Southern Kyushu skeletal and DNA studies

I have reviewed the findings for the Tohoku kofun but now review the case of southern Kyushu because of the historical connection to the Jomon. There are contradictory results between the studies on the cranial measurements as opposed to the DNA studies there. The area from where the remains are found correspond to where the historical Hayato people are believed to have lived. The authors interpret the kofun period remains as from these people who lived in this region for centuries, and like the Emishi resisted Yamato court control. The approximate age dates back to roughly the same time period as the existence of the separate Emishi groups in northern Japan, the fourth through the eighth centuries AD.

On the one hand, the skeletal studies show a similarity to Jomon showing a clear ancestral line between the Kofun of southern Kyushu and the Jomon. Cranial measurements show the main characteristics of the Jomon such as deeper facial features compared to Yayoi/modern Japanese among other characteristics. The only feature not consistent is the size of the crown of the molars. This is halfway between the Jomon and modern Japanese and is consistent with a ancestral descendant relationship moving towards Yayoi and modern Japanese (2012:106-7).

Oddest of all, from the perspective of reviewing the studies of Tohoku skeletal remains, is the seeming “fit” that the southern Kyushu kofun burials of the studied area in the *sankanbu* area (present day Miyasaki prefecture) show what I initially thought would be found in the studies of the Tohoku in the areas controlled by the Emishi: the kofun population in southern Kyushu clearly show Jomon like cranial characteristics and confirm the area was inhabited by Jomon descendants in the proto-historical period. In the Tohoku, a clear separation in the cranial measurements between the kofun period burial sites in historically Emishi held areas from those in Japanese held territory is much more subtle. In contrast to southern Kyushu, the skeletal remains recovered from the frontier areas of the Tohoku show a mixed Jomon-Yayoi population even in territory that had been historically outside of Yamato state control, though the mix shows more Jomon types than Yayoi further north.

In the Tohoku the D4 type is often associated with continental Yayoi immigrants, but in southern Kyushu is found among the same skeletal remains that show an affinity to the Jomon. In southern Kyushu the D4 or D5 haplogroup (indeterminate between D4 or D5) is present in seemingly Jomon like kofun era skeletal remains.[1] How is it that the DNA haplogroup differs to this degree between southern Kyushu and the Tohoku? Is the D4 marker a good indicator for immigrant/Yayoi populations? In the Tohoku the Jomon population remains show the N9b haplogroup to be the largest, and in the Yayoi/modern Japanese population the D4 haplogroup is the largest. Over time the D4 expanded in the population and the N9b group got smaller, fitting in with the historical changeover of the population in the Tohoku from one dominated by native Jomon/emishi/Ainu to one dominated by the Japanese even though the data of the historical population is too small.

To summarize, the DNA markers for the Jomon (N9b and M7a—the latter type found among the Ainu and native Okinawans) are not present in the southern Kyushu sample. The D4 and/or D5 haplogroup is common among the southern Kyushu (indeterminate between D4 or D5), but not the N9b haplogroup (2012:122-3). The Jomon are in contrast marked by primarily haplogroup N9b (and secondarily M7a) in the Tohoku. This marker is common among a majority of Jomon and Ainu groups. Thus, a historical change has been documented from the N9b dominated population to the D4 dominated population in the Tohoku through time. However, none of this is seen in the DNA of the remains studied in southern Kyushu where D4 and/or D5 dominates both Kofun and modern populations . How do we account for this in the light of crania that match between the Jomon and the Kofun in southern Kyushu sites?

This seeming contradiction may be resolved once more material from the southern Kyushu area suitable for DNA study is recovered. The other alternative to this is to look at the cranial and skeletal characteristics as the main way to distinguish these two populations, not DNA, which has been the case as DNA is not always recoverable. However, there would still be the question about the D4 (and D5) marker showing up in so many samples. Is there a separation between the Jomon population in the Tohoku from those in southern Kyushu? The problem with this is that cranial and skeletal morphology of different epi-Jomon and kofun period populations in different areas of Japan are similar. Why are the cranial measurements similar between Tohoku Jomon (and epi-Jomon) and southern Kyushu Jomon (and kofun) but not the DNA?

For now, the studies indicate two different populations of descendants of Jomon in the Tohoku as opposed to southern Kyushu with certain similarities in cranial morphology. The Jomon of northern Tohoku into Hokkaido became the Ainu who differed from the inhabitants of Kyushu due to the presence of different neighboring populations who eventually contributed to the population, however, the DNA breakdown is still problematic.

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[1]Summary of the mitochondrial DNA (mtDNA) found in the southern Kyushu remains from *sankambu* area for this study: N=30, out of which 23 are from the kofun era which I list, and 7 modern which I do not list. N9a (2 samples), D4 or D5 (12), A (2), G or M9 or D (1), F (1), B4 (1), indeterminate (4). 52% of kofun era samples are in the D4, D5 group. No N9b or M7a groups show up which is associated most closely with Tohoku/Hokkaido Jomon. The remains are from tunnel tombs found in Miyasaki prefecture.

Reference:

Saiki, Kazunobu and Wakebe, Tetsuaki. 南九州古墳人のミトコンドリヤDNA解析の現状 (Examining the mitrochondria DNA of southern Kyushu kofun people). In Wataru Takigawa, *骨考古学と蝦夷 * 隼人(Archeological osteology of emishi * hayato)*. Tokyo: Doseisha, 2012, 105-25.

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