

The Release and Decay of the Japanese Radiation Mascot Tritium Chan

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Introduction

This paper examines one of the countless Japanese animated and anthropomorphized characters who has possibly enjoyed the shortest official lifespan, Tritium Chan¹, in context of other characters and related discourse about nuclear issues. This Japanese Reconstruction Agency (JRA) character Tritium Chan, based on the tritium atom and dubbed a ‘mascot’ in media, had an official existence of roughly ten days in April 2021. This interval is coincidentally but not intentionally representative of the short half-life of the radioactive isotope of hydrogen that it represents. The agency intended it as an explanatory mechanism supporting the release of treated waste water from the Fukushima Daiichi nuclear reactor cleanup, known as ALPS (Advanced Liquid Processing System) –treated water, using it in PR printed matter and video. However, public criticism against the character quickly forced it out of use, and, as reported in the Mainichi news April 23, the Reconstruction Agency website announced a switch to the letter “T” for the character on April 22. Currently (December 2021) , we can see this change on the agency website poster linked to the following explanation, translated here :

“In order to minimize the effects of rumors on ALPS-treated water, as described in the basic policy on disposal of ALPS-treated water, it is important to disseminate information on the safety of ALPS-treated water, etc., based on scientific grounds in an easy-to-understand manner. Since the theme of radiation is highly specialized and difficult to understand, we will use illustrations to get as many people as possible interested in general consumers and to know the correct information based on scientific evidence. The leaflet/video, which was explained in an easy-to-understand manner, was released to the public on April 13.

We have received various voices and impressions from the people, and we will revise the tritium design based on them. For this reason, we will temporarily suspend the publication of the leaflets and videos.” (JRA : 2021) .

None of this promotional material was available in the English portion of the website; therefore, it seems Tritium Chan and the contextualizing explanatory materials were and still are intended for domestic consumption. The campaign including the character was produced by the advertising agency Dentsu Inc. (Kyodo 2021) .

As this phenomenon unfolded in context of COVID-19 in the early days of the Japanese spring semester, netnography was the logical methodology for capturing this data. I had just started a discussion of animate and anthropomorphized characters in a Japanese Popular Culture undergraduate course when Tritium Chan came into the media and incorporated it as an example. Having lived near the Nevada Nuclear Test Site and having researched about Japanese local heroes,

¹ The character was in JRA literature simply labeled as Tritium, but popular media rendered it as Tritium Chan, which I also use here, to distinguish the character from the nuclear element itself and to respect *vox populi*.

local mascots, and nuclear characters previously, I felt further compelled to capture whatever data would emerge and analyze it.

JRA's statement that the illustrations are intended to be easy to understand belies the design features of tritium as a character. Specifically, the argument that tritium is harmless is rendered iconically in Tritium Chan's construction and in the explanations in which it appears. Tritium Chan has the basic proportions associated with characters in its pale green, rounded form, with eyes located halfway down the face, like human babies, Sanrio's Hello Kitty, Pokemon's Pikachu, and many *yuru kyara* or *gotoochi kyara* local mascots (Occhi 2012). Its tiny eyes and large mouth (or perhaps nose?) run counter to the neotenus formula, but its head is large and its body small with flapperlike appendages. Its cheeks are red, like Pikachu, the toddler's hero AnPan Man, and the famous local mascot Kumamon (Occhi 2018). It lacks features associated with evil Japanese characters (Occhi 2019). The atomic configuration of one proton and two neutrons (in comparison to stable neutron-less protium and single-neutron deuterium hydrogen isotopes) is symbolized by three spheres on its head, emerging like a tuft or sprout. The central sphere is green and labeled with a plus sign (+) showing the proton's positive charge, flanked by two yellow spheres indicating the neutrons. They appear in multiple, resembling a group of swimming creatures when in water, or solo, as a sort of sprite when shown in a bipedal stance, strangely reminiscent of the humanoids in the Liberal Democratic Party logo.

Though in the video a radioactive beta particle is shown emanating both from the scientific isotope diagram and from Tritium Chan itself, that particle is not part of the character's basic representation. Moreover, in the one moment when the beta particle is shown, it bounces off the skin of the human figure's hand, described and represented as something that is too weak to penetrate the skin. And in case of ingestion, which as the explanation states is happening anyway due to natural occurrence of the isotope, that tritium is shown as completely expressed by the human body, and as well by a dolphin, depicting Tritium Chan without the beta particle, passing through unchanged. However, beta particles do decay with tritium ingestion, which was not depicted and is not represented in Tritium Chan's construction. Thus, the stated intent of Tritium Chan to help explain the science is not adequately fulfilled, and in the poster replacing it with a T, the surrounding depiction lacking beta decay remains the same.

There is further cause for unease about this promotion that emerges in comparing it to other radiation related materials on Japanese government ministry websites. The English side of the Japanese Ministry of the Environment (JMOE) page about radiation (BOOKLET to Provide Basic Information Regarding Health Effects of Radiation) states (in agreement with sources from the US Environmental Protection Agency, EPA) that 80% of radiation ingested will pass through while 20% will remain and that while DNA may be repaired due to enzyme activity, it may also remain damaged, which is why radiation exposure increases cancer risk. The ALPS promotional printed and video materials depict all ingested radiation passing harmlessly through the body, and any DNA damage repaired by enzymes, contra to this. Meanwhile, the Japanese version of this site one would expect exists is not linked to this page. Another MOE portal on radiation issues with linked bilingual materials provide a multilayered and Fukushima-centric narrative focused on arguments that the area and its products are safe and carefully monitored. All MOE sites include pictorial

explanations, but none include animated or anthropomorphic entities such as Tritium Chan.

With its depiction of all ingested radiation passing through the body, the argument of harmlessness embodied by the blobby Tritium Chan echoes with that of the 1991 PR character Pluto Kun, representing plutonium, which when drunk by a boy in a similar government-sponsored video said he felt *sukkiri* 'refreshed'. Pluto Kun was officially the PR character for the Power Reactor and Nuclear Fuel Development Corporation, the predecessor to the Japan Atomic Energy Agency. Importantly, the re-released version of the ALPS poster now on the JRA website simply substituted the letter T for the Tritium Chan character, leaving this basic argument for the harmlessness of ALPS-treated water unchanged. This argument runs counter to that on the MOE website and to established scientific understanding generally.

1. Historical Representations of Nuclear Entities

There are histories behind the non-characterized and characterized representations of radiation in Japan that help us understand the ideologies and discourse surrounding the Tritium Chan character and the internet responses thereto. Nakao 2020 traces the path from 'utopia to dystopia' in her survey whose 'hot spots' I briefly summarize here. She found the earliest discussions of radium found in hot springs began as scientifically based, but by 1911, Iizaka, Fukushima hot spring guidebooks attributing radium with health benefits described it as a spirit of the land, without reference to science. Radium infused hot spring boiled eggs have been sold in Iizaka up to as recently as 2014. Misasa Hot Spring in Tottori erected an explanatory sign board in 1914, along with *torii* gates, rope and paper, and other material culture associated with Shinto deities rendering it a shrine and describing the spring as *kami no yu* 'god's hot water'. In 1940 the researcher Yoshio Nishina had his assistant drink enough irradiated water to set off a Geiger counter at a public lecture, claiming it was harmless. By 1946, the Mainichi newspaper was claiming that residual radioactivity from the 1945 bombing was no longer dangerous, portraying it in the same positive light that radium hot springs had enjoyed (Nakao 2020).

More recently, the burgeoning use of animate and anthropomorphized characters to represent entities has links to religiosity (Occhi 2012a) and has even developed among branding strategies for some religious institutions (ibid, Saikia 2021). The use of *kyara* as entities follows the logic of 'friendly authoritarianism' as a playful amusement (Sugimoto 2014) as well as the traditions of play associated with Japanese religiosity (Reader & Tanabe 1998). In line with these motives that underlie general trends for characterized representation generally, Japanese governmental institutions increasingly utilize characters to represent agencies and promotions, including the *mai nanbaa* 'my (identification) number' character Maina Chan (Cabinet Office, Occhi to appear), and the use of popular educational character Unko Sensei 'Professor Poo' to teach about taxes (Ministry of Finance).

Specific to radiation safety discourses in Japan, we find history of *kyara* use not only in Pluto Kun mentioned above but in other nuclear reactor visitor centers Sumihara visited (2003). He specifically describes how Alice in Wonderland characters were used in the Ishikawa visitor center, with creating a "fantastic atmosphere" which children enjoyed, in which the nuclear core was likened to a pipe organ (ibid). I visited the Ikata visitor center in Shikoku, which was closed for

renovation during Sumihara's fieldwork, finding it also contained a fantastic character. Fukkii, who provides the chief decorative motif for the visitor center, animates the *fuki* plant that grows there and is the town flower ('butterbur' *tsuwabuki* (Japanese silverleaf, *Farfugium japonicum*) . In the displayed video, while a uniformed employee stoically described the safety features of the plant, Fukkii swirled around on the screen, its petals like helicopter blades, providing a soothing, hypnotic distraction and even the comment that the explanation is boring (Occhi 2012b) . This finding reinforces Sumihara's assessment of the poetic and other resources of nuclear visitor centers as "an organizational attempt to establish hegemony", obscuring negative features (Sumihara 2003 : 27-28) .

2. Unofficial nuclear *kyara*

Unofficial characters have also served important roles in disseminating information about Japanese nuclear issues. In the wake of the 2011 Fukushima meltdown an unofficial character emerged on YouTube to explain the situation. Genpatsu Kun's narrative emerged from the actual scenario of disaster at the Fukushima nuclear plant following the Great Tohoku Earthquake of March 11, 2011. In the days following this 9.0 earthquake and tsunami that struck northeastern Japan, the news was filled with reports about the damage along the coast and fears of a meltdown. News programs depicted gradually more complex diagrams of the reactor and detailed narratives of the rising risks. Kazuhiko Hachiya, also the designer of Sony PostPet characters, explained that he felt he should construct a simple explanation for the events which were already being described on the news in quite technical language. Within 24 hours, he and a group of volunteers collaborating over Twitter put together a 4 min. video that was uploaded March 16 about Genpatsu Kun "Nuclear Boy" and his 'stomachache' which described the problems of the nuclear plant in simple anthropomorphized narrative from a children's point of view.

Hachiya was not the only one employing *kyara* to deal with the situation. Not long after Fukushima Daiichi became a focus of concerned attention, Pluto Kun made a reappearance around April Fool's Day in prominent freelance journalists' prank tweets about an imaginary news conference (in parodic reference to the official conference of 29 March 2011) , and linked to the abovementioned video. Further tweets of the exchange referred to the lyrics of that video's jingle and a statement that could be construed to say that the Prime Minister would eat up all the emitted plutonium, referring to the *sukkiri* ingestion scene (Inako : 2019) . These online tidbits show the endurance of the character as it re-emerges to provide a foil for critical evaluation of the situation.

3. Monju Kun, the bringer of enlightenment

Another child-friendly nuclear character emergent from that time is Monju Kun, overtly described as a parody character, who embodies the Monju nuclear reactor in Fukui prefecture to represent nuclear-related public awareness and form a symbolic locus for public anti-nuclear action. His cartoon depiction reflects the imagery of the bodhisattva Monju 文殊菩薩 who represents transcendent wisdom, as well as the reactor's name and the shape of its roof and tower. He provides an elaborate example of *kyara* exploitation of discursive resources, among these a profile connecting him to what he represents.

This profile is provided in the format of a resume drafted by hand in the Japanese job-seekers' standard printed form (*virekisho*) listing the reactor's history under 'school and work experience' with personal asides and remarks listed in other categories (talents, health status, interests, aspirations, etc.). The resume combines humor and gravity. Naming the character after the Monju reactor and taking on its history as personal points reader attention to the reactor's ongoing problems, and the putative suicides of two of the reactor's top managers following its two major accidents are listed among these. Jokes are also imbedded in the resume, for example comments about the huge amounts of money Monju Kun is able to receive without actually working (listed under his "skills"), pointing to the tax-based costs of supporting nuclear industry. Other classic *kyara* style rhetorical moves he employs include a family framework, calling the sponsoring agencies *papa* 'father'. In the appropriate box on the resume form, Monju Kun has listed aspirations, which in *kyara* profiles typically include wanting the reader to know something about the sponsor. In his case, he wants everyone to know that he is a dangerous reactor and that MOX fuel breeder technology is behind the times. Furthermore, he states, if there were an accident, the waters of Lake Biwa would be contaminated, and thus the entire water supply of the Kansai region (Osaka-Kyoto-Kobe and environs, some twenty million people) is in danger (Monju Kun 2012).

Monju Kun's debut took place in May 2011 on Twitter. By July 2013, Monju Kun also had a blog, three books in print, and linkages with the digital version of Asahi Shinbun (Asahi Newspaper) and its affiliate Huffington Post Japan, the Min-I Ren Shinbun (Newspaper of the Japan Federation of Democratic Medical Institutions), a Facebook account, and four songs on Soundcloud. He interacted with the public in *kigurumi* 'mascot costume' at anti-nuclear demonstrations in Tokyo; participants in these events also carried fans and other goods bearing his image as I witnessed in summer 2012 (Occhi 2012b). Manabe 2017 traced his activities and interviewed his creator, stating that Monju Kun quietly retired five years after his debut (2017: 282). Manabe concludes that Monju Kun successfully exploited the tropes and strategies common to children's media culture (that, as we have already seen, has been well used to promote nuclear energy in her words as "natural or even heroic") to explain the backstory of the Monju reactor and the problems of Japan's nuclear establishment in a nonthreatening way, making this difficult topic palatable while rendering the author anonymous (2017: 266, 281-282). From this thread of history we see the permeability of boundaries and the interplay between scientific, religious, and *kyara*-based representations of nuclear entities in Japanese media.

4. Responses to Tritium Chan

Qualitative analysis of Twitter search for *tritiumu tyan* 'Tritium Chan' showed three main categories of response. One yielded evidence that Japanese respondents did again find connections to previous nuclear themed characters, often fostering brief sarcastic reactions with posts that juxtaposed Tritium Chan to other nuclear related *kyara*. These included Osamu Tezuka's characters Atom Boy and his anthropomorphic female sidekick Uran (uranium) Chan, and of course Pluto Kun, as well as his other colleagues, the defunct Tokaimura Atom World (a nuclear energy PR museum) mascots: Uran (uranium) Boy, Natoriumu (natrium) Chan, and Gurasu no Sei (Spirit

of Glass, referring to the glass used in containers for spent nuclear fuel). A few tweets contained homemade versions of Tritium Chan rendered in 2D or as 3D rotating GIF images.

Other tweets cited news articles or clips from television news, which were extremely useful in measuring the verbalized responses to this character. The Mainichi newspaper quoted locals saying that the depiction of tritium was trivializing, and asserted that the government would do anything to have its way despite local sentiments. Both of these statements seem representative of responses to official nuclear *kyara* generally, and to the fatalistic view of citizenry towards the Japanese ‘nuclear village’ conglomeration of government and business interests. And a tweeted news clip of the April 14, 2021 session of the upper house of the Diet provided an exchange between a lawmaker and the JRA that not only revealed that the PR budget expenditure to Dentsu was 307 million yen, but doubtless provided one of the more fundamentally compelling public criticisms towards the use of Tritium Chan². In the clip, Taku Yamazoe expressed surprise to see tritium depicted like a *yuru kyara* ‘local mascot’, and to hear an official statement that this was for the sake of making it seem more friendly (*shitashiyasusa*), however, tritium that was released from a nuclear accident was not an entity one should feel friendly towards. I note the contrast between this original official rationale and the current one that emphasizes ‘easy to understand’ noted at the beginning of this paper.

Conclusion

The JRA’s ALPS-treated water release PR campaign appearing in April 2021 shares features with similar, previous nuclear related PR strategies that have employed animated or anthropomorphized nuclear isotopes and related entities. This mode of representation hearkens back to the earliest shift from scientific to religious depictions of radium, and the inherent religiosity underlying representative *kyara*. Nuclear reactor visitor centers employ *kyara* and other fantastic displays alongside scientific information to allay public concerns about safety. While local mascots and other such representative *kyara* do not arouse public suspicion generally, previous experience of the Japanese populace with the Japanese nuclear village, including the Fukushima meltdown and previous problems, have rendered official nuclear *kyara* problematic and subject to parody. Monju Kun is an especially effective example of a non-official parody nuclear *kyara* combining familiar aesthetic conventions with a critical and anti-nuclear discourse. For these and surely other reasons the *kyara* referred herein as Tritium Chan was rejected by the populace, as data show, and replaced by the letter T. However, the underlying problematic in the JRA materials that represent the hydrogen isotope tritium as something that passes through the human body harmlessly remains, a discourse that echoes the previous Pluto Kun narrative.

² Telop of the full clip: 山添 拓: 昨夜、復興庁のホームページを見て驚きました。トリチウムがゆるキャラのように登場しております。「親しみやすさの為に」とそういう担当者の発言も報道されておりました。しかし事故原発から放出されるトリチウムは親しむべき存在ではありません。6 ページを見ますと「世界でも流している」と言って他の原発の排水と同じであるかのように強調までしてるんですね。復興庁に伺いますがこの広報、どこにいくらで発注したのですか？

JRA: 当核事業全体格、すなわち事業者との契約金額は 3 億 700 万円でございます。お尋ねのありました動画及びチラシ作成に不開示情報のため詳細金額は申し上げられませんが今申し上げた金額の内数として大体数百万程度でございます。(発注は) どこに? えーとこれはあの電通でございます。

References

- Cabinet Office n.d. *Rogo maaku* 'Logo Mark' <https://www.cao.go.jp/bangouseido/ad/logo/index.html>
- Curtis Chambellan (2017) Is Tritium Hazardous? from Tritium, <https://www.energy.gov/sites/prod/files/migrated/nnsa/2017/11/f42/Tritium%20Fact%20Sheet%20Oct%2017%202011.pdf> USDOE, Albuquerque NM
- Inako, Ayumi (2018) Different bonds around plutonium: Physicists' and freelance journalists' tweets at the time of the 3/11 nuclear crisis Discourse, *Context & Media* 29. <https://doi.org/10.1016/j.dcm.2018.11.003>
- JRA 2021 「ALPS 処理水について知ってほしい3つのこと」の公開休止について (Regarding the suspension of disclosure of "Three things we want you to know about ALPS treated water") <https://www.reconstruction.go.jp/topics/20210413141933.html>
- JMOE BOOKLET to Provide Basic Information Regarding Health Effects of Radiation <https://www.env.go.jp/en/chemi/rhm/basic-info/1st/02-01-01.html>
- JMOE 放射線による健康影響等に関するポータルサイト <https://www.env.go.jp/chemi/rhm/portal/>
- KYODO News (2021) Fukushima locals criticize government for tone-deaf tritium mascot, Apr 14. <https://english.kyodonews.net/news/2021/04/a16f6402aad3-fukushima-locals-criticize-government-for-tone-deaf-tritium-mascot.html>
- Manabe, Noriko (2017) Monju-kun: Children's Culture as Protest in Child's Play: Multi-Sensory Histories of Children and Childhood in Japan, 264-285
- Ministry of Finance *Nihon ichiban tanoshii zeikin doriru* 'Japan's most enjoyable tax lesson' https://www.mof.go.jp/tax_policy/publication/brochure/zeikin_drill.pdf
- Monju-kun (2012a) Oshiete! Monju-kun: *Koredake wa shitte okō, genpatsu to hōshanō* 'Let's at least know this much, nuclear energy and radiation'. Edited by Ōshima Ken'ichi and Samaki Takeo. Heibonsha.
- Occhi, Debra J. (2012a) Wobbly Aesthetics, Performance, and Message: Comparing Japanese Kyara with their Anthropomorphic Forebears. *Asian Ethnology* 71: 1, 109-132.
- Occhi, Debra J. (2012b) From propaganda to parody: kyara 'mascot characters' in Japanese nuclear narratives. Agencies of Things Conference, 15-16 Aug 2012, Academia Sinica
- Occhi, Debra J. (2018) Kumamon: Japan's Surprisingly Cheeky Yuru Kyara Mascot In *Introducing Japanese Popular Culture*, Alisa Freedman and Toby Slade, eds. Oxford: Routledge, 13-23.
- Occhi, Debra J. (2019) Villainous faces of evil: aesthetic commonalities in the comic depiction of Japanese social ills. *Semiotic Review*. <https://www.semioticreview.com/ojs/index.php/sr/article/view/550>
- Occhi, Debra J. (2021) to appear *Idolization of Miyazaki Ken Local Mascots and Himukaizer Local Heroes: The Animate Spirits of Miyazaki, Japan* in Aoyagi Hiroshi et al. (Eds) : *Idology in Transcultural Perspective*. New York: Springer.
- Nakao, Maika (2020) Tracing Atomic Utopia and Dystopia in Japan. Online Lecture, Japanologie Wien. <https://stream.univie.ac.at/media/aufzeichnungen/2020S/JapaneseStudiesOnlineLectures/JSOL-01?res=960>
- Reader, Ian, and George J. Tanabe (1998) . *Practically Religious*. Honolulu, HI: University of Hawaii

Press.

Sugimoto, Yoshio (2014) *An Introduction to Japanese Society*. Cambridge, UK: Cambridge University Press.

Sumihara, Noriya (2003) Flamboyant Nuclear Power Station Visitor Centers as A Hegemonic Tool in Japan: Are They Revealing or Concealing, or Concealing by Revealing? *Agora: Journal of International Center for Regional Studies*, No.1, 2003