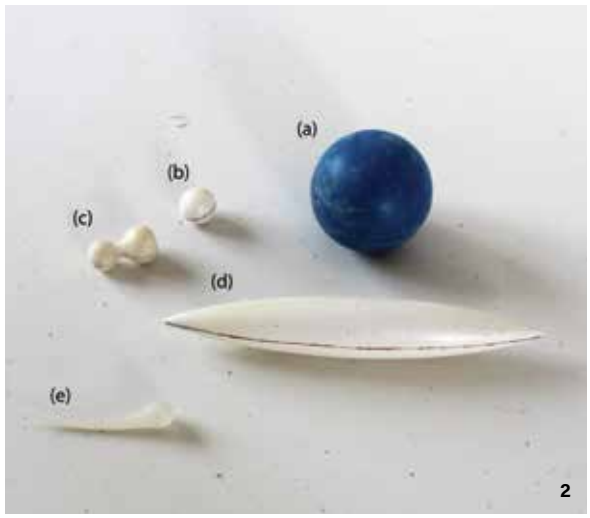
it moves

by Edna Oliver

The interaction between a work of art and the viewer is essential for eliciting a reaction and influencing emotions. From my first day as an artist, I searched for different ways to amplify this interaction and to catch the viewer's attention as much as possible. Therefore, I try to engage as many of people's senses as possible—beyond just vision. My works are meant to be touched and heard, as well as seen, in order to enhance the viewer's experience and inspire playfulness and curiosity.

I investigate biomorphic shapes, which humans are drawn to, as these shapes were perfected by millions of years of evolution. Specifically, I study how mechanical and biological joints enable



Opposite: *Imbrogliom*, 8¼ in. (21 cm) in length (size dependent on position), ceramic, 2019. *Photo: Youval Hai.* **1** Sketches of the planned work, showing both the overall form and the way that the articulated elements fit together. **2 (a–e)** Prototypes for different forms and modular units that comprise the work are used to create plaster molds. **3** The plaster molds of each prototype are used to make multiple cast-clay copies. **4** Joining together separate cast clay components, like the sphere and the seed-pod shape to form the inner part of the work. **5** Cutting apertures in the sphere using an X-Acto knife.

movement and change, opening a world of possibilities in terms of the evolution of my ceramics. I exploit the shrinkage of porcelain during firing to create different types of joints, such as ball and socket, or saddle and pivot. Each type of joint influences the shapes of the parts and the sounds they make when moved. The works spark a sense of conflict in the viewers when the possibility for movement invites them to touch each piece, while the fragility of the porcelain demands care and caution. The realization that part of the piece can be moved elicits a sense of investigation in the viewer, pushing them to explore the works' movement.

The basic approach for achieving the joint-like connections is firing the inner part first, followed by assembling the inner and outer part and firing them together, so the outer part shrinks onto the inner part. This locks them together, while still allowing them to move freely. I mainly use porcelain because of the quality of its sound after firing it to vitrification, its smoothness, and its high shrinkage rate.

Planning the Work

I plan the types of joints and shapes according to the desired sounds, feelings, or movements for a given piece. For example, a ball-and-socket joint has a different movement than a pivot joint. Also, tighter joints are more likely to make grating sounds while joints that are looser make pleasant sounds. I consider the three-dimensional perspective of the work and how it looks from different angles, striking a balance between softness and sharpness when sketching (1). And, most importantly, I try to make the work seem alive.

6 Creating the apertures in the body of the form for the ball joints that will link it with the chains after the bisque firing. **7** Carving the shape of the body using various tools. **8** Assessing all the parts after the bisque-firing process. **9** Sanding the apertures in the bisque-fired sphere.

In this work, inspiration comes from getting lost in and investigating glimpses between the entangled mélange of plants. The outer part, the enveloping spherical form, of the work resembles intertwined plants and envelops an inner hollowed seed-pod shape with numerous multi-segmented tendrils. I want the viewer to be able to look into the different layers of the work and explore it from different angles.

Making the Prototypes and the Plaster Molds

The prototypes I use to make plaster molds are found objects, carved in plaster, or 3D printed. The big plastic ball was found (2a); the small ball (2b), the hourglass-shaped link (2c), and the seed-pod (2d) shape were carved in plaster; and the delicate, pointy form (2e) was made using a 3D printer since it is suited to creating thin and sharp structures. I sized the shapes, taking into account the shrinkage of the porcelain during firing to make sure that the parts will be able to move freely once locked in place. From these prototypes, I created five different molds (3). Over the years, I have gathered a collection of basic forms to use as building blocks from which I create an infinite number of combinations. I prefer to have numerous generic molds rather than fewer specific molds.

Slip Casting

I slip cast the five molds to create all the necessary parts for the piece. To make the inner shape, I attach the sphere to the seed-pod shape (4) and add color by inlaying slip mixed with oxides and colorants after carving it. I add the touches of color to the more serene sections of the work where needed. Next, I cut circular apertures in the sphere, sized so the small balls can fit inside after they are high fired, locking them inside once the exterior sphere is also fired to a high temperature (5). Slip casting is ideal for this work since it produces identical copies of the same shape and creates forms that are hollow with a smooth inner surface, which enables movement in the joint with minimal friction.

Hand Sculpting

The outermost layer of the work is created by hand sculpting porcelain. This important layer is composed of a single shape that envelops all the different parts in the work and joins them to each

10 After the second high firing, the balls and the sharp ending of the chains are locked in place. Note the alumina used to keep the components from sticking together. **11** Adding another bisque-fired part to the chains for the third firing. **12** The parts are ready for the last high-firing process. **13** The work is assembled and ready for the kiln, with the ceramic supports in place, before the last firing process. **14** The final, fired work in the kiln, shown with the alumina-coated ceramic supports still in place.

other. I prefer organic, flowing forms that gently encompass the different parts. Making these starts with throwing a shape on the potter's wheel and waiting for it to reach leather hard. Then, I cut the five apertures measured to fit the parts (6), and carve the desired shape from this form (7). During the carving process, I focus on the play of light and shadows of the piece from different angles, and also on how the inner parts will be seen when looking through the slits and gaps in the shape. The light and shadow enhance the depth and the three-dimensional structure of the work. It is essential to consider how the work looks from different angles, especially since my works are not situated in a single posture but are meant to move and can be placed in any position.

Firing the Work in Stages

When all the parts are ready, bisque fire them to 1652°F (900°C) (8) and sand the parting lines and surface to remove any flaws. Then, the parts are ready for the high-firing process in stages according to the locking of the different joints. First, high fire the innermost parts of the work, which are the small balls and the pointy forms, shrinking them to their final size. After this first high firing, sand the aperture of the second (bisque-fired) parts until the first (high-fired) parts can be inserted into place. I sand the apertures in the sphere until I am able to insert the small balls into the sphere (9). I also sand the connection of the chain links until I am able to insert the pointy forms in place. Put them into the kiln and scatter aluminum hydrate between the parts to prevent the porcelain parts from sticking to each other (10).

The second firing process shrinks the sphere while the balls are inside, so the balls cannot be removed from the sphere. The second firing also locks in the tips of the chains while still enabling movement. In the third, fourth, and fifth high firings, I add links to the chains while repeating the same procedure (11). Because of the thinness of the pieces, thermal stress from multiple firings is not an issue. In fact, I have fired pieces over 30 times without a problem.

Finally, I connect all the parts to the outer-most piece, which is the only part not yet high fired (12). For the final high-firing process, in which all the parts lock together, I build ceramic supports in the kiln under some parts while taking into consideration the shrinkage factor of the material (13). The parts that are supported in the kiln with the ceramic supports were all high fired at this point and

Above and left: *Imbrogliom*, 8¼ in. (21 cm) in length (size dependent on position), ceramic, 2019. *Photos: Youval Hai.*

need to remain in place while the last part shrinks. Without the supports, the parts will either be stuck in the middle of the opening or not connected at all and at risk of moving or dropping to the kiln shelf. The supports and alumina prevent the joints from locking up or shifting during the firing. If a joint does lock in place unintentionally, I am sometimes able to release it by gently tapping it with a piece of fired clay.

Revealing the Finished Work

Once the final high firing is complete (14), I can finally hold the assembled object in my hands, and I am able to explore the nature of the work, the possible movements, and listen to the sounds it makes. This stage is exciting for me since I can finally explore and investigate its different possibilities. For example, in this piece, only after the work was done, I discovered the different ways that the chains can interact with the other parts and how loud the small balls sound compared to their size. I also found that the small balls can completely hide inside the seed-pod section.

My works are highly versatile, so although I have learned over the years to expect certain results, they never cease to amaze and surprise me when I finally hold them in my hands.

the author *Edna Oliver is an artist living in Israel. To see more of her work, visit www.ednaoliver.com.*