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PAPERMAKING
Spring 1992
Barbara Tetenbaum- instructor

Introduction

The basic premises of this class are:

Paper is not a neutral substrate, but a substance that affects the marks that are added to it. It is also infinitely malleable and in the hands of an artist can be work of art in and of itself.

Successful creative expression is achieved through an understanding of the craft.

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The first class session will explain the structure of the semester, the assignments and how you will be evaluated.

We will examine samples of handmade paper and handmade paper artwork and discuss them from both aesthetic and technical points of view. At this time I will try to get a sense from each of you as to your interest in the class and what direction you might take.

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The course work is divided between 3 projects:

1. Sheet forming project (will give you a chance to concentrate on basic papermaking skills such as pulp preparation, formation couching, and drying.)
2. Image-making project (will give you a chance to manipulate and gain control over the visual aspects of papermaking.)
3. Individual research project (a wide open opportunity to pursue your own interests. The only stipulation is that the results must be duplicated so that each member of the class will have a copy.)

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Grading will be based on the individual research project and on the more successful of the two other projects. Class attendance and upkeep of the papermaking studio will also be a factor.

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Caryl Herfort, your fellow classmate, has offered to answer any emergency questions. She can be reached at 262-7740 or 262-0209.

In EXTREME emergency, you can call me at 263-4929 or 249-9419.

Papermaking
Spring Semester

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Successful control of paper quality comes through a basic understanding of:

Paper chemistry: what is the essential process that makes paper?

Fiber: what do papermaking fibers have in common/ how do they differ?

Fiber preparation & beating: what makes good pulp?

Tools: how do moulds and beaters work?

Formation & Couching: what gestures make a good sheet?

Pressing: how does this affect the sheet?

Drying: what is the difference between loft and constraint drying?

Finishing: what kind of surface qualities can be created?

Clean up: why does it take so long??!!!?

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One semester is not enough time to fully understand these processes, but if you keep these questions in the back of your mind, you will find that your hand and eye will guide you to a deeper understanding.

Caryl Herfort

Papermaking
Spring Semester 1992
Barbara Tetenbaum-instructor

Some Papermaking Terminology

Hollander Beater: a racecourse style beater originally invented in Holland which replaced the use of wooden stampers.

Mould & deckle: the two-part frame-like sieve used to form paper. The mould has a wire surface (laid or wove) which catches the pulp, allowing the water to drain through. The deckle is a removable edge that catches enough water and pulp to aid in formation.

Couching: the transference of the newly formed layer of pulp on to a wool felt.

Post: the stack of newly formed sheets and felts

Fibril: a small thread that, like a small tree branch, is attached to a larger thread.

Sizing: a substance added to the paper in either the pulp stage or after the sheet has been pressed and dried. It makes the paper somewhat waterproof.

Gelatin: a pure form of glue made from bones or skins; used as a surface sizing.

Watermark: a thin spot in the paper made by sewing a wire image to the surface of the mould.

Spur : two sheets touching each other

HOW TO FORM A SHEET OF PAPER

Fill the vat a little less than half full with water. Another way to measure is to fill to about half way up the height of the deckle you are using.

Add pulp. The amount of pulp you add will partially determine the thickness of your sheet. Only a trial dip will tell you if you have enough. (You can "kiss off" any sheet back into the vat)

Stir, stir, stir. Agitate with your open hands UNDER THE WATER to avoid bubbles on the surface. Move your hands to all the corners of the vat to stir in the pulp that may have drifted there.

Fit deckle on to mould. Take mould in your hands and find point of balance. Then slowly insert into the pulp in a vertical position; begin to rotate it into a horizontal position before the top of the mould reaches the pulp; and lift. THIS SHOULD BE ONE CONTINUOUS MOTION, AND CAN BE DONE QUITE SLOWLY! Think Ballet.

It's important to bring up as much pulp as possible. In the first moment you will "throw off" extra pulp off the back side of the mould. Then level the mould and quickly scan to see if the pulp is the same distance from the top of the deckle all the way around. If you have done these 2 motions quickly, you will have plenty of water left on the mould to SHAKE.

The traditional papermaker's shake is such: After the initial shake to "throw off" the extra pulp the motion is changed to a gentle side to side and forward and back. This process requires very close attention, making sure that the sheet is only being "closed" and not shaken apart!

When the water has drained out to the point that the fibers can no longer move freely, the mould is placed level on the far edge of the vat and the deckle is removed and placed in the vat. The papermaker then lifts the mould first from the back using the left hand, the right hand supports the lowered front of the mould. In this position, the water is draining in one direction through the sheet. You will step over to the couching stand and drop slowly your left hand so that the mould is now hanging by your right hand. This allows the water to drain in the other direction.

With the mould in this position, you are ready for couching. This is done by finding a single position to line up with each time, transferring the hand positions so that your left hand is at the top of the mould and your right hand is anchored to the bottom edge of the mould. Now the mould is slowly and forcefully pressed to the felt by lowering the left side, watching the water move evenly through the back of the mould, holding your right hand in place until the mould is laying completely flat against the felt, and then with pressure still being maintained, lift the right hand, leaving the sheet on the felt.

Drying your sheets of HmP. (Handmade Paper)

Method #1: after pressing your post, lay your sheets in a post, one on top of the next and give it a second gentle pressing. Do not attempt this if your paper has a high linen or flax content, or if the sheets were slow drainers. Wait another day on the latter. After your second press, place "spurs" of sheets in between blotters. (a spur is 2 sheets together). You can put 2 sets of blotters between each layer of cardboard. When dryer is full, place metal lid on top, plug up remaining air space with rags or foam, and turn on the blower. Paper should be dry in the morning. If you use this method, your paper should come out relatively flat, with a slight edge cockle and a subtle surface texture. Make sure to keep paper in dryer until BONE DRY, or it will severely cockle!

Method #2: (Tim Barrett method) After double pressing your sheets, put spurs of paper out on a drying rack and let air dry. The next day lightly spritz the sheets with water; only enough water as is needed to make the sheets go limp. Place in a stack and put small amount of weight on top. Should be dry the next day. This method will create sheets with a little more character than method #1. They will shrink more and have more "body" and flexibility. These qualities are useful for cover stock and anything you want to hold up in handling.

Method #3: Restraint drying on glass or wood. Lay single sheets on flat pieces of glass, sheetrock, or wood and let dry. Your sheets will be perfectly flat, with one side taking on the texture of the material you dried it against. This method is good for art work, or anything that you want to have this 2-sided quality.

You may want to experiment with drying sheets of paper from the same batch in different ways. You will learn immediately what the effects of these methods are. You may also experiment with drying your sheets between materials that will impart their texture on to the sheet. For instance, Richard du Bas, the french hand mill, dries one of its papers between patchworked burlap sacks. The effect is quite interesting.

PAPERMAKING
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Image-making techniques in the papermaking process:

Pulp-painting: applying colored pulps to a base sheet.

Embedding: burying low-relief materials in the wet sheet.

Embossing: drying or pressing the paper with textured materials.

Marbling: swirling two or more colored pulps together in the vat.

Casting: creating a 3-d form from a plaster mould.

Shaped deckle: couching layers of shaped paper to form an image.

In all these techniques it is kind and length of the fiber that will effect your results. In order to achieve crisp shapes, you will need to beat your fiber until it is very short. Unless you want an unusual effect, it is best to paint with pulp made from the same fiber. For example, if you painted linen pulp onto a cotton base sheet, the layers may fight eachother in the drying process and cause cockling. In all cases, the way in which you dry your sheet will effect the clarity of the image.

Some things to collect for image making: pigments or dyes, squirt bottles (preferably clear, to see color), stencil making materials (styrofoam, foam core, acetate, cookie cutters, bendable metal) materials to embed (colored thread, small bits of torn paper collage material, dried flowers, anything that is low relief, will stay intact and not leech other substances into the sheet or felt), textured materials to press or dry paper on, and anything else you think will help you create the image you want.

Always ask Barb or Caryl if you have questions about certain materials. Taking the time to ask us questions may save you a headache and the facilities some unneeded abuse.

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Independant Project: Ideas & Suggestions

Rope fibers for papermaking.

How to achieve transparency in HmP.

Making paper from indigenous plants.

Coloring paper with natural dyes.

Various methods of drying paper and their affects on usability.
(ie: how the paper takes to printing or writing)

Image-making techniques in the papermaking process.

How to make watermarks.

Experiments with linen.

Imposing textures on paper in the pressing & drying process.

Remember that you will need to reproduce your results so that all members of the class have a copy PLUS 2 extras for the archives and the art dept. TOTAL of 11.

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Assignment Explanations

1. Sheet forming project: Put aside sheets that are examples of 2-3 different weights or kinds of paper. There should be at least 5 sheets of each. What I will look for is overall look and feel of the sheets, including evidence of pulp preparation, consistency, quality of formation and drying results.

Include a small statement on what kind of paper you were trying to make, and your own thoughts on the results.

2. Image-making project: Create 1-2 editions of 10 copies each. What I will look for is control of the media, quality of the final sheet, and execution of your concept. Your concept may be as simple as designing a watermark, or creating a shape that can be folded to make another form; but the bottom line is CONTROL over what you are trying to achieve.

3. Independant project: to be discussed later.

You must complete all 3 of these assignments, but only 2 will apply to your final grade.