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A record of the discovery of Japan's oldest turtle

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Abstract: This is an English translation of an article by Tadashi Fujinaga entitled '「日本最古のカメ」発見記' (romanized '「*Nihon saiko no kame*」*hakken ki*'), which was originally published in Japanese in 1990 within issue 10 of カルスト (*Karusuto*), a publication of the Mine Natural History Association (美祢自然史友の会 *Mine Shizenshi Tomo no Kai*) and the Mine City Museum of History and Folklore (美祢市歴史民俗資料館 *Mine-shi Rekishi Minzoku Shiryōkan*). The article is reproduced in translation with permission from the Mine Natural History Association. The original figures have been modified and augmented with additional photographs.

Key words: Early Jurassic, Nishinakayama Formation, Testudinata, Toarcian, Toyora Group, vertebrate paleontology

"It's a turtle!"

With that exclamation voiced by the curator Mr. Takahashi[a], my hobby of collecting fossils moved one large step forward.

On the second day of the New Year in 1989, three years since I had started collecting fossils, I was returning home to Shimonoseki from visiting my parents in Mitōchō Mana[b] when I made a carefree stop in Toyotachō at 4:30 in the evening.

My starting point of collecting fossils was here in Toyotachō Ishimachi (Figure 1A). I had already visited ten-odd times before, and each visit had produced specimens of familiar ammonites such as *Dactylioceras* and *Protogrammoceras*. At first, it had been exciting to find just fragments of fossils, but I kept coming back craving bigger and more beautiful specimens. The river Eragawa flows from the mountain Gesan over the Nishinakayama Formation, the middle unit of the Toyora Group, eroding the bedrock into rolling stones of black shale that are very easy to collect. Collecting fossils from these stones in the river rather than hammering away at subaerial outcrops causes very little destruction of nature or feelings of guilt for intruding on another person's land. I was unsuccessful collecting beneath the bridge Ishimachibashi on Yamaguchi Prefectural Road No. 34 (Figure 1A), and it was past 5:00 in the evening[c], so I returned to the confluence with the main river Koyagawa to try my luck there before heading home (Figure 1B). I used my hammer to split one of the cobbles of shale that are common in the riverbed and immediately saw a nearly 10-centimeter specimen of the ammonite *Protogrammoceras*[d]. The weathered slabs of the cobble were broken apart; however, I collected the many fragments of the precious fruits of my labor, satisfied with the day's results.

This led to good fortune. The next day, I glued the fragments together to repair the slabs. Luckily, there was another fossil next to the ammonite that piqued my curiosity. At first glance, I thought it looked like the round fruit of a plant. Hoping for a hint, I showed it to my wife, but she gave only a slight reaction and didn't think it was a big deal. Therefore, two months later, I

asked Mr. Takahashi to appraise the specimen when I had the opportunity at an inspection tour on 19 March 1989.

Three days later, the discovery in Ishikawa Prefecture of Japan's oldest Cretaceous turtle[e] was reported by the news on television; however, I was confident that my specimen was older, so after that, I sent it to be appraised by Professor Hasegawa[f] at Yokohama National University, who said the fossil was "Japan's oldest baby soft-shelled turtle."[g]

I am profoundly grateful to all my seniors for their aid in producing these results, which are like a dream to me. Although I sent my 'child' eastward to Yokohama for appraisal, I pray that even half of the specimen returns to its hometown in Mine soon.[h]

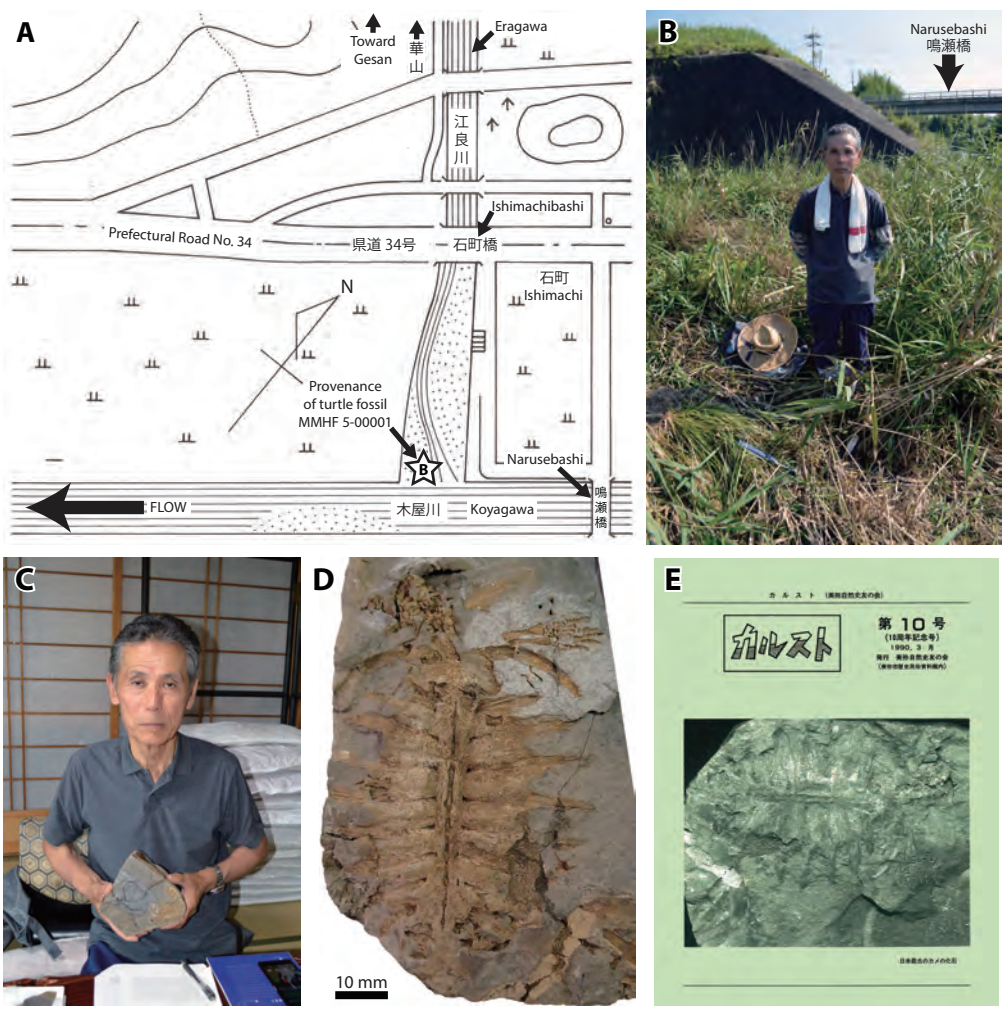

Figure 1. (A) Map of Toyotachō Ishimachi, Shimonoseki, Yamaguchi, Japan showing the locality from which the turtle fossil MMHF 5-00001 was collected on 2 January 1989. Modified from Fujinaga (1990). (B) Tadashi Fujinaga standing at the point where he discovered the turtle fossil MMHF 5-00001 *ex situ* in Eragawa immediately upstream from its confluence with Koyagawa. Photograph taken on 3 August 2019 by the translator. (C) Tadashi Fujinaga holding the turtle fossil MMHF 5-00001 at Kaigetsu Ryokan in Toyotachō Ōaza Tonoshiki, Shimonoseki, Yamaguchi, Japan. Photograph taken on 3 August 2019 by the translator. (D) The turtle fossil MMHF 5-00001. (E) Cover to issue 10 of カルスト (*Karusuto*) from March 1990, which contained the original Japanese article by Tadashi Fujinaga. This issue marked the 10th anniversary of the bulletin. Reproduced with permission from the Mine Natural History Association.

Translator Notes

[a] Fumio Takahashi remains the curator of the Mine City Museum of History and Folklore as of February 2022.

[b] A town in eastern Mine, Yamaguchi, Japan.

[c] The sunset in Toyotachō on that day was at 17:18.

[d] This ammonoid specimen was later referred to "*Harpoceras* (s.s.) *chrysanthemum*" (=*Cleviceras chrysanthemum*) by Hasegawa *et al*. (1998).

[e] From the Lower Cretaceous Tetori Group in Shiraminemura, which was merged with other local towns and villages to form the city Hakusan in 2005. Hundreds of Early Cretaceous turtle fossils have been collected from the Tetori Group in this region (e.g., Hirayama, 2000).

[f] Yoshikazu Hasegawa retired from Yokohama National University in 1995 and took a position at the Gunma Museum of Natural History.

[g] Subsequent articles by Hasegawa *et al*. (1998) and Breeden and Izumi (2019) referred the specimen to the decreasingly exclusive clades of Testudines and Testudinata, respectively. A more detailed study of the specimen's phylogeny and taxonomy is in progress, but it is clear that the specimen is not a trionychid (i.e., a soft-shelled turtle).

[h] The material was ultimately returned from Yokohama. Both slabs of the turtle fossil are now reposited at the Mine City Museum of History and Folklore and were assigned the specimen number MMHF 5-00001. (Figure 1C–D)

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