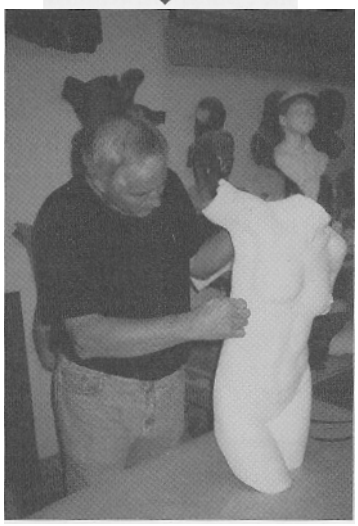
Secondary Molds in Life Casting, Part II

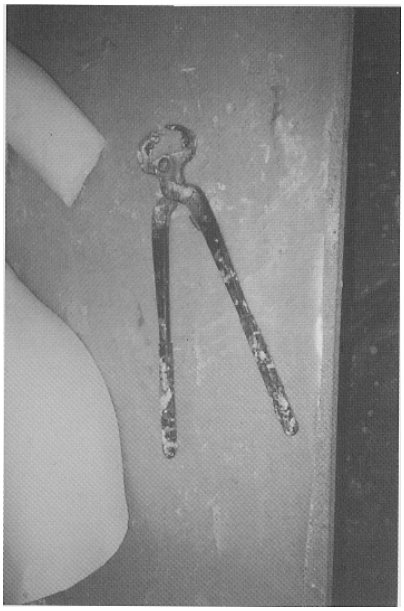
by David E. Parvin, A.L.I.



Plaster torso from an alginate mold

This is the first of a two-part article

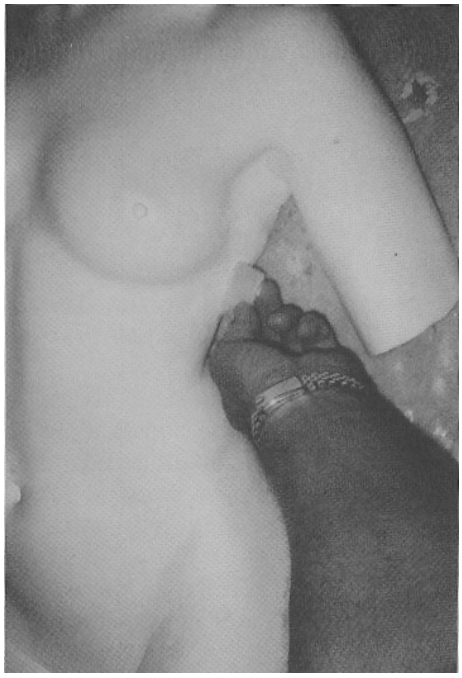
In a previous article (Sculpture Journal, July 2004) I explained why and how to make secondary molds of life castings of infants' hands and feet. Here I am going to describe how to do the same thing except of a torso or body. While the technique is different, the "why" and some of the materials are the same. Now although this magazine is printed in the Northwest where they have more trees than they have any idea of what to do with, they (those North Westerners) want to keep it that way. If I go ahead and repeat what I said in the July article, this issue will have to be longer and longer and that means more paper from more cut down trees. Not only will I have angered a bunch of Oregon tree huggers, but may also be some link to global warming and the demise of the traditional family unit in America. So I can sleep at night, if you didn't have the foresight to memorize the July SJ. I am going to ask you to take it out from under your pillow and reread pages 12 through 24. To save even more paper, I will use abbreviations wherever I can. Notice "SJ" above for "Sculpture Journal." Please don't assume that I am referring to the Society of Jesus or the Jesuits. Jesuits never take the name of a month and almost never have pages 12 through 24. In the same way, I will henceforth call a secondary mold a S.M.; not ever to be confused with S&M even if you did as I did, graduate from a Jesuit university. In photograph #l, I am holding a plaster life casting of a torso which was made in an alginate mold. Most life casters use plaster, or some other gypsum material for the final product. It might be given a faux metallic patina or just left on natural. But for me, plaster is just an intermediate step, never the final product. In order to go beyond plaster, I will explain how to clean up flaws (there are always at least a few) and make a very simple but effective S.M. which will allow for multiple castings in materials that will let you in on Parvin's Perfectly Pertinent Procedures for Progressing Past Plaster for Pleasure and Profit.



Horse hoof trimmer

By the way, if you are planning on making a S.M., I would suggest that you use plaster for the initial casting and not hydrocal or Hydro-Stone which are much harder, making trimming and repairing more difficult. I use Regular Dental Plaster but Number One Molding Plaster or Pottery Plaster are also good choices. All capture detail excellently yet are soft enough for easy working.

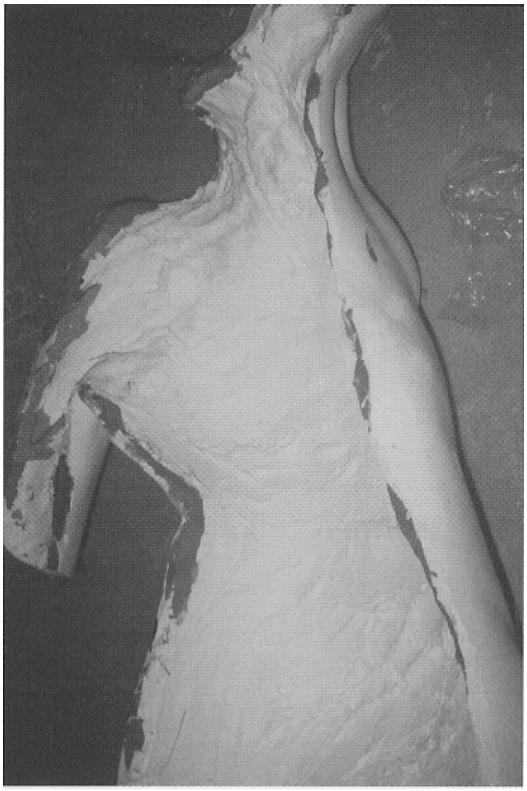
The next step, repairing any imperfections can take from as little as a half hour to several hours depending on how flawless the casting. The very first thing I do is trim the back edges of the torso so that it will hang flat against a wall. I try to do this and trim the ends of the arms and legs the same day that the plaster cast is made and still soft. There is a tool that can be very useful. It looks like an elongated pair of tile cutters. (Photograph #2) is actually used to trim horse hooves. This inexpensive tool is available at any horse tack supplier. I do the bulk of the trimming with it and finish off with a utility knife or box cutter. Remember, the casting mostly is just a series of tricks and the more you know, the easier it is.



Reconstructing skin texture with a piece of foam and gesso

There are two basic kinds of imperfections in the plaster, innies and outies. Outies are caused by bubbles in the surface of the alginate which get filled with plaster. In other words, outies are bumps. They are easily trimmed back to the surface of the skin with a sharp tool. Be careful to cut or shave them rather than break them off or you may get an indentation that has to be filled, creating more work. Trim them down to the contour of the skin so that you can not feel any imperfections. Also, you can remove zits or other skin flaws that were on the subject; usually appreciated by him or her. I try to remove any outies larger than a small zit the same day that I cast the plaster. (I will explain below how to rebuild the skin texture below.)

The other type of flaws, innies are holes caused by bubbles in the surface of the plaster. These can be filled with plaster *as* long as the casting is still damp, but put the torso aside to cure and dry out for a few days. I then repair the innies by filling the holes with either sculpting wax or oil based clay. I prefer wax for very small repairs and clay for larger ones. As long as the plaster has dried out to the point that it no longer



Backside of the casting showing clay used to thicken the edge

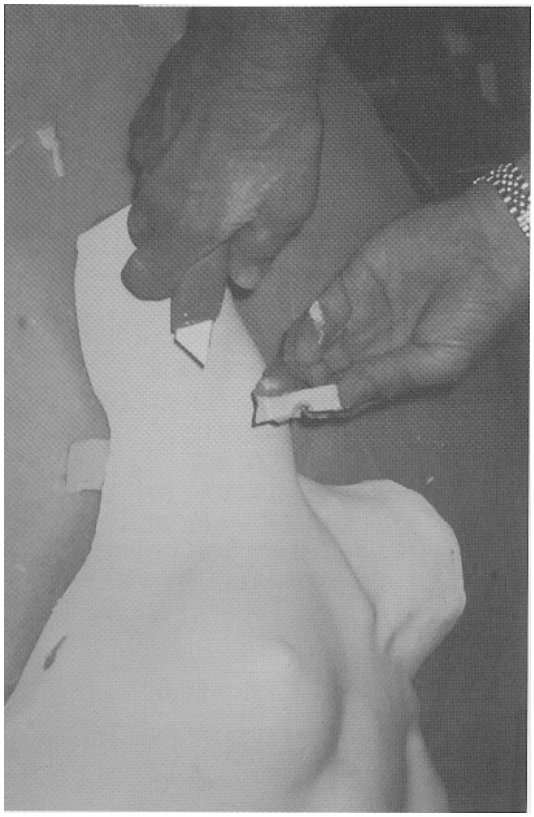
feels wet, both should stick to the plaster. The wax is dabbed into place with the tip of a pointed metal tool that has been heated with an alcohol lamp or burner. If the clay doesn't want to adhere, paint the plaster with a thin layer of melted wax and the clay will really grab on. If the melted wax will not adhere, the plaster hasn't dried out enough. Once you have filled an inny and shaped the surface to follow the contour of the plaster so that you can not feel any imperfections, you are ready to rebuild the skin surface.

Be aware that it isn't necessary to reconstruct the skin exactly. Pretty good will fool the eye and only you will know. Don't worry that the wax and clay repairs stand out like a sore thumb on the plaster because of their colors, the end product cast from the S.M. will be of a uniform color and the repairs should be invisible.

The first step is to construct any obvious feature in the skin such as the creases at the joints of the fingers. If the skin happens to be wrinkled, sculpt in as convincing wrinkles as you can. There are numerous techniques of reconstructing the fine details of skin, I'll describe two. For years, I took a small stylus and lightly dimpled the wax or clay to match the surrounding skin as closely as I could. While that worked, Guy Louise XVI (see SJ April, 2004) showed me a neat trick. Pour out a little gesso which is available from an art supply store. Take a small piece of something porous such as a sponge and put it into the gesso. Blot it several times and then dab it onto a repaired spot. Dabbing will leave little bumps on the repaired surface; the size of which will depend upon how thick the gesso is and the structure of the sponge.

In photograph #3, I am using a small piece of sponge-like material cut from a humidifier filter. The gesso dries in just a few minutes leaving the bumps that are quite skin like.

Filling in holes, trimming off pumps, and rebuilding skin texture are obvious repairs. But something that isn't so obvious is that the edges of the plaster casting should be at least 3/8" thick (or about 1 cm). As you will see below, this will allow you to build the rubber mold around the edges of the plaster which will in turn make it easy to have a uniformly thick edge on the final casting. If any part of the edge is too thin, thicken it with some clay (photograph #4).



Cutting the rubber risers

Applying the first coat of rubber

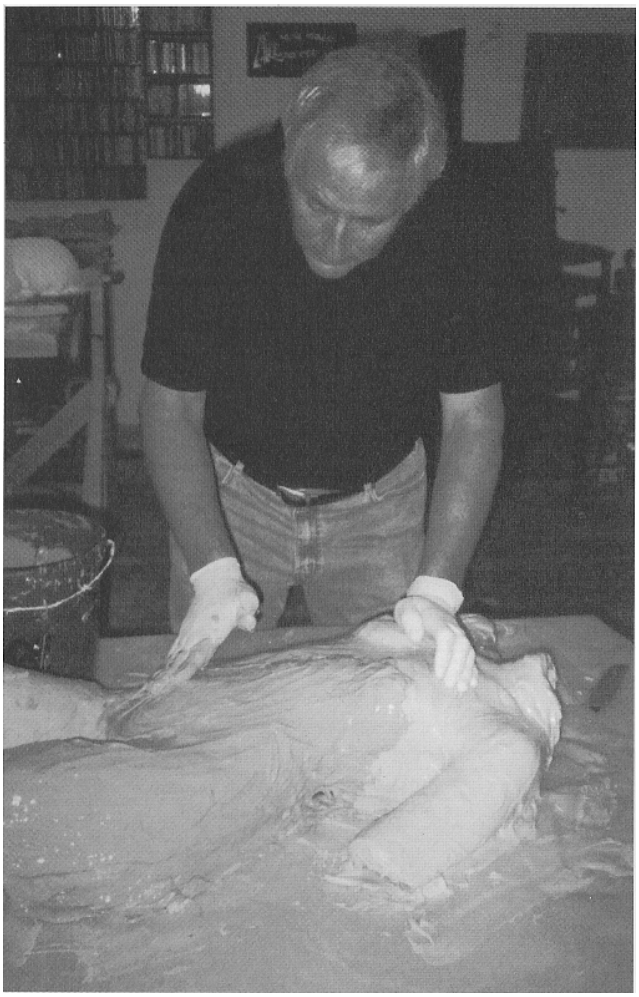
There are any number of types of brands of rubber available. I realize that choosing the best rubber for a particular application can be confusing. It is my intention to explain and simplify this subject in a future article.

In the July issue of SJ, I briefly mentioned the two most commonly used types of RTV rubbers, urethanes and silicones and that I much prefer silicones and why. For the purpose described in that article, I used a platinum cured silicone with a durometer of 15. The "platinum" was used primarily so that I would be able to cast urethane. The soft durometer allowed the mold to be easily removed from around the tiny fingers and toes. Since there aren't any fragile parts on this body and I have no plans of using clear urethane, a harder durometer tin cured silicone will do just fine and may even hold its shape more accurately than a soft rubber would. The biggest advantage to tin rather than platinum cured is that tin cured silicones are less likely to be inhibited by sulfur which is present in some clays and even in latex gloves. Since this will be a skin mold rather than a pour or block mold, it is imperative that the rubber have a thixotropic catalyst or a thixotropic additive. The rubber that I have used here is a tin cured silicone with a durometer of 25 called MoldRite 25 from ArtMolds with a thixotropic additive. (There are any number of types and brands of rubber available. I realize that choosing the best rubber for a particular application can be confusing. It is my intention to explain and simplify this subject in a future article).

One of the advantages of silicone rubbers is that almost nothing, including plaster, sticks to them and visaversa. It is not imperative that a mold release be used in this application. However, I have found that a solution of 15 parts petroleum jelly dissolved into 100 parts of naphtha and then painted over the plaster does allow the rubber to be removed even more easily. The naphtha evaporates almost immediately leaving a very thin coat of petroleum jelly without sacrificing detail.

In photograph #5, I am in the process of cutting four pieces of rubber about 2 X 1 X 'h inches. Into each one, I am cutting a notch about 1/4 inches wide and deep and then placing one of the rubber pieces under each of the four corners of the plaster. These rubber pieces lift the body just enough that the rubber that will cover it will also flow under the edges. The notches prevent the body from sliding off the rubber risers. As long as the rubber pieces are made out of the same type of silicone rubber (either tin or platinum cured) as the mold, the pieces will become permanently bonded to the mold rubber.

Follow the manufacturer's directions when mixing the rubber. Most use a ratio of 100 parts matrix to 10 parts catalyst though some are 50/50. Another advantage of



Applying the second layer of rubber, notice the color differential

silicone rubbers is that their mixing ratios are not nearly as critical as urethane rubbers. If, e.g., one accidentally uses 5 parts of catalyst rather than 10, it will cure, though at a slower rate. However, so that the rubber performs as advertised, accurate ratios should be observed. The catalyst may contain a thixotropic additive or you may have to add it yourself. It is generally very effective and about 1 part thixotropic additive is all that is needed. If you have the capability of de-airing the rubber, do it. (See "Using Vacuums and Pressure in Casting" in the August, 2003 issue of SJ) Of course, the amount of rubber needed depends mostly on the size of the object to be molded. For his torso, I used two layers of 5 pounds of rubber each. I much prefer two thin layers of rubber than one thick one because I have more confidence in getting a more uniform thickness to the rubber with two layers.

Applying the rubber is not difficult. The first thing I do is lift the body from one end and coat the bottom of the edges with rubber.

Then I set it back down fitting the edges into the grooves in the rubber blocks. I usually apply the rubber with a gloved hand rather than a chip brush. I do not just dab it on but spread it around sort of as if putting icing on a cake. If one is applying rubber to a clay model, care must be taken so as to not damage the soft surface of the clay. But since this torso is plaster, the rubber can be applied more aggressively. I want a uniformly thick layer about 1/8 inch thick. (See photograph #6) It is important that the rubber extend out from the edges of the body about one inch. Perhaps because I have de-aired it, I would apply a thinner first coat and use some of the standard tricks such as blowing air using the applied rubber. If you are using platinum cured silicone rubber, you can not use latex gloves because any of the rubber that comes in contact with the latex will not cure. Tin cured silicones do not have this problem. Vinyl gloves do not effect platinum.

If you care to smooth out the rubber, there are two ways to do it. The first is to take a chip brush, dip it into denatured alcohol, and gently rub the palm of your hand over the surface. The alcohol will not effect the curing time of the rubber. The alcohol may not completely prevent rubber from sticking to the brush or glove and you may have to clean with a paper towel periodically. The brush can be saved for the next coat by cleaning it with naphtha.

The curing time of the first layer depends upon the brand of rubber, the temperature, and whether an accelerator has been added. Often I allow the first coat to cure overnight and add the second and final coat the next morning. Unlike urethane rubbers, silicones will bond together even if one waits days, weeks, or months between coats. Since bubbles in the surface coat are to be avoided if at all possible, I rarely add an accelerator to the first coat to allow more time for careful application. Since the second coat isn't as critical, I usually do add an accelerator. A closed vehicle makes a wonderful greenhouse/ cover. Putting a mold in a vehicle on a sunny day will make the rubber cure in record time. And fossil fuels and trees aren't needed delaying global warming and the demise of the family unit! Platinum cured silicones are more responsive to heat than tin cured. If pressed for time, you could easily apply the first layer of rubber in the morning, the second after lunch, and construct the mother mold before the end of the day.

The second and final coat is applied in the same way as the first. The only differences are the addition of an accelerator and that a little bit of dye should be mixed into the rubber to change its color so that you can distinguish the old rubber from the new and insure an even second coat. (Photograph #7) Give special attention to high points and sharp edges where the rubber tends to run off. As soon as this second coat sets up, you are ready for the mother mold.

Next month David will tell more of his secrets about making quick and easy mother molds that are odorless, water soluble, non toxic, inexpensive, yet very light an strong.

David Parvin is a Colorado sculptor whose primary subject is the human form in a variety of materials. He also teaches life casting workshops held at his studio in Denver Colorado throughout the year He may be reached at 303-321-1074 for workshop dates. Now available is David's new DVD "Casting The Female Torso" in association with Life casters International.