Powder of Ox Bone and Rock Salt Illustrations

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*All images, videos, and charts by Michelle Goun Lee, Diana Mellon and Yijun Wang unless otherwise indicated.*

Fig. 1 BnF MS Fr640 p089r powder of ox bone and rock salt, The Royal Library and The Making and Knowing Project at Columbia University

Fig. 2 Cleaned and dried hoof bone from a cow

Fig. 3 Cleaned and dried leg bone from a calf. By comparing fig 2 and 3 we can see the hoof bone is much denser than the leg bone.

Fig. 4 Boil the cow’s hoof for 104 minutes.

Fig. 5 Calcine the hoof bone using an electronic ceramic kiln at 1500 °F for 60 minutes. The bone pieces are kept in a terra cotta plate.

Fig. 6 Grind the Himalayan salt in a mortar.

Fig. 7 Fold, wet with water and squeeze out the water to the extent that it no longer drips. Drizzle a piece of paper (50% cotton and 50% linen) and lay the paper on the linen.

Fig. 8 Wrap the mixture of rock salt and hoof bone ash with wet paper and wrap the paper with wet linen.

Fig. 9 Put the wrapped molding material on a plate and put the plate on an omprovised open grill shelf system. Use a cold humidifier to imitate the moist from a cellar.

Fig. 10 Two types of sand. On the left is the “homemade sand” (bone ash calcined in the lab by ourselves and hand ground organic Himalayan rock salt). On the right is “commercial sand” (commercial bone ash and hand ground Himalayan rock salt purchased from Amazon).

Fig. 11 The homemade sand turns grey when being moistened and feels like beach sand. It is quite coarse comparing to the commercial sand (fig. 12).

Fig. 12 Commercial sand is whiter and finer than the homemade sand.

Fig. 13 Mold No.1 Double side mold packed with homemade sand. The separation material is brandy and the model is a key. The surface of the key is very rough due to the roughness of sand.

Fig. 14. Metals from mold no. 2 and no. 6. From left to right: original model, metal from mold no. 6, metal from mold no. 2. Mold no. 2 is packed with homemade sand and mold no. 6 is packed with commercial sand. The original model is dusted with charcoal powder when we make the imprint.

Fig. 15 Details of metal from mold no. 6. The feathers and the letters are cast more clearly in mold no. 6 than in mold no. 2. This suggests that the finer the sand is, the better and more detailed the cast would be.

Fig. 16 Cast in sulfur. The model is a sea shell. The sand sticks to the sulfur and cannot be removed. This suggests that the sand from p089r does not fit sulfur casting.

Video. 1 The cleaned and dried hoof bone rings like porcelain when tapped.

Chart. 1 Five different variations of molds. They are different in terms of the types of sand, the times of grinding, the pouring material, and the separation material.