

Radiocarbon Dating in Japan (Excellent application of nuclear physics)

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Utilization of isotopes, especially radioactive ones, have been providing vital information to vast fields of sciences. Tracer techniques and dating by radioactivities are marked examples of such application. The latter gave direct information on dates for Earth science and Archaeology.

In this poster session, I wish to exhibit a few photos of archaeological findings (and reconstruction), whose datings were made by radiocarbon (W.F. Libby Phys. Rev. 62 (1946) 671, W.F. Libby et al., *ibid.* 22 (1947) 631). They are:

- (a) the oldest pottery in Japan
- (b) the oldest comb lacquered (the oldest in the world so far excavated)
- (c) the pottery (multi-lacquered)
- (d) the wooden-benge (reconstruction)

(a) from Incipient Jomon are much older than pottery excavated in the Fertile Crescent, the cradle of the western civilization. Many wooden implements (bowls, plates etc) and accessories (made of wood and baked clay) in Jomon period were lacquered, often in several times, with red and black. Carbon dating has been done by Prof. K. Kigoshi (Gakushuin University), Dr. T. Hamada (Japan Radioisotope Association) and others. Many measurements were published in "Radiocarbon".

I took all these examples from my country, Japan, simply because they are not well-known in Europe. To be fair, I should stress that so many surprising findings have been made after the war in Far East (and, of course, other part of Asia). For example, the earliest pottery (ca 14000 BP) and cultivated rice (ca 14000 BP) have just been reported from the site (in Jiangxi) along Yangzijiang (Yangtze River) in China.

Radiocarbon dating is essential to explore origin and evolution of human-cultures in the whole world. Many more surprising discoveries shall follow to enrich our understanding on what has been achieved by our ancestors.

1. Archeological Periods in Japan (by Radiocarbon dating)

Jomon Period

Incipient	ca 11000 BC -
Initial	ca 7000 BC -
Early	ca 4000 BC -
Middle	ca 3000 BC -
Late	ca 2000 BC -
Final	ca 1000 BC - 300 BC

Yayoi Period ca 300 BC - 300 AD

Kofun (tumulus) Period ca 300 AD - 650 AD
... 700 AD

(Note) Jomon means cord-marked in Japanese. Jomon Period is Neolithic Age in Japan.

Yayoi is the place name near the Hongo-campus of the University of Tokyo. Yayoi Period is the Metallic Age (Bronze and Iron) in Japan. Cultivation of rice in irrigated (paddy) fields started at the later period of the Final Jomon. Before the radiocarbon dating, Incipient Jomon was considered to begin at around 3000 BC.

(1998)

これは ICNP (Paris)

の poster Section に

出て来たところ

27歳の Radio の 録音

と 来た interview に

して、 UNESCO RADIO

で 紹介 された。

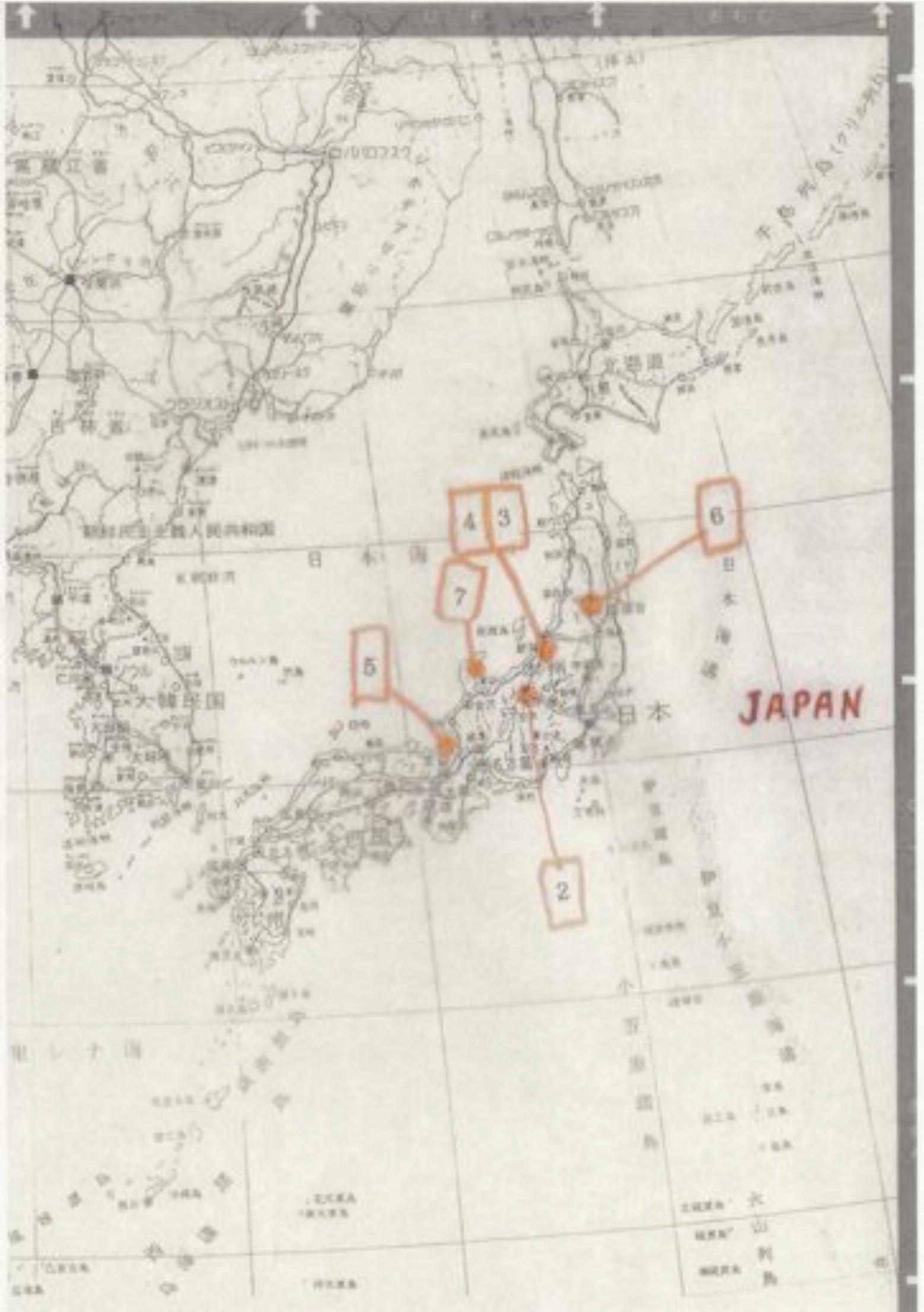
Captions

- 2 Round-based pot estimated H. 24 cm.
Ishigoya cave, Nagano prefecture
Incipient Jomon
owned by Museum of Archaeology,
Kokugakuin University
© Kodansha
- 3 Deep pot H. 20.0 cm
Muroya cave, Niigata prefecture
Incipient Jomon
owned by Nagaoka Municipal
Science Museum
© Kodansha
- 4 Deep pot H. 23.5 cm
Muroya cave, Niigata prefecture
Incipient Jomon
owned by Nagaoka Municipal
Science Museum
© Kodansha
- 5 Comb (red-lacquer)
Torizuka shell mound, Fukui prefecture
Early Jomon Period
owned by Fukui Prefectural
Wakasa Historical Folk
Museum (©)
- 6 Lacquered Pot (red and black) H. 15 cm
(Important Cultural Property)
Ondashi, Yamagata prefecture
Early Jomon Period
owned by the Cultural Properties Division,
Secretariat to the Board of Education,
Yamagata Prefectural Government,
© Agency of Cultural Affairs, Japan
- 7 Possible reconstruction by Cultural Assets Section, Kanazawa City Board of Education:
Wooden counterpart of Stone-benge (Big Chestnut tree, cut half, diameter 0.6 - 0.9m)
Chikamori, Ishikawa prefecture
Late Jomon Period
© Kodansha

Sources

2. Plate 2, p. 10, Ref (a)
 3. Plate 3, p. 11, Ref (a)
 4. Plate 4, p. 11, Ref (a)
 5. Courtesy of Fukui Prefectural Wakasa Historical Folk Museum
 6. Lower figure, p. 50, Ref (b)
 7. Fig. 40, p. 23, Ref (c)
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- (a) K. Tuboi and T. Kobayashi (ed.), *Jomon Pottery, Archaeological Treasures of Japan*, vol. I, Kodansha (1977) (in Japanese)
 - (b) T. Toda, *Jomon, Graphic Dictionaries (Series)*, vol. I, Kobunsha (1991) (in Japanese)
 - (c) K. Mori, *Development of Japanese Culture, Great Monuments of the Ancient World*, vol. 11, Kodansha (1988) (in Japanese)

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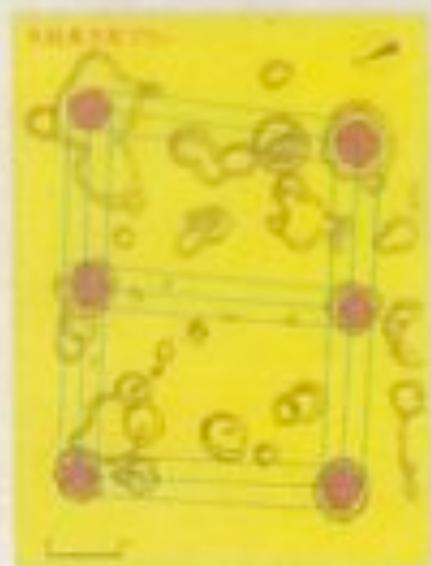


◀ 赤色ウルシ塗り木製クシ 鳥浜貝塚出土
福井県立若狭歴史民俗資料館

▼押出遺跡で出土した漆塗りの彩文土器。完形品として初めての発見であり、赤塗りの上に黒漆で前期特有の渦巻文を描く。器高15cm。山形県教育委員会蔵。

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Poster Session

ICNP (Paris, 1998)

10.02.18

YY日

Paris の International Conference on Nuclear Physics (ICNP)

が開催された時、Y は Poster Session に 日本 の 音 の 石 と
C dating した 木 製の 器 の 写真 を 出 した。

日本 最古 (世界 最古 の 一) の jomon 土器、(弓 矢)
世界 最古 の 漆器 (櫛) と、漆 器 の 土器。

器 の 大 小 を つ べ っ た

多層

Wooden cicle

である。最近の日本は hi-tech の 国 と 認 知 され てる、

実は 日本 は 10 数 千 年 前、既に 土器 と 漆 の 技術

で 世界 的 ^{に 対 して} hi-tech の 国 であ っ た こと を 示 した

あ っ た の だ。 核 物 理 年 会 の 反 響 は う ら げ っ た の、

UN-Radio (United Nation - Radio) の 社 長 が

あ っ た の だ。 Y の 話 を 録 音 に して、^{上 部} 放 送 した。
^{下 部}

Poster session に 出 した paper に も 同 じ 種 類、

使 用 した 字 彙 ^{も 同 じ} は 版 権 を 取 っ た の 出 版 者、
博 物 館 に 使 用 許 可 を 取 っ た。

、及 び、文 化 の 発 展 は 何 千 百 年 前 の 史 前 史 的 時 代
(ナイロ、メソポタミア、インドス、江古河) に 限 ら
れ ず 現 在 時 代、そ の 前 千 年 前 の 史 前 史 的 時 代

世界 の 各 地 に Proto-civilization の (古 代) 時

史 的 時 代 史 的 時 代