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EDITORIAL

Contributions to vertebrate palaeontology in honour of Yukimitsu Tomida

富田幸光博士
退官記念論文集



The papers in this volume of *Historical Biology*, organised and guest-edited by Drs Yuri Kimura, Lawrence J. Flynn, Yoshitsugu Kobayashi, and Louis L. Jacobs, were respectfully contributed to celebrate the career thus far of Dr Yukimitsu Tomida (Figures 1–4), who retired from his position as Curator of Mammalian Paleontology at the National Museum of Nature and Science in Tokyo, Japan, on 31 March 2015. Dr Tomida was the last student in vertebrate palaeontology of Professor Tokio Shikama, the foremost vertebrate palaeontologist in Japan prior to and during the postwar era, with whom he published his first paper (Shikama et al. 1975). Along with Dr Takeshi Setoguchi, Dr Tomida was one of the first vertebrate palaeontologists to obtain his Ph.D. in the USA after World War II. He thus ushered in and drove his era of vertebrate palaeontology in Japan. Most of Dr Tomida's career has focused on Japanese fossils and the museum that he served there. Nevertheless, he has had considerable influence across Asia and indeed the globe, as evidenced by the contributions to this volume, because of the research he has undertaken, the world-wide coverage of vertebrate fossils in exhibitions that he planned and curated, the popular books he has authored, and the people, young and old, that he influenced through his work.

Dr Tomida, Yuki as he is called, was a graduate student during the late 1970s and 1980s at the University of Arizona in Tucson under the tutelage of Dr Everett H. Lindsay (Jacobs et al. 1998; Tomida et al. 1998). Professor Lindsay, in his unique way, was very gracious and generous to his students. He instilled in them, a camaraderie that has persisted to this day, affecting Yuki as it did the others. Yuki also benefitted from a close mentorship with the great George Gaylord Simpson, who had retired to Tucson after an illustrious career at the American Museum of Natural History and then at Harvard University. Dr Simpson's presence in Tucson seemed to guarantee a stream of international visitors coming to share their ideas and thoughts with him.

Every Wednesday for a number of years, the palaeontology graduate students, along with Lindsay, Simpson and Dr Laurence McKinley Gould, would convene at the Panda Restaurant for lunch. Dr Gould had retired to Tucson from Carleton College in Minnesota, where he had been President. He was an extremely distinguished geologist who had been Second-in-Command on the first Byrd Expedition to Antarctica and the last person to mount a full-fledged dog sledge exploratory journey on that continent (Gould 1931). He discovered sandstone, which seems simple enough looking back over nearly a century, but it had not been done before. Gould's discovery opened a new chapter on Antarctic geology because it established the occurrence there of sedimentary rocks, and that discovery subsequently proved extraordinarily significant for vertebrate palaeontology and for

understanding continental drift (Elliot et al. 1970; Colbert 1974). Yuki and his fellow graduate students were able to appreciate this more fully because of Dr Gould and because of Dr Edwin Harris Colbert, also retired from the American Museum of Natural History but to the Museum of Northern Arizona in Flagstaff, who was the paleontologist on the first expedition to Antarctica dedicated to the discovery of fossil vertebrates. Ned, as Dr Colbert was called, was researching Triassic vertebrates from Antarctica and had them with him at the time, and on visits to Flagstaff Ned graciously discussed his results fossil by fossil. These visits with Dr Colbert were made all the more enjoyable and informative because of Margaret Colbert, Ned's wife, who was a most accomplished palaeoartist and the designer of the Society of Vertebrate Paleontology logo (Jacobs et al. 2012).

At the Panda Restaurant on Wednesdays, Dr Simpson would order two martinis up with a twist and Dr Gould would have two on the rocks with olives. A single pitcher of beer was provided to the graduate students; if they wanted another, it was on them. That experience was profoundly stimulating in a conversational but still most professional way (as is recalled). The group came to use the moniker 'Red Fireballs', a name that legend recalls was bestowed by Christine Baskin, spouse of Jon Baskin, a contributor to this volume. It was silly then and silly now, but it was a delight to see Dr Simpson, who did not drive at the time, being chauffeured by his wife, the renowned psychologist Dr Anne Roe Simpson, in a small car sporting a 'Red Fireballs' bumper sticker. Anne Roe actually published a paper on the psychology of vertebrate palaeontologists based on Rorschach tests administered at an early Society of Vertebrate Paleontology annual meeting (Roe 1946).

At the time Yuki began his graduate studies, Lindsay and Dr Robert Butler were engaged in developing the magnetic polarity stratigraphy of the Late Cretaceous and early Paleogene of the San Juan Basin, New Mexico, and its correlation to other areas. As a component of that larger project, Yuki took on the Paleocene interval that was then called the Dragonian Land Mammal Age. Through his work culminating in his Master's degree, the Dragonian was critically evaluated using magnetostratigraphy and found to be inadequate as a distinct Land Mammal Age (Tomida and Butler 1980; Tomida 1981). However, new fossils discovered included a picrodontid euprimate that Yuki named *Draconodus apertus* (Tomida 1982).

While at the University of Arizona, Yuki was also active assisting Lindsay in collecting magnetostratigraphic samples from the Paleocene of Polecat Bench in the Bighorn Basin of Wyoming and in the Siwalik Group of Pakistan. In 1979, as a graduate student, Yuki was part of a large field team working in Miocene-age rocks of northern Pakistan. Those deposits, the Siwalik Group, are extremely



Figure 1. Expedition for Quaternary proboscidean fossils in Zuozhen (Tsochen), Taiwan, in the spring of 1974. From left, Yukimitsu Tomida, Dr Tokio Shikama, Mr Chunmu Chen, Dr Hiroyuki Otsuka and Mr Changwu Fan.

fossiliferous and led to his publication on rodent fossils co-authored with Pakistani geologists and former fellow graduate student Lawrence J. Flynn (Cheema et al. 2000).

Yuki's Ph.D. research included magnetostratigraphic studies from the Pliocene Gila Conglomerate of the Safford and Duncan Basins, Arizona. In that work, published in 1987, he added new records to the region plus he named three new taxa: the geomyid rodent *Pappogeomys* (*Cratogeomys*) *sansimonensis* and the cricetids, *Reithrodontomys galushai* and *Repomys arizonensis* (Tomida 1987). That also was the first time Yuki published on lagomorphs (rabbits), a group that has remained a strong focus for his later work.

Growing out of his dissertation research, Yuki published a study of the leporid *Aztlanolagus* from



Figure 2. Summer fieldwork in Dragon Canyon, Utah, in 1977. From left, Yukimitsu Tomida, Dr Everett H. Lindsay, Dr Lawrence J. Flynn and Dr Louis H. Taylor.



Figure 3. Summer fieldwork in Inner Mongolia, China, in 2007. From left, Dr Xiaoming Wang, Dr Yukimitsu Tomida, Mrs Ulan, Sunidarh, Dr Zhuding Qiu, Mr Jiri Mutu, Mr Gary Takeuchi, Dr Zhijie Jack Tseng and Dr Tao Deng.

Arizona and Texas with Dr Alisa J. Winkler (Winkler and Tomida 1988). Following that work, his keen eyes noted the similarity of *Aztlanolagus* to the Asian genus *Pliopentalagus*, and he has published extensively on the relationships of those genera and on the evolutionary history of *Pliopentalagus* and *Pentalagus* (the rare extant Amami rabbit; Tomida and Otsuka 1993). The new species *Pliopentalagus dajushanensis* and *Pliopentalagus anhuiensis* from Anhui Province, China, were shown to be close to extant *Pentalagus furnessi* from the Ryuku Islands, Japan (Tomida and Jin 2002, 2005, 2009).

Since those earlier publications, Yuki's work expanded to include studies of the first (and only) fossil record of the rare striped rabbit (*Nesolagus*) from South China (Jin et al. 2010), the history of leporids from the Potwar Plateau,



Figure 4. Annual meeting of the Japan Geoscience Union in Chiba, Japan, in May 2012. From left, Dr Takehisa Tsubamoto, Dr Masanaru Takai, Dr Hideo Nakaya, Dr Yukimitsu Tomida, Dr Changzu Jin and Mrs Yushan Shen.

Pakistan (Winkler et al. 2011), and the analysis of the lower third premolar of an exceptional sample of *Serengetilagus* from Tanzania (Winkler and Tomida 2011). Recently, he advanced knowledge of the Early Miocene fauna of Japan by describing a new subgenus of ochotonid. The *Alloptox* group is widespread and Yuki recognised that its diversity evolved early, accordingly defining the new subgenus *Mizuhoptox* (Tomida 2012). In 2012, Yuki presented his analysis of leporid evolution to the World Congress on Lagomorph Evolution in Vienna, Austria, and participated in a review of the chronology and distribution of rabbits resulting from the Congress (Flynn et al. 2014). In addition to his scientific excellence, Yuki's artistry is revealed through his meticulous camera lucida drawings of lagomorph dental patterns.

After returning from Arizona to Japan in 1981, Yuki became Curator of Mammalian Vertebrate Paleontology at the National Museum of Nature and Science in Tokyo (then National Science Museum). There he began a long series of studies on Japanese Cenozoic terrestrial mammals, many in Japanese journals. He continues that path, and has recently updated knowledge of the fossil record of the Japanese Archipelago (Norton et al. 2007; Tomida et al. 2013).

Yuki has published extensively on a variety of non-mammalian tetrapod fossils including crocodylians (Kobayashi et al. 2006), pterosaurs (Ikegami et al. 2000; Kellner and Tomida 2000), dinosaurs (Azuma and Tomida 1995, 1997; Chure et al. 1999; Kobayashi et al. 1999; Lü et al. 2002, 2004; Upchurch et al. 2004; Tomida and Tsumura 2006) and bird tracks (Azuma et al. 2002). Among mammals, he has focused on micromammals, as discussed with respect to rabbits and pikas previously, but also rodents (Tomida and Setoguchi 1994; Tomida et al. 1995; Fejfar et al. 1998; Nishioka et al. 2011; Tomida 2011). He has maintained his interest in Paleogene mammals, especially those from Japan and Korea (Tomida 1983, 1986, 1994; Tomida and Yamasaki 1996; Miyata and Tomida 1998a, 1998b, 2008; Miyata et al. 2011). The mammals on which he has published also include suids (Oshima et al. 2008), perissodactyls (Miyata and Tomida 2010), proboscideans (Lee and Tomida 2005) and a diverse array of marine mammals (seals, walruses, whales and desmostylians) (Tomida 1989; Kohno and Tomida 1993; Miyazaki et al. 1994; Kohno et al. 1995; Tomida and Ohta 2007).

Yuki's influence on Asian vertebrate palaeontology, especially significant for rodents and lagomorphs, was apparent from a special workshop that he organised during the 29th International Geological Congress at Kyoto, Japan, in 1992. He invited several colleagues from the Institute of Vertebrate Paleontology and Paleoanthropology (IVPP) and other Asian countries, as well as from Europe and the USA, and he produced an influential volume on Asian small mammals published as part of the

monograph series of the National Science Museum (Tomida et al. 1994). Highly respected, he is formally welcomed as visiting professor at the Institute of Vertebrate Paleontology and Paleoanthropology, Academia Sinica, Beijing.

Beginning in 2004, Yuki joined field works in Inner Mongolia, northern China, led by colleagues from the IVPP and the Natural History Museum of Los Angeles County. Initially explored by the American Museum's Third Central Asiatic Expeditions in the 1920s to 1930s, badlands in the middle Miocene Tunggur Formation to the east of the Erlian telegraphic station, now a vibrant border town, were famous for producing the shovel-tusked elephant *Platybelodon* described by Osborn and Granger (1931). This classic assemblage of large fossil mammals forms the basis of the Tunggurian Chinese Land Mammal age (Qiu et al. 2013). Field objectives for the project and for Yuki typically included intensive sampling for small mammals to balance the historic biases towards large mammals, and prospecting for new fossil sites to fill age gaps. Numerous new and exciting fossil sites were discovered, such as the richly fossiliferous Auerbach Formation locality of early Miocene age, a site that Yuki was among the first to see (Wang et al. 2009). Once again, Yuki devoted his attentions to the fossil lagomorphs. Early in his participation in the Inner Mongolian work, Yuki brought a young college student, Yuri Kimura, in her senior year at Waseda University in Tokyo. Kimura was so inspired by the fieldwork that she went on to obtain her PhD. under Louis Jacobs at Southern Methodist University, and now is a new curator at the Museum of Nature and Science in Tokyo – the 'Arizona school' has come full circle.

Dr Tomida has been a natural mentor to many colleagues in Japan, encouraging the publication of numerous fossils in various museums. He inspired Japanese students to study vertebrate palaeontology in the USA, as was the case for him. As a result, some did go to the USA to learn dinosaurs or fossil mammals and have now become curators or professors at museums and universities in Japan. As an active member of the Society of Vertebrate Paleontology's Membership Committee, Yuki worked diligently and successfully to increase Japanese membership in that international organization.

As Curator at the National Museum of Nature and Science, one of his earliest contributions in the summer of 1981, just after he returned to Japan, was to provide the scientific expertise behind a special exhibit called 'Chinese Dinosaurs'. Over 600,000 people visited that exhibit. Since then, Yuki has organised exhibits on *Iguanodon* in 1985, on *Maiasaura* in 1990, on Extinct Large Mammals in 1995, on Gondwana Dinosaurs in 1998 (for which he also organised the Second Gondwana Dinosaur Symposium with Drs Patricia V. Rich and Thomas H. Rich; Tomida et al. 1999), on The World's Biggest Dinosaur in 2002, on Gondwana Dinosaurs (for a

second time and a third Gondwana dinosaur symposium; Saegusa and Tomida 2011) in 2009 and on Extinct Japanese Mammals in 2014. The 2002 special fossil exhibit that he helped organise at Makuhari Messe, an international convention complex in Chiba Prefecture, had over 1 million visitors.

As his experience grew, colleagues in Japan and across Asia sought Yuki's counsel. He organised the Seventh and Eighth Symposia on Collection Building in Asia and the Pacific Rim (Tomida et al. 2006). He advised and supported development of a number of museums, including the Mifune Dinosaur Museum and the Fukui Prefectural Dinosaur Museum, which are among the key museums for the study of dinosaurs, not only in Japan but globally.

As much as Yuki has actively conducted international research projects and fostered museums, he is equally passionate about public education. One of his most remarkable educational contributions is a series of books written in Japanese for the public. He wrote the Illustrated Encyclopedia of Extinct Mammals, first published in 2002 but revised in 2011. This book introduces the rich history of Cretaceous and Cenozoic mammals with beautiful illustrations, firing the reader's imagination of these extinct animals in all of their diverse functional morphologies and ecologies. The revised edition was translated into Chinese by Dr Yingqi Zhang, and adding to Yuki's acclaim, was honoured with the Excellent Scientific Educational Book Award by the Chinese Academy of Sciences in 2014.

The cover image of this festschrift volume in Yuki's honour is *Pliopentalagus dajushanensis*, which Yuki described with Dr Changzhu Jin (Tomida and Jin 2009), rendered especially for this volume by Taeko Okamoto. The Japanese calligraphy accompanying the image is by Akio Itou and states, 'Festschrift volume in honor of Dr. Yukimitsu Tomida'. Both the artist and the calligrapher have worked with Yuki for decades.

During his museum career of 34 years, Dr Tomida's impact on his friends and colleagues in the field of vertebrate palaeontology in Japan, China, and in the USA and Europe has been significant. Dr Yukimitsu Tomida, our friend Yuki, has turned the venerable age of 65 years old, a pinnacle that brings about a change but not an end to his illustrious career. Dr Tomida is retired but remains active in his research and an inspiration and mentor to those who continue his noble profession.

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