An Alternative for Silicone Pour Molds As Used When Molding and Casting Mononykus

Poured molds are faster to make than laminated silicone molds. However, when silicone is poured in mass, the flexibility of the mold is greatly reduced. Mold flexibility is always a major consideration in the safe removal of a specimen. Laminated molds by virtue of their thinness are an elegant solution to poured molds but they are more time consuming to make. This alternative combines the basic principles of both of these moldmaking processes. The silicone is poured over the specimen, but after it has cured, excess wedges are cut away to conform the silicone to the shape of the specimen. This greatly increases the flexibility of the mold. The cost factor of discarding the silicone is compensated for in the reduction of time taken to make the mold.

The trick, of course, is making the cuts in the right place. In this method the cuts are marked by the use of a removable thin metal shim which acts as a guide. This method works well with 3-piece molds, and in areas that have an acute or right angle, such as on a vertebra or pelvis. Below is an explanation, given using the example of a vertebra. We used this method repeatedly when molding and casting *Mononykus,* an important specimen that needed to be molded under considerable time pressure.

1. The mold was designed, determining the placement of part lines. The specimen was set up in clay with channel locks. The centrum of the vertebra was the first section molded. On this section of the specimen a basic pour mold was made for the first of 3 sections. This section was finished, with a plaster jacket, and served as a base for the next mold sections.

2. Next we created a clay wall that acted as a divider and which bisected the neural spine. This wall extended about 1/2" - 3/4" above the neural spine. This allowed room for the channel locks, with the distance between specimen and lock being about 1/8" - 1/4".

3. An exterior clay wall was created along the outer edge of the mold, to contain the poured silicone. This wall was 1/8 "-1/4" higher than the highest point on the channel lock.

4. We now inserted a metal shim, using thin aluminum sheeting. There were two considerations in the placement of the metal shim. First, we decided that the shim should be no more than 1/8" - 1/4" away from the specimen. Secondly, the length of the shim was determined by the distance between the opposing sides of the exterior wall. The shim was held in place by inserting the outer edges of the metal into the clay wall. We inserted the shim only as deep as was necessary for the shim to be freestanding and secure.

5. Silicone was then poured into the mold and allowed to cure.

6. Once the silicone was cured, we removed the clay wall. The silicone was carefully loosened from the metal shim, which was now embedded in the silicone.

7. The silicone was cut at an angle to the neural spine. The lowest point of the impression of the metal shim in the silicone was used as a reference to indicate a safe cutting distance from the bone. The cut off piece was discarded.

8. This section was jacketed, a separator applied, and the process repeated for the third section.