

# Anniversaries

Died 80 years ago & founded 100 years ago



## **Takuji Ogawa (1870–1941): Japanese geographer-geologist founder of the Geology Department in Kyoto University in 1921.**

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Takuji Ogawa (or Takudzi, 1870–1941; 小川琢治) one of the most important geologists in geotectonic studies of the Japanese Islands, died on the 11<sup>th</sup> November, 1941, 80 years ago. Besides his geological contributions, he was a pioneer of human geography especially historical geography. He also wrote about the history of geoscience: general history of geology as well as Japanese geography and geology.

Takuji Ogawa was born in Tanabe of the Kii Province (now Wakayama Prefecture) as Takuji Asai.<sup>1</sup> His father Nanmei Asai was a Confucian professor of the Tanabe Clan, but was also teaching at elementary and private schools after the Meiji Restoration. Takuji, his second son, spent much time in his youth reading Chinese books stored in the regional libraries. In 1886, Takuji went to Tokyo and became a student of the First Higher School. He was later adopted by the Ogawa family in May 1891 and changed his surname.

While travelling to his home province in 1891 Takuji was surprised by the Great Nōbi Earthquake that took place on the 28<sup>th</sup> October. As he observed the area of disaster in the Nōbi district on the one hand and the sublime beauty of nature along the Kii Peninsula on the other, the event made a deep impression upon the young man. After this experience he became determined to be a geologist in order to study the history and structure of the Earth.



Figure 1. Takuji Ogawa (1870–1941).

On graduating from the University of Tokyo, he obtained a position at the Geological Survey of Japan in 1897. His activity as a surveyor was outstanding. In addition to his normal routine work, Ogawa voluntarily explored a wide range of geological terrain, especially in the area of south-western Japan, and thus contributed by his enormous efforts to the completion of the geological map of Japan (1:1 000 000).

Due to his contribution in mapping, Ogawa was chosen to be the representative of the Survey within the Japanese delegation that attended the Paris Expo (Exposition universelle) in 1900. He also attended the 8<sup>th</sup> International Geological Congress, which was held in Paris during the exposition, and became acquainted with many foreign scholars there, including the French mineralogist and volcanologist Alfred Lacroix (1863–1948).

Fortunately, Ogawa, together with his colleague Naomasa Yamasaki (1870–1929), another geographer-geologist from Japan, also had the opportunity to attend Eduard Suess's (1831–1914) lectures in Vienna. Suess was in the final phase of the completion of his comprehensive work *Das Antlitz der Erde* (The Face of the Earth, 1885–1901). Ogawa discussed the geotectonics of the Japanese Islands with Suess and persuaded the latter to adopt his ideas.<sup>ii</sup> Later, however, Ogawa was to criticise the basic idea of Suess's geothory – orogeny due to surface processes on a shrinking Earth – as a remnant of Neptunist thinking.

Ogawa, so far a field geologist, had been dividing his daily life between the library and with his family when he was appointed geography professor at Kyoto University in 1908. He cultivated the field of human geography, especially historical geography<sup>iii</sup> and devoted himself to the study of the ancient and contemporary geography of China in close relation with the orientalist research group of the University until 1920. During his student years Ogawa had been given the chance to compile a regional geography of Taiwan, which was published in 1896, utilizing not only Japanese material but also Western and Chinese sources. His literacy in the Chinese classics enabled him to write original and insightful contributions in this study area and consequently, he established the beginnings of an academic school of human geography at Kyoto University.

In the meantime, the College of Science and Engineering at Kyoto University was separated into the College of Engineering and the College of Science in 1914. After this division, the latter began to plan additional departments in geology and biology to complement the previous physical and chemical units. Ogawa was appointed to be the founding member of the geological department. His idea was to integrate geosciences under one department, which would include not only historical geology and petrology but also geophysical and geochemical aspects. He recruited the physicist Motonori Matuyama (1884–1958) as professor of theoretical geology, who later became famous for the 'Matuyama Reverse Epoch' in paleomagnetic chronology; the chemist Atsushi Matsubara (1884–1942 retired) as professor of mineralogy; and a geologist of the geological survey in Korea, Shintaro Nakamura (1881–1941) as professor of historical geology. Thus, the Geological and Mineralogical Department at Kyoto University was established under the leadership of Professor Ogawa in 1921,<sup>iv</sup> just one hundred years ago.

After the shock and damage caused by the Great Kanto Earthquake in 1923, Ogawa organized a society for geoscience, "Chikyū Gakudan (Association for Earth Study)" and published a journal *Chikyū* [The Globe] aimed at diffusing geoscientific knowledge among the general public. At the same time, in summarizing his geoscientific thought, he intended to advance his own geotectonic theories at a global level.

In his *Chishitsu gensho no shin kaishaku* (The New Interpretation of Geological Phenomena), published in 1929, Ogawa compiled his research in geology by also consulting the history of the science. The Humboldtian reference in his slogan 'Back to Humboldt' meant the revival of 'Vulcanism' or even 'Plutonism': Distribution of deep earthquakes discovered by his colleague Toshi Shida (1876–1936), volcanoes in Japan and examples of global simultaneous volcanism activity made Ogawa contemplate the existence of a deep volcanic power which

generates surface geotectonic structures. In analyzing Darwin's 1838 paper, Ogawa agreed with the idea that earthquakes were caused by the injection of melt between masses of strata.<sup>v</sup> Ogawa claimed that large-scale structures on the earth's surface such as mountain chains and island arcs were only possible to explain by assuming a causal power that emerged from deep within the earth – maybe the mantle-core boundary discovered by Emil Wiechert – and not by surface forces such as folding due to a shrinking earth's crust on a slowly cooling globe as was the contemporary mainstream idea.<sup>vi</sup> In this, Ogawa not only criticized Suess, but also Emile Argand, a supporter of Alfred Wegener, because they neglected to consider a geological force from deep within the earth.

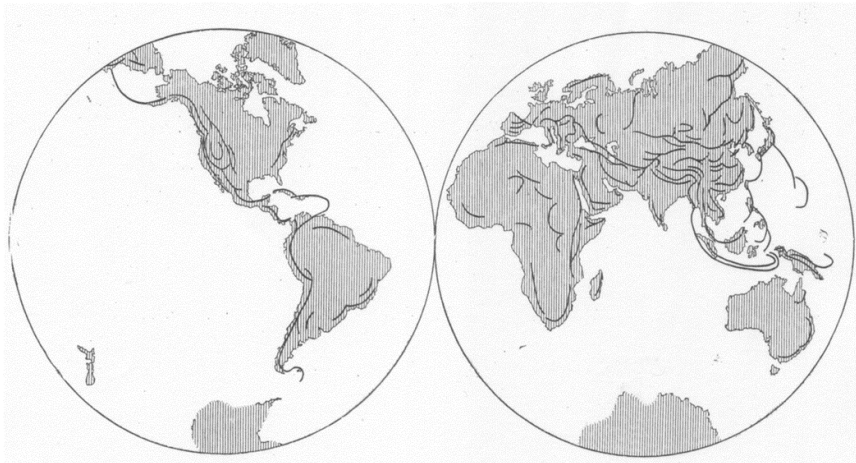


Figure 2. Large-scale structures of mountain chains and island arcs.  
From Ogawa's book *New Interpretation of Geological Phenomena* (1929)

Takuji Ogawa and his wife Koyuki Ogawa, had five sons: Yoshiki, Shigeki, Hideki, Tamaki and Masuki. Unfortunately, Masuki died young during the war. However their remaining four sons became famous for their academic contributions. The elder son Yoshiki Ogawa became a metallurgist; the second, known as Shigeki Kaizuka, was an historian; the third, known as Hideki Yukawa, was a physicist and the first Nobel Prize laureate in Japan; the fourth, Tamaki Ogawa, was a scholar of Chinese literature.

## Further Reading

<sup>i</sup> For a general description of Ogawa's life as a geographer, see Usao Tsujita, "Takuji Ogawa 1870-1941," *Geographers: Biobibliographical Studies*, 6, 1982, 71-76..

<sup>ii</sup> See, Eduard Suess, *The Face of the Earth*, trans. Hertha B. C. Sollas, Oxford: Clarendon Press, 1908, Vol. 3, Part 4, Chap. 4.

<sup>iii</sup> For the early development of human geography in Japan, see, for example, Keiichi Takeuchi, *Modern Japanese Geography: An Intellectual History*, Tokyo: Kokon Shoin, 2000, Chap. 5.

<sup>iv</sup> Keiji Nakazawa, "On the history of the Geological and Mineralogical Department of Kyoto University," *JAHIGEO Bulletin*, No. 25, 2005, pp. 19-30. (In Japanese.) Also see, <http://www.kueps.kyoto-u.ac.jp/>

<sup>v</sup> Toshihiro Yamada, "Between the Field and the Classroom: The Using and Making of Geoscientific *Historia* in Meiji-Taisho Japan," *Historia Scientiarum*, 28, 217-236, esp. pp. 231-234.

<sup>vi</sup> Takuji Ogawa, *Chishitsu gensho no shin kaishaku* (The New Interpretation of Geological Phenomena), Tokyo, 1929, p. 520. (In Japanese.)

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