Petrographic Analysis of Early Jomon Pottery from Tochigi Prefecture, Japan

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In this study, for the pottery of the Igusa and Natsushima types unearthed from four remains in Tochigi Prefecture, petrographic analysis of the paste was conducted on its thin sections. In comparison with river sand in the Kanto region, the presumed fields of raw materials of the pottery were identified, and the manufacturing and transfer of pottery at that time were studied in comparison with the conventional analysis examples for the pottery of the beginning of the Jomon period.

As a result, it was found that the pottery of the Igusa type from the Utsunomiya Seiryo High School site and the Yamazaki-kita site in Utsunomiya city includes the pottery having the mineralogical composition of mainly altered volcanic rocks, with andesite, decite and rhyolit. The composition is similar to that of the river sand in the central area of Tochigi Prefecture, and therefore, it was presumed that the pottery was made using the local materials. All the samples from the Ichinozuka site in Moka city and some of the Igusa type from the Yamazaki-kita site are composed of pottery having the rock mineralogical composition of mainly granite. Therefore, it was presumed that the material fields were located in the granite distribution regions, and there is a possibility that the pottery or materials were carried into the sites. The most possible granite fields are the Tsukuba pluton and its surroundings. For the Yamazaki-kita site, small plutons in the Ashio Mountains are also other possible fields. The pottery of the Natsushima type from the Mamada Roppongi site in Oyama city contains many altered volcanic rocks with granite and siliceous rocks, and it is presumed that the material field is the central area of Tochigi Prefecture. Pottery using the local materials was found at the Utsunomiya Seiryo High School site, the Yamazaki-kita site and the Mamada Roppongi site, but not at the Ichinozuka site. Since the paste of the Igusa and Natsushima types which contain mainly granite is found in Chiba Prefecture as well, there is a possibility that it was transferred over a wide area. The composition of the paste in each site has no variety, and there is less paste that is presumed to originate in remote fields. As a result, it is presumed that the frequency of transfer of pottery made of other paste is low and the transfer distance is small.

Key words: pottery paste analysis, rock mineralogical composition, Early Jomon period, Igusa type, Natsushima type, Tochigi Prefecture