve borings**

Bert’s interest in trace fossils (ichnofossils) dates back to the second half of the 1960s. It has not so much been the taxonomic side of things that appealed to him, but rather the palaeoecological data supplied by such borings, holes and scratches that were highlighted in early papers (Boekschoten, 1966, 1967). A certain portion of ichnofossil taxa can be linked to particular biotic groups (e.g., Lambers & Boekschoten, 1987), while others at times have their producers preserved *in situ*. Examples of such are discussed and illustrated by Donovan & Jagt (2013), who also introduce a new term, pseudobioglyph, for the bioglyph-like external moulds of *Gastrochaenolites*-producing bivalves.

**A durophagous mosasaur**

The smallest amongst the five mosasaurid taxa known to date from the extended type area of the Maastrichtian, *Carinodens belgicus*, has a crushing and grinding type of dentition. In recording the first example of this species from the Atlantic Coast of North America (Maryland), Mulder et al. (2013) provide ample evidence in support of the hypothesis that *C. belgicus* was a widely distributed form that preferred shallow-marine, nearshore settings, feeding on hard-shelled prey. The next real challenge is to explain why the species is rare, despite the ubiquitous occurrence of bivalves, gastropods and decapod crustaceans in such settings across the world.

**Damaged turtle bones**

Janssen et al. (2013) document examples of damage to bones of the common late Maastrichtian cheloniid turtle, *Allopleuron hofmanni*, incurred during life (predation) and after death (scavenging). Often ignored, such traces can now be interpreted by comparison with extant forms. Thus, this is another fine example of actuopalaeontology and more is certainly to come in future. Some traces are attributed, with a query, to turtle and whale barnacles (*Coronuloidea*), although such forms are not yet known from the cirripede record in the area.

**Giant Eocene marine snails**

That isolated finds of abraded gastropods from the bottom of the southern North Sea, brought ashore by trawlers, can have far-reaching implications for the palaeogeography of the area during the Eocene and Quaternary, is illustrated by Wesselingh et al. (2013a). ‘Make the most of what little you have’ would sum up this contribution very well, and we can all picture Bert ‘purring’ with delight at the conclusions drawn.

**Late Pliocene lingulid brachiopods**

Wesselingh et al. (2013b) describe a peculiar lingulid brachiopod/serpulid/balanid barnacle association of late Pliocene age from Balgoy, near Nijmegen, and link this with similar occurrences in northwest Belgium and the eastern Netherlands. Thanks to the never-abating search for fossils by amateurs, even in places where none could be expected at first sight, the biostratigraphical and palaeogeographical picture of the southern North Sea Basin can be refined. In addition, a possible commensal relationship between the brachiopods and
the gastropod *Calyptraea chinensis* is hinted at. Yet another instance of the fruitful collaboration between private collectors and professional palaeontologists that we should all strive for.

### Radiography and consolidants in fossils

In conservation of vertebrate fossils from the Maastrichtian type area, it is essential that consolidants do what they are supposed to do. Schulp et al. (2013a) present a case study in which neutron radiography of a mosasaur vertebra impregnated by a solvent-borne consolidant is used to determine the degree of penetration into the bony tissue. Their conclusion is that current methodology leads to sufficiently deep, isotropic penetration.

### Neanderthal flint tools

Bert has always been interested in prehistoric archaeology, both at home and abroad. The rise of mankind, on the cross roads of palaeontology and archaeology, still fascinates him, having him travel to southeast Africa (Fig. 3) and Central Asia in recent years, literally to ‘follow into the footsteps’ of our ancestors. Closer to home, on the Wadden Island of Ameland to be precise, a Neanderthal flint implement was found on the beach. Stapert et al. (2013) conclude that it must have found its way there by sand replenishment activities. The interest of this piece lies in the fact that it appears to be the end product of two flint knappers, one highly skilled, the other one an apprentice, and that it suggests that the North Sea near the Wadden Islands may turn out to be a profitable hunting ground for Neanderthal flint tools in future.

### Ocean space and Anthropocene

Bert’s first PhD student at Groningen University, Jan Stel (Fig. 4), presents a detailed discussion of the recent concepts of Ocean Space and the Anthropocene. The first is a highly dynamic system which we are just starting to explore and fathom. To link issues such as outreach and environmental awareness with this field of scientific research will present a challenge for the (near) future. The second concerns humans as a ‘geological force’ on their own, with ample examples of the destructive relationship between mankind and global environment. Society transformation is called for, and more sustainable behaviour in each and everyone, with transition management becoming an interesting new paradigm. Bert would certainly be in favour of such arguments.

### Dutch hippos

Despite the fact that this interview with Bert was conducted five years ago, not much (if anything) has changed in his attitude towards his science (Fig. 5). Van Roekel (2013) succeeds very well in capturing what Bert stands for and in rendering his amazing interpretation, deduction and teaching skills. Never a dull moment with Bert around!
Fig. 5. Where colleagues meet – the Professors’ Garden of the Jagiellonian University (Kraków, south Poland; May 2013). Photograph courtesy of Pim Kaskes.

Acknowledgements


References


