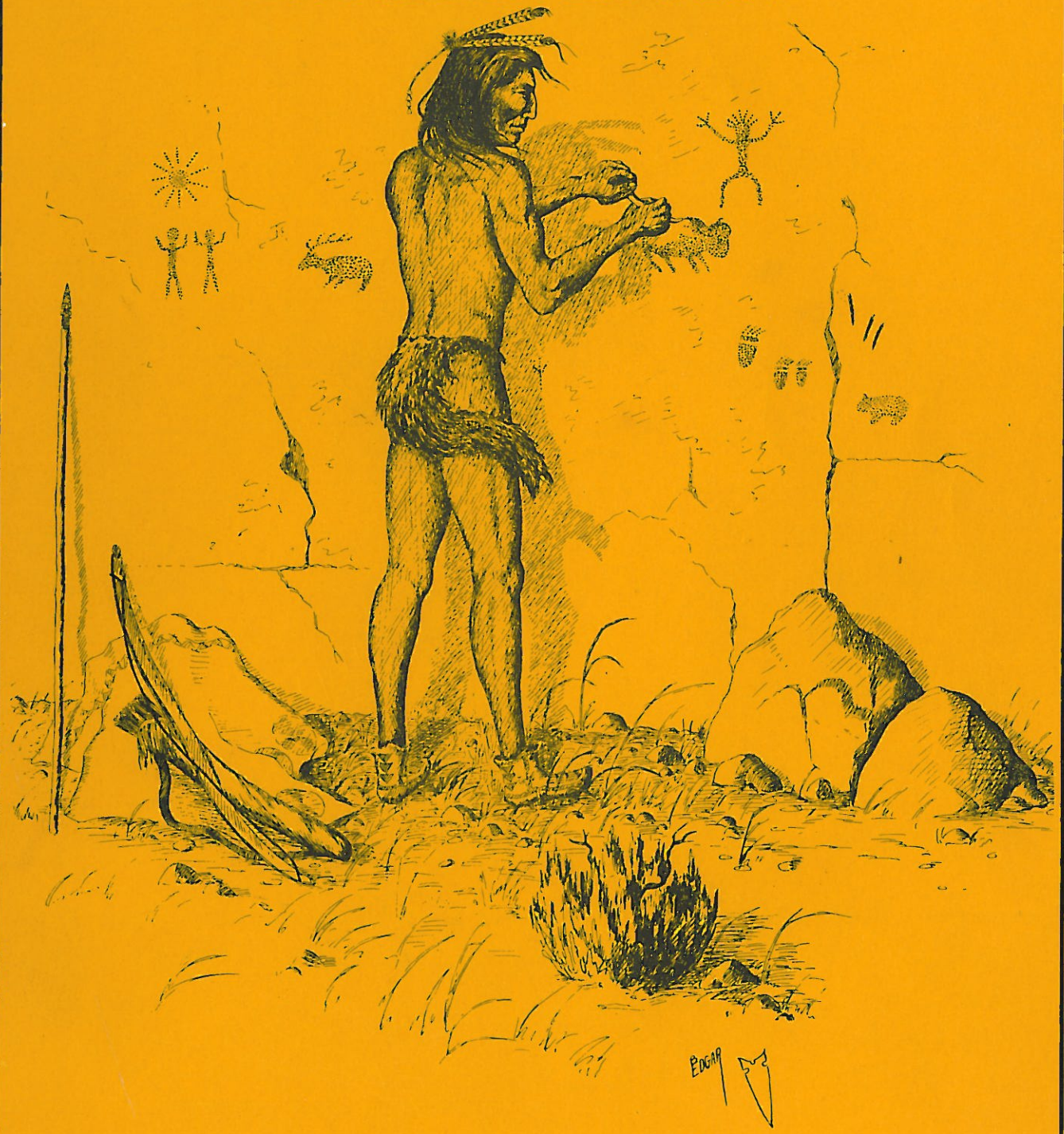


Harry Osborne

WYOMING
ARCHAEOLOGICAL
SOCIETY

THE WYOMING ARCHAEOLOGIST



MARCH 1976

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EDITOR'S NOTES

The following back issues of the Wyoming Archaeologist are available in very limited quantities previous to 1971 issues but adequately thereafter. It will be necessary to send your request only (no checks) to me at 1915 East 15th, Cheyenne, Wyoming, 82001, where order will be packaged. Billing will then be made by Executive Secretary, Larry Osborne, Box 123, Riverton, Wyoming, 82501, and only after receipt of billing should checks or money orders then be sent to the Executive Secretary.

YEAR	VOLUME	NUMBER	PRICE EACH
1959	2	3 & 4 combined, 6, 7, 8, 10, 11	.50
1960	3	1, 2, 6, 10, 11 and 12 combined	.50
1961	4	1 & 2 combined, 3, 9, 12	.50
1962	5	1, 2, 4	1.50
1963	6	1, 2, 3, 4	1.50
1964	7	2	2.00
1965	8	4	2.00
1966	9	1, 2, 4	2.00
1967	10	1, 4	2.00
1968	11	2, 4	2.00
1969	12	2	2.00
1970	13	3, 4	2.00
1971	14	1, 2, 3, 4	2.00
1972	15	1, 2, 3, 4	2.50
1973	16	1, 2, 3, 4	2.50
1974	17	1, 2, 3, 4	2.50
1975	18	1, 2	2.50

WYOMING
ARCHAEOLOGICAL SOCIETY, INC.



PRESIDENT'S LETTER

Rawlins, Wyoming 82301

To: All dedicated amateur archaeologists :

A certain feeling of optimism about the future of the Wyoming Archaeological Society was detectable at the Spring Meeting in Casper.

Indeed, there is a future for this Society as long as we work to make this future possible. The response to the program of reviving artifact cataloging and filing of site reports has been gratifying, and by continuing and expanding these efforts, we will be abiding by the constitution of this organization. By carefully recording and preserving archaeological data, we maintain a closer liaison and cooperation with the State Archaeologist and the University of Wyoming, both being essential to the continuation of this Society.

I extend to all of you a sincere thanks for the reception and support of the past year.

The Summer Meeting will be July 24th and 25th at the Medicine Lodge Creek Site near Hyattville, a fine place to camp, fish, relax and be engulfed by archaeology. Hope to see you all there.

Sincerely,

George W. Brox
President

CHAPTER REPORTS

CHEYENNE CHAPTER ACTIVITY REPORT 1975

By Audrey Bailey, Secretary

The Cheyenne Chapter began the year 1975 with 43 members, many of whom must travel fifty miles to attend meetings, coming from Nebraska and Colorado, or Laramie and Pine Bluffs. We have a group of members from the Denver Archaeological Society which permits a very valuable liaison and insight into their activities. They have especially enjoyed our annual summer chapter meetings in the Spanish Diggings.

We have enjoyed many outstanding programs, and our own members have contributed the finest programs; such as Dr. Shoondermark's program on Carnero Creek Petroglyphs and the Archaeology of Hawaii; Grant Willson's program on Chaco Canyon and Canyon DeChelly; Chuck Bates program on Koster Corn Field Site and various Mound Builder Sites. Many of us attended the Colorado State Archaeological Society meeting on the C.S.U. Campus at Ft. Collins, where John Albanese was the featured speaker.

Field trips included a one day trip to the Wooden Shoe Pictograph Site south of Laramie and our annual weekend, August 9 and 10, in the Spanish Diggings. We camped below the Glendo Dam in a beautiful grove of Cottonwoods, alongside the Platte River, unfortunately, astride a rattle snake freeway to water.

Many of us attended the ceremony in the new Fine Arts Building where Dr. Mulloy was presented the O'Higgins Award by the Chilean Government and then presented a slide program on Easter Island.

We ended our year in December with a combined dinner meeting with the Mineral and Gem Society. The guest speaker was Dr. Frison reporting on Big Horn Basin Sites.

The chapter was involved in a project suggested by Mr. Buck Dawson from the staff of the State Museum. This project was to assist museum personnel in cataloging all the stone artifacts accumulated by the museum and consisted of cigar box collections, which were donated. It was very depressing seeing all these collections without any site locations, which would have made them priceless; but instead are really worthless. We spent many hours on this project.

Our new officers are: President - Charles Bates, 141 South Ahrens - 634-4557; Vice President - Craig Casner, 807 West 25th Street - 632-6082; Secretary Treasurer - Audrey Bailey, 3504 Dey Avenue - 638-8617.

ANNUAL REPORT OF THE FREMONT COUNTY ARCHAEOLOGICAL SOCIETY FOR THE YEAR 1975

By Gail Gossett, Secretary

The Fremont County Archaeological Society held nine regular meetings in 1975, and two special meetings. The average attendance was 21 persons (14 members and 7 guests). The club had 33 paid members in 1975. Officers for the year were: President - Lorene Iverson; Vice President - Larry Osborne; Secretary - Gail Gossett; Treasurer - Ora Hawkins; Directors, one year term, Irene Morgan and Edward Appleby; Directors, two year term, Helen Lookingbill and Larry Osborne.

The January meeting was held at the home of the Iversons in Lander for the purpose of conducting business, the plans for future meetings were announced.

The February meeting had an interesting program presented by John Beller, archaeologist for the B.L.M. He explained the urgency of the B.L.M. in locating and investigating sites that may be destroyed by proposed developments in Wyoming in the future. He described the NACO point, age about 12,000 years, most of which had been found on the western edge of the Red Desert. His slide program depicted the various methods and forms of burials of early man from 4500 B.C. to 1850 A.D., in areas stretching from Peru to Northern Canada.

During the March meeting Larry Osborne and Norbert Ribble were appointed as delegates to the spring meeting of the State Society to be held in Casper, April 4, 5, and 6th, 1975. Helen Lookingbill and Lorene Iverson were appointed as alternate delegates. An interesting, informative and amusing program was presented by Larry Osborne concerning the controversial subject of how the American Indian acquired the horse.

In April Larry Osborne was welcomed as having been elected Executive Secretary of the Wyoming Archaeological Society, Inc. As one of the official delegates from the Fremont County Society he gave a report of the meeting emphasizing enforcement of the 1906 Antiquities Act, the importance of filling out Site Forms, and the importance of educating the public concerning illegal collecting and excavation that would destroy evidence so vital to interpretation of archaeological sites. A brief sketch of the Cheyenne Indians was presented by Gail Gossett as program for the evening.

Special meeting of the club held on April 23rd featured the film "Ishi in Two Worlds", depicting the life of Ishi, a Yana Indian from Northern California, who was the lone survivor of the Stone Age Indians in the United States. Larry Osborne played a tape recording of the April Spring Meeting of the Wyoming Archaeological Society including a symposium "Is there a Future for the Amateur in Archaeology?".

Albert Page, Instructor in Anthropology and History at Central Wyoming College, gave a very interesting program at the May meeting on Sacajawea and the many controversial aspects of her life. He gave each member in attendance a copy of a booklet he had compiled from various sources, "Sacajawea, Myth and Truth".

In June Dr. Loretta Fowler gave an extremely interesting program on the Influence of the Eastern Indians on the Arapahoe, and their unique political system. Dr. Fowler is an anthropology instructor at the New York City College.

A special meeting was held on July 8th at the home of the Iversons for the purpose of working out the many details for hosting the summer meeting of the State Society to be held at the Lookingbill Site on Bear Creek.

Ten members and two guests attended a two day field trip July 26 and 27. They studied a very interesting rock alignment on Ben Itturian's ranch in the Bison Basin area. Sketches and measurements were recorded of the alignment and stone circles, and artifacts found in the area were noted. The group toured both East and West Alkali Creeks in that area, observing other sites and artifacts.

Instead of our August meeting we hosted the 1975 State Archaeological Summer Meeting at Bear Creek, 27 miles from Dubois August 29, 30, 31, and September 1. There were eighty one persons there including 19 members of our local Society. Dr. George Frison and his staff conducted an archaeological dig at the Lookingbill Site two miles up the mountain from our campground. Many interesting artifacts were found. Above the site were several sheep traps.

Reports of the State Summer meeting were given at the September meeting. Larry Osborne gave a detailed report on the sheep-trap reported by the Don Baker's on Black Mountain.

George Zeimens, Wyoming State Associate Archaeologist, gave a very informative talk on archaeology and archaeologists and their purpose at the October meeting. He reviewed their summers work with slides of the Folsom Site, the Hyattville Site, and the Colby Site. He emphasized that these are the 3 major sites in the United States at this time. Slides of the Lookingbill Site were also shown.

At the November meeting Larry Osborne presented the program with an educational film recording the excavation of a Maidu Indian Village in California's Sacramento Valley by a party made up of UCLA faculty and students. In the film "4 Butte-1" the archaeologist explains that the discovery and analysis of artifacts is aimed at finding order in the archaeological record and revealing relationship between man's products and his behavior. A motion was made at this meeting that the club begin alternating meeting places between Riverton and Lander on a trial basis for 6 months depending on attendance. New officers were elected for 1976.

The Fremont County Archaeological Society ended its 1975 year with dinner at the El Toro in Hudson with twenty three members and three guests in attendance, on December 10, 1975.

CASPER CHAPTER REPORT
By Charlie N. Ellis

The Chapter has had a good year. Indications are that our society will play an ever increasing role in maintaining, keeping and attempting to preserve ancient sites. That we cannot preserve, we may be able to record and document for future use. The involvement in politics becomes increasingly imperative as the energy industry expands.

Our programs in the past year have been varied and in general have had the theme of how we may help preserve the past by a more systematic method of study. Our last program was on how to file site reports and how to catalog our personal collections. Reading of maps and how to find locations on maps poses a threat to some of us. A method of simple cataloging and filing site reports was given in a program by Sandy Zeimens and Caryl Simpson from the University.

Mary Helen Hendry presented a program that gave us much information in a short period of time. Methods of recording pictographs and petroglyphs was given. An offer to show our local group how to make pottery from local clay was made by Mary Helen and it is hoped that we will be able to organize this into a workshop.

At one meeting our local B.L.M. Archaeologist talked to us about B.L.M. policy. At another meeting a report on the proposed dam site on the Middle Fork of the Powder River was discussed. Local members attended a B.L.M. hearing on the proposed dam site where they heard both sides of the situation.

One program on historical archaeology was presented by Mary Ann Frary and her aide Carolyn Huff. Hearing about Zuintina, her problems and life held us spell bound. You'll hear more about Zuintina this afternoon. She was quite a gal.

We are after Henry Jensen to plan another worthwhile summer trek for us. A local member - Juanita Hinthorn - will give a slide presentation next month. Our local Episcopal Priest, Father Kinnes, has offered to give us a program on archaeology on the Eastern Coast - Connecticut and Pennsylvania areas.

SWEETWATER CHAPTER

By Julie L. Farr, Secretary-Treasurer

It was decided that the first portion of 1975 would reflect our interest in ancient man. Accordingly, January and February were spent studying the Shoshoni and Sioux Indian cultures. Members shared their knowledge and ideas after studying and reading on their own each month. Charles M. Love, Assistant Professor of Anthropology and Geology at Western Wyoming Community College, served as moderator for the seminars.

Dr. George Frison gave an informative lecture on "Prehistoric Hunting and Gathering Occupations on the North Central Plains" at our March meeting.

In April, Dr. Floyd W. Sharrock, head of the Anthropology Department at the University of Montana discussed the ancient Blacks Fork Indian Culture of Southwest Wyoming and the necessity for preserving the cultural sites and antiquities now remaining.

Members treked to Black Mountain and Cow Creek Ranch in May and September. At Black Mountain three sites were located, one of which contained over twenty teepee rings.

Charles Love and Karen Love, instructors at Western Wyoming Community College, gave an illustrated presentation at our October meeting on their three month tour of portions of New Guinea.

In November, State President George Brox honored us with a talk on certification of amateurs and reporting sites. Also, Mr. Love gave a brief report on the Plains Anthropology Conference in Nebraska. Officers elected unanimously for 1976 were:

President	Mr. Harry A. Baker
Vice President	Mr. George Babel
Secretary-Treasurer	Ms. Julie L. Farr
Historian	Ms. Therese Babel
Publicity Secretary	Ms. Pat Eck

At our final meeting in December, we planned our activities for 1976 over a Christmas dinner.

Report on
1976 Wyoming Archaeological Society Workshop
by Judy Pinner

The 1976 Wyoming Archaeological Society Workshop was held January 17th at the University of Wyoming in the lab of the Arts and Sciences Building, Anthropology Department, with approximately 30 people from around the state in attendance. George Brox gave us a brief welcome and took reservations for the banquet to be held that evening. The remainder of the day was spent learning the entire molding and casting procedure to reproduce artifacts. Dr. Frison, assisted at times by George and Sandy Zeimens, Dan Walker, and other crew members, demonstrated this process using a beautiful point furnished by Milford Hanson.

Various steps involved in making the mold include setting the artifact in clay, preparing the mold frame, pouring the first half of the mold, removing the clay, and pouring the second half.

Once a mold has been completed, the casting process can begin. It is believed that 25 or more replicas may be cast from a single mold before any deterioration in quality occurs. The casting procedure, as done by Dr. Frison, consists of mixing a dental repair compound with Tempura color, then adding the catalyst, mixing quickly, pouring, removing bubbles, and placing the two halves of the mold together. Finally, if all has gone properly, you have an exact replica of the original, except in weight and color. The darker casts usually show the flaking patterns more clearly than the original artifacts, making them even more useful for study.

Mary Helen Hendry also gave an interesting talk on her experiments with different casting materials such as resin base. This dries somewhat slower and allows more time to work in the desired color patterns, but after a few weeks, the resin cast becomes very shiny and "plastic" appearing. She also gave us some tips on weighting the casts to make them feel more like the original, and various coloring agents that have been tried.

In addition to the molding and casting program, everyone also enjoyed looking around the lab and Museum. Some of the artifacts from the Medicine Lodge Creek (Hyattville) Site were on display in the lab for close inspection.

At the end of a long day, Dr. and Mrs. Frison graciously invited everyone to their home for a cocktail hour. A brief meeting of the State officers was held to discuss the Spring Meeting, which will be held in Casper on April 2, 3, and 4. After a pleasant, informal visit at the Frisons, we proceeded to the Holiday Inn for the banquet.

John Albanese gave an extremely interesting after-dinner program on the relationship between geology and archaeology. To demonstrate, he used slides of the Casper Site and the Colby Site in Wyoming, and the Jones-Miller Site in eastern

Colorado. In each case he explained what the site had looked like when in use, why artifacts were found in the positions they were in (stream bed washing bones down, etc.), and how he arrived at his conclusions.

Overall, it was an exciting, fascinating day. And it left at least one amateur well aware of how many knowledgeable people are in and working with the Society and of how much there is yet to be learned!

Our thanks to everyone involved in presenting a very enjoyable workshop.

CATALOGING

By
Sandy Zeimens

Introduction by George Zeimens

Every artifact, whether found in the context of a good level in an archaeological site or all by itself on the surface, contains a certain amount of information. Each time an artifact is removed from a site, the archaeological record contained in the site has been altered. The same is true of artifacts found on the surface in that each time an artifact is collected, the archaeological record of that area has been altered. Archaeologists catalog artifacts as they are excavated from sites so that they can be moved to the laboratory without losing the information they contain. The same consideration should be given to surface materials.

Collections that are carefully cataloged are considerably more valuable to archaeologists than uncataloged collections. Collectors seem to take much more pride in their collections if they are cataloged and rightfully so since they are contributing to the study of prehistory rather than subtracting from it. Those who catalog their collections are helping gather meaningful evidence with which to reconstruct the story of a past way of life.

CATALOGING PROCESS

Cataloging is easy and inexpensive. The cataloging process used at the University of Wyoming is fairly simple and can also be used for private collections. The materials used are as follows:

1. Fresco Powder Tempera Color -- White.
2. Black India Ink.
3. Clear Fingernail Polish.
4. Quill Pen with a Fine Point.
5. Small Paintbrush.
6. 3 x 5 Index Cards.

The information for each artifact is recorded on the 3 x 5 index card (see sample card). The information contained on each card should be as follows:

1. Type of artifact: projectile point, tool, bead, potsherd, bone, etc.
2. Artifact number -- the number put on the artifact itself.
3. Location of the artifact: township, range, and section if possible -- if not, just a general location will do, for example: 3 miles west of Laramie dump, along south fence about 20 yards from main road.
4. Your name.
5. Your chapter name.

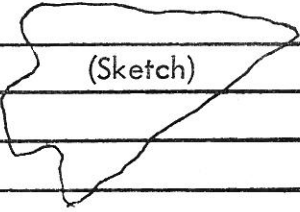
6. Trace the outline of the artifact, if possible, onto the index card.
7. If the artifact is given to a friend or another member of the family, please make a note of the disposition on the card.

Each individual should begin the cataloging series with the number 1 and continue consecutively through his collection. As long as the individual's name appears on each index card and the artifact is traced onto the card there will be no confusion as to which artifact belongs to which individual. Also each artifact found should be given a separate number.

The artifacts to be cataloged should be clean. The India Ink and quill pen are used for placing the number on the artifact. The number can be written directly on the artifact unless the color of the artifact is too dark for the India Ink to be seen. In such case, the white paint must be used. A small spot can be painted on the artifact, just large enough to contain the number. All numbers should be put in an inconspicuous place on the artifact and written as small as possible. When the India Ink has dried, the number is then painted over with the clear fingernail polish. This will prevent the number from coming off.

An index card is then made out for each artifact, recording all information pertaining to that particular artifact, as stated above.

The cards can then be placed in a file for future reference.

(1) Type of Artifact:	(2) Artifact Number:
(3) Location:	
(4) Your Name:	(6) 
(5) Chapter Name:	(Sketch)
(7) Disposition:	

sample card

SITE REPORTS

The following is a sample site report form that may be used as a guideline when filling out site report forms.

The Site Number blank will be filled out by the State Archaeologist's Office, but a Site Name can be given if desired.

Give the location as near as possible using road names, significant land marks, and approximate distances. This is just as useful as township, range, and section although these may be put down if known. Listing the county would be helpful.

The back of the site report form or an attached sheet of paper can be used to draw the site location and how to reach the site.

Overall, it is best to put down what is known about the site, but if unable to fill out all categories on the site report form, any information that can be obtained is far better than no information at all.

Mail completed site report forms to:

George Zeimens
Anthropology Department
University of Wyoming
Laramie, Wyoming 82071

Site report forms can be obtained from the same address.

Site No. _____
Site Name _____

Wyoming Archaeological Site Form

Send to: Wyoming Archaeological Survey, Department of Anthropology,
University of Wyoming, Laramie, Wyoming 82071 Phone: 766-5136

NAME: John Doe DATE: 4-9-76
ADDRESS: 2111 South 11th PHONE: 745-8888
Laramie, Wyoming

Representing: Specify which chapter Survey for: _____
Wyoming Archaeological Society

SITE LOCATION: Fill in if possible.
Township _____ Range _____ Section _____ 1/4 Section _____
County _____ Map Reference _____

Position of site and surroundings (provide as much detail as possible):
If exact map location cannot be given, describe the site location as in the following example: 3 miles west of Casper on Shoshoni Hwy. Turn right on 33 mile road. Continue 1 mile down road to first cattleguard. Site is located 100 yards from cattleguard.

SITE DESCRIPTION: (include type of site, what site consists of, cultural features present, area and condition of site, and depth and character of fill, etc.)

Describe what evidence for a site exists in the area. For example: firepits, bones in a cut, lots of flakes present.

MATERIAL OBSERVED: This refers to cultural material found in the site area, for example: Flakes, bones, tools, projectile points, beads, etc.

MATERIAL COLLECTED: and where stored: Describe what type of artifacts were picked up, for example: 3 projectile points; 2 scrapers, 3 beads, etc.
It is also helpful to list here the numbers under which these artifacts are cataloged.

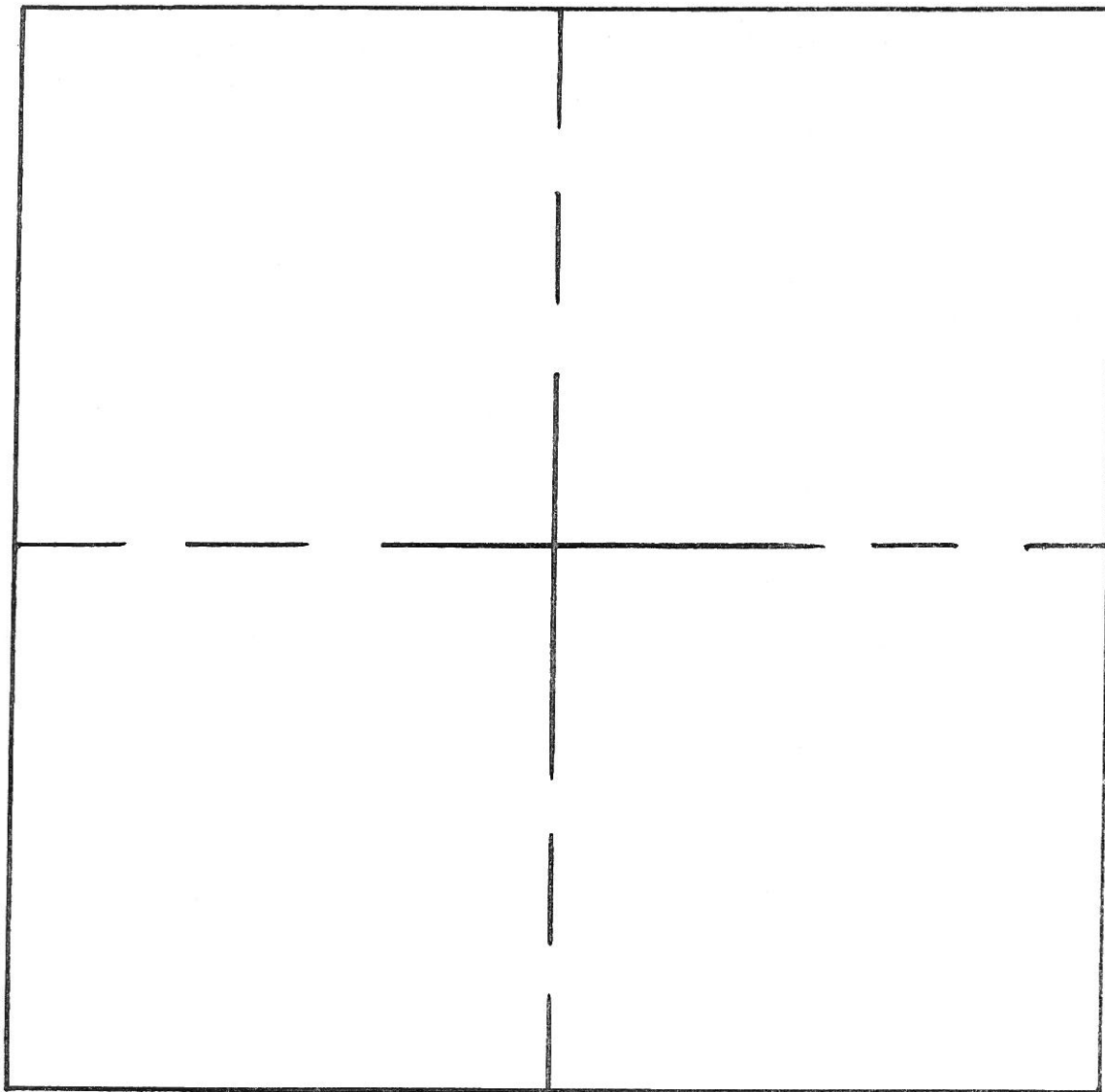
LAND OWNER AND/OR TENANT:
Name _____ (State if known, if not merely
Address _____ put Unknown)
Phone _____

INFORMANT:
Name _____ (Used if someone else
Address _____ told you of the site)
Phone _____

RECOMMENDATIONS: (State whether, in your opinion, the site is in danger of being destroyed and should be given further attention.)

MISCELLANEOUS: (Include maps, photos, drawings and other information on back of sheet.)

Any information that may be significant regarding the site.



Section: _____

DIRECTIONS TO SITE: (Include roads, rivers, and prominent geologic features on map. Use directions such as North, South, etc. Do NOT use isolated terms such as right, left, up, or down in your description.)

The above is a section. This area can be used to draw a map of the site location. If section is not known, an attached sheet can be used to draw the site location and how it can be found.

THE MOLDING AND CASTING PROCESS

by Sandy Zeimens

INTRODUCTION

The purpose of molding and casting projectile points and tools is to record and preserve valuable data. Private collections are valuable to their owners due to the time, money, and individual effort invested in such collections. The molding and casting process now enables us to make exact replicas of these collections and thus have them available when needed for study purposes. The scientific reason for maintaining a collection is so it can continually be referred to for comparative and other study purposes. By casting artifacts from private collections, it is unnecessary to continually bother the collector to review his specimens. Also, private collections are continually being lost as the owners leave an area or die and their possessions split among the family.

Dr. George Frison has noted that when a mold and a cast are made of a projectile point or tool that the process results in shrinkage, thus making the cast a fraction of a millimeter smaller than the original. For example, originals and casts were measured and the following results were obtained:

	ORIGINAL		CAST	
	Length	Width	Length	Width
1.	5.1	2.1	5.3/4	2.3/4
2.	4.4	2.4	4.3 3/4	2.3 3/4
3.	4.1	2.1	4.3/4	2.3/4
4.	6.1	2.7	6.1	2.6 3/4

As can be seen, out of eight measurements only one is the same as the original artifact. The shrinkage is small and almost insignificant, but one should be aware of it if using the cast for data recording. However, this problem can be resolved by measuring the original at the time the cast is made.

The techniques of casting described in the following pages are mainly the result of talking to and watching Jeannie Stanford. Dr. George Frison spent many hours trying these and other techniques and processes and passed his results on to the author. The processes described herein are mainly the final results of his testing and this process has yielded excellent results.

After working with these processes, the author has developed her own technique in certain steps, but credit for the overall process belong to the efforts of others.

MATERIALS FOR MAKING THE MOLD

1. Clay - Permoplast Modeling Clay - by American Art Clay Company.
2. Boards - approximately 6" x 5" for laying clay on while putting artifact in clay.

3. Small paint brushes.
4. Tools for pushing clay around artifact - need to be small and have a pointed, but flat surface. Tools can be brought or made.
5. Magnifying glass.
6. Paper towels.
7. Q-tips.
8. Pure White Shellac.
9. Boards to place around the clay to hold Silastic Rubber while it is setting up. The best type of board to use is 1/4" masonite with blocks of wood 1" square nailed into place on the rough side at the end of each masonite board. Four such boards will be needed for each mold.
10. C-clamps (small).
11. Marbles or molds of chair casters.
12. Scales weighing in grams.
13. Tongue depressors.
14. Paper cups - the 8-oz. size works well.
15. Xylene.
16. Paraffin.

CHEMICALS FOR THE MOLD

1. Silastic A RTV Moldmaking Rubber by Dow Corning.
2. RTV Catalyst # 4 Fastcure.
3. Thinner for catalyst - RTV Thinner by Plasticrafts.

THE MOLD MAKING PROCESS

The First Half of the Mold

Work the clay until it is soft and pliable. Make a square of clay (Plate 1), 1" thick, large enough to hold the artifact and four marbles or casters, one in each corner of the clay. Approximately 1/8 inch should be left between the marbles and the sides of the clay (Plate 2). This will allow room for making a seal with the clay and the masonite boards that hold the mold. The mold will come out better if it is as near a perfect square as possible and of even thickness.

Place the clay on the board (6" x 5") and place another board on top of the clay and press. This will make the top of the clay flat. Then clean the artifact to be molded in acetone before placing it on the clay. When the artifact is cleaned, center it on the square of clay leaving the bottom board in place. This board will allow no movement of the clay while the artifact is being implanted (Plate 1).

After the artifact is centered on the square of clay, outline it onto the clay, remove the artifact temporarily and dig out the clay inside the outline of the artifact. Enough clay should be removed to form a shallow hole in which to place the artifact. The artifact should sit down in the hole a little, just enough to be able to push the clay up around the edged without slanting downward or creating a mound (Plate 2)

(Plate 2). If there are holes or large spaces around the artifact, place a small piece of clay in the opening and work it up to the artifact edge using the small tools (Plate 7).

The clay must be worked around the artifact so it meets the edges, not over the edge or under the edge (Plate 1). This process places the seam of the cast at the edges of the artifact where they cannot be seen rather than on the top or the bottom, thus making a better cast.

No gaps can exist between the artifact and the clay. If such gaps are left unfilled, the Silastic Rubber will run under the artifact and create a ridge where it stops. This ridge will then appear on the cast, thus making the cast different from the original. The best method of detecting such gaps is to look at the edges through a magnifying glass (Plate 3). The gaps will show up if the clay and the artifact are not sealed correctly.

No clay can be on the artifact itself. If clay is left on the artifact the entire flaking pattern will not show up on the cast.

After the clay is around the edges of the artifact take a Q-tip soaked in acetone and clean the artifact. This will remove anything that may be on the artifact such as glue or stray pieces of dirt and clay.

If there is a broken area or high place on the artifact edge, the clay should be taken all the way to the top of the area or all the way to the bottom, never to the middle for this will create a seam in the middle of the cast rather than at the edge where it cannot be seen. The process of putting the artifact in the clay is basic to the quality of the mold and thus the quality of the cast.

After the clay is around the artifact and it has been cleaned with acetone again, take a small paint brush and dip it in the shellac and carefully paint the clay around the artifact. The shellac must be brought to the edge of the artifact but cannot cover any part of the artifact. To make sure no shellac is on the artifact hold it under the magnifying glass. If any shellac appears on the artifact, it must be removed with acetone. Cover the area with shellac about 1/2 inch around the artifact, leaving the rest of the clay free from shellac.

Next place the masonite boards, smooth side inward, around the clay and place the C-clamps on the boards (Plate 4). Then take the rounded end of a paint brush, or anything with a rounded end, and go around the edges of the clay, mashing the clay against the boards so the clay forms a seal against the boards. This process will keep the Silastic rubber from running out of the mold and makes the clay more square so the resulting mold will also be more square.

After the masonite boards are in place, place the marbles, or molds of casters, in each corner of the clay -- on the inside of the groove made earlier (Plate 5). If marbles are used, they must sit half way down into the clay. Care must be taken

to prevent the clay from pulling away from the artifact when pushing the marbles or casters down into the clay. A partial hole may be dug out of the clay if marbles are used. The clay must also meet the marbles in order to make a rounded hole. The advantage to the molded casters is that one surface is flat and no pressure is required to place them in the clay, thus creating no danger of dislodging the artifact.

After the marbles are in place finish painting the clay with the shellac, making sure all the clay is covered. It is not necessary to cover the marbles but it helps to seal the edges where they meet the clay with the shellac. When the clay is coated with shellac, the first half of the mold is ready to pour (Plate 5).

Mixing the Ingredients for the Mold

A scale that weights in grams is good for the measuring process, although one that weight in ounces would work with the same ratios stated below (Plate 6).

The first step is to mix the catalyst using RTV Catalyst # 4 Fastcure and the RTV Thinner. The ratio of catalyst to thinner is 1 to 9, that is, 1 part catalyst to 9 parts thinner.

The 8 ounce cups are used for measuring and mixing (Plate 7). In order to obtain the correct amount of catalyst and thinner the scales must be used. The weight of the cup in which the two chemicals will be mixed must also be taken into consideration. For example: when mixing the catalyst and the thinner for one half of the mold, the ratio is 1 to 9. Using the gram scales, 9 grams of thinner is needed. Assuming the cup weighs 7 grams empty, then the total weight after the thinner is poured into the cup will be 16 grams. the # 4 Catalyst Fastcure is then added (into the same cup as the thinner), 1 gram, and the total weight of the mixture will be 17 grams. A greater amount of catalyst and thinner mixture can be prepared beforehand depending upon how many molds are to be poured. The mixture should be stored in an air tight jar and only enough should be mixed for the amount of molding to be done at any one session. The catalyst and thinner mixture is now ready and can be set aside.

The Silastic Moldmaking Rubber is combined with the above catalyst mixture on a ratio of 20 to 1, that is 20 parts Silastic RTV Moldmaking Rubber to 1 part catalyst mixture. The amount of Silastic Rubber to use is determined by the size of the artifact to be molded. An average projectile point (2" to 2-1/2" long) usually takes approximately 120 grams of the Silastic Rubber. If the artifact to be molded is larger or smaller, compensation will have to be made for more or less of the Silastic Rubber. As more molds are made this determination of quantity of Silastic Rubber will be able to be made with a glance at the artifact size.

Now that the amount of Silastic Rubber has been determined, the amount of catalyst to use with this particular amount (120 grams) of Silastic Rubber is determined by the previously stated ratio of 20 to 1. $120 \text{ divided by } 20 = 6$, so the amount of

catalyst to be used is 6 grams. If the amount of Silastic Rubber to be used was 140 grams, then (140 divided by 20 = 7) 7 grams of the catalyst mixture would be used. The amount of catalyst can be weighed out from the previously prepared catalyst mixture.

Again the weight of the cup must be taken into account. The weight of Silastic Rubber to be used in this example is 120 grams, so if a 7 gram cup is used the total weight after the Silastic Rubber is poured into the cup will be 127 grams.

Next the correct amount of catalyst to be used with this particular mold (120 grams) must be weighed out into a separate cup. As stated before, the amount to be used in this example is 6 grams. Total weight, allowing for the cup (7 grams) will be 13 grams.

Now the catalyst mixture is poured into the cup containing the Silastic Rubber and stirred with a tongue depressor. The mixture should be stirred slowly so as not to create too many bubbles. As soon as the two are thoroughly mixed, pour enough of the mixture into the mold to just cover the artifact. Then tap the board up and down on the table to get rid of any bubbles, then pour the rest of the mixture into the mold. Tap the sides of the masonite boards with anything handy to make the bubbles rise, then set aside. The curing time is approximately two and one-half hours.

Removing the Clay from the Mold

When the mold has set up (when rubber is fairly hard to the touch and not too springy) the clay can be removed. Take a knife and go around the board on which the clay is sitting. This will loosen the clay from the board. Do not pry up with the knife as the clay may stick to the board and cause the artifact to remain in the clay rather than in the Silastic Rubber.

When the first half of the mold is free from the board, turn the mold upside down so the clay is facing upward. Take the knife and cut small wedges of clay away from all four edges of the board (Plate 8). This must be done slowly so the artifact will remain in the Silastic Rubber. It may help to stick the knife into the center of the clay where the artifact is lying until it just touches the artifact. Then repeat this process the length of the clay. Then carefully cut the clay away, again in small wedges, starting at the center line and cutting outward (Plate 8). When the top or the bottom of the artifact can be seen, hold the artifact down with a finger and slowly pull the rest of the clay away. At no time during this clay removal process should the artifact be separated or loosened from the Silastic Rubber as such separation will ruin the half of the mold just poured.

Cleaning the First Half of the Mold

After the clay has been removed all the particles that are left have to be removed and then the mold and artifact should be cleaned with a Q-tip soaked in acetone.

Also the magnifying glass should be used to check for clay that may have been left on the artifact itself. The edges in particular should be thoroughly checked for clay. If any clay is found, it should be removed, again, without disturbing the artifact.

The first half of the mold is now made and should sit for one or two hours before the second half is poured. This allows the Silastic Rubber to harden further and makes for a better mold.

Pouring the Second Half of the Mold

To make the xylene and wax mixture, a glass jar should be set in a pan of water. The xylene is then poured into the glass jar and the water is heated. The wax is then gradually shaved into the xylene to allow it to melt into the xylene. The mixture should be approximately $\frac{2}{3}$ xylene and $\frac{1}{3}$ wax.

When the mold and artifact are cleaned of all particles of clay, the xylene and wax mixture should be run under hot water in order to make it a clear liquid. The mixture has to be completely liquid or it will be hard to paint evenly onto the mold. Using a small paint brush paint around the artifact, again, going right to the edge of the artifact, but not on the artifact itself. The whole mold should be given a coat of the xylene and wax mixture. This will prevent the Silastic Rubber from bonding with the first half of the mold. The edges, where the mold meets the masonite boards, should be coated with the xylene and wax mixture in order to form a seal so the Silastic Rubber will not run out of the mold.

The second half of the mold is now ready to pour (Plate 9). The measuring of the catalyst and rubber is done the same as was the first half of the mold. The same amount used for the first half (with allowance for the cup) was 127 grams. Using equal amounts of Silastic Rubber for both halves will make the mold symmetrical. The curing time is again one and one-half hours.

When the mold has set up, the board and C-clamps can be removed and the edges of the two molds can be slowly pried apart. Loosen each corner first, then separate the halves and remove the artifact (Plate 10).

The edges of the mold may have to be trimmed. Use the knife and cut the excess even with the surface of the mold so it will lay flat when placed on a table.

The mold should be allowed to set up for another one or two hours before a cast is poured.

THE CASTING PROCESS

Choose the mold of the artifact which is to be cast. Place the halves side by side on a flat surface with the half containing the indentations of the marbles or casters on the right and the other half on the left (Plate 10).

Choose the desired color and place a very small amount on the end of a tongue depressor and set aside. If the color used is of the powder type mix in the amount with the Fastcure powder.

Put the desired amount of Fastcure powder in the 5-ounce cup (Plate 7). (Amount of Fastcure materials used will depend on the size of the artifact to be cast.) There must be enough of the final mixture to completely fill both side of the mold. The ratio of liquid to powder is 2 to 1, that is, 2 parts liquid to 1 part powder. The mixture should be pourable, but not runny or thick.

When stirring the mixture of Fastcure Powder and Fastcure Liquid, use the tongue depressor with the paint on the tip (if liquid color is used). This will give the mixture the desired color.

When thoroughly mixed together, pour the mixture into the mold filling both sides completely. Once the Fastcure liquid has been added to the Fastcure Powder the setting process begins, so the blending and pouring must be done as quickly as possible. Next, gently tap the sides of the two halves together to get rid of any bubbles and quickly turn the right hand side of the mold onto the top of the left hand side and place the board on top of the mold. The purpose of the board is to achieve even pressure over the entire mold. After the board is on the mold quickly place the heavy object on top of the board (Plate 11). Do not press down on the board and then let up for this will create a suction and this suction could cause bubbles inside the mold, thus creating a poor cast. The placement of the board on the mold and then the heavy object placed on the board must be done as smoothly and quickly as possible. This will maintain the correct amount of pressure over the whole mold.

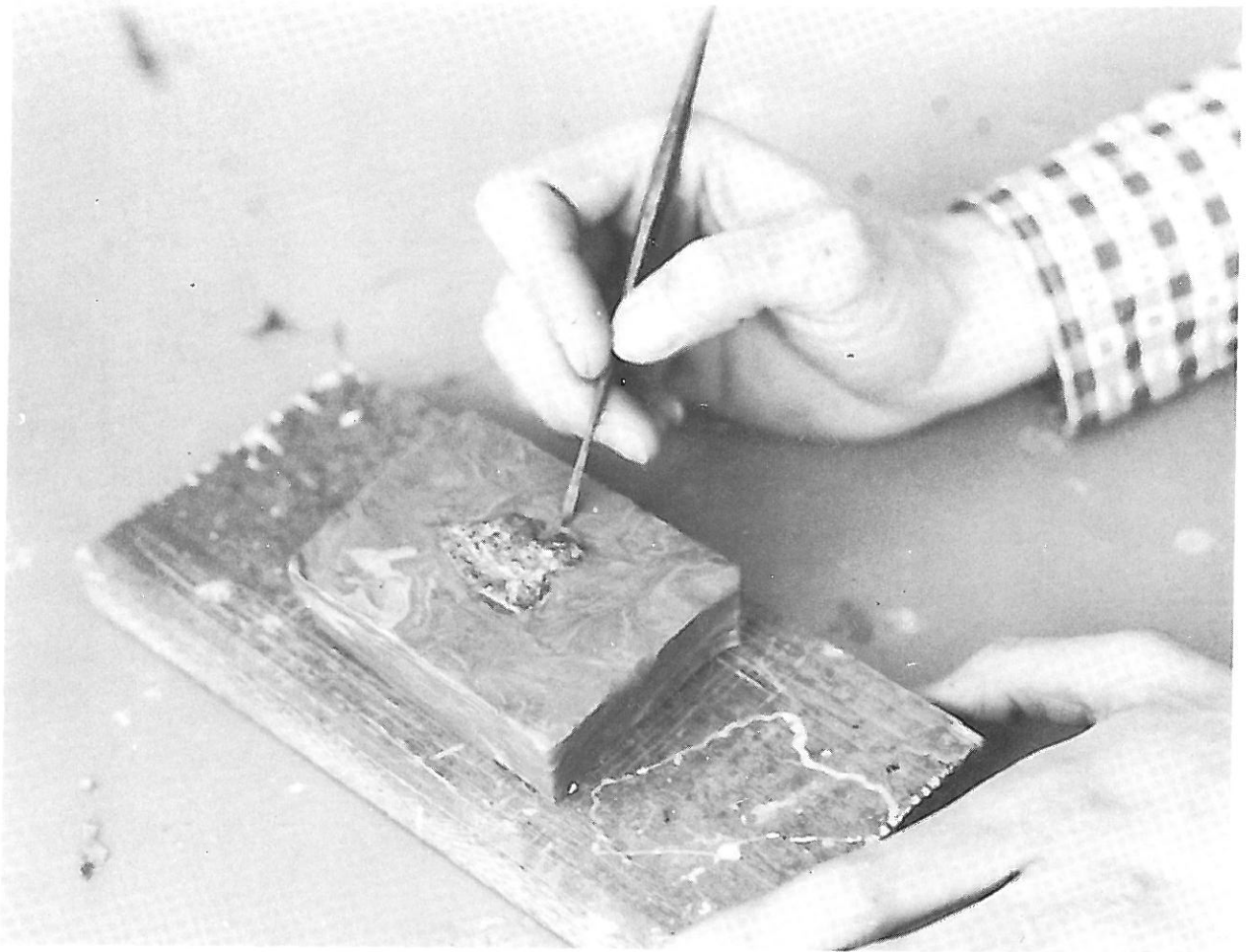
Some of the mixture will run out the sides of the mold. This runoff can be checked during the curing time to determine the progress of hardening. Curing time for the Fastcure materials is usually 20 to 30 minutes, but may vary. When the mixture is hard to the touch, the artifact is ready to remove from the mold.

When the artifact is sufficiently hard, remove from the mold (Plate 12). To trim, bend the excess back and forth and it will break at the edge of the artifact. For final trimming use a fingernail to scrape along the edges of the artifact. Do not use anything sharp for the cast is plastic and can be easily cut.

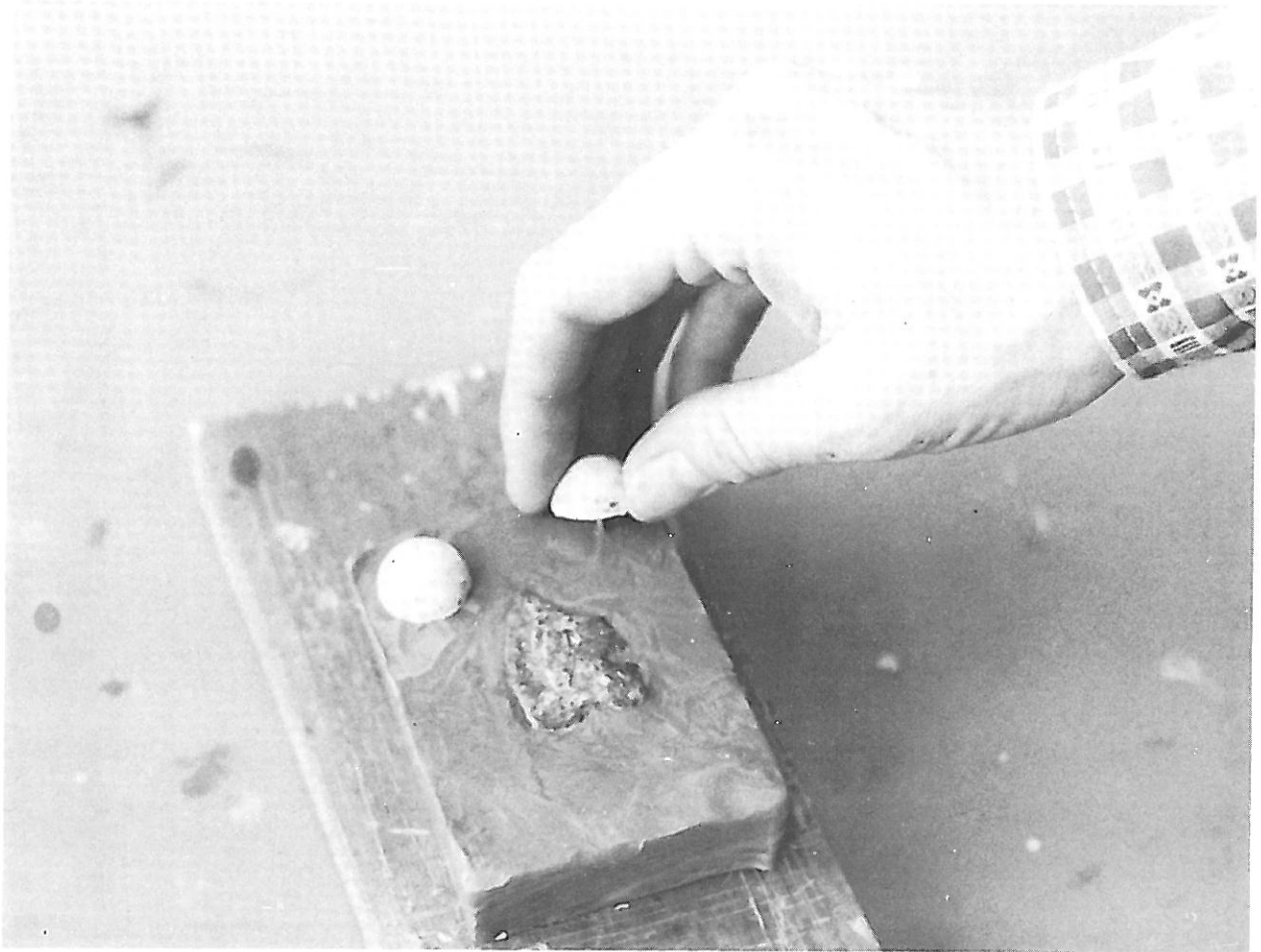
If large bubbles appear in the cast, placement of the board (discussed previously) may not have been done properly. Sometimes heating the mold (under hot water) before casting, especially before the first cast made in the mold, may help keep bubbles from appearing. Also a better finished cast will come with practice and a perfection of the techniques.

MATERIALS FOR THE CASTING PROCESS

1. Kerr Fastcure - a rapid setting, self-curing denture repair material.
Shade: clear
Comes together in one box = 1 jar of liquid; 1 jar of powder.
2. Small cups - 5-ounce size works well - for mixing Fastcure materials.
3. Tongue depressors.
4. Flat board and something fairly heavy to set on top of mold while Fastcure material sets up.
5. Paint:
 - Oil paint will work, but when used in large amounts will slow down the curing process of the Fastcure material.
 - Guitar powder color.
 - Plasticraft Pigments -- are a thick liquid.



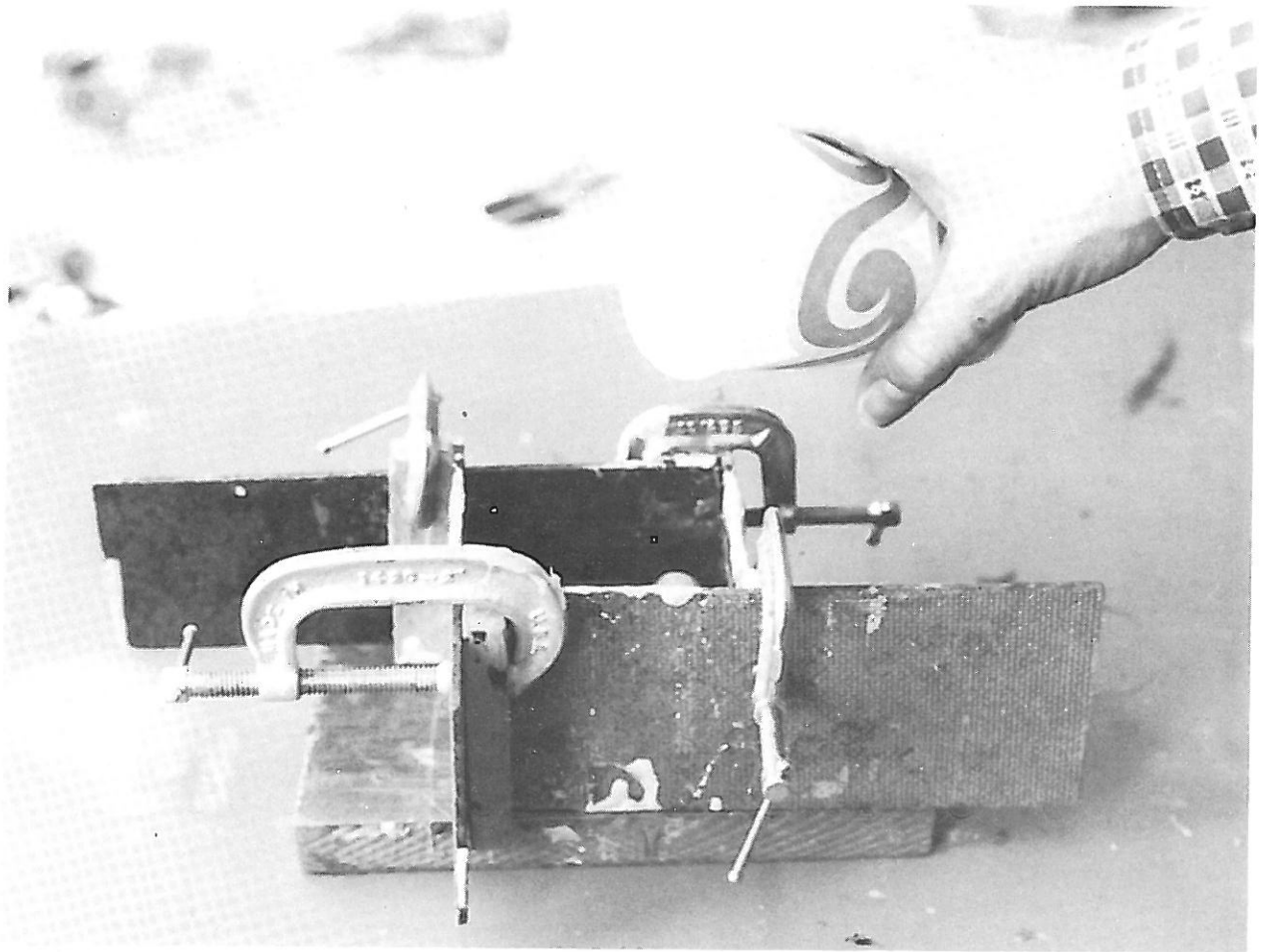
1. Artifact imbedded in clay. Clay resting on 6" x 5" board.



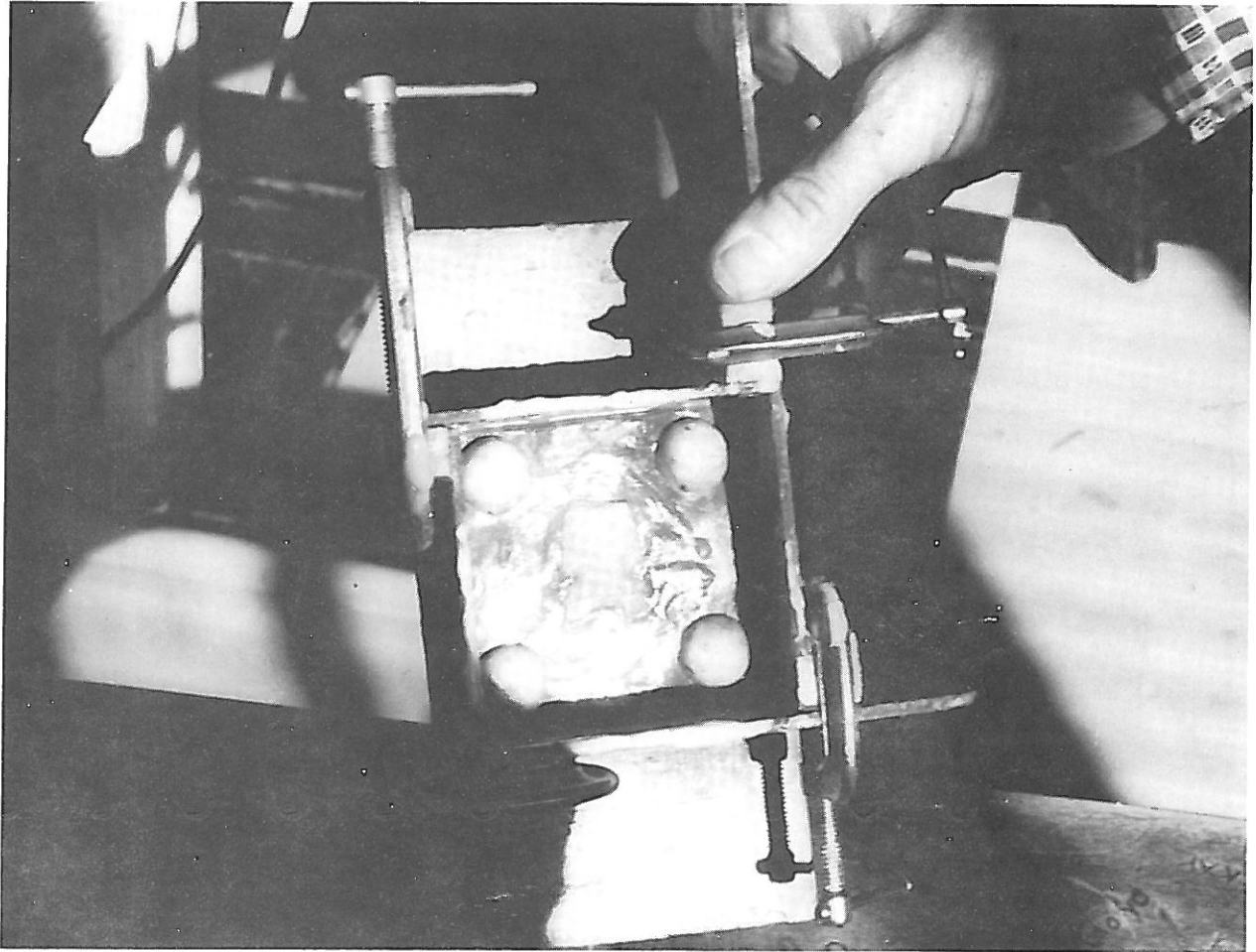
2. Placement of casters in clay.



3. Using magnifying glass to check for gaps and clay particles.



4. Masonite boards and C-clamps in place around clay.



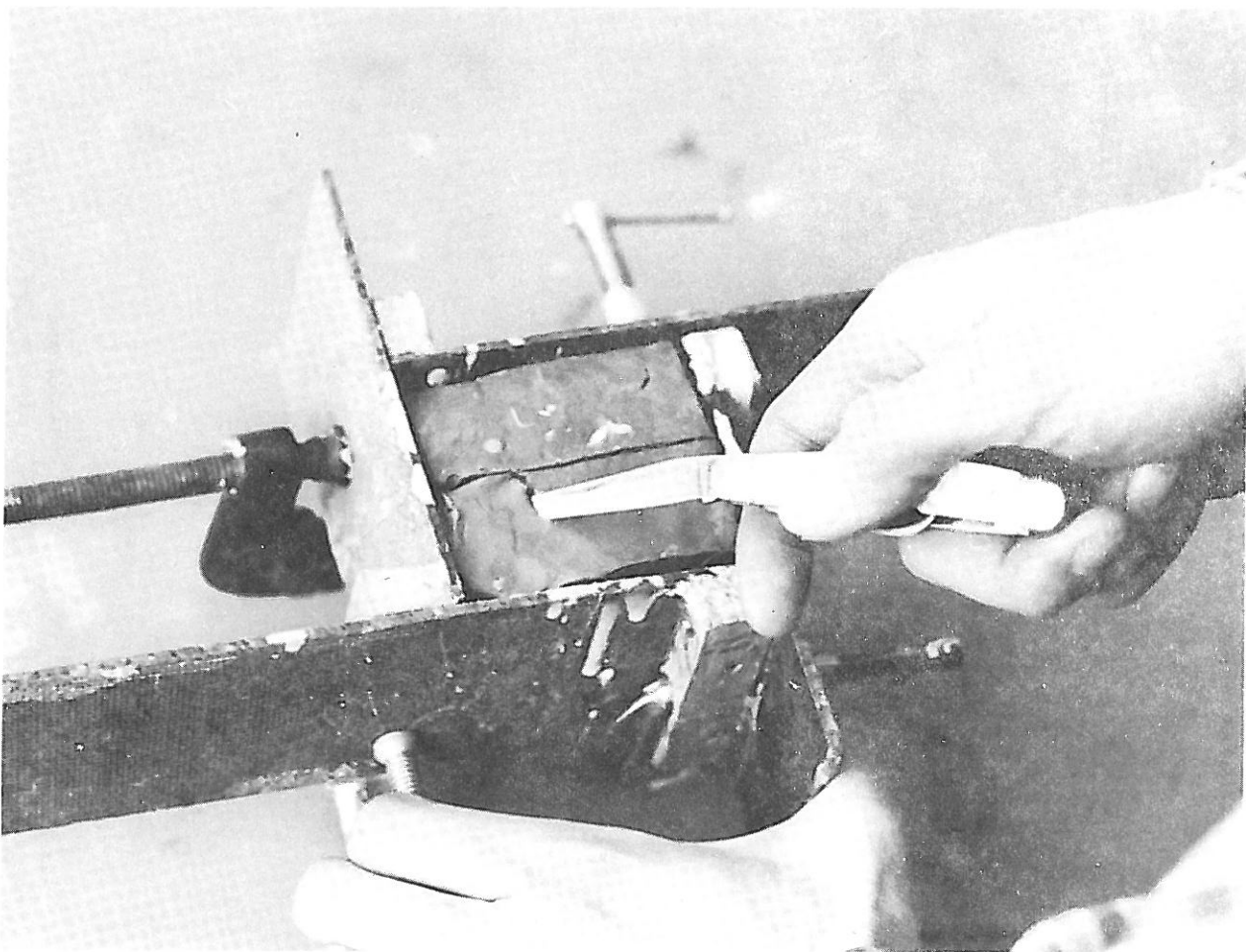
5. First half of mold ready to be poured.



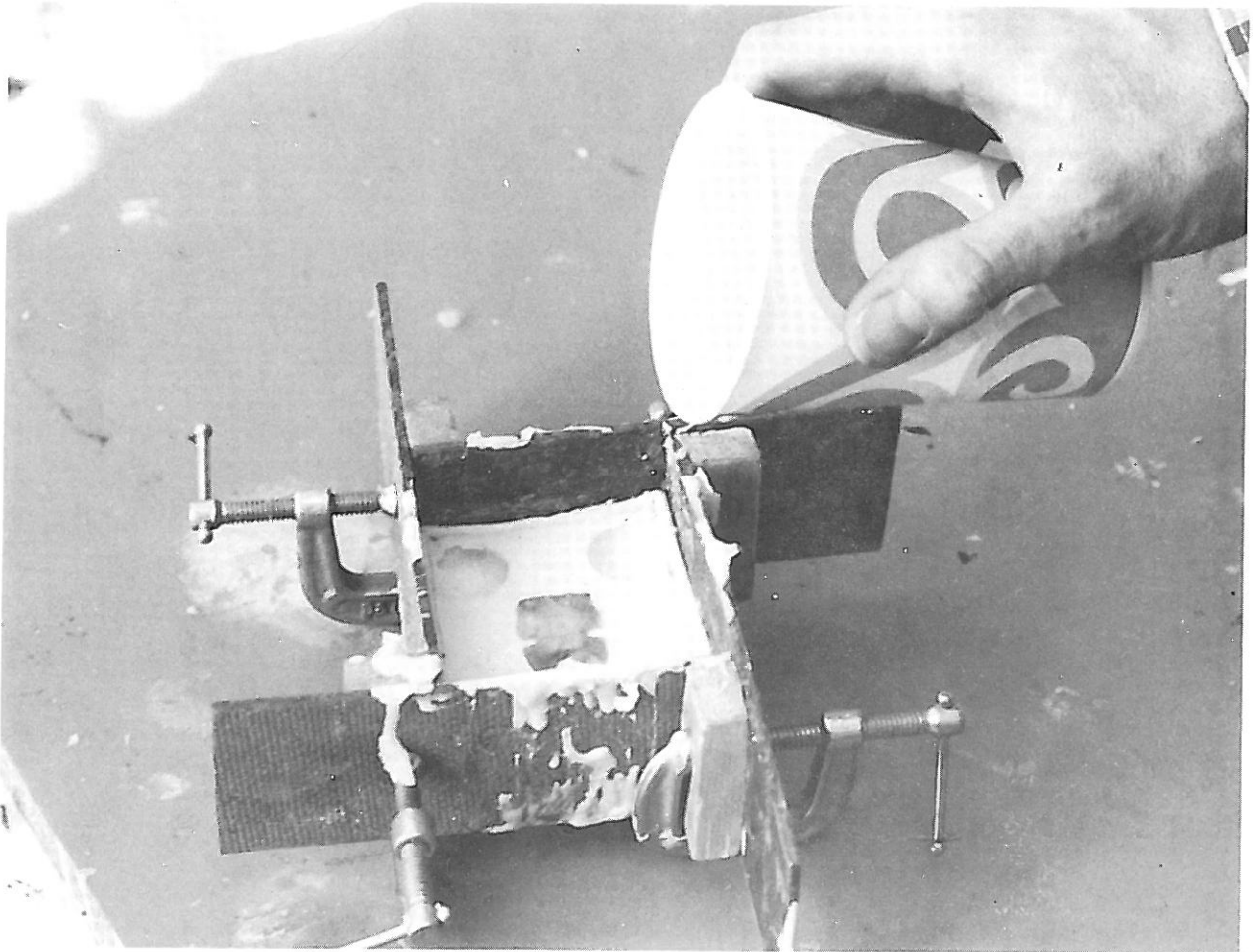
6. Weighing ingredients for mold.



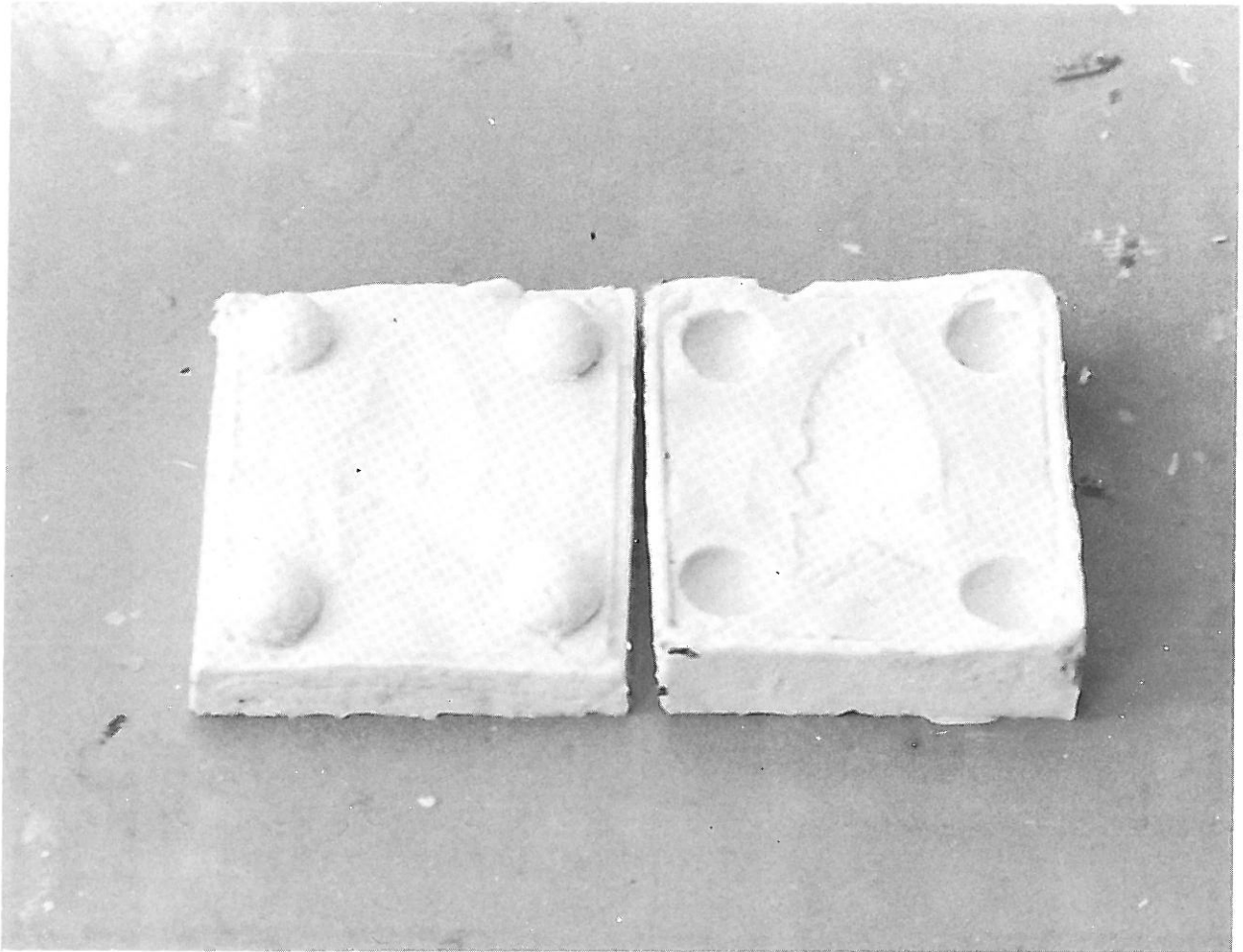
7. Tools, boards, cups used in process.



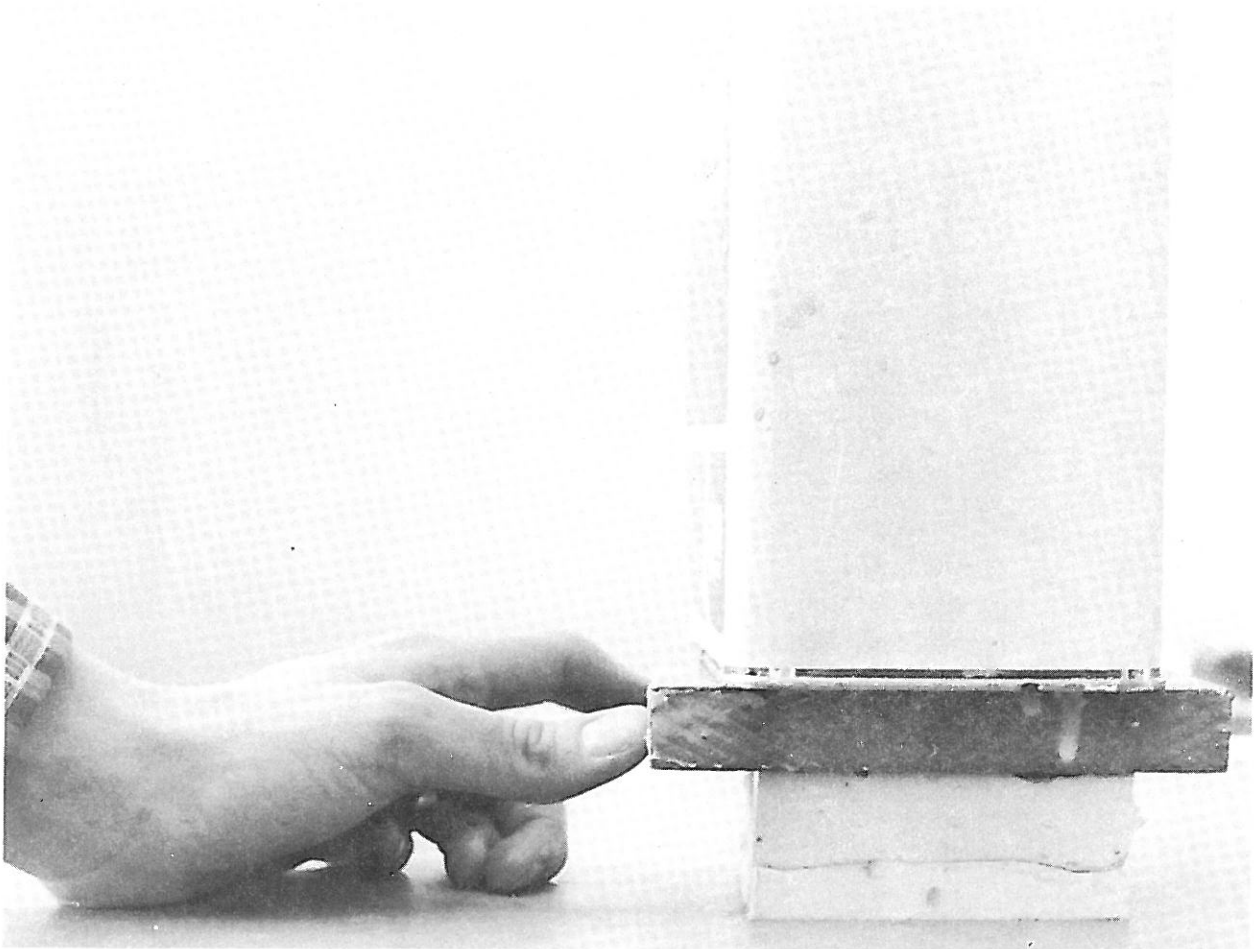
8. Removing clay carefully from first half of mold.



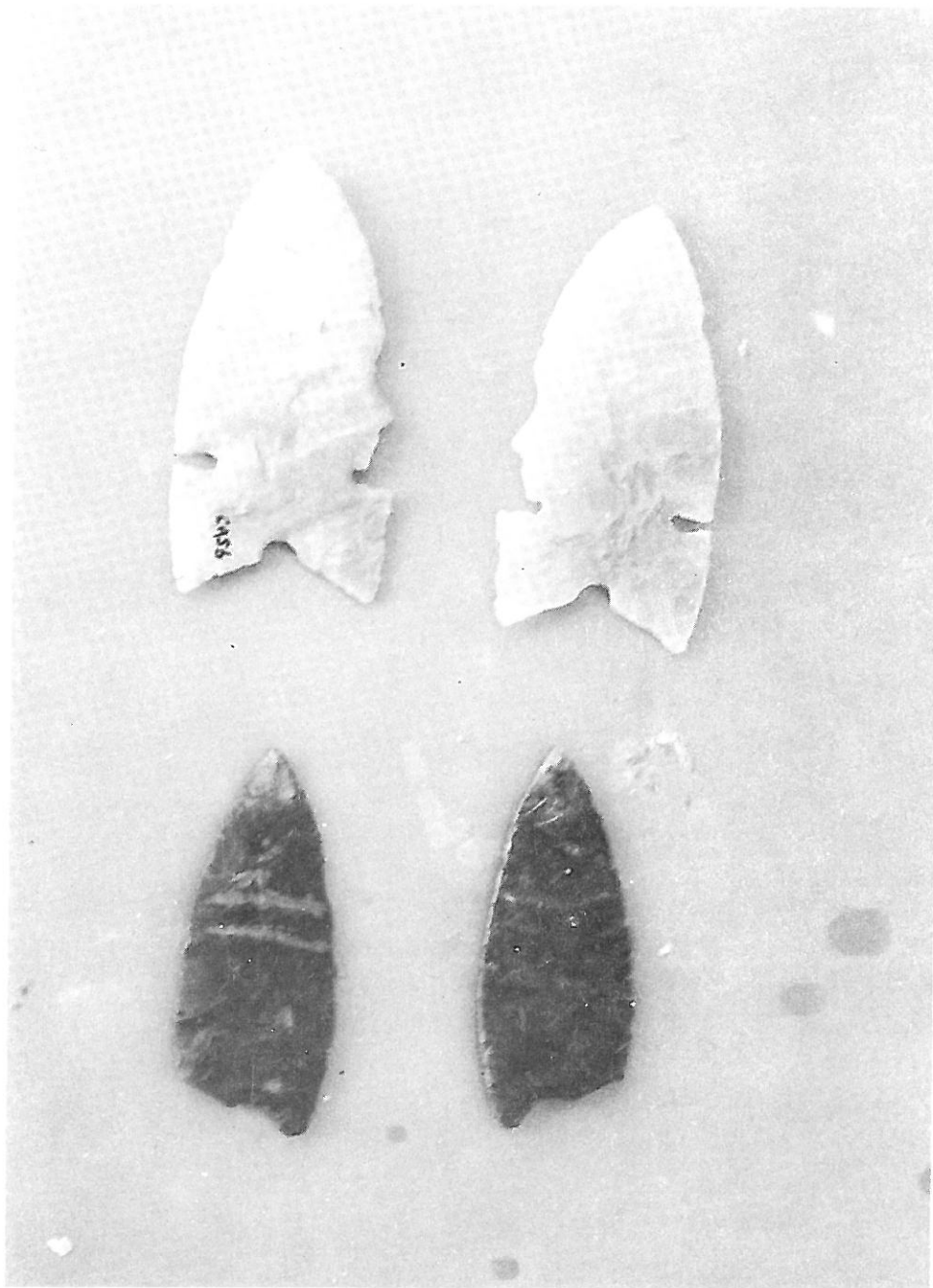
9. Second half of mold ready to be poured.



10. Finished mold.



11. Mold after cast is poured. Note board and heavy object.



12. Originals (left) and casts (right).