

# Don't Drink Unboiled Water in Unfamiliar Places!—Taro Takemi's Success Story

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## Prologue

Recent weather in the Japanese Archipelago is clearly abnormal. The influence of El Niño has produced localized torrential rains with hail, tornadoes, wind gusts, and lightning strikes, inflicting damage across the nation. Tokyo is no exception, and the Japan Meteorological Agency often issues warnings for heavy rains and lightning strikes. Have there ever been so many warnings issued for thunder and lightning in Tokyo?

As I was pondering this, the existence of a certain book came to my mind: *Kaminari* [Thunderbolt] (Iwanami Shinsho No.46), published in September 1939 by Dr. Ukichiro Nakaya (1900-1962), a physicist who succeeded in creating artificial snow for the first time and is renowned for his contribution to the study of snow crystals (Fig. 1). The inside cover of the book has a dedication that reads “Dedicated to Taro Takemi (Fig. 2).” This “Taro Takemi” is *the* Dr. Taro Takemi (1904-1983), the man who assumed the presidency of the Japan Medical Association in 1957, realized a universal health insurance system during his 25 years of term, and became known as the *Don* of the medical community of Japan. This paper aims to reveal why Dr. Nakaya dedicated his work to Dr. Takemi and illuminate the lesson contained in the background.

Before proceeding to the main topic, allow me to take a slight detour. In September 1944, I moved from metropolitan Tokyo to my grandmother's house in Takaoka village, which is located about 10 km north of the plateau where the lead factory of Toyota Motor Corporation is

located. The area was completely rural back then, and people were drinking filtered artesian water that naturally flowed from underground. One thing that my grandmother repeatedly told me was “Don't drink unboiled water in unfamiliar places.” At the time in Japan, water supply systems were still incomplete and there were hardly any sewage systems or water treatment facilities except in metropolitan Tokyo, and human excrement was used as the most vital agricultural fertilizer everywhere. Water bottles and thermoses were must-have items for school field trips and traveling, and teachers instructed students not to eat uncooked freshwater fish and salmon and sea trout from the Sea of Japan because they could carry parasites.

However, with Japan's high economic growth that started around 1965, movements to improve village living, and the nationwide spread of water supply and sewage systems, a myth was produced among Japanese people that tap water in Japan is safe, seemingly making the old saying of “Don't drink unboiled water in unfamiliar places” obsolete.

In July 1985, there was a symposium in Qingdao, in which dignitaries of the Chinese National People's Congress and the Academy of Social Sciences and Japanese legal experts gathered. During my train trip between Beijing and Qingdao for this event, the Chinese travelers I saw were all carrying large-size thermoses to enjoy jasmine tea using tea cups. The tables at the symposium venue also had thermoses, and tea cups with lids and jasmine tea bags were available as well.

When I was watching television at Taipei Airport in the fall of 1992, the telop repeatedly

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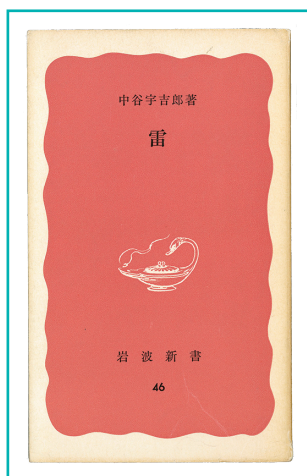


Fig. 1 *Kaminari* [Thunderbolt] written by Ukichiro Nakaya (Iwanami Shinsho No.46)

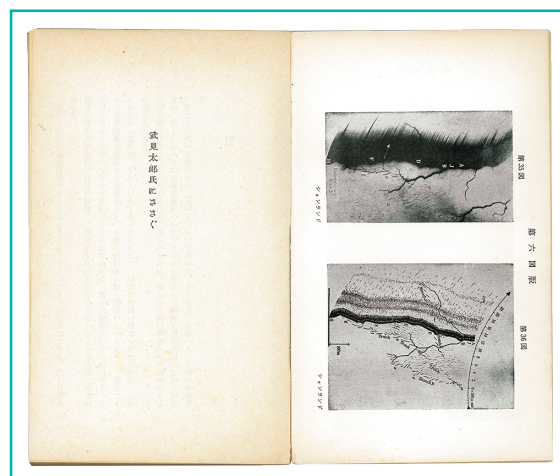


Fig. 2 A dedication on the inside cover of the book—  
“Dedicated to Taro Takemi”

flashed the message “Don’t eat uncooked fish in foreign countries” on the screen. After some thinking, I realized that this telop is essentially warning against eating *sashimi* in Japan. Chinese cuisine basically consists of cooked dishes and is quite hygienic. In fact, older recipe books on typical Chinese dishes instruct to use heat in principle, and stir-fried, steamed, boiled, and baked dishes occupy the overwhelming majority of the recipes.

These facts prove that the teaching of “Don’t drink unboiled water” and that the sense of alertness against eating uncooked seafood or animal meat was still alive until the end of 20th century.

### Publication of *Kaminari* [Thunderbolt] by Ukichiro Nakaya, and Its Dedication

One of the publishers that represent Japan is the Iwanami Shoten founded in 1913. The founder is Shigeo Iwanami (1881-1946), who was enrolled in Department of Philosophy at Tokyo Imperial University. Iwanami started the publication of Iwanami Bunko (Iwanami paperback series) in July 1927. In the message to commemorate its launch, Iwanami wrote “Following the example of Reclams paperback series, I wish to publish books with true classical value that must be read universally in very simplistic style as needed, to provide documents that are absolutely necessary

for everyday life for any person as well as the principles to evaluate life, in the areas of literatures, philosophy, social sciences, natural sciences, and any other subjects gathered from far east and west” (translated from Japanese). With the endorsement and support from celebrated writers, art and literature experts, and scholars within various fields, Japan’s first paperback series of the Reclams size (105×148 mm) became a major success. In the meantime, Iwanami also published books on various subjects including art, literature, and a series of complete works on academic subjects. Then, in November 1938, he launched the Iwanami Shinsho [New Works] series (105×173 mm), after the example set by Penguin Books. In the prefix to commemorate its launch, Iwanami wrote “Together with the classical knowledge of the Iwanami Bunko series ... this year the Iwanami Shinsho will start with the purpose of promoting modern education for modern men” (translated from Japanese). As Iwanami anticipated, the authors of the Shinsho series were all scholars who represented Japan in the areas of philosophy, literature, humanities, and natural and social sciences, and the public called them “the Men of Iwanami Culture.”

The very first publication of the Iwanami Shinsho series was *Yuki* [Snow] written by the aforementioned Professor Ukichiro Nakaya of Hokkaido Imperial University. Dr. Nakaya’s career first started at the Institute of Physical

and Chemical Research (RIKEN), working in the laboratory of his mentor, Dr. Torahiko Terada of Tokyo Imperial University, Faculty of Science. After a few years there, Nakaya assumed a post at Hokkaido Imperial University and immersed himself in the study of snow. He succeeded in creating the world's first artificial snow crystals in 1936. Dr. Nakaya was also a literary man, and he wrote many essays on natural sciences using laymen's terms that evoke his mentor, Terada. At the request of Iwanami, Nakaya's work *Kaminari* [Thunderbolt] was published in the Iwanami Shinsho series (No.46) as an awareness-raising work about thunder and lightning in September 1939. As previously mentioned, the inside cover of this book is inscribed with "Dedicated to Taro Takemi."

In the summer of 1938, a year before *Kaminari*'s publication, a young and energetic Dr. Nakaya was stricken by a disease of unknown cause. Internists at both Hokkaido Imperial University and Tokyo Imperial University diagnosed him with terminal intestinal tuberculosis, and he was spending bitter days alone in his hospital room. When Iwanami learned of this, he consulted Professor Makoto Koizumi of Keio University School of Medicine (a zoologist and parasitology expert who graduated Tokyo Imperial University) for they had been well acquainted through academic publishing, including *Shinka-gaku Joron* [Theory of Evolution: Introduction]. Koizumi recommended a consultation with Dr. Takemi, an internist under the tutelage of Koizumi. Under Professor Koizumi's direction, Dr. Takemi became Nakaya's attending doctor. Takemi denied the possibility of tuberculosis, and Professor Koizumi, a parasite expert, helped deliver a definitive diagnosis of distoma hepaticum. Nakaya received antimony treatment and made a complete recovery after a while.

During the course of this treatment, Koizumi found 5 other distoma hepaticum patients, including Iwanami, Isamu Kobayashi (Iwanami's brother-in-law who worked at Iwanami Shoten Publishers and later became the president of the company), Yoshio Fujioka of RIKEN (a graduate of Tokyo Imperial University and a nuclear physicist, who later became president of national universities), Sakuhei Fujiwhara of the Central Meteorological Observatory (a graduate of Tokyo Imperial University, who later became the director of the observatory), and Professor

Yoshishige Abe of Keijo Imperial University (a graduate of Tokyo Imperial University who later became the minister of education, director of the national museum, and was appointed to other esteemed offices as well). Their treatment was also entrusted to Takemi.

Moreover, an investigation revealed that the flukeworm infestation originated from a dish that used uncooked freshwater fish (carp, crucian carp), which was served at the request of Iwanami at his favorite traditional Japanese cuisine restaurant in Nishi-Ginza, Tokyo. Iwanami was born in Nagano Prefecture, which has no access to an ocean, and in his mind freshwater fish dishes served in *sashimi* or uncooked style was a sign of utmost hospitality.

Through his success in treating distoma hepaticum, which was believed to be incurable, Takemi immediately won the trust of Iwanami. With support from Iwanami, Takemi joined RIKEN at the Komagome office (where the Japan Medical Association is currently located) and also opened his clinic in Ginza. At RIKEN, he was engaged in radiology research under Dr. Yoshio Nishina, a physicist who built the first cyclotron in Japan.

Nakaya, who was most severely ill among the 6 patients, thanked Takemi immensely for helping him fully regain his health under Takemi's dedicated care. After graduating from Keio University School of Medicine, Takemi had become a staff member under Professor Chujiro Nishino, an internist. According to Takemi, they had a disagreement about the paper to be published and their relationship fell apart, so Takemi began studying parasitology under Professor Koizumi—it was a gloomy time. If his words regarding his relationship with Nishino were true, we could say that the glimpse of his future self that people later called "*Kenka Taro* [Taro the hot-tempered]" was already there. If so, Nakaya, being a sensitive man, naturally would have perceived it.

The time that the manuscript of *Kaminari* was written is also the time that Nakaya, Iwanami, and others were under the care of Takemi and restored to their health from distoma hepaticum. We have expressions in Japan about thunder and lightning, such as *Kaminari-oyaji* [irascible old man] or "hitting with a lightning," to refer to someone who shouts at others. I had known Dr. Takemi for about 35 years during his career, but I had never witnessed a situation

where he raised his voice. Nevertheless, as I recall his polite yet dominating manner—such as when he decided that all doctors in Japan should entirely refuse to practice under the medical fee schedule of the government, or when his lecture was interrupted by a young doctor at a Japan Pediatric Society’s meeting, —perhaps his nickname of *Kenka Taro* is aptly applied.

Nakaya’s *Kaminari* simply states, “Dedicated to Taro Takemi,” and there is no description that hints at any relationship between the title of the book and Takemi. It is only my imagination, but I would speculate that Nakaya wrote this irregular remark of dedication on his work *Kaminari* with gratitude and banter upon first consulting with Iwanami.

I would like to add one thing that I learned while writing this essay: *Hideyo Noguchi* (Iwanami Shinsho No.43), written by Makoto Koizumi, was also published on the same day as the Nakaya’s *Kaminari*.

### **Washoku [Japanese Cuisine]— My Apprehension Toward Increasing Popularity of Eating Uncooked Seafood**

In the fall of 2003, I went to New York after the World Medical Association General Assembly ended. I think it happened at lunch when I was invited to a Japanese restaurant near my hotel; they served me several pieces of sushi, and one of them looked unfamiliar. I asked the restaurant staff and learned that it used salmon *sashimi*. The president of the Ishikawa Medical Association,<sup>\*1</sup> who was also at the table, recommended that I not eat the salmon sushi. Then, a story about a lawyer of my neighbor came to mind. The lawyer born in Toyama City<sup>\*2</sup> who later became a Supreme Court judge, was diagnosed with tapeworms when he was appointed as a law officer and joined the navy. It was very difficult to treat, he said. I do not know if salmon and trout overseas carry parasites, but I followed the president’s advice and stayed away from the salmon sushi.

Ten odd years have passed since. Nowadays, sushi restaurants in Japan frequently offer salmon and trout sushi, and fish stores carry imported salmon next to bluefin tuna, marlin,

and yellowfin tuna in their displays. Japanese cuisine, *washoku*, is becoming increasingly popular across the world, especially *sashimi* and sushi that use uncooked seafood. What concerns me now is whether the possibility of food poisoning due to parasites ingested from eating uncooked seafood has been properly addressed overseas. In light of the experience accumulated in northern Hokkaido, super-low temperature freezing has been recently recommended in Japan in order to prevent tapeworm infestation; this has produced good results.

Lately, however, the problem of anisakiasis has surfaced. The National Institute of Infectious Disease (NIID) estimates that there were 7,147 cases of anisakiasis per year between 2005 and 2011 in Japan based on yearly-averaged 330,000 national health insurance claims during this period.<sup>1</sup> NIID reported that diagnostic techniques have been improved with widely available endoscopic examinations and that nationwide transportation systems for perishables have developed, which led to the geographical expansion and increase of anisakiasis cases. Comparatively, from 1960 to 2005, there were about 500 cases in total in Europe and about 70 cases in America. There are over 160 species of fish and shellfish consumed by humans that potentially carry the nematode *Anisakis* in the ocean surrounding Japan, such as mackerel, horse mackerel, squid, sardines, and Pacific saury. However, NIID also warns that many species of marine fish and shellfish across the globe are also known hosts of this parasite.

Be that as it may, NIID also states that “avoiding eating uncooked marine fish and shellfish” and “eating after cooking with heat at 60°C for 1 minute or longer” are secure preventative methods, and that eating previously frozen uncooked fish and shellfish is also effective because “*Anisakis* larvae lose their infectivity when frozen at –20°C for 24 hours or longer.” In the Netherlands, a law enacted in 1968 stipulates that herring pickled with vinegar and served unheated must have been frozen at –20°C or below for 24 hours or longer before preparation. The US-FDA recommends freezing below –35°C for 15 hours or –20°C or below for 7 days in order for fish to be served uncooked. The EU’s

\*1 Ishikawa Prefecture is located in the central part of the Japanese Archipelago, facing the Sea of Japan.

\*2 Toyama Prefecture neighbors Ishikawa Prefecture to the south, and its capital, Toyama City, also faces the Sea of Japan.

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public health management standards require visual inspection of parasites from marine fish and require seafood to be frozen at  $-20^{\circ}\text{C}$  or below for 24 hours or longer for it to be served uncooked.

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Any civilized country would be fully capable of implementing all the measures described here. My hope, therefore, is that each nation carries out an outreach program to make the public aware that eating uncooked marine fish and shellfish can be a questionable practice. Governments are advised to take proper measures including deep freezing treatment at a super-low

temperature.

The sources of infection in the modern age are very variable, from parasitic animals and plants to bacteria and viruses. In light of this, perhaps the old saying of “Don’t drink unboiled water in unfamiliar places” should still be kept alive, even now.

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#### Reference

1. National Institute of Infectious Diseases. <http://www.nih.go.jp/niid/ja/kansennohanashi/314-anisakis-intro.html>. (in Japanese)