

從九千公里外 看臺灣的自然史

Taiwan's natural history –

a viewpoint from nine thousand kilometers away

Zoltán Korsós, András Kun & Gábor Csorba

Department of Zoology, Hungarian Natural History Museum

When the first European visitors, Portuguese sailors encountered an island in 1517, they became delighted by the dense forests and the abundant wildlife, the sky-scraping mountains and the pleasant beaches, and named it „Ilha Formosa”, or the Beautiful Island. Taiwan, this fast-developing industrial paradise still has a vast richness of natural beauties, although nowadays only shows it to those people who have keen eyes and an open heart to discover precious treasures in the deep valleys, whispering forests, wind-swept rocky grasslands and below the mysterious blue of sea.

A small group of enthusiastic Hungarians, having their native home as far from Taiwan as 9000 kilometres away in eastern Central Europe, have been discovering Taiwan's natural wonderland for more than 15 years. They are professional zoologists (scientists dealing with detailed biology of different animal groups) of the Hungarian Natural History Museum, Budapest. The institution, being the fifth largest of Europe in term of the size of the preserved material kept in its zoological collections (such as mammals, birds, butterflies, beetles, spiders, millipedes, mites, etc.), was founded as long ago as 1802, as part of the National Museum devoted to preserve all kind of cultural heritage and natural objects for the benefit of the people of Hungary. In the course of the history, the museum's collections

were divided into separate, specialised museums, such as the Museum of Fine Art, the National Library, the Museum of Applied Art, the National Gallery, etc. Minerals, fossils, plants and animals as natural history objects, as well as historical anthropological material accumulated during ages had been reached up to almost ten million objects by the 200-years anniversary in 2002. In 1996, the Natural History Museum started a long-lasting revitalisation project, receiving its own building in the city as the first step, opening modern exhibitions, and hoping that all the scientific collections and their supervising staff will be united at the same place within ten years. Yet the project is still going on, and the majority of the Zoology and Botany departments still awaits for the difficult move to their new place.

Research, however, together with collection management, have to be continued without break, and zoologists of the museum follow the tireless work of their predecessors. East Asia, including New Guinea in the south, Mongolia in the middle, or Korea, Vietnam, etc., in the far east, has always been in the focus of scientific investigation of the museum. Lajos Bíró (1856-1931), famous hymenopterist (dealing with bees and wasps) spent almost 7 years in New Guinea between 1895-1902; Zoltán Kaszab (1915-1986) former director general and specialist of darkling beetles (Tenebrionidae) led 6 expeditions to Mongolia

in the 1960-ies, just to pick up two from the many important collecting trips of the previous decades. During the communist era, Hungary maintained good relationships with the Asiatic communist countries, such as North Korea or Vietnam, and we had more than 30 expeditions to these countries producing enormous amount of material and over 200 scientific papers on the fauna of those regions.

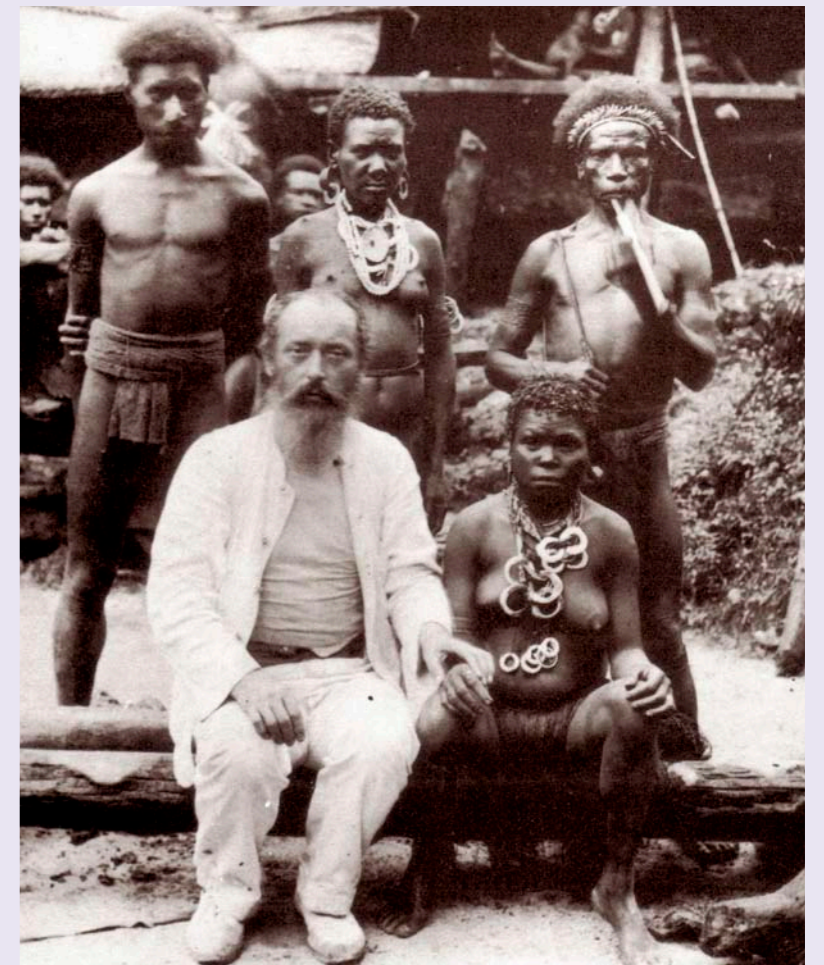
Regarding the East Asiatic fauna, the Hungarian Natural History Museum has been raised to the level of the most important museums in the world. Strangely, for example, South Korean scientists have to visit our museum to get acquainted with the fauna of their neighbouring country in the north, because of the political differences.

But Hungary always aspired good economic and scientific relationship with eastern countries. And due to the generous support of the National Science Council in Taipei, our staff could lead 21 trips to study the Taiwanese fauna since 1996. At the beginning these trips concentrated mainly on collectings in unknown places and of diverse material; but step-by-step we have established multi-level co-operations with the following scientific institutions: the National Taiwan University, Taipei; National Chung-Hsing University, Taichung; the Tung-Hai University, Taichung; the National Sun-Yat Sen University, Kaohsiung; the National Tainan University, Tainan; and the Endemic Species Research Institute, Chichi. Two Memoranda of Understanding were also signed by the directors of the Taiwan Forestry Research Institute, Taipei and the National Museum of Natural Sciences, Taichung. Our work has been extended to professional level and identifying material, setting up reference collections, teaching at university courses and writing monographs became the main tasks of our experts.

Why Taiwan is so interesting for our zoological work? To understand it, we have to consider the geological and zoological history of the island. Taiwan is geologically very young – only about 5 million years old –, and occupies an intermediate place between the eastern part of the Eurasian and the northwestern edge of the Philippine tectonic plates. Its indigenous fauna and flora has been



布達佩斯匈牙利博物館的主建築。這座建築本來是魯多維卡軍事學院(Ludovika Military Academy, 成立於1848年)。目前礦物、古生物學與人類學三個部門位於這棟建築中。動物部門中的鳥類與哺乳類收藏也是。Main building of the Hungarian Natural History Museum, Budapest. It used to be the Ludovika Military Academy, founded in 1848. Presently it houses three departments of the museum (Mineralogy, Paleontology and Anthropology), and also parts of the Department of Zoology (Bird and Mammal Collections).



畢羅是一位熱誠的收藏家、昆蟲學家與民族學家。在19世紀與20世紀交會時，他在新幾內亞花了七年收集資料並且將大量的材集品寄回布達佩斯，其中有許多新種以他的名字命名。這是他與巴布原住民的合照，他左邊的是他的妻子。

Lajos Bíró (1856-1931), an enthusiastic collector, entomologist and ethnographer, spent 7 years in New Guinea at the turn of the 19-20th century. He collected and sent back to Budapest an enormous amount of material, from which many new species were described and named after him. Here, he is photographed in the group of Papuan aboriginals, including his wife on his left side.



Dr. Zoltán Korsós



Dr. András Kun



Dr. Gábor Csorba

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shaped by multiple effects from the surrounding territories: the most important biogeographical influences are from the continental Asia (Palearctic Himalayan effect), from the Japanese archipelago (Oriental effect), and from the Western Pacific (Oceanian effect). Former studies on several animal groups (such as noctuid moths) showed that the high mountain fauna of Taiwan has considerable similarity with that of the Himalaya. Species composition of other groups, flies for example, are common with Japan, whereas soil dwelling invertebrates (myriapods= many-legged arthropods included) show a close relationship to the fauna of the Philippine Archipelago.

Taiwan's terrain, being of relatively recent volcanic origin, is extremely complex, yet dominated by three main mountain chains reaching up to almost 4000 meters. In addition to Palearctic, Oriental and Oceanian elements, fauna of Taiwan has a very high portion (in some groups over 50%!) of endemic species. Zoological research in the country, on the other hand, especially with regard to the invertebrates, is still on the level of accumulating faunistic data, with an emphasis of describing new species and trying to establish the zoogeographical composition of the fauna. Comprehensive faunal works are scarce, and only comprise well-known and popular animals such as birds, mammals, or amphibians and reptiles. In this respect, the Hungarian Natural History Museum plays an important role in the transfer of intellectual knowledge and scientific skill, through the mutual collaboration of persons and institutions. Most of the collected material have been shared between the collections of the Hungarian Natural History Museum and several Taiwanese institutions, such as the Taiwanese Forestry Research Station, Taipei, and the National Museum of Natural Sciences, Taichung. Based on many years of fruitful co-operation, Hungarian scientists have the advantage of being experienced in the exploration of the Taiwanese biota.

Museums in general, all around the world, are facing to a serious change in their social role. Modern societies are not satisfied any more with rigid, glass-cage cabinets and closed, secret drawers

where countless museum specimens are stored without the direct benefit for everybody. People need and want to know what is the advantage of accumulating zoological material, why the knowledge of biodiversity is important, and how all the information can be transferred to the everyday level of their community. Museums, as depositaries of biodiversity, have to be opened for the public not only with the help of exhibitions but also directly involving people in the work to give them the collective experience of discovery. The Hungarian Natural History Museum has a Discovery Room, where visitors are encouraged to touch the objects, to feel the diversity of zoological specimens, etc.

Every member of our scientific staff participate in an open research-day of the year, when he or she is prepared to give an instant sight into the scientific work, and visitors can stop and ask, watch and discuss matters which they are interested in. On a certain day of the year, the museum is open during the whole night, entrance is free and popular programs are organised to attract as many visitors as possible. We hope that all of these activities bring people closer to the natural environment, not only in the scientific sense, but in order to understand that mankind, despite its technological development, is still and will always be dependent on the conditions and processes provided by Nature around us.



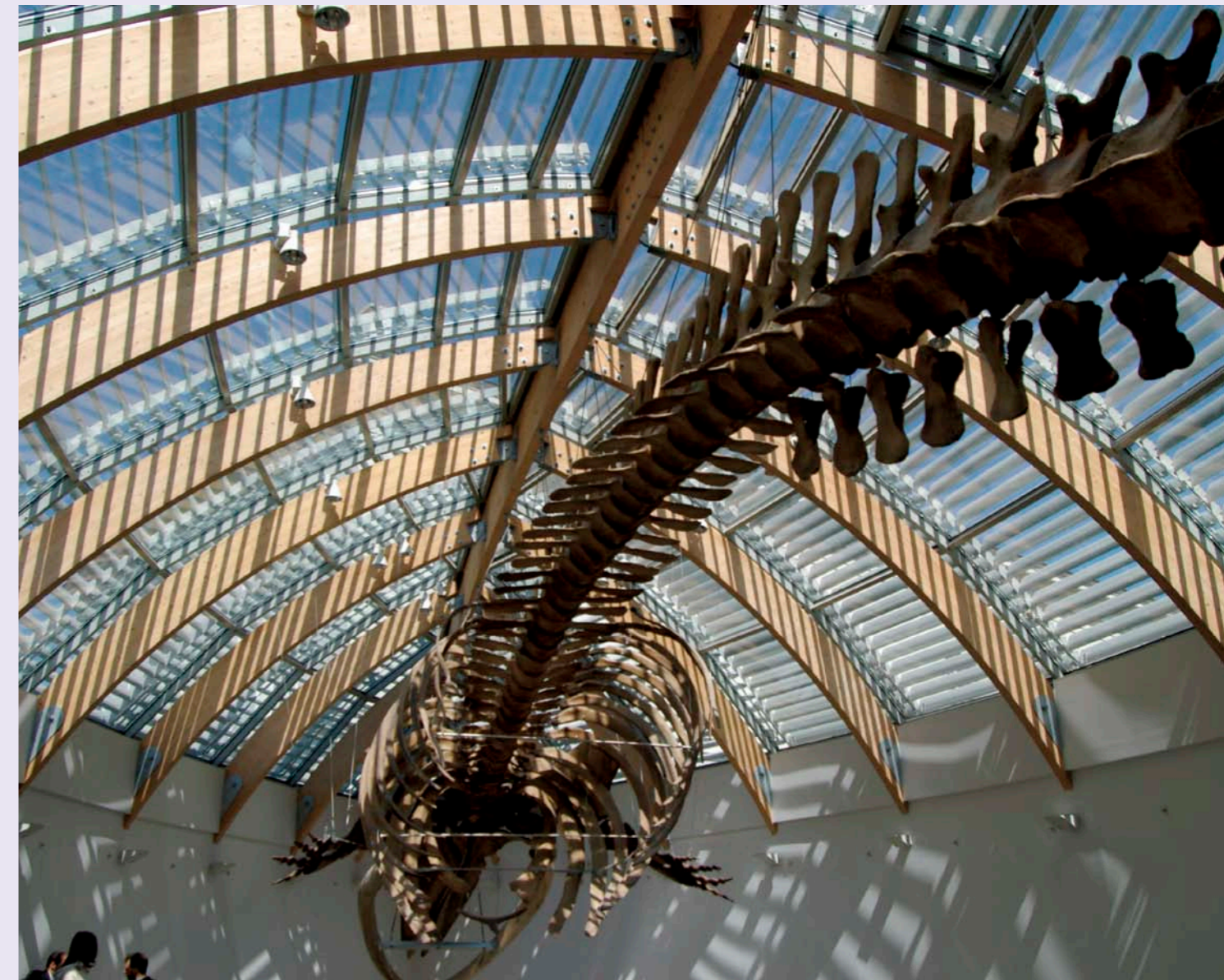
顏聖紘博士與他的學生Wei Chia-Hsuan。他們在高雄國立中山大學生物系中研究昆蟲標本。
Dr. Yen Shen-Horn and his student, Wei Chia-Hsuan, at the Department of Biological Sciences, National Sun Yat-Sen University, Kaohsiung, studying preserved moths.



新幾內亞鴿子的水彩畫，是由天才的畫家與鳥類學家瑪達拉茲(Gyula Madarász)所繪製，他也是首次描述這種鳥類的人。
Watercolour of a New Guinean pigeon, *Ptilopus biroii*, painted by its descriptor, the talented artist and ornithologist Gyula Madarász, in 1897.



前館長卡司查巴(Zoltán Kaszab, 1915-1986)是擬步行蟲的專家，這張照片攝於1965年他在蒙古的大型採集旅程中。
Zoltán Kaszab (1915-1986), former director general and a world-wide specialist of darkling beetles (Tenebrionidae) on one of his extensive collecting trips to Mongolia, in 1965.



博物館的穿堂，天花板吊著鯨魚骨骼，讓訪客一進來就看到。
Entrance hall of the museum: an old whale skeleton is hanging from the roof to impress the visitors at the first glance.

1517年，當來自歐洲的葡萄牙水手首次造訪這個島嶼，所見的是茂密的森林、豐富的野生動物、高入天際的山峰和美麗的海灘，驚喜之餘，將這個島嶼稱為「福爾摩沙」——美麗之島。臺灣這個工業快速發展的天堂，仍然保有豐富的自然之美，只要眼光銳利、心胸開放，就能夠在深幽的山谷、低語的森林、微風輕拂的草原和神祕的藍海之下，發現珍貴的寶藏。

有一小群熱心的匈牙利人，15年來，遠離他們在中歐的家9000公里之遙，探索臺灣的自然仙境。這些人是專業的動物學家(研究不同動物的科學家)，來自布達佩斯匈牙利自然史博物館。這個博物館成立於1802年，有全歐洲第五大的動物學收藏(包括哺乳動物、鳥類、蝴蝶、甲蟲、蜘蛛、節肢動物、蝨類等)，為國家博物館的一部份。國家博物館成立的目標是為匈牙利人民保存所有的文化遺產與自然物。因為歷史的因素，博物館的收藏分開收藏於各個專門的博物館中。例如藝術博物館、國家圖書館、工藝博物館、國家畫廊等。礦物、化石、植物、動物等屬於自然史的主題收藏，以及人類學的收藏品，在



哺乳動物收藏的一部分：抽屜中的老鼠皮。
Detail of the Mammal Collection: dry, stuffed mouse skins in drawers

2002年開館兩百周年時，達到1000萬件。1996年，自然史博物館開始了重建計劃，第一步就是在布達佩斯有專屬的建築物，並且舉辦新的展覽，希望能夠在10年內讓所有的科學收藏品與工作人員都結合在一起。這個計畫仍在進行，而動物學與植物學部門正在等著困難重重的搬家工作。

研究工作則和整理收藏一樣，持續不間斷，而博物館的動物學家也和前輩一樣工作不懈。東亞(包括南方的新幾內亞、中部的蒙古，以及韓國、越南等)和遠東，一向是博物館科學研究的焦點之一。著名的蜂類學家畢羅(Lajos Bíró, 1856-1931)於1895-1902間在新幾內亞待了七年；前館長卡司查巴(Zoltán Kaszab, 1915-1986)是擬步行蟲科(Tenebrionidae)的專家，1960年代，他領導了六次前往蒙古的調查隊；在更早的幾十年中許多重要的收集行程中，也參加過兩次。在共產時代，匈牙利與亞洲的共產國家(像是北韓與越南)的關係良好，我們組織三十多次調查隊，前往這些國家，收集到了許多科學材料，並且發表了兩百多篇有關該地區動物的論文。

匈牙利自然史博物館的東亞收藏，是世界上最的。而基於政治理由，南韓的科學家會到我們博物館來了解北方鄰國的動物，真是有點奇怪呢。

不過匈牙利一直嚮往能有充足的經費，並且與東方國家建立良好關係。從1996年開始，臺灣國科會大方的支持我們前來研究臺灣動物之行，目前已經有21次了。一開始，這些調查之旅對我們而言主要是在陌生的地方採集與收集各種資料，不過漸漸的，我們開始與許多科學研究單位建立起多層的合作關係，這些單位包括：臺北的國立臺灣大學、臺中的國立中興大學、臺中的東海大學、高雄的國立中山大學、國立台南大學、集集的特有生物保育中心。我們也與林試所及臺中的國立自然科學博物館的主管簽署了備忘錄。我們的工作延伸的專業層面，內容包括鑑定收藏材料、建立標準收藏，而我們專家主要的工作則變成在大學中教書，以及撰寫論文等。

為什麼臺灣的動物學工作那麼有趣？這我們必須從這個島嶼的地理學與動物學歷史談起。臺灣是座非常年輕的島嶼，大約只有500萬年，位於歐亞板塊的東部，與菲律賓版塊連接。其週遭的環境的各種效應，造就了島上特有的動物相與植物相。主要的生物地理影響來自亞洲大陸(古北區喜馬拉雅地區效應)、日本群島(東方效應)與西太平洋(海洋效應)。之前對於數類動物(例如夜蛾)的研究顯示，臺灣高山的動物相與喜馬拉雅山區類似；其他物種，例如蒼蠅，則和日本的種類相近；至於棲息在土中的無脊椎動物(包括多足類)，則顯示與菲律賓群島有密切的關係。

臺灣的地層是最近的火山運動造成的，相當複雜，三個主要的山脈都將近4000公尺高。除了古北區、東方與海洋的效應外，臺灣的動物中有相當高的比例(有些類高達50%)屬於特種。因此就某個角度來說，臺灣的動物學研究，特別是在無脊椎動物方面，仍處於收集各種動物的資



匈牙利自然史博物館哺乳動物收藏部門的圖書館與討論室。
Library and discussion room of the Mammal Collection in the Hungarian Natural History Museum.



Dr. András Kun 於2007年7月17日參訪本館，由典藏組林俊聰先生帶領參觀典藏庫房。

料、描述新的物種，以及建立各種動物在地理上的分布。全面性的動物學研究反而比較少見，而且集中在熟知與受歡迎的動物，諸如鳥類、哺乳類、兩生類與爬行類動物。在這方面，匈牙利博物館透過個人與臺灣研究機構之間的合作關係，進行科學知識與技術交流，扮演了重要的角色。這些機構包括臺北的臺灣林業試驗所、臺中的國立自然科學博物館等。許多年來的合作，成果豐碩，也使得匈牙利的科學家能夠趁此之便，探究臺灣的生物相。

目前世界各地的博物館所扮演的社會角色，正在面臨重大的轉變。放著玻璃罐的單調櫥櫃，以及存放無數標本的神祕抽屜等，並沒有對每個人有直接的效益，現代的社會不會滿足於這樣的博物館。人們想要知道收集動物學材料的利益、生物多樣性的重要性，以及這些資料如何能夠轉化成一般人日常生活所需的形式。博物館是生物多樣性的收藏處，但是這些不只是在展覽時對大眾公開，也應該直截讓民眾參與和領略科學發現的過程。匈牙利自然史博物館中有一間「發現室」，來訪者在裡面可以觸摸這些收藏、感受動物標本的多樣性。我們每位科學同仁都參加了每年一度個研究公開日，他們會準備好能夠簡單說明科學知識，來博物館的人能夠詢問他們，並且討論自己有興趣的課題。在每年的這一天，博物館夜間開放並免費入場，同時舉辦許多受歡迎的活動，希望盡量吸引訪客。我們希望這樣的活動能夠讓人們更親近自然，不只是了解自然的科學面，而還要知道人類雖然發展了科技，但是依然倚靠周遭自然所提供的資源。



匈牙利自然史博物館的隆開(László Ronkay)博士，是目前全世界首區一指的夜蛾科專家，發表過許多東方蛾類分類的論文。他目前在國立台南大學任教，教導學生如何建立適當的鱗翅目收藏。
Dr. László Ronkay (HNHM), one of today's worldwide leading specialist on the moth family Noctuidae, author of a number of taxonomical monographs of Oriental members of the group, teaches students at the National Tainan University, Tainan, how to set up a proper Lepidoptera collection.