

# Zitteliana

An International Journal  
of Palaeontology and Geobiology

Series B/Reihe B  
Abhandlungen der Bayerischen Staatssammlung  
für Paläontologie und Geologie

28



DAVID W. E. HONE & ERIC BUFFETAUT (Guest Editors)

**Flugsaurier: pterosaur papers in honour of  
Peter Wellnhofer**

München 2008

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## B28

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### Flugsaurier: pterosaur papers in honour of Peter Wellnhofer

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**Cover Illustration:** Modell eines *Rhamphorhynchus* aus dem Oberjura von Eichstätt. Entwurf: P. Wellnhofer, Modell: R. Liebreich,  
Foto und Collage: M. Schellenberger, L. Geißler, BSPG München.

**Umschlagbild:** Reconstitution of a *Rhamphorhynchus* from the Upper Jurassic of Eichstätt, Bavaria. Concept: P. Wellnhofer;  
design: R. Liebreich; photograph and collage: M. Schellenberger, L. Geißler, BSPG Munich.

## Dedication



Peter WELLNHOFER

### *David Hone writes:*

It is of course as pleasure and an honour to introduce this volume dedicated to Dr Peter WELLNHOFER. For the last 40 years Peter has been widely recognised as one of the most

accomplished researchers, and the foremost authority on pterosaurs. As he explains in his own paper in this volume, it was a fortuitous coming together of palaeontologist and taxon as he had previously been engaged with work on

Jurassic bivalves. It was most fortunate for us that this union occurred.

For me it was a genuine privilege and honour to work on pterosaurs in the Bavarian State Collection for Palaeontology and Geology, the institution that Peter made synonymous with both himself and pterosaurs. While I am sure that others will disagree, for me it still houses the foremost collection of pterosaurs anywhere in the world, and the fact that Peter has written on just about every specimen in the collection gives it a real sense of continuity and history. He will long be considered as part of the greats of pterosaur research such as Karl-Alfred VON ZITTEL who also made the BSPG his home. I am very proud to have worked on this material myself, however briefly, following in the great tradition of the museum.

That Peter's work covers so many aspects of pterosaur research over such an extended period of time and with such accuracy is a testament to his work. This volume sprang from the meeting held in Peter's honour in October 2007 which was attended by nearly every current pterosaur researcher. It seemed only fitting that Peter should be honoured not just by his fellows, but also in his parent institute, and furthermore that this volume should be part of *Zitteliana*. This collection of papers is a small, but I hope significant, token of appreciation by the pterosaur community as a whole to Peter's volume of work and his contributions to our field.

### **Eric Buffetaut writes:**

I first met Peter WELLNHOFER in 1973, when I first visited the Bayerische Staatssammlung für Paläontologie und Geologie as a PhD student working on African Cretaceous crocodiles. The purpose of my visit was to study what was left of STROMER's collection of Cenomanian crocodiles from Baharija, after the bombing raid of 1944 (although a substantial part of the material was destroyed, crocodiles fared relatively well compared to the dinosaurs). In retrospect, although those crocodile studies were far from useless, I certainly benefited more from meeting Peter than from poring over the skull of *Libycosuchus* for a couple of days. For all who know Peter, it will not come as a surprise that we became friends. And this visit also started my interest in pterosaurs, a group about which I knew little at that time. With his usual kindness and generosity, Peter showed me the excellent Bavarian material he was working on at that time and explained his approach to that group of Mesozoic vertebrates, which in the 1970s was far from attracting as much attention as it does now. A few years later, on my way to another visit to Munich, I stopped at the museum in Saint-Dizier, in eastern France, and in the large palaeontology collection there, I discovered a well preserved Early Cretaceous pterosaur bone – which I borrowed and took with me to Munich, where Peter confirmed its pterosaurian identity. This resulted in my first paper on pterosaurs, which was also my first joint paper with Peter. My interest in pterosaurs, a group to which I now devote a large part of my research activity, definitely goes back to these encounters with Peter WELLNHOFER in Munich.

To assess Peter's contribution to the study of pterosaurs, one only has to remember what the situation was in 1970, when his first major monograph on pterosaurs, *Die Pterodactyloidea (Pterosauria) der Oberjura-Plattenkalke Süddeutschlands*, was published by the Bavarian Academy of Sciences. Pterosaurs

were a recurrent feature of books on “prehistoric animals” aimed at the general public or at children, but hardly more. To many palaeontologists of the time, they were merely bizarre creatures of the past that had become extinct without leaving any descendants and that lacked the potential of some other groups of fossil vertebrates, such as fish or mammals, to shed light on important episodes in the evolution of life. In that lack of relevance, they shared the fate of dinosaurs, which at that time had not yet undergone the “Renaissance” that was to take place in the 1970s and 1980s.

Nearly four decades later, things have changed tremendously. The number of new pterosaur specimens and pterosaur taxa described each year has increased considerably, and so has the number of palaeontologists working on pterosaurs. Meetings dealing exclusively with pterosaurs are now organised every few years, and pterosaur topics are eagerly sought after by palaeontology students looking for a research subject. These changes have been brought about by a conjunction of factors, including a general renewal of interest in Mesozoic vertebrates and the discovery of new pterosaur-bearing *Lagerstätten* in places such as Brazil and China. But first and foremost they are a consequence of a new way of looking at pterosaurs, which was largely initiated by Peter WELLNHOFER. Being based in Munich, he had excellent opportunities to follow in the footsteps on some of his well-known Bavarian predecessors, such as Karl-Alfred VON ZITTEL and Ferdinand BROILL, who had studied the remarkable pterosaur fossils from the Franconian *Plattenkalk* in the late 19<sup>th</sup> and early 20<sup>th</sup> centuries. However, Peter WELLNHOFER's monograph on the Pterodactyloidea was a landmark in the study of pterosaurs because it addressed the numerous problems posed by the systematics of these animals in a new way: ontogenetic variation, allometry and sexual dimorphism received the attention they deserved and this led to a notable reduction of the number of taxa considered valid. Going beyond systematics, Peter WELLNHOFER also discussed the palaeobiology of pterodactyloids, in particular their locomotion, as well as their taphonomy. The monograph on pterodactyloids was followed by one on the rhamphorhynchoids from the Bavarian lithographic limestones, published in three parts in *Palaeontographica* in 1975, which followed the same pattern and addressed the questions of skeletal morphology, systematics, palaeoecology and phylogeny.

By 1975, after the monographic study of what at the time were the best pterosaur fossils available, it had become clear that the group as a whole deserved to be revised and more fully investigated. The volume of the *Handbuch der Paläoherpetologie* on pterosaurs, published in 1978, provided a comprehensive list of pterosaur taxa known at the time and a base on which Peter WELLNHOFER would achieve what had not been done since Harry Govier SEELEY's *Dragons of the Air* of 1901: a general account of pterosaurs aimed at a large public. The *Flugsaurier* volume of the *Neue Brehm-Bücherei*, published in 1980, provided a well illustrated introduction to pterosaurs for German readers and foreshadowed the highly successful *Illustrated Encyclopedia of Pterosaurs* of 1991. In this magnificent volume, adorned with John SIBBICK's reconstructions, Peter achieved the remarkable feat of producing a book that was both attractive to the general public and could be used by palaeontologists as the most authoritative reference on pterosaurs available at the time. Seventeen years later, and although many new discoveries

have enlarged and to some extent changed our understanding of pterosaurs, the *Illustrated Encyclopedia of Pterosaurs* remains in many ways unsurpassed.

Working on the *Encyclopedia* (not to mention his research on *Archaeopteryx* and dinosaur-bird relationships!) did not prevent Peter from initiating projects on newly discovered pterosaur fossils, and in this respect his descriptions of remarkably preserved specimens from the Santana Formation of Brazil are of special significance, with, in particular, two monographs published in *Palaeontographica* in 1985 and 1991, which are models of detailed anatomical description and illustration. Although they were not the first descriptions of Santana pterosaurs, these papers really revealed the importance of the largely uncrushed fossils from this formation for our understanding of many aspects of pterosaur anatomy and palaeobiology. His reconstruction of the acetabular articulation in *Anhanguera*, published in the first issue of *Historical Biology* in 1988, a journal I was editing at the time, was an important contribution to the debate on the terrestrial locomotion that was raging at the time, and provided strong support to the quadrupedal hypothesis, which was to be fully confirmed a few years later by ichnological evidence.

By the 1990s, Peter WELLNHOFER had been joined in his studies of pterosaurs by a growing number of palaeontologists from various countries who shared his interest in that group of flying vertebrates. The flourishing community of pterosaur specialists, from China to South America via Europe and North America, definitely owes much to his pioneering and inspiring work, which illustrates so well how highly detailed anatomical studies can lead to far-reaching phylogenetic and palaeobio-

logical conclusions. All the papers in this special volume of *Zitteliana*, in one way or another, owe something to Peter WELLNHOFER's work, which clearly signalled the beginning of the current "Pterosaur Renaissance".

*Thank you Peter for all your work.*

The editors would like to thank the numerous referees who helped get through the large number of superb submissions for this volume, without their hard work and often very fast turn around times, this could not have been completed so quickly. It should be noted that Eric BUFFETAUT acted as sole editor for David's manuscripts and vice versa.

We would like to thank the staff of the BSPG and *Zitteliana* for their help in bringing this volume to fruition, especially Michael KRINGS and Winfried WERNER.

Finally, David would like to thank the numerous staff and students of the BSPG and beyond who gave their time and efforts to organising the meeting. It would simply not have been possible without their help and I am indebted to them, this meeting was a success because of them, despite my efforts to help. Thank you to Oliver RAUHUT, Manuela AIGLSTORFER, Stephan LAUTENSCHLAGER, Luis REY, Winfried WERNER, Renate LIEBREICH, Ursula GÖHLICH, Dino FREY and Martina KÖLBL-EBERT and last but certainly not least, Hemut TISCHLINGER.