

## Lenders to the Exhibition

Fendrick Gallery, Washington, D.C.  
 Getler/Pall Gallery, New York City  
 Jean Milant, Cirrus Gallery, Los Angeles,  
 California  
 Steven Nelson, Minneapolis, Minnesota  
 Peter M. David Gallery, Minneapolis,  
 Minnesota  
 Smith Andersen Gallery, Palo Alto,  
 California  
 3EP Ltd., Palo Alto, California

## Exhibition checklist

Works are loaned courtesy of the artists,  
 unless otherwise indicated.

All measurements are in centimeters and  
 are subject to some variation due to the  
 irregular edges of most works. Height  
 precedes width, and depth is noted when  
 relevant.

The geographic designation indicates the  
 most recent studio location of the artist.

## Checklist

Neda Al-Hilali, Santa Monica, California

1. *Cassiopeia Suite*, 1982
  - a. *Cassiopeia's Court Entertainment*  
 Dyed, laminated and painted paper.  
 223.5 x 317.5
  - b. *Cassiopeia's Towel*  
 Dyed, laminated and painted paper.  
 203.2 x 261.2
2. *Pearly Gates*, 1981  
 Plaited, dyed paper, pressed and painted.  
 198.1 x 185.4

Al-Hilali's background combines experiences of her native Czechoslovakia; art training in Europe and the Middle East, and graduate school and teaching in Southern California. An initial involvement in innovative uses of fiber techniques and materials led to her present work, which uses these fiber techniques to transform commercial papers. Rolls of paper are dyed, plaited, flattened, and painted to produce rich decorative surfaces. The intricate patterns created in unrolling the dyed rolls to dry led to the newer works in which papers are laminated rather than plaited in order to preserve these spiraled patterns as the basis for further surface decoration.

Suzanne Anker, New York City, New York

3. *Wing Run*, 1980  
 Cast handmade paper with charcoal and carborundum. Unframed squares, each  
 91.4 x 91.4 x 15.2
4. *Corona Series*, 1981  
 Handmade pigmented paper, made at Dieu Donné, New York City.  
 74.9 x 100.3
5. *Corona Series*, 1981  
 Handmade pigmented paper, made at Dieu Donné, New York City.  
 74.9 x 100.3
6. *Corona Series*, 1981  
 Handmade pigmented paper, made at Dieu Donné, New York City.  
 74.9 x 100.3

From a background as a printmaker, Anker initially worked with cast paper, made in latex molds. A fascination with trompe l'oeil led to the use of cast paper as a reproduction of torn, corrugated cardboard collages. The cast paper prompted an interest in using sculptural reliefs in paper, marble, and limestone—to experiment with combinations of paper and stone, actual and drawn shadow, and size versus scale. The newest works take the trompe l'oeil interest in a more painterly direction, using colored

pulps to explore the line between actual and apparent three-dimensionality.

Don Farnsworth, Oakland, California

7. *Nagashizuki Series*, 1981  
 Handmade paper (abaca and kozo pulp) and inclusions of same.  
 76.2 x 54.6
8. *Nagashizuki Series*, 1981  
 Handmade paper (abaca and kozo pulp) and inclusions of same.  
 76.8 x 56.5
9. *Nagashizuki Series*, 1981  
 Handmade paper (abaca and kozo pulp) and inclusions of same.  
 76.5 x 55.2

Trained as a chemist, paper conservator, and professional fine art printer, Farnsworth—the only artist represented in *New American Paperworks* who is also a production hand papermaker—brings a tremendous technical knowledge and understanding to his own work. With his partner, David Kimball, Farnsworth produces fine custom papers and special printmaking sheets and collaborates with artists in his shop to produce paperworks. Farnsworth's own work is rooted in printmaking. For several years he has been making papers in both oriental and

western methods of hand papermaking. His newest work uses these techniques to create a new means of visual expression — in some ways as free as lithography or ink wash, yet with its own unique visual characteristics. The work is a more painterly reaction to Farnsworth's work with bast fibers over the past several years.

Ke Francis, Tupelo, Mississippi

10. *Tornado House Series*, 1981
  - a. *Tornado House*  
Wood, tar paper, black handmade paper, handmade straw paper.  
40.6 x 61 x 150
  - b. *Tornado Shelters*  
Black and white photograph series.  
11.1 x 37.5
11. *Passage Series Collage*, 1981  
Collage.  
90.1 x 72.4
12. *Passage Disaster Series: "Tornado Strikes House, House Burns, Muse Survives,"* 1981  
Black and white photograph series.  
left: 17.8 x 21.6; middle: 24.8 x 45.4; right: 19 x 15.9

Francis is a sculptor, printmaker and self-described "paper user." His uses of paper include traditional drawings, prints, and collages as well as three-dimensional wall pieces and sculptures. He works with a variety of materials including paper, steel, wood, aluminum, rubber, clay, plexiglas, paint, chalk, and bronze. He is fascinated with paper's contradictory combinations of fragility and strength, flexibility and structure, availability and spirituality. Francis' work with paper is strongly tied to a particular area of land near his isolated home, to the terrible yet beautiful violence of nature reflected in his *Tornado House Series*, and to the spirituality and sacrificial nature of paper as a ritual object.

Sam Francis, Santa Monica, California

13. *Untitled*, 1981  
Color monotype on Arches roll paper.  
108 x 141.6  
Loaned by 3EP Ltd. and Smith Andersen Gallery, Palo Alto, California.
14. *Untitled*, 1982  
Color monotype on custom handmade paper from the Kensington Mill, Kensington, California, pulled at 3EP Ltd., Palo Alto, California.  
81.3 x 106.7  
Loaned by 3EP Ltd. and Smith Andersen Gallery, Palo Alto, California.
15. *Untitled*, 1981  
Color monotype created in handmade paper at the Institute of Experimental

Printmaking, San Francisco, California.  
57.8 x 57.8  
Loaned by the Institute of Experimental Printmaking, San Francisco, California.

Francis was introduced to the use of paper as a medium by Ann and Garner Tullis at the Institute of Experimental Printmaking in San Francisco. Paper has proven to be a particularly apt medium for Francis' brilliant, translucent colors and his long-time fascination with the empty spaces in an image. The printing of a unique monotype simultaneous with the pressing of a sheet of handmade rag paper allows the colors to be *in* the paper rather than on it; for Francis the fact that the whole work comes together simultaneously in the press makes involvement with paper a more intuitive and personal expression than painting, and continues to be a significant element in his work.

Helen Frederick, Baltimore, Maryland

16. *Survival*, 1981  
Handmade paper diptych: gampi, linen, graphite with embedded copper strips.  
45.7 x 72.4
17. *Survival Entrance*, 1981  
Handmade paper triptych: gampi, linen, cotton and graphite with embedded copper strips.  
50.2 x 128.2 x 3.2
18. *Heian Shrine*, 1981  
Handmade paper triptych: gampi, cotton, silk and graphite with embedded copper strips.  
50.8 x 143.5

Frederick's already broad background in printmaking, painting, and design was expanded further by her introduction to handmade papermaking at Ahmedabad, India. Papermaking offers Frederick a combination of graphic strokes and painterly effects — ultimately determined by the choice of fibers. Paper also affords her a directness, a sense of space, and an expansion of the physical and psychological boundaries that order her work. The resulting work explores areas between the broad color possibilities of painting and the linear qualities of drawing and printmaking. Similarly, it explores areas between the comfort of patterned symmetry and the difficulty of intense personal feelings.

Bilge Friedlaender, Philadelphia, Pennsylvania

19. *River/House/Book*, 1981  
Installation piece, consisting of a hut made of bamboo sticks and handmade kumoi paper (55.9 high x 43.2 x 43.2); 9 wood boxes each measuring 3.8 high by 21.6 wide x 86.4 long; and each filled with

sand. Across the top of each box is one of nine river books made with bamboo sticks and handmade paper, uivo for the accordion portion and fukuju for the end portions, each measuring 3.8 x 23.5 x 43.2, folded. Next to each box is one of the nine river stones. Each exhibition space will determine the selection of installation plans. Technical assistance by Kevin Finklea.

20. *Notes on River/House/Book*, 1981
  - a. *Notes on River/House/Book*
  - b. Photo documentation of *Notes on River/House/Book*  
Color photographs.  
2 photographs, left: 27.91 x 27.91; right: 27.91 x 35.56

Gampi paper by Mr. Naruko, Japan; sago palm leaf and bush rope from New Guinea; gouache, ink and watercolor.  
20.3 x 30.5 x 12.7

Friedlaender works in all media — painting, sculpture, drawing, and unique handmade books. Her work ranges in size from miniature to expansive, yet maintains a grand scale. She unites simple natural materials — paper, string, beeswax, and sticks — to create objects and images suggesting mystical origins and relationships. Friedlaender utilizes handmade papers of the East and West, in works that combine the geometric sophistication of her Islamic upbringing, her intuitive sensuality, and her intellectual balancing of the two. *River/House/Book* offers myriad installation possibilities and the accompanying book of notes visually delineates these and the origins of the piece in Friedlaender's own style — at once personal and universal.

Nancy Genn, Berkeley, California

21. *Triptych*, 1981  
Handmade paper.  
left: 151.1 x 108; middle: 150.5 x 94.6; right: 151.1 x 108
22. *Sea Drift #6*, 1981  
Handmade paper, cotton and gampi.  
left: 105.1 x 71.8; right: 105.1 x 71.8
23. *Sedona #10*, 1981  
Handmade paper.  
105.4 x 137.2

Originally a painter and sculptor, Genn first experimented with the use of paper in large mural-sized paintings on oversized rag paper in the early sixties. In 1975 she attended a paper workshop with Garner Tullis and began her present work using paper as a medium. She now has her own papermaking studio in Berkeley. Genn has developed a unique technique for building up layers of pulp and then, prior to pressing, tearing down to reveal different layers below. The texture of the

paper itself, combined with other fibers, gives her work an added material and emotional dimension. Genn was an artist fellow in Japan in 1980, under the fellowship program of the National Endowment for the Arts.

Caroline Greenwald, Madison, Wisconsin

24. *Feather Book*, 1981

Tengujo and "dark silk" Japanese gampi handmade paper, abaca pulp and kite line. Closed: 61 (106.7 including extensions) x 48.3 x 8.9

Open: 61 (106.7 including extensions) x 1037.4

25. *Kite Trails*, 1981

Tengujo, abaca pulp and line (the work folds into a case of Japanese bark paper). Closed: 87.6 x 24.1

Open: 64.8 x 134

26. *Crystal Winds Descending—Map Series*, 1981

Tengujo, gampi Japanese handmade paper, silk line, and abaca pulp (the work folds into a Mexican amatl case).

Closed: 38.1 (without extensions) x 17.2 x 2.5

Open: 101 x 143.8

Courtesy of Fendrick Gallery, Washington, D.C.

As a graphic designer and printmaker, Greenwald had always been interested in the concept of "white on white" imagery. Her work has evolved logically from white images silkscreened onto translucent sheets of Japanese handmade paper, to printed images sandwiched between two sheets of Japanese paper, to the present lyrical and evocative work in which the folds of the papers themselves and added natural fibers have become the drawn lines. Greenwald's work is rooted in her love of the land, skies, and weather of her native Wisconsin, yet it is a universal statement about the delicate magic and power of nature.

Charles Hilger, Santa Cruz, California

27. *Black Bamboo*, 1981

Vacuum formed paper with graphite and charcoal.

213.4 x 213.4 x 2.5

28. *Untitled*

(Only in those locations where Hilger goes to install, presently planned to be Houston, Birmingham, Kyoto, Manila) Installation piece of white handmade paper. Corner installation, varied size depending on location.

Hilger's beginnings with handmade rag paper were totally Western, totally

sculptural, and extremely dramatic. His use of paper originated in the Western book, Western packaging, and the tactile qualities of paper in contrast to its role as the primary disposable of contemporary society. More recently the emphasis of Hilger's work has become more reflective—figuratively and literally. His work now concerns itself with the contrast between the lacy purity of his extravagant white deckle edges and the exhilarating flash of his new black pieces. Hilger's work is formed on a vacuum table which he and Harold Paris developed with the assistance of engineer Phillip Kirkeby. The table allows the sculptural formation of paper, eliminating the need for a flatbed press to precipitate the required hydrogen bonding.

Charles Christopher Hill, Venice, California

29. *Solomonic*, 1980

Lithograph edition on black Arches paper 79.4 x 61

Edition of 75.

30. *Pyramis and Thisbe*, 1980

Handmade cotton paper with laminations, made at Twinrocker Mill, Brookston, Indiana.

left: 81 x 58.7; right: 79.1 x 59.1  
Edition of 9.

31. *Ecstatic*, 1980

Lithograph on Twinrocker handmade paper with laminations.

79.4 x 59.1

Edition of 30.

32. *Nipernicus*, 1980

Stitched paper, lithographs, newsprint. 121 x 92.4

Loaned by Jean Milant, Cirrus Gallery, Los Angeles, California.

Charles Christopher Hill's initial attraction to paper was that it was a readily available, inexpensive material. He has used paper primarily for works in which he stitches many types of paper and some fabric to a back and then allows these pieces to degenerate—often buried under a compost pile—until they resemble a worn paper quilt. Recently Hill has applied some of the concepts from these paperworks to a series of prints, handmade paperworks, and combinations of both. The making of this series involved a collaboration with the prestigious Twinrocker Paper Mill in Brookston, Indiana. Embedded fragments, laminations, printed images, and sewn fragments develop fascinating visual dialogues in, on, and about paper.

Winifred Lutz, New Haven, Connecticut

33. *Dayfinder #3*, 1981

Handmade paper (gampi, milkweed bast,

mitsumata) and wood (poplar, pine). 66.4 x 30.8 x 35.9

34. *Reserve*, 1981

Cooked and handbeaten abaca, dyed with Inko dyes and backed with sisal, on redwood frame.

91.4 x 22.9 x 11.4

(corner piece)

35. *Wedgewood with Indigo*, 1981

Handmade paper (gampi, milkweed bast) and wood (fir).

30.5 x 40.6 x 16.2

Lutz began making paper from indigenous fibers and materials in her youth. As a printmaking major studying papermaking with Lawrence Barker at Cranbrook Academy in Michigan, she focused her papermaking on the making of paper on which to print fine prints. Later handmade paper became the stimulus for Lutz's large sculptures. She has now returned to her original interest in the exploration of indigenous fibers, oriental bast fibers, and linen. Her new work, cast in her unique moulds, combines layered fibers to achieve the desired qualities in her intricate paperworks.

Kenneth Noland, South Salem, New York

36. *Circle I Series (I-40)*, 1978

Handmade paper (cotton rag and gampi) with lithograph, produced and published by Tyler Graphics Ltd., Bedford Village, New York.

50.2 x 40.3

37. *Circle II Series (II-24)*, 1978

Handmade paper (cotton rag and gampi), produced and published by Tyler Graphics Ltd., Bedford Village, New York.

54.6 x 82.2

38. *Horizontal Stripes Series (III-14)*, 1978  
Handmade cotton rag paper, produced and published by Tyler Graphics Ltd., Bedford Village, New York.

126 x 82.6

39. *Diagonal Stripes*, 1978

Handmade cotton rag paper.

78.7 x 60.3

It was natural for Noland—a painter who had been blending and staining color into unsized canvas—to respond to the direct methods of working an image in colored paper pulps to which he was introduced by Garner Tullis. Later work with Ken Tyler and at his own paper studio resulted in finer, more subtle combinations of Western rag pulp, oriental papers and pulps, and delicately colored pulps of both types. The making of images in handmade paper pulp is a natural extension of Noland's intuitive sense of subtle color and painterly imagery as well as his gentle sense of play and the interaction of materials and ideas.

40. *Morgan Meadow Markers*, 1981  
a. *Morgan Meadow Markers, I-V*  
Mixed media, handmade paper and wood.  
88.9 x 147.3 x 24.1  
b. Photo documentation of *Morgan Meadow Markers*  
Color photographs.  
4 photographs, each 20.3 x 30.5
41. *Siskiyou Day Book, Kaiser Meadow*, 1981  
Mixed media, handmade paper.  
29.2 x 45.7 x 24.1
42. *Sweetbriar Standard Sectional*, 1981  
Mixed media, handmade paper and wood.  
65.1 x 78.7 x 8.9

Nugent learned to make tapa cloth in Samoa and studied Western papermaking in England and Italy. His work with handmade papers has been consistently illusionistic, dealing with invented/remembered Oglala Indian excavations, correspondences, mariners' pouches from particular shipwreck sites off North Carolina, and journals of particular places and projects. The more recent work is becoming still more intuitive. The pieces are documentations made of components from site constructions of found branches which are allowed to weather and evolve out of doors for several seasons prior to their use in his work. Ultimately Nugent's work seems to be moving in a sculptural direction, and handmade paper and its emphasis on personal documentation continues to be an important aspect of the work.

Robert Rauschenberg, Captiva, Florida

43. *Page 2* (from *Pages and Fuses*), 1974  
Handmade paper.  
55.9 diameter  
Collaborators: The Moulin à Papier Richard de Bas, Ambert, France, and Kenneth Tyler.  
Edition of 11.
44. *Link* (from *Pages and Fuses*), 1974  
Handmade paper (rag), pigment, screen-printed tissue laminated to paper pulp.  
63.5 x 50.8  
Collaborators: The Moulin à Papier Richard de Bas, Ambert, France, and Kenneth Tyler.  
Screen printing: Jeff Wasserman, Gary Reams, Richard Ewen, Marie Porter.  
Edition of 29.
45. *Little Joe* (from *Bones and Unions*), 1975  
Handmade paper, bamboo, fabric.  
61 x 72.4 x 8.9  
Collaborators: Charly Ritt, Hisashika Takahashi, Robert Petersen, Christopher

Rauschenberg, Rosamund Felsen.  
Edition of 34.  
Loaned by the Fendrick Gallery, Washington, D.C.

46. *Pit Boss* (from *Bones and Unions*), 1975  
Handmade paper, bamboo, fabric.  
85.7 x 66 x 10.2  
Collaborators: Charly Ritt, Hisashika Takahashi, Robert Petersen, Christopher Rauschenberg, Rosamund Felsen.  
Edition of 28.

Rauschenberg's involvement with paper is long, varied, and innovative. He has always worked in printmaking, and his paintings and assemblages use paper, often found paper. His long-term interest in the trompe l'oeil possibilities of paper are evidenced in his *Cardboard* series of assemblages done in 1971. In 1973 Rauschenberg made his first handmade paper series, *Pages and Fuses*, handmade paper multiples made at Moulin à Papier Richard de Bas in Ambert, France. Just as Rauschenberg's combine paintings helped break down media definitions, the national acclaim which this series attracted was important in establishing paper as a unique medium. In 1975 Rauschenberg traveled to Ahmedabad, India, to work at Gandhi Ashram on constructions and a series of multiples, *Bones and Unions*. In 1982 Rauschenberg plans to travel to China for another collaborative project.

Steven Sorman, Minneapolis, Minnesota

47. *Going for a Reason*, 1981  
Mixed media: monotype and bronze leaf on Nepalese paper.  
144.8 x 80  
Courtesy Getler/Pall Gallery, New York City, New York.
48. *When He Could Not Remember Exactly; He Made Something Up*, 1981  
Mixed media: collage bronze leaf on Shibugami and other Japanese dyed papers.  
100.3 x 111.8  
Courtesy Getler/Pall Gallery, New York City, New York.
49. *Parrot*, 1981  
Mixed media: Shibugami and Japanese dyed papers and tomato can labels.  
100.3 x 112.1  
Courtesy Getler/Pall Gallery, New York City, New York.

Sorman is a painter who builds work like a sculptor and whose primary material is paper. The colors, texture, and qualities of different papers — particularly nagashizuki papers — have been a key aspect of his work for many years. Be it prints, paper-work, or paintings, the work boldly combines papers with other media to form works that defy standard media

definitions. Sorman eschews over-emphasis on media, process, or technique; yet it is his sensitivity to these issues which marks his work. His pragmatic, no-nonsense approach to his art allows it to maintain a close balance between decorative elegance and honest simplicity.

Cynthia Starkweather-Nelson, Minneapolis, Minnesota

50. *Counting/Passing*, 1981  
Laminated Japanese paper with painting.  
50.8 x 152.4  
Loaned by Mr. Steven Nelson, Minneapolis, Minnesota.
51. *Private Thoughts*, 1981  
Laminated Japanese papers with painting.  
72.4 x 176.5 x 4.4  
Loaned by the Peter M. David Gallery Inc., Minneapolis, Minnesota.
52. *Notations*, 1981  
Laminated Japanese papers, painting.  
52.7 x 59.7  
Courtesy Peter M. David Gallery Inc., Minneapolis, Minnesota.

Starkweather-Nelson combines a painterly sense of color with her own sensitivity to the varied textures and possibilities of paper, particularly when combined with over-painting and drawing. Earlier mixed media pieces using torn, folded, and dyed papers were evocative of the geologic laminations and varied horizons visible in her Minnesota surroundings. The more recent work centers on journals, record-keeping, and layers of a much more personal nature. Despite their grand size, these works are interiors; they are built of particular responses to emotive qualities of light and mood, yet they still maintain a close relationship to nature and natural effects.

Michelle Stuart, New York City, New York

53. *Diffusion Center*, 1981  
a. Site map  
Muslin-backed 100% rag paper, color photographs, gouache.  
87.6 x 116.8  
b. Variable installation of Indian tools  
Muslin-backed 100% rag paper, gouache.
54. *Fort Ancient Ledger*, 1978  
Machine made paper backed with linen, earth from the site.  
61 x 91.4
55. *Fort Ancient Books*, 1981  
Handmade paper.  
left: 31.8 x 23.5 x 4.4; middle: 28.3 x 20.6 x 28.3; right: 32.4 x 23.5 x 5.7
56. *Fort Ancient Mound Dog*, 1981  
Lithograph, intaglio, hand-worked, handmade paper; hand rubbed with earth from site: 2 pages laminated with Fort

Ancient artifacts embedded in one panel, documentation and photos of Kame Dog on other panel.  
35.6 x 66.7 (framed)

Stuart's involvement with paper originates with the Western use of paper as a surface on which to map, record, and store information about the land and also with a sense of the mystery and ritual which papermaking and paper using afford. The concepts behind her work have evolved from the symbolic surface of the moon to myths relating the earth's origins to more complex extrapolations of cultures from their archaeological remains. The work itself continues to use soil and objects from the sites, now combined with photographs of the sites and—most recently—tools fashioned from the soil-rubbed papers. In the making of her own work, Stuart seems to enact the ancient rituals of these sites and their peoples.

Sirpa Yarmolinsky, Garrett Park, Maryland

57. *Jurassic Winds*, 1981

Finnish tar paper triptych, with acrylic, colored pencil, waxed linen with a lightweight wood structure behind.  
left: 152.4 x 106.7 x 2.5; middle: 154.9 x 108 x 2.5; right: 152 x 108 x 2.5

58. *Nightflyer IV*, 1981

Finnish tar paper and tar paper rope, goat hair, metallic thread, acrylic paint.  
22.9 x 38.1 x 12.1

From her native Finland Yarmolinsky brought an involvement in all media—painting, sculpture, design, and particularly fiber art. More importantly, she brought an aesthetic sensibility which encourages respect for natural materials and the characteristic Finnish tendency towards introspection. Over the last four years Yarmolinsky has continued her work with wall-hangings and woven textile forms, both free-standing and suspended; but she has also explored a childhood interest in tar paper. Using flat sheets and Finnish tar paper rope she embellishes these pieces with linen wrappings, pastel drawings, and other images within the black, evocative forms. She explores and orchestrates some of the basic shapes and qualities of paper to create pieces which are at once mysterious and seductive.

Joseph Zirker, Palo Alto, California

59. *Untitled*, 1980

Handmade paper and found objects.  
127 x 83.8 x 8.9  
Courtesy Smith Andersen Gallery, Palo Alto, California.

60. *Untitled*, 1980

Handmade paper and found objects.  
137.2 x 81.3 x 8.9  
Courtesy Smith Andersen Gallery, Palo Alto, California.

61. *Untitled*, 1980

Handmade paper and found objects.  
104.1 x 96.5 x 7.6  
Courtesy Smith Andersen Gallery, Palo Alto, California.

62. *Untitled*, 1979

Color monotype on JZ handmade paper with hat pin.  
68.6 x 52.7 x 5.1  
Courtesy Smith Andersen Gallery, Palo Alto, California.

Zirker's paper involvement originated in his days as a master printer at Tamarind Lithography Foundation in Los Angeles. After he stopped printing for others his own work capitalized on his extensive knowledge of inks and viscosity printing. Since participating in a 1974 papermaking workshop at the Institute of Experimental Printmaking, he has developed a unique technique based on his exhaustive experimentation. His "squashed assemblages" are laminations of handmade paper and collaged found objects, with the paper opened to reveal the inner composition. On top of textured assemblages Zirker prints a monotype. His newest work is less specific and much more personal in its sources.

## Standard

Timothy Barrett, Proprietor  
Kalamazoo Hand Made Papers

While the current explosion of interest in handmade paper has brought about a host of innovative techniques, there remain two centuries-old processes for the production of standard sheets in large numbers.

Hand papermaking as we know it in the West is the older of the two methods. Called "tamezuki" by the Japanese, who first differentiated between the two, this is the technique used to make paper throughout Europe and is by far the most common method used in America by those producing handmade papers. Today approximately 35 vats in Europe, Japan and America still make production papers using the Western hand papermaking process.

"Nagashizuki" is the very different technique used by the Japanese to make the wide range of papers often incorrectly referred to as "rice paper." Nagashizuki is used today in Japan, Taiwan, Korea, China, and—experimentally—in America. Approximately 800 vats are still at work. An early form of tamezuki papermaking appears to have arrived in Japan from China around 600 A.D. The nagashizuki technique apparently evolved from the earlier craft in Japan around 800 A.D.

Until the invention of the paper machine in 1798, these two hand techniques were used to make the vast majority of all the world's paper.

## Western Hand Papermaking (Tamezuki)

### *Raw Materials*

For most of its history old hempen, linen, and cotton rags were the raw materials for Western hand papermaking. Today cotton linters (the shorter immature fibers which remain on the cotton seed after the staple fiber used for textile production has been ginned off) and new cotton rag cuttings from garment production form the bulk of the raw material. Abaca (manila) and occasionally seed flax fiber are sometimes added to improve strength characteristics.

Quality water has always been essential to any papermaking where a superior finished product is required. A particulate- and microbe-free water high in calcium and magnesium carbonate but low in iron and copper is usually considered very good for specialized papermaking.

## Hand Papermaking

### *Cooking*

In the past, the rags were fermented for several weeks or months to attack non-fibrous constituents (grease, waxes, dirt) and leave the material more receptive to beating. Washing with clear water, if not boiling, seems to have followed the fermentation step. Today, cooking the raw material under pressure using a strong alkali such as sodium hydroxide serves a similar purpose. Sodium hypochlorite or other bleaches are often used to lighten the color of the fibers. After cooking and bleaching, the material is washed repeatedly in clear water to expel the spent chemicals and loosen extraneous matter. (Fiber selection, cooking, and bleaching were once performed by the papermaker but are now primarily handled by various commercial pulp mills before the fiber is shipped to the papermaker.)

### *Beating*

In the first centuries of the craft in Europe (1200–1700) large trip hammers or stampers driven by water wheel were used to beat the fermented and washed rags. Today a device called a Hollander beater is used to treat the cooked and bleached cellulose fiber. With the fiber dispersed in water, the Hollander gradually shortens, plasticizes, and "fibrillates" the fiber—essential steps in making a strong, well-formed sheet. Beating may take thirty minutes to five hours or more, depending on the nature of the raw material and the type of finished paper required. Generally speaking, continued beating will result in a gradually harder, more translucent, stronger, and more water-resistant sheet. The fully prepared fiber is diluted with water at the vat prior to papermaking.

### *Sheetforming*

Individual sheets of paper are formed from the vat using a rectangular, wire-covered, flat strainer called a "mould." The mould is fitted with an open wooden frame called the "deckle" that contains the pulp during papermaking.

To form a sheet of paper the vatman holds the mould (with deckle affixed) almost perpendicular to the surface of the vat. In one continuous motion, he angles the mould into the vat solution (as if slicing a layer off the top), bringing the mould immediately up and out of the vat, laden with pulp. He then very quickly and dexterously shakes the mould slightly from side to side and from front to back to

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even the sheet as all the drainable water passes through the porous screen surface of the mould. The vatman then removes the deckle from the mould (leaving a clean-cut rectangle of damp pulp on the surface of the mould), passes the mould to the "coucher," affixes the deckle to a second empty mould, and proceeds to make another sheet at the vat.

### *Couching*

The coucher takes the first mould from the vatman and, with the new sheet adhering, turns the mould upside down and presses it against a damp blanket called a "felt," neatly transferring the new sheet of paper to the felt. He then passes the empty mould to the vatman, covers the newly couched sheet with a second damp felt, and grasps the second mould with its fresh sheet—just finished by the vatman. As he couches this second sheet the routine begins again, and is repeated until a stack or "post" of approximately 100 sheets, each interleaved with its own felt, has been accumulated.

### *Pressing*

The post is moved into a hydraulic press where a force of from 100 to 150 tons of pressure is applied, expelling a majority of the water. Pressing a single post takes no more than fifteen to twenty minutes.

### *Parting*

After pressing, the post is taken over to the couching area where a third man called the "layer" separates the new damp sheets from the felts. At this point the paper is dry enough to be stacked alone in a pile or "pack" while the felts are returned immediately to the coucher, who uses them in accumulating a new post. Thus the vatman, coucher, and layer work in unison; together they can produce 1000 to 1500 sheets in a day. At the end of the day the pack is pressed under about eight tons pressure for twenty-four hours and then parted, restacked, and re-pressed to lessen the felt mark and further smooth the surfaces of the sheets.

### *Drying*

The pressed damp sheets were once carried to upper floor lofts and hung over horse hair ropes or spread out on large screens in "spurs" of four to twelve sheets to dry. This technique, termed "loft drying," is rarely employed today; rather, various machines—often with the aid of



heat or pressure—dry the paper more quickly and with a flatter result.

### *Sizing and Coloring*

The gelatin surface sizing once commonly applied to dried sheets has given way to neutral pH internal sizes that are added at the end of the beating cycle. Pigments for color, retention aids, loadings for opacity or brightness, and magnesium or calcium carbonate not present in the water supply are also usually added during beating. Dyeing, if employed, usually precedes beating.

### *Finished Sheet Description*

A common Western sheet today averages 50 by 75 centimeters (20 by 30 inches) in size. Sheet weights tend to be book or stationary weight and heavier. Contemporary machine-dried papers made from commercially cooked and bleached, internally sized raw materials may have commendable permanence and durability but it can be argued that their character falls far below that of earlier European papers made using more traditional materials and techniques.

## **Japanese Hand Papermaking (Nagashizuki)**

### *Raw Materials*

The bast fiber, or inner white barks of *kozo* (paper mulberry), *mitsumata*, and *gampi* trees have provided the main raw material for most of Japanese papermaking's history. Today, however, imported foreign basts and large amounts of Western wood pulps are often added to dilute the more expensive domestic inner bark fiber. Of the three traditional Japanese fibers, *kozo* accounts for 90 percent of the bast fiber used today. *Kozo* trees are usually cultivated on hillsides or hilltops where other crops are not successful. Each fall *kozo* trees are cut from a parent root. (New trees will sprout from the trunk the following spring.) The harvested trees are then transported to a central location where they are steamed for two hours. After steaming, the bark is easily stripped from the inner wood. Later, when more time is available, the black outer bark and often a green middle layer are removed, leaving only the white inner bark layer for papermaking.

### *Cooking*

Japanese bast fiber must be cooked to dissolve the non-fibrous constituents in

the bark (up to 50 percent of its initial dry weight). In the past, lye of wood ash was the sole cooking agent and sun bleaching was not uncommon. Today sodium carbonate and sodium hydroxide are the most common cooking alkalies. Chemical bleaching techniques are also often used today to lighten the color of fiber or to treat especially poor quality fiber. After cooking and possible bleaching, the fiber is carefully washed in clear water and each strand of bark is painstakingly picked over by hand to remove any defect missed earlier. At the end of the fiber preparation process, only five percent of the original tree's weight remains as fiber for papermaking.

### *Beating*

Unlike fibers for Western hand papermaking, cooked bast requires very little physical treatment at the beating step. This is due to the presence of large amounts of hemicelluloses (water-loving, non-fibrous constituents that make the fiber very readily "plasticized") and the loose nature of the fiber in the bark strand after cooking. Light hand beating alone is sufficient treatment and was, in fact, the standard beating method until the end of the Second World War, when machines began to take over. The minimal chemical and physical treatment required by bast during preparation preserves the natural fiber character and accounts for the wealth of warmth and luster in traditionally made Japanese papers.

### *Sheetforming*

Nagashizuki sheetforming is entirely different from papermaking at Western vats. To begin with, in addition to fiber and cold water, the vat mixture contains a viscous formation aid rendered from the root of a hibiscus and called "tororo-aoi," which disperses the exceptionally long fiber (three to ten millimeters) and controls the drainage rate. To form a sheet, the nagashizuki papermaker dips his mould into the vat only along the close inside edge, picking up a charge of the vat mixture and immediately sending it across the mould surface and off the far side. He promptly recharges the mould and begins to slosh the mixture back and forth and from side to side across the surface of the mould. As the charge depletes, he may toss off the excess and recharge the mould—repeating the sloshing action until he gradually *laminates* a thin sheet of paper on the mould surface.

### *Couching*

When the sheet has attained the proper thickness the vatman removes the flexible

mat-like surface ("su") from the nagashizuki mould, and turns and lowers the sheet face down across a pile of previously couching sheets. He then very carefully peels away the su, leaving the new sheet of paper smooth and unwrinkled atop the pile or "post." No felts are required in nagashizuki papermaking since exceptionally long, well-plasticized fibers are gradually laminated together into sheets with an internal strength and cohesion that always exceeds the contacts at sheet interfaces. At the end of the day a nagashizuki post will contain between 250 and 450 sheets. The wet pile is usually left to drain overnight.

### *Pressing*

The following morning the post is pressed slowly for five to seven hours. Maximum pressure on the nagashizuki post is slight—usually 16 to 18 pounds per square inch, versus 200 to 300 pounds per square inch in Western papermaking.

### *Parting*

After pressing, the damp sheets can be drawn away from the pressed pack one at a time. Especially thin papers and those made from the shorter (three- to four-millimeter) *mitsumata* and *gampi* fibers are inclined to cause more trouble than the thicker, longer fibered (ten-millimeter) *kozo* sheets, but a skilled papermaker familiar with his own fiber type and consistent in his sheet forming action will have little trouble.

### *Drying*

Parted sheets are brushed onto wooden boards for drying in the sun or, more commonly today, onto heated sheet metal for drying indoors.

### *Sizing and Coloring*

Traditional nagashizuki sheets are not usually sized; when sizing is required, a rabbit skin glue and alum size is prepared and brushed onto the surface of the dried sheet. Dyes and pigments are usually added before beating.

### *Finished Sheet Description*

Nagashizuki sheets tend to average 60 by 90 centimeters (24 by 30 inches) today and vary in weight from a Western style bookweight to much thinner tissues. Contemporary Japanese sheets made with chemically cooked and bleached bast, and especially those made with wood pulp, may be permanent but their durability and especially their character are far from that of traditionally made papers.