

APPROVED

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THE PROCESS OF MAKING
A LARGE PIECE
OF SCULPTURE

by

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The process of making a large piece of sculpture is one thing. The selection of an idea for a terminal project is another. This selection is at once a matter of concern and a matter of importance. On the one hand, there is concern that the project will show an appreciable amount of ambition. On the other hand, it is important that both the project and the candidate reveal themselves in a favorable and a successful manner.

In my case selection of an idea for the terminal project came about in a fairly appropriate manner. From various models and examples that I had made during the preceding terms, one, after some deliberation, was finally chosen as lending itself most naturally to the task at hand. The model "Family" was selected because of its all-around interest and because it was fundamentally a good idea.

In my estimation it is the idea that is the vital factor in sculpture. In speaking of the "idea" I include not only the basic theme but also the method of execution and the manner and the technique in which the idea is finally rendered into its permanent form. It is almost a commonplace but one which bears repeating; namely, that one

must have "something to say" and then say it as well as possible. But finding the idea is the hard part. Too many pieces of work, even though skillfully done, turn out to be empty, trivial, and practically meaningless-- usually because the basic idea was empty, trivial, and practically meaningless to begin with.

My terminal project is a piece of sculpture called "The Family." It is supposed to typify the universality of parent and children standing together in a compact group-- well cemented together. It is nine feet high, made of cement built up on an iron-rod-reinforced armature that was then filled up solid with rocks and more cement. It weighs approximately 3500 pounds. As far as student sculpture goes, as far as graduate student sculpture goes, it is apparent that this is a fairly large work. And hence the title of this thesis.

To me, the idea for the piece of sculpture seems good and the selection of the final medium also seems to be appropriate.

In the following text I describe the steps I used from the inception of the idea to the finished large-scale sculpture.

To begin with, one of the pieces that I had already completed was a carved cement block of my daughter, Mia. It was executed in a semi-abstract manner and showed the

possibilities of the material as well as the general acceptability of the theme of using, as subject matter, those people with whom one is closely connected. My feelings regarding an appropriate sculptural subject centered around the concept of man, his wife and children. Because I am married and have three children, this whole thing was something very close to me. Somewhere I had read that about 90% of the works of sculpture revolved around "man" as opposed to animals, birds, fish, and so forth. However, I wanted something more than just one standing figure, something with more body and meaning to it. A man and his wife seemed like a good start but it wasn't enough. A child was needed to complete the idea, to fill out the composition and to make it universal in nature. There then was the idea-- man and wife and their child to stand for the whole human family. The idea seemed very good.

At first by means of a series of sketches I tried to render this concept in a totem-pole fashion. Unfortunately it came out representing a hierarchical order, something that I neither liked nor wanted. This was even more pronounced when I worked it up into a clay model. I attributed this disagreeable aspect to the fact that in the rendering I had been too literal, too representational. The figures seemed to be sitting on one another's shoulders; and when I made them stand, the whole group formed a series of steps,

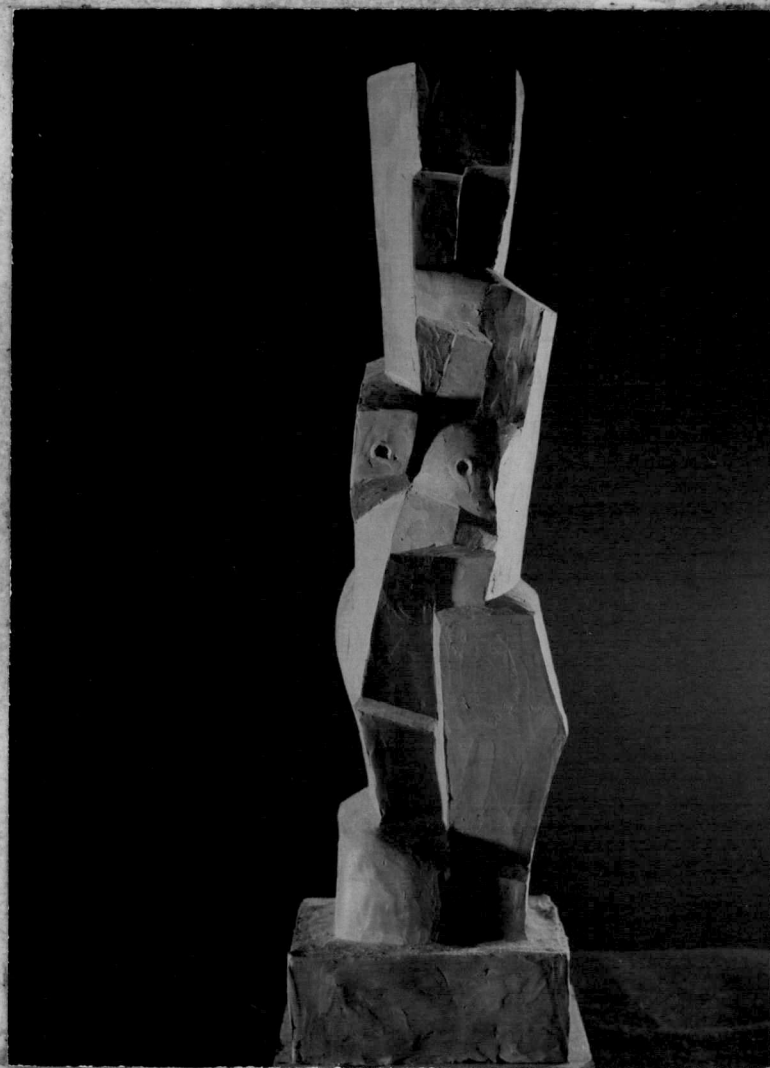
like a step pyramid. None of this pleased me, so I found that I was forced to abstract the conception. By conceiving each figure as having an identity, as well as an entity, of its own, but each working into the other, I was finally able to restrict the piece to a comfortable size and shape and yet make the idea work. In the sketches, the figures finally emerged as separating themselves as well as necessarily becoming a part of the whole and of reading one into the other. At one time I even thought of the whole thing as two female figures, one older and bigger than the other, and both of them having the smaller figure of the boy to stand protectively between them. This seemed to me a picture of my two daughters taking care of my son. Other interpretations of the three figures are quite often suggested.

For the actual execution of the model I adopted a cubic type of treatment in which straight lines, angles and cubes are predominant. I preferred such a treatment for this particular idea because it made the composition stand out better. The whole thing seemed to be bigger and stronger this way. Furthermore, as far as the end product was concerned, it seemed more suitable to express the composed, rock-like quality of the whole concept. However, I did

feel compelled to introduce some rounded shapes to make the piece not only more interesting, but to reduce the severity of the straight lines and to give the suggestion of softness or mellowness that I felt was required.

After a good deal of drawing of the project from all angles, I finally arrived at a successful version. Next I turned to the reworking of the plastic clay model to conform with the drawings. There were some changes and adaptations required, of course, but I had the feeling that with the numerous sketches I had fully explored and clarified the whole concept in my mind. As the model emerged from the clay, the idea was right but a few changes were necessary. At this phase I felt that the longer a person has a model to look at, to work with and to live with, the more completely he becomes familiar with it and grows to appreciate it. It also invites and almost necessitates a continuous refining process as the sculptor strives to perfect it and especially as he tries to eliminate anything that in any way is disturbing. It seems as though here is a never-ending search for perfection.

After the model had been fixed as being suitable for a terminal project, it was suggested that it be enlarged up to five, six, or seven times its actual height in the clay. The model was exactly 18 inches high and this

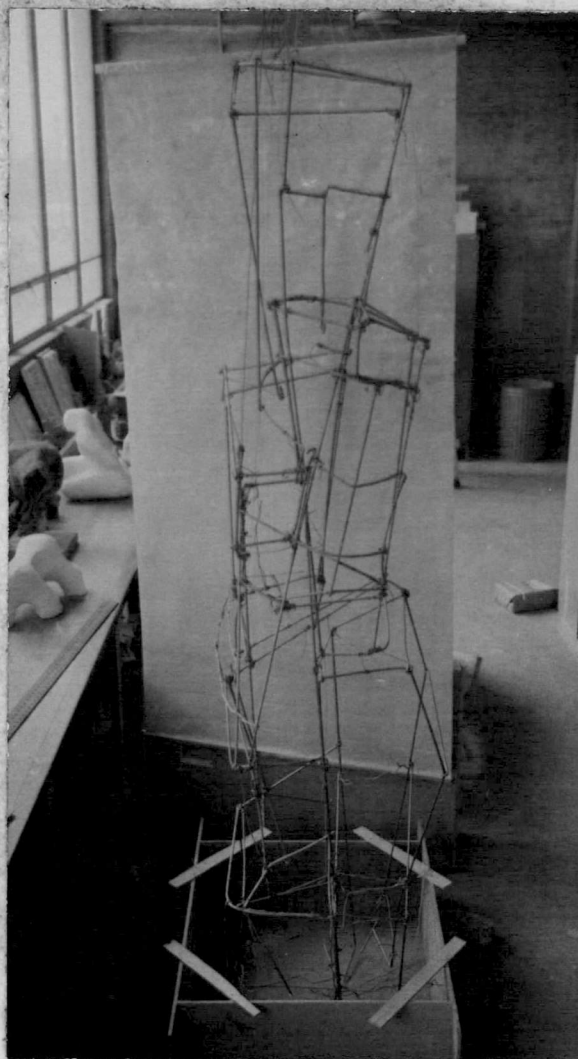


THIS IS THE 18" PLASTIC CLAY MODEL OF "THE FAMILY." THE PROJECT CONSISTS OF MAKING THIS MODEL SIX TIMES AS LARGE INTO A NINE-FOOT-HIGH REINFORCED CEMENT SCULPTURE.

multiplied by 6 gave 108 inches or just 9 feet. This height fitted in with making the project assume something of the monumental. It would also be a good experience to see a smaller sketch-model actually made much larger and developed into something more nearly permanent. This then was the project.

I planned to make the sculpture of cement. First there would be an armature of $\frac{1}{2}$ " iron rods. These would be cut and bent to shape and then fastened into place merely by forming a small loop on the end of the rod which then would be hooked into the desired spot and tied there with wire. Over the armature would be a double cloak of chicken wire to be "plastered" with cement. Finally the inside of the sculpture would be filled with rocks and cement.

It was necessary to think ahead and plan some way of moving the piece after it had been completed; that actually was the first step. I figured out the dimensions of the bottom of the sculpture and then made a platform just a little larger by a couple of inches. This platform consisted of two large squares of one inch plywood separated by six pieces of 2" by 4", and was the type used by construction firms to move bricks. It is a platform that can be conveniently picked up by the prongs of a mechanical



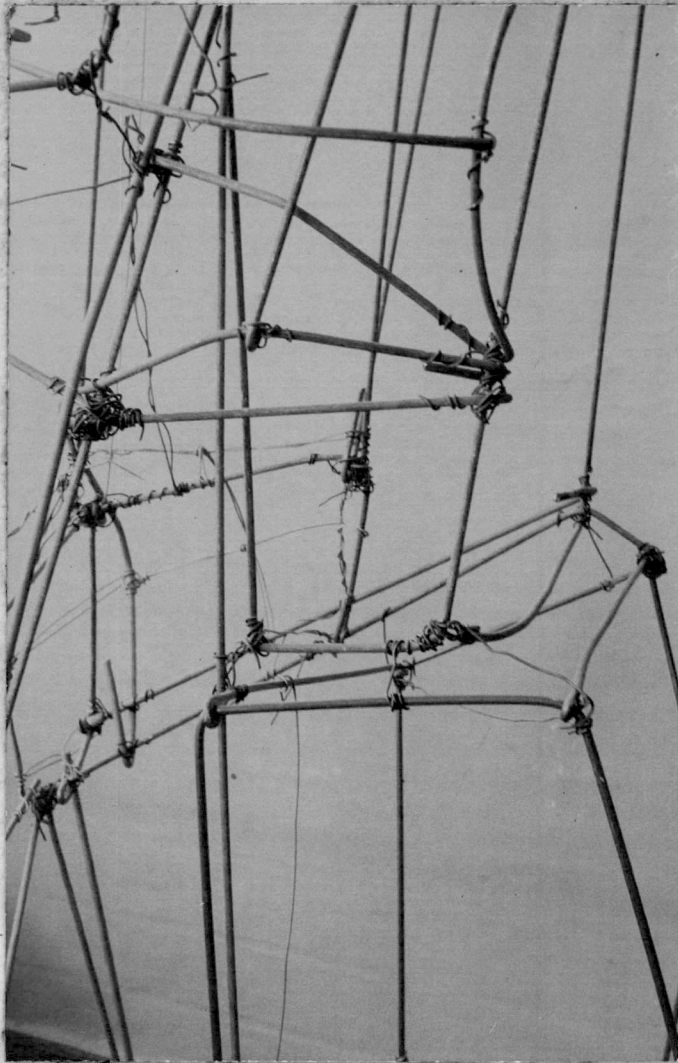
THE WORK IS UNDERWAY. THE IRON ROD
ARMATURE, ABOUT 80% DONE, IS SUSPENDED BY
WIRES TO AN OVERHEAD BEAM. THE LOWER PART
RESTS IN THE PLYWOOD FORM FOR THE BASE.
AT THIS STAGE THE ARMATURE TENDS TO SAG
THIS WAY AND THAT WAY.

hoist or lifter. I then secured four pieces of 2" pipe to put under the platform to be used as rollers. So much for the platform and the preliminaries.

Next came the form in which to mold the base. This was made of $\frac{1}{2}$ " plywood--just an ordinary form of four walls to hold cement. It was thirty inches square by one foot in height.

As I started to make the armature I made sure that there was plenty of extra length at the end of the rods designed to extend into the base. These extremities were to go halfway into the base, make a right angle turn, and continue for about six inches. This was necessary so that when the cement was poured the armature would be held securely in place, with no chance of the rods slipping or coming loose.

The armature grew gradually, taking on the shape of the model but, of course, six times as large. It was not particularly a chore, but it was time consuming since I did everything by hand, using only a pair of pliers to cut and fasten the wire and a large pair of snippers to cut the rods. When the armature got a little higher, I had to arrange some support for it because it tended to lean and sag and to throw my calculations off. I solved this difficulty



A CLOSE-UP OF A PART OF THE ARMATURE.
THERE IS NOTHING FANCY HERE--JUST RODS
AND WIRE. IT WILL ALL BE INSIDE LATER ON.

by suspending the whole thing by means of a few wires attached to an overhead beam. Then, as the work progressed, I obtained a 2" pipe of the same height as the whole structure. Arranged into this pipe were a series of holes, each hole drilled through at a foot-and-a-half interval. I then put this pipe into the middle of the armature in an upright position. Through the holes I put short lengths of iron rods. The armature in turn was fastened by wires to these iron rods. In this manner the whole armature stood by itself and remained quite strong and firm.

The armature as a whole was held securely in place by being fastened to the central piece of iron pipe. The iron rods that extended into the form of the base were wired to the walls of the form. I also arranged a few more pieces of extra heavy iron rod to complete the reinforcing of the metallic parts that were to be embedded in the cement of the base. In addition, I also reinforced the four corners of the sculpture that extended upward from the base.

When, for all practical purposes, the armature was sufficiently complete, it was time to pour the base. I had decided to use white cement in the ratio of two parts of sand to one part of cement. The picture as of this moment was this: there stood the nine foot high iron rod armature which resembled the model fairly closely. In its



THE PIPE IS IN THE MIDDLE AND THE BASE
IS POURED. THE PLYWOOD PLATFORM HOLDING THE
SCULPTURE RESTS ON THE ROLLERS. SOME ROCK
FILLER IS NOTICEABLE.

center was an iron pipe. To this pipe the armature, with its lower part in the form for the base, was attached with wire.

The cement was then made in small batches with the aid of a shovel and poured into the form until it was full. It was then left overnight until it had hardened, when I took off the plywood walls. The wires that had been used to hold the armature in place protruded through the walls of the form but I cut them off short and punched the ends back into the cement base. The resulting small holes were repaired with some fresh cement. White cement was used because repairs could be made easily and because it is more versatile than gray cement.

Now the project was well on its way. The base was made and firmly planted into it, and sticking up from it was the armature with its center piece of iron pipe--the whole as steady as could be. The lower portions of the armature that extended from the base were especially secure. I then checked the over-all measurements of the armature and found that some corrections had to be made. Now that the project had a great deal of stability, it was possible to be more exact in the work. I went over the whole thing and made the necessary repairs, all the time keeping everything secure, so that the armature did not wobble and was as exact as I could manage.



THE FIRST "BAND" OR PART OF THE "SHELL GOES UP. A CLOAK OF CHICKEN WIRE COVERS THE ARMATURE. THE BACK IS OPEN SO THAT THE INSIDE CAN BE FILLED EASILY.

The next step was to cover the armature with a double layer of chicken wire. There were other possible ways of proceeding from here but I chose this course because I wanted to be in a position where I could see the body of this sculpture in this large scale. At this time it was rewarding to see the nine foot high skeleton and to follow the lines of the sculpture as one could never do with a solid form. Still I could not clearly define the massiveness, the total volume, of the piece, and I could not inspect or evaluate the manner in which the areas, all put together, would make up the whole sculpture. There were just lines-- and air. This was one reason why I wanted to cover the armature with chicken wire. Substantially, I needed to see what I had. When it was covered with chicken wire, I found that some places needed more attention and correction than others. What had worked in the small scale model didn't necessarily work as well when blown up into the larger scale.

With the chicken wire on the armature, my task was now to build the whole thing up in cement. I went about it by troweling the cement onto the chicken wire and making sure that it penetrated well into the mesh to a thickness of from one to two inches. First, I selected a convenient area immediately up from the base and put on the cement to



THE CEMENT HAS TO BE KEPT IN PLACE FROM
ALL SIDES. THIS PICTURE SHOWS HOW THE WORK
GOES ON.

a height of about a foot. To keep the cement from going all the way through the wire and thus piling up inside, I put up an inside cardboard bulwark against the screen, which was propped up so that it would not back away. To make it possible to insert this cardboard as well as to fill up the center of the sculpture, I left the back entirely free of chicken wire. Only as I completed a layer of cement around the sculpture did I put chicken wire on the back. This chicken wire was raised to the height of the layer of cement and it in turn was then also covered with cement. In this manner I formed a belt of cement of about a foot high around the piece. It was actually a shell. When this band was completed, I then filled in the inside with gray cement and rocks. Gray cement is cheaper, and by using rocks and stones for filler I found it to be even cheaper.

Just as it was necessary to bolster up the inside to prevent the escape of the cement, so too, was it necessary to keep the cement in place from the outside. This I was usually able to do by propping a piece of plywood up against the fresh cement. Absolute accuracy in the modeling of the sculpture was not by any means assured.

It would have been more satisfactory to put up all the sides at once, but doing this would have meant too much



THE INSIDE IS PACKED WITH PAPER AND CARDBOARD
SO THAT WHEN THE CEMENT IS APPLIED FROM THE OUTSIDE
IT WILL TEND TO STAY ON THE CHICKEN WIRE. WITHOUT
THE CARDBOARD AND PAPER FILLING, THE CEMENT WOULD
POUR RIGHT THROUGH.

work. Only a small section went up at a time. When a band was formed, the inside was filled. Then the work began on another band. This was then made and filled and so on and on. I must mention that plenty of water was used to wash down the sculpture all the time both inside and out. Fresh cement cannot be put onto dry cement. The cement to which the new batch is to be added should be wetted thoroughly to insure a good union. It is also desirable to keep the structure wrapped in wet rags, a process which helps to harden and to cure the cement. To this end I hosed the sculpture a couple of times a day, and when convenient I draped a bunch of old wet potato bags around the whole thing and covered these with a large sheet of plastic.

Little by little the work progressed. First, a shell of cement grew around the project. Then the inside was filled with gray cement and filler. In this way the work went up. As one can guess, continuous additions had to be made to the outside after I had taken away the plywood supports that held the fresh cement in place. I wetted the cement which was already there and added new cement in an attempt to model the whole structure. This procedure was one that I did not particularly like. To add fresh cement to cement already in place on the sculpture is a

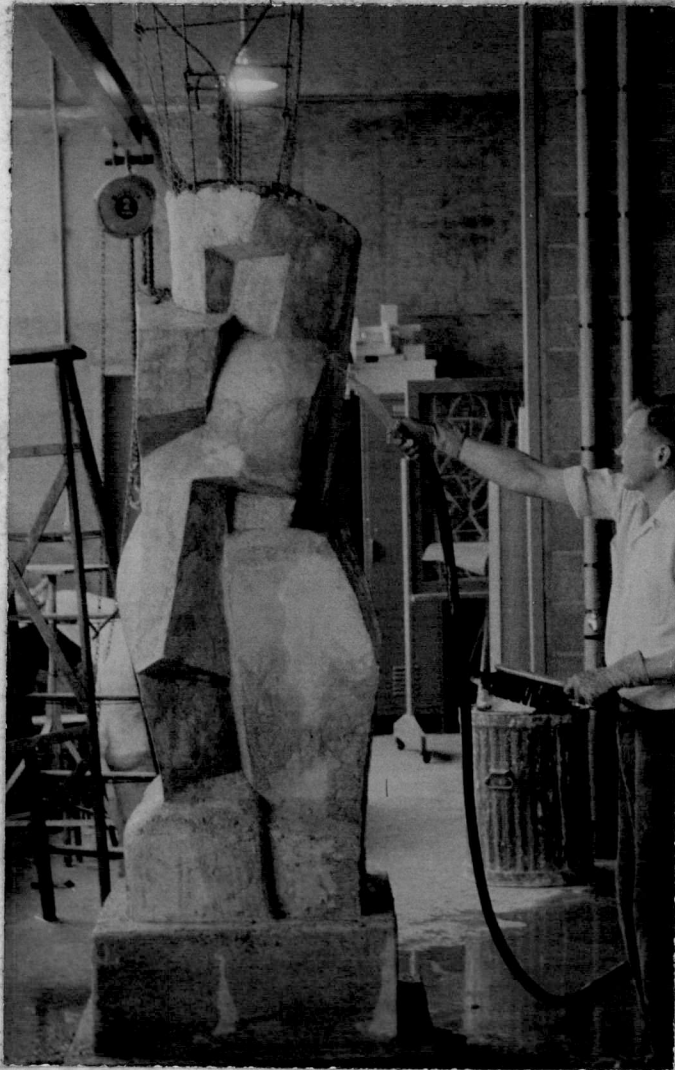


KEEPING THE CEMENT IN PLACE IS SOMETIMES
QUITE A TRICK. HERE THERE ARE PROPS IN FOUR
DIFFERENT PLACES.

tricky business. One is never sure that it will stick. In some places the new cement will be thin and in the form of a skin or film. There is danger that this will not become a part of the whole structure but will flake off. Furthermore, there was the nuisance of seeing this unavoidable repairing and remodeling loom up as patch-work that would be more or less discernible as such. The edges of the added fresh cement did not blend very readily into the old cement work as a whole. This tendency could be corrected to a large extent by waiting for the patch to dry just a little, then taking an ordinary paint brush, dipping it in water, and stroking over the edges of the patch-work. This work tended to dissolve the sharper demarcations and make the patch fade into the cement work as a whole.

Finally the outside cement work was finished. Soon the inside was filled and finished, too. I looked the whole thing over carefully and made a few corrections and it was done--almost. A few cracks appeared which I cleaned out and repaired. Even then I was not through. To give the sculpture a good chance to season thoroughly I allowed it a couple of good soakings every day.

I made a number of attempts to achieve a uniform texture over the entire surface but the previous work had



I HOSED THE SCULPTURE DOWN A COUPLE
OF TIMES A DAY TO KEEP IT CONSTANTLY WET.
IT IS ADVISABLE TO WEAR PROTECTIVE GLOVES
WHEN WORKING WITH CEMENT.

already dried so hard that it was practically impossible to do any sanding even with an electric grinder. When the sculpture had gradually dried, I found that it looked like cement should look, and that was good enough for me. I gave it two coats of clear silicon, weather-proofing chemical solution, and considered the job done.

These were the approximate materials used:

6 sacks..... 94 lbs. ea.....white cement
 4 sacks.....100 lbs. ea..... gray cement
 20 sacks100 lbs. ea.....Columbia River sand
 500 pounds of assorted rocks and stones.....
 10 pieces of $\frac{1}{4}$ " iron rod each 20' long.....
 enough chicken wire and wire to cover and bind.....
 a nine foot length of 2" pipe.....
 one gallon of weatherproofing solution.....

The cost of this material was approximately fifty dollars, and the time necessary to complete the project was one term, in this case the Spring Term, 1958.

My reactions to the project and to the experience can be summed up in a few observations.

It was good to see the project enlarged to an imposing size. Size--large size--does something for sculpture.

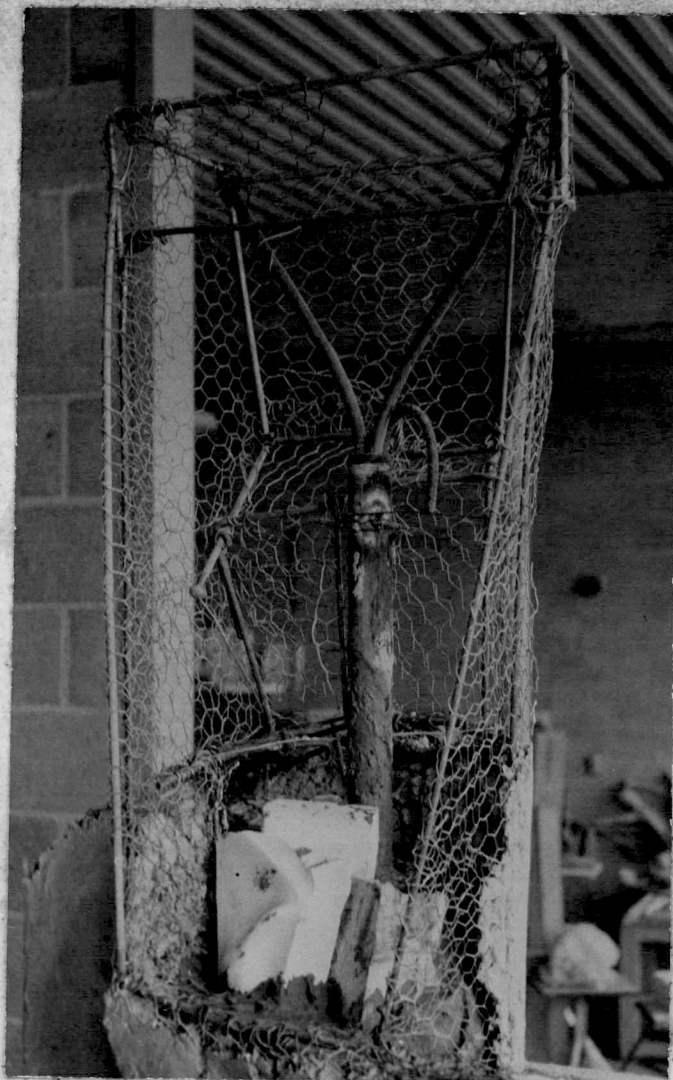


A DETAIL SHOT OF THE PROJECT IN PROGRESS.

The work of building the armature, measuring, mixing and applying the cement, filling in, repairing--everything was very valuable to me.

I have come to the conclusion that "building up" a sculpture in this fashion, although a most handy, practical and efficient method of getting the job done, is a method less satisfactory than "carving away." I hasten to add that this may be an entirely personal reaction. Someone else could say the exact opposite. For me, in this "building up" process there was no over-all feeling of working the sculpture. I could not model it intimately. The work as I progressed was too sketchy, too haphazard, too isolated--I did one small section at a time. I had no greater feeling of making, of creating--I was merely doing a mason's job of enlarging a small model.

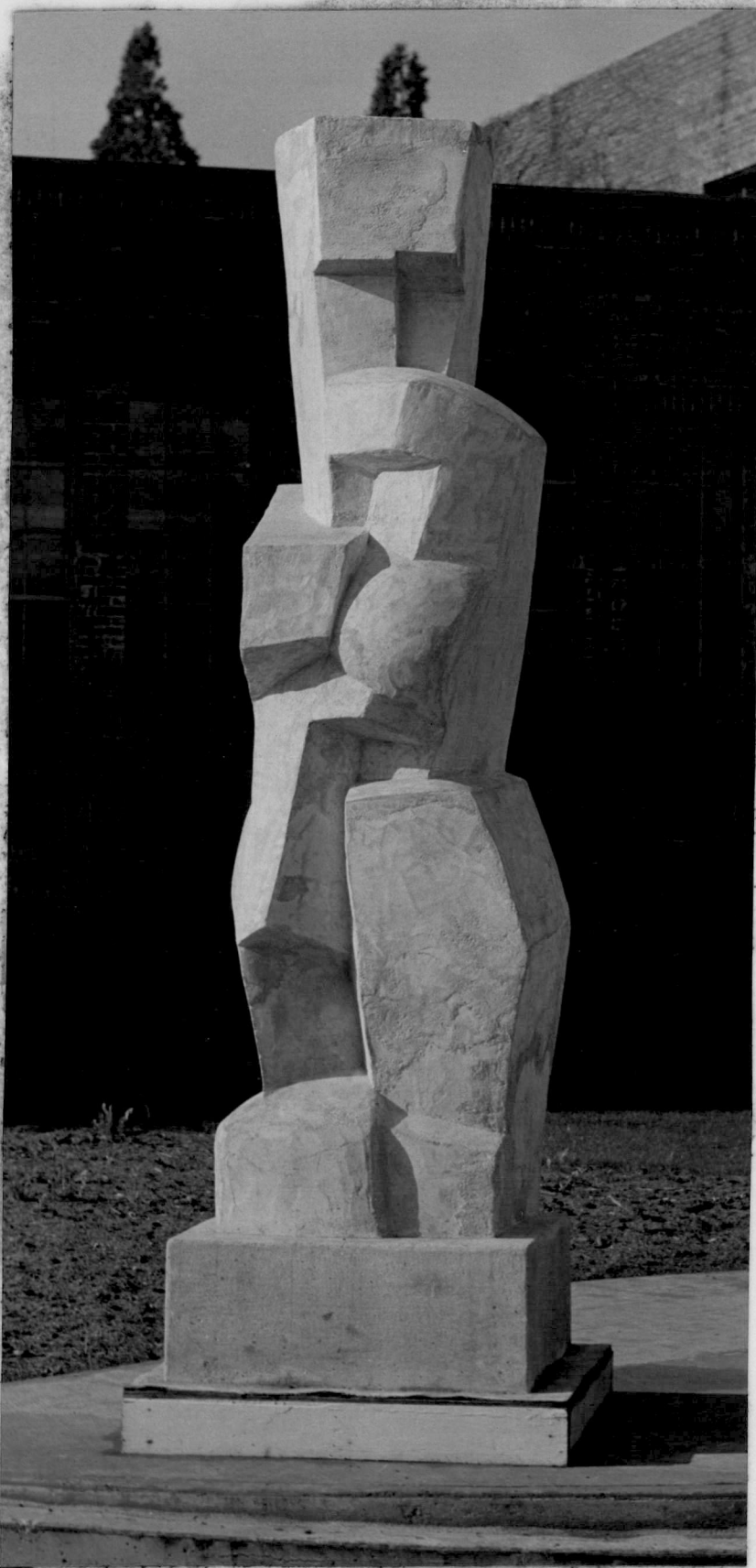
I am thankful for having used the method that I have described in this paper. However, I feel certain that the final product would have been different, perhaps better, at any rate more gratifying, at least for me, if I had carved it out of a whole block. Contrary to what one may be led to assume, the "carving away" process is easier, quicker, more satisfying and ultimately more rewarding, than the "building up" method. One all too readily thinks that carving away on a solid block is like an infinite



THIS IS THE TOP OF THE SCULPTURE
AS VIEWED FROM THE REAR. THE BACK IS
OPEN AND SOME OF THE "FILLER" ROCKS
CAN BE SEEN.

prison sentence, whereas building up something is like making a quick, cheap gadget. This is not the case at all. A world of trouble and effort goes into building up a piece of sculpture, especially into the armature which must be as accurate as possible. As opposed to all of this exacting work I have found that "carving away" is much the preferable method. To me the fuss and bother is only incidental, though still there. What is more important is that true feeling of modeling a piece of sculpture out of one whole solid block.

At this point I would like to mention briefly that some changes took place in the large-scale piece of sculpture. I noted earlier that what seemed satisfactory in the model didn't necessarily work in the larger piece. This is true. It is also true that the larger piece seems to dictate how it is to be handled at different times, and often, in some respect, in a manner opposed to the way it was in the model. The model, I have found, is like a very fine drawing on very fine paper. Little details can be added, much as I had indicated the nipples on the woman figure of "The Family." These little details seemingly make a good composition when one looks closely at a small model. However, when one moves a short distance away from the model, all these little details seem to vanish and what remains is



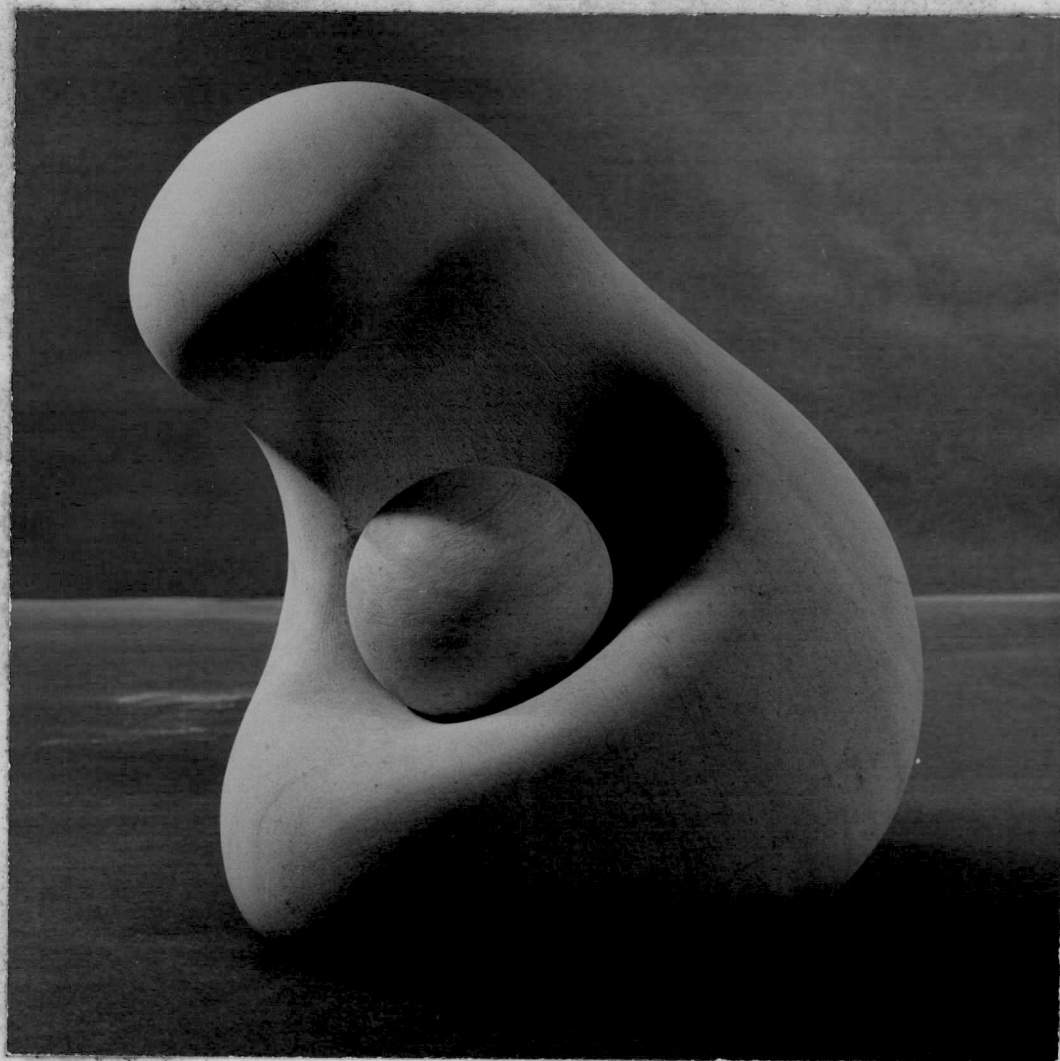
THE
FINISHED
PRODUCT.

an impression of mass and volume. This is not so in the large piece. When these little details are magnified they become essential parts of the sculpture, not merely little surface details or ornaments. When I tried to put the indentations into the breast to represent the nipples, I had two large dark holes that had nothing in common with the large sculpture that had gone up. These dark cavities attracted too much attention, spoiled the solid look of the sculpture, and generally were inappropriate. Again I say that in the small model these little things may seem suitable but when they are magnified frequently they do not work as well.

In conclusion, I feel that the entire undertaking of the terminal project progressed favorably. The idea was good, the medium appropriate, the experience rewarding, and the result satisfying.

I must say that the final resulting product is quite comfortable. It does not disturb--it even pleases. Some things probably could have been improved but I am pleased with the sculpture as a whole, pleased with the experience and pleased to have made "The Family."

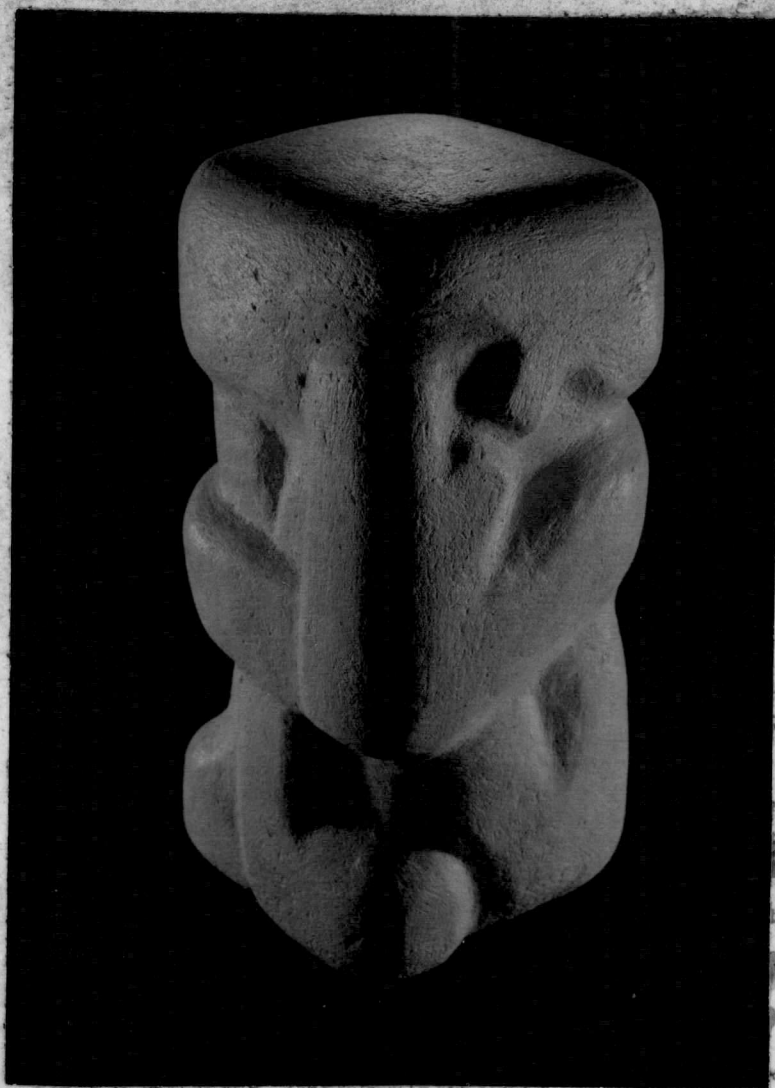
ADDENDUM FOLLOWS



MADONNA AND CHILD. STONE. HEIGHT $7\frac{1}{2}$ INCHES.



A SERIES OF POSITIVE AND NEGATIVE RELIEFS.
PLASTER. HEIGHT 36 INCHES.



MIA. CARVED FROM A SOLID BLOCK OF
CEMENT, SAND, AND ASBESTOS. HEIGHT 18
INCHES.

A FEW REMARKS ABOUT MY APPROACH TO SCULPTURE

My usual procedure in making a piece of sculpture is to sketch the idea. My sketches are usually on odd bits of paper or anything else that is handy. In these sketches I develop the idea. Next I prepare a plastic clay model. I work this around and around with usually some changes occurring here and there. When the plastic clay model has been completed, I make a larger model in some more permanent material such as terra cotta or plaster. In this second and larger model I find that more changes take place. It is as though I were continually exploring.

After working on the preliminary smaller models, it has been my practice to make the piece into a much larger one and to use an even more permanent material. Even here changes again happen. It has ever been my custom to work each model in this series as a piece of sculpture in and by itself. When this model has gone through these various stages of enlargement and evolution and finally has arrived in the larger and more permanent state, I have found that even here, were I to do it again, I would most likely alter it somewhat. I venture to say that were I to do it still again and incorporate the changes, that I would probably feel the same way about the resulting piece of sculpture--



TWO FIGURES. A CEMENT COMPOUND OF WHITE CEMENT,
SAND, ASBESTOS, AND "ZONOLITE." LENGTH 32 INCHES.



FAT LADY. CEMENT MIXTURE. HEIGHT 27 INCHES.



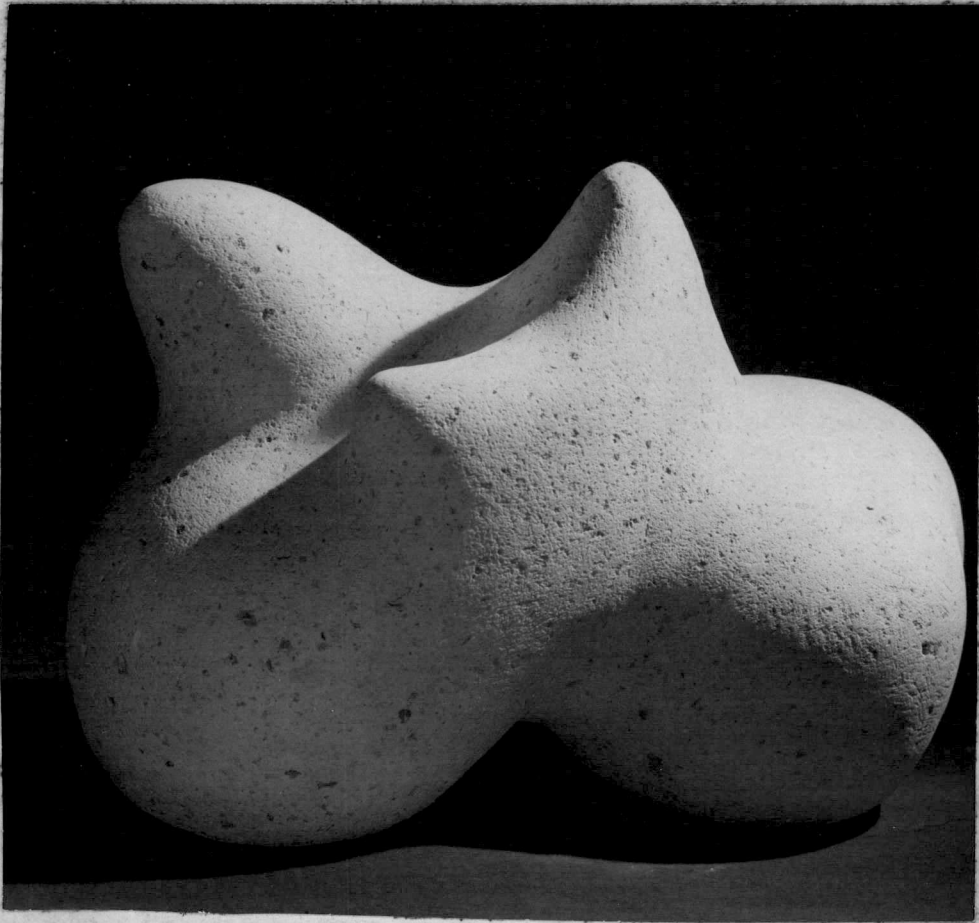
EASTER ISLAND TYPE HEAD WITH BODY.
CEMENT COMPOUND. HEIGHT 42 INCHES.

that is, in all probability I would see some aspect of the work that would suggest some further modification.

Now I wish to speak about actually getting started on a piece of sculpture. I feel there are at least three major factors involved; these for easy reference I would term man, motive, and medium. All three contribute to the finished work. The medium requires that its properties and qualities be respected and treated accordingly. The motive, or idea, is of great importance. Eventually, it seems to me, all theories, techniques and procedures aside, that it devolves upon the man--the sculptor and his abilities--to demonstrate what he can do.

Of all the periods of sculpture I seem to be most attracted to the so-called archaic or prehistoric or primitive type of sculpture. In this category there are some early Mexican and some modern Eskimo works for which I feel a very strong kinship. This sculpture, which strikes me as being strong, sturdy, simple, compact, plain, and massive, is the type of work that I feel is most related to my own approach in sculpture, and my thinking seems directly related to this school.

At this time, for me personally, I feel that a piece of sculpture should be intimate in size, say from approximately two to four feet in height or length.



EQUESTRIAN. CEMENT MIXTURE. LENGTH 20 INCHES.



SCULPTURE WITH HOLES. STONE. LENGTH 10 INCHES.

I like to work a piece with my hands, my eyes and my fingers. I like to massage the piece with my hands, to fondle it, to caress it, to embrace it. A work of an intimate size tends, I feel, to lend itself more readily to this treatment than one of larger proportions. I feel that when a piece is done, some degree of this treatment, something of this caressing, loving care that has gone into the making of the piece will be reflected by it. I feel that the spectator looking at the piece may be awakened to experience the same type of feeling, that he will be led to run his fingers, his hands, over the sculpture-- to fondle it, to caress it, to embrace it.

I find myself more and more compelled to work a piece all around: front, sides, back, top, bottom--in short, from all directions. I find that I tend to work a piece to the point where there is little or no base for the sculpture to stand upon. Further, in striving for simplicity, I work with an eye to carving away the absolute minimum from a block. When I work up a clay model, I keep adding clay to smooth out the details. I keep adding clay till it seems that I will wind up with a solid round ball of clay.

I like to think of my sculpture as being strong, massive, solid, sensuous, compact, plain, sturdy, simple,

suggestive, necessarily somewhat abstract, appealing to the eye and especially to the touch, and in the words of Henry Moore, possessing some "inner life." I feel that there are similarities between the kind of work I am doing and the works of the primitive sculptors.

THE END

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