



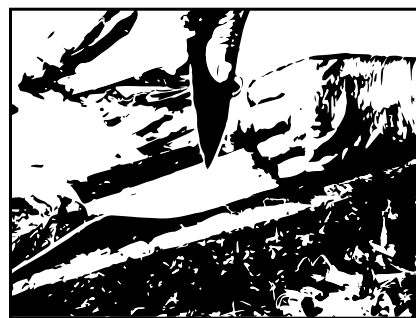
In Korea, representations of mandarin duck couples are gifted at weddings as symbols of marital fidelity and fertility. Most are carved of wood and painted bright colors, but I saw an eighteenth-century woven paper version in a museum catalog and was immediately taken. Though I was originally trained to make symmetrical forms of basic vessels and other functional objects, I was determined to figure out how to weave a duck. Several ducks later, the endless permutations of form and gesture provide rich challenges that my hands are eager to meet. Photo by Stefan Hagen.

HANJI IN THE HANDS: KOREAN PAPERMAKING METHODS AND CREATIVE USES

AIMEE LEE

ONE OF THE MOST GRATIFYING ASPECTS OF TEACHING KOREAN paper arts is seeing the ripples of interest that manifest in new interpretations of tradition. When I began my hanji (Korean paper) research in earnest eight years ago, I remember finding one article in English online, a handful in print, and one painting on hanji in an exhibit in Berkeley. The landscape has changed considerably: there are now a number of books in print, exhibitions devoted to Korean paper manipulation, and the wider spread of workshops and classes related to hanji. There are enough artists working with these techniques to perceive a subset within the art world, a few that I have selected to introduce here. Hanji itself as a term is being used more frequently, though I must add that it is often used as a qualifier for the word paper, which is incorrect. The noun hanji encompasses both “Korean” and “paper.” Hanji is sufficient to indicate Korean paper, just as we say, “supermarket,” and not, “supermarket market.”

TECHNICALITIES ASIDE, WHAT IS HANJI? Its literal translation is “Korean paper,” though I have used it to describe paper made by hand in Korea (which is only a portion of the paper made in Korea, as plenty is made by machine). The majority of this paper is made in a style that many people consider Japanese, though controversy exists over exactly how Japanese the technique is, with some researchers believing that it in fact originated in Korea. This technique requires a bamboo screen enclosed between an upper frame, or deckle, and a lower supporting frame with ribs, and is called *ssangbal tteugi* (in Korean) or *nagashi-zuki* (in Japanese). This is an evolution from the older technique of *webal tteugi*, which uses a similar bamboo screen and supporting frame, but no upper deckle. The screen in Korean is called a *bal* (“screen”) and the supporting frame a *bal teul* (“screen frame”). Korean papermakers today use mostly *ssangbal tteugi*, with only a handful still practicing *webal tteugi*, and even then, only occasionally in their practice or for special orders. I have charted differences between formation methods below:



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	Ssangbal Tteugi	Webal Tteugi
Definition	Twin screen scooping	Single screen scooping
Vat size	Just large enough to clear <i>bal teul</i>	Three times wider than <i>bal teul</i> , 1.5 to 2 times longer than <i>bal teul</i>
Rigging	None for small sheets. For larger sheets, at least two ropes attached to <i>bal teul</i> that are suspended from bamboo poles near the ceiling	One rope tied to middle of the back support bar of the <i>bal teul</i> , suspended from a crossbar above the vat
Sheet formation	Predominantly shaken in one direction, towards and away from the papermaker (front to back), perpendicular to the bamboo splints in the <i>bal</i>	Flowing motion of slurry over the <i>bal</i> in both directions, first perpendicular to bamboo splints (front to back, <i>apmuljil</i>) and then parallel (side to side, <i>yupmuljil</i>). Sometimes finished with slurry thrown off in a diagonal, reminiscent of some Chinese techniques
Lamination	None: one-ply unless greater thickness is desired	Laminated: two-ply unless less or greater thicknesses are desired (ranges from one- to four-ply)
Multiple sheet formation	More than one sheet can be made at once if the top deckle is partitioned with additional wooden walls	Only one sheet can be made at a time on the <i>bal</i>
Screen (<i>bal</i>) dimensions	Wider than high because a shorter height of <i>bal</i> makes it easier for the papermaker to scoop up the slurry and throw it across its height quickly; wide <i>bal teul</i> are fitted with handles closer to center that hands can grasp comfortably	Higher than wide because width is limited by the human wingspan. The front edges of the <i>bal</i> are held in place by the thumbs. A wide <i>bal</i> would require a very wide vat, which is impractical
Screen (<i>bal</i>) borders	Bare bamboo splints are flush at each side of the <i>bal</i> ; edge sticks on top and bottom are also bare	Bamboo splints on sides, as well as edge sticks on top and bottom of <i>bal</i> , are covered by sewn fabric
Screen (<i>bal</i>) chain lines	Chain lines run in one straight line from top to bottom	Chain lines are staggered at the center of the <i>bal</i> so that the top half has chain lines that are offset between the chain lines of the bottom half
Number of sheets produced	Each round at the vat produces one or more sheets of paper	Each round at the vat produces one ply of a two-ply sheet, requiring two rounds for a fully-laminated sheet
Grain direction	Predominantly in one direction	Multi-directional



Shin Hyun-se demonstrates webal tteugi (photo by the author)



Shin Hyun-se demonstrates ssangbal tteugi (photo by the author)

ONE OF THE NAMES FOR HANJI in Korea is *baekji*, translated literally as “one hundred paper.” This refers to the idea that there are 99 steps required to make hanji, and the 100th step occurs when the buyer touches the paper. 99 steps may be a slight exaggeration (somewhere in the 70s is more accurate), but it communicates exactly the labor involved in making this strong and lustrous paper. The common question, “How long does it take to make a sheet of paper?” can never be answered to satisfy either the person asking or the person responding. It could easily take a week, a month, a lifetime to make a sheet of hanji, because it is so inextricably bound up with the cycles of nature and with labor that comes from a history of agriculture, which require instinctual and bodily knowledge that is nearly impossible to quantify. However, most people

are not able to experience these cycles and processes, so I have listed a primer of steps below:

HARVEST PAPERMAKING FIBER

Broussonetia papyrifera and the indigenous *Broussonetia kazinoki* are two species of the trees most often used in Korea to make hanji, known colloquially in English as the paper mulberry tree, in Japanese as *kozo*, and in Korean as *dak*. They look more like shrubs when used for papermaking, because they are harvested each year after the regular harvests of food crops. This ensures strong but not overly tough fiber, and encourages tree growth for the next season. After the *dak* leaves have fallen and the sap has drained for winter rest, one-year-old shoots are harvested by hand. Each shoot is cut away close to the gnarled root structure at a 45-degree angle with a sharp sickle and bundles are stacked with the cut ends piled together for ease in steaming and stripping.

Additionally, the plants required for formation aid in the papermaking process are also harvested in the fall. Formerly classified as part of the hibiscus family, *Abelmoschus manihot* seeds are planted in early spring and grow throughout the year until they are dug up in the fall for their roots. Called *hwangchokgyu*, these roots are pounded to yield a clear mucilage that is essential to hanji making.

PROCESS PAPERMAKING FIBER

After *dak* shoots are felled and bundled, they are steamed for about two hours so that the outer bark pulls away from the inner woody core. While still hot, workers grab the cut ends and pull the bark away, keeping it in one intact piece. After stripping, workers manually scrape away the two outer layers of bark, called black bark (the brown flaky layer that we see on the tree) and green bark (the middle layer), to reveal the inner white bark. After bleaching the white bark by drying it outside in direct sunlight, it is soaked and cooked in an alkaline solution. Traditionally, this solution is made from plant ash lye, but most papermakers in Korea use soda ash (sodium carbonate) unless working on special orders that require plant ash. This solution neutralizes elements in the bark (e.g., gums, pectins, lignins, and waxes) that will acidify over time if left intact, softening the bark and preparing it for further processing.



An employee at Shin Hyun-se Traditional Hanji scrapes the outer layers of bark away from the inner white layer (photo by the author)

After cooking, the bark is rinsed and then picked over by hand, piece by piece, to remove any remaining specks of dark bark or discoloration from wounds. This incredibly tedious practice, traditionally performed by women even to this day, ensures strong white paper that has not been weakened by harsh chemical bleaches. Now the bark is ready for beating, traditionally done by hand with wooden bats, literally reducing the wide bark strips to a pulp. Today, all mills use mechanical beaters to perform this task in a fraction of the time required by hand beating. These *naginata* beaters are different from those used in western papermaking, with several curved knives that tease apart the long *dak* fibers rather than cutting them short, as a Hollander beater does.

SHEET FORMATION

The well-hydrated pulp that exits the beater is added to a large vat that has already been partly filled with clean water, free of metal deposits. After agitating the vat vigorously with long bamboo rods, the twice-strained mucilage is added to the vat. This formation aid distributes the fiber evenly and slows the draining time of water to help the papermaker manipulate the slurry on the *bal* without having the fiber clump on the screen. The papermaking tools (both *bal* and *bal teul*) are wet, and the *bal* has been soaked so that its bamboo splints have expanded to their full size. With both sheet formation methods, the general idea is the same: slurry is scooped onto the screen, moved across it, and discharged. The papermaker repeats this action several

times in a given sheet to create laminated layers within one thin sheet, giving it remarkable wet strength.

Once the papermaker is satisfied with the thickness of the sheet, it must be removed from the *bal* to another surface to free up the *bal* to make the next sheet. This process, called couching, requires a stable, flat surface next to the vat covered with a wet felt. The *bal* is placed onto the couching table with the wet sheet facing down, and then lifted away. The wet sheet sticks to the couching table, and subsequent sheets stick to the prior sheet of paper in a rapidly growing stack of wet paper called a post. To distinguish one sheet from another, a thread is placed between each sheet (for non-laminated paper) or every two sheets (for laminated paper) at the top edge of the post.



Mr. Shin lays down the *bal* with the fresh sheet face down (photo by the author)



Mr. Shin removes the *bal* from the post of paper (photo by the author)

PRESSING, PARTING, DRYING

After a post of paper is complete, it is covered with another felt and a board, then placed into a hydraulic press. Traditionally, stones were placed onto the board over a course of days to press excess water out of the paper. A winch system followed, then a screw press, and now both manual and mechanized hydraulic presses are most commonly used in Korean mills. The purpose is the same: to gradually press away water. Once the side of the post is hard to the touch, pressure is relieved and the post removed for parting. The threads placed in the couching process are pulled away one at a time to release the top edge of each sheet. This edge, still damp, is stuck onto a straight rod, which pulls each sheet away evenly from the post. Sheets are brushed onto wooden boards (taller than a standard door), or onto heated steel plates that accommodate three to five 2-by-3-foot sheets at a time. Once a sheet is dry, it is peeled away from the drying surface.



An employee at Shin Hyun-se Traditional Hanji parts the top sheet from the pressed post. Note green threads at the edge of the pack (photo by the author);

FINISHING

The most expensive hanji is further treated after drying with *dochim*, a hammering technique that imparts a surface sheen and compacts fibers to reduce ink bleed on these usually unsized sheets. A stack of dry hanji, with occasional damp sheets interleaved throughout, is held under a hammer that raises and lowers at a constant rate, allowing time to move the stack around so that every portion of the surface is hammered.



An employee at Shin Hyun-se Traditional Hanji brushes the parted sheet of hanji onto a smooth wooden board to dry (photo by the author)

I have written extensively about this process in my book, *Hanji Unfurled: One Journey into Korean Papermaking*, and recommend it for anyone interested in further details.

MANY PEOPLE ASK what is special or different about hanji, as opposed to other papers (most specifically, Japanese papers). I usually say that it is strong and beautiful, and that it becomes even more strong and beautiful after being manipulated by hand. This strength comes from the quality of *dak* used, its long fibers, and the way that it is processed and eventually transformed into hanji.

One deceptively simple method of changing the nature of hanji is *joomchi*, a method that can texture



Mr. Shin performs *dochim* to hammer the dried hanji (2008, photo by the author)

paper through wet and dry massaging and crumpling of a single sheet, leading to a stronger substrate that is smaller than the original full sheet but can drape like fabric or mimic the toughness and flexibility of leather. Joomchi is also used to fuse more than one sheet together using water and constant handling. This takes advantage of the long fibers in hanji that shift and flex rather than tearing, and the magic of hydrogen bonding, which causes multiple sheets to become one without any adhesive.

A more advanced technique is paper weaving, or *jiseung*, which transforms strips of hanji into rope-like cords that are twined around each other in a method akin to ancient basketry. Jiseung objects sealed with lacquer, pastes, oils, and other finishes become water-tight and can be used as cups, bowls, furniture, and a myriad of other functional objects.

Historically, hanji has been used for purposes obvious to paper (government edicts and documents, relief printing, books of all kinds, painting, and calligraphy), in architecture (wall and ceiling paper, covering for sliding wooden latticework doors and windows, and oiled flooring paper), on the body (as insulation, armor, shoes, rain hats, and clothing for the training of Buddhist monks), and in ritual use (spirit paper to be burned, lanterns and flowers for holidays, and talismans in shamanic rites). It absorbs water and holds oil-based ink beautifully, accepts brush and pen, and is strong enough for relief and etching processes using either a press or hand printing. Hanji can also be sliced into strips that are then spun or twisted into thread strong enough to sew and weave. In conservation, its strength

and lack of dominant grain direction make it ideal for certain repairs and mountings.

To exhibit an array of hanji's qualities, I defer to the artwork that contemporary artists are making with hanji or Korean paper techniques. I wanted to highlight several U.S. artists who are making significant inroads in their own work with hanji and/or Korean traditions, especially those whose names are not immediately linked with these traditions. For that reason, I have chosen to leave my artwork outside the scope of this article, though readers are welcome to explore it at aimeelee.net.

I have always believed that innovation and evolution keep tradition vibrant and relevant, and have selected work that ranges from soil to plastic, yet maintains a connection to hanji. I liken the hanji infiltration to the slow and then sudden creep of invasive plant species, except that in the art world, the invasion does not crowd out the competition. Rather, it encourages more innovation and expands the way we see both paper and its possibilities.

The brief examples that follow of contemporary artwork by artists who use hanji and the techniques developed over hundreds of years to manipulate it are only a sampling of the growing interest and commitment to expanding the materials and methods available to artists today. We are still traveling on the road from the acceptance of hanji into the paper-making lexicon to its use outside of paper circles, but the journey continues to yield remarkable sights and adventures.

A HANJI GALLERY

(All images courtesy of respective artists)

Paper as textile: Joomchi textures of Bill Lorton

TRAINED AS A FIBER ARTIST, Cleveland-area artist Bill Lorton works extensively with the joomchi technique, a method of texturing and fusing paper (I compare it to felting) that has a long history in Korea. He initially began working with joomchi because it was important to him to preserve this obscure craft tradition, which is part of his daughter's heritage. He says, "Over time, the potential for innovation with joomchi has offered a continuing appeal for me. The prospect of breaking new ground, making joomchi do unexpected things, and teaching those innovations to others keeps me engaged with it." His current joomchi-based work is rooted in Korean history, though he uses a range of Asian papers, and his joomchi pieces examine the role of textile-based iconography. <http://billlorton.blogspot.com/>



A Mended History in Six Parts: Part Five by Bill Lorton, 2013.
Thai Unryu, ramie, thread. 29.5 x 21 inches



A Mended History in Six Parts: Part Six, by Bill Lorton, 2013.
Thai Unryu, ramie, thread. 28.5 x 22 inches



A Mended History in Six Parts: Part Five, by Bill Lorton, 2013.
Thai Unryu, ramie, thread. 29.5 x 21 inches

Private adornment: Nancy Raasch's paper jewelry

NANCY RAASCH WORKED for many years as a graphic designer in North Carolina specializing in print design, and has used a huge range of papers for over 40 years. She now specializes in paper jewelry, after being strongly influenced by Catherine Nash (Japanese paper casting) and Jiyoung Chung (joomchi). She says, "I love the process of joomchi and hanji making because the variations are limitless. Joomchi is a tactile manipulation of fibers that can result in unexpected and painterly results. I love the process of...building art pieces to wear." Captivated by the engineering aspects of making paper jewelry, she cuts, casts, and manipulates paper that is often finished with acrylic varnish, with colors that come from either colored hanji or pigmented pulp for paper she makes on her own. This practice also accommodates her hands' ability to work after extensive chemotherapy for chronic cancer—paper suits her best after many experiments with other materials. <http://www.raaschdesign.com>.



Gray & Orange Joomchi Bells Necklace by Nancy Raasch, 2013. Hand-felted mulberry paper with granite linen thread. 9 x 9 x 3 inches



Artist-made Giverny Necklace by Nancy Raasch, 2013. Artist-made kozo/narcissus paper dried on wood, freshwater pearls, silver wire. 9 x 9 x 3 inches



Gold/Orange Joomchi Necklace, by Nancy Raasch, 2013. Hand-felted mulberry paper stitched with black Guttermann thread with silver findings. 9 x 9 inches

Hanji and the book: Sammy Lee's oeuvre

DENVER-BASED SAMMY LEE WORKS primarily in book arts, though her experience as part of the 1.5 generation (those born in Korea who immigrated to the States before adulthood) provided an intimate relationship with hanji. She explains it best: "I was exposed early to the Hanji material as a child growing up in Korea. It was readily accessible for a child's calligraphy practices, folding and crafts. This material from my mother country also carries 'maternal' qualities I appreciate. Hanji is warm, soft to touch, and delicate, yet at the same time tough and resilient. Also it is a very forgiving material for mistakes, as I have often patched accidents or stretched wet fibers of hanji like leather to cover miscalculations. I have printed, painted and felted Hanji to achieve both aesthetic and practical goals for making artist books. Sometimes as covers, pages, liners, or hinges, I find hanji very versatile in my book art practice." She uses felted hanji on book covers, plain hanji as a surface on which to print, and further manipulated hanji to construct boxes that refer back to her graduate training in architecture. These structures always open into miraculous worlds of narrative, color, texture, and design. <http://www.studiosmlk.co>



***Fantasy & Nonsense* by Sammy Lee, 2012. Cover: hanji collage with joomchi methods. 6 x 8 x 0.5 inches**



***The Soil: Water, Fire, Metal, Flesh, Soil* by Sammy Lee, 2011. Artists' book inspired by the life works of OkSang Lim; intaglio on handmade paper. 9 x 9 x 9 inches**



***Soil & reflection* by Sammy Lee, 2012. Artist book about personal exploration on the soil as subject, material and inspiration; collection of monoprints on hanji. 4.25 x 6.25 x 0.5 inches**

Another tool in the sculpture kit: fiber manipulation by Melissa Jay Craig

A MATURE SCULPTOR and paper manipulator in her own right before she encountered hanji, Melissa Jay Craig is already pushing Korean paper techniques further than previous practitioners could have imagined. She lives in Chicago and is often on the road to teach and serve as a resident artist. On these trips, she learned *webal tteugi* with myself at the Morgan Conservatory and made artwork side-by-side at Haystack with Jiyoung Chung. Craig says, “What appealed to me initially about hanji was first a fascination with the webal sheet-forming technique (which is far, far more difficult than it looks!). Second was discovering the strength the fully unfurled fibers give to the thin, finished sheets. I always, always seek the strongest papers for my work...and hanji takes all the characteristics I love about the [kozo] fiber much further. I also use a lot of very overbeaten abaca and indigenous fibers like milkweed which exemplify a dichotomy that is both a conceptual and physical underpinning of my work: a delicate, fragile appearance that is in fact incredibly strong.” Her experiments with joomchi have proven to stiffen paper, even as it creates holes in it, and have provided a way to adhering fibers elegantly to paper without adhesive. <http://www.melissajaycraig.com/>



***Reap* by Melissa Jay Craig, 2012. Handmade paper: cast kozo and kozo hanji, kozo fiber joomchi, procion dyes, hemp cords. 11.5 x 6 x 4.5 inches**



***Speak For Yourself* by Melissa Jay Craig, 2012. Handmade paper: cast kozo and kozo hanji, kozo fiber joomchi, procion dyes, hemp cords, linen thread. 10 x 7 x 5.5 inches**



***Reap*, 2012. Handmade paper: cast kozo and kozo hanji, kozo fiber joomchi, procion dyes, hemp cords. 11.5 x 6 x 4.5 inches**

Weaving across media: Sara Parkel's transformed book

SARA PARKEL IS AN ARTIST in New York City who learned jiseung techniques from me at the Center for Book Arts as a Van Lier Scholar. She had been working on a project about plastic bags and the problematic imbalance between the convenience of the product and its harmful effects on the environment. After learning the challenging techniques of spinning, cording, and weaving hanji, she applied these methods to plastic bags to make plastic yarn for a textured cover. She says, "Appropriating Korean spinning and weaving techniques allowed me to make an entire book out of plastic. As a printmaker and book artist, I aim to find an integration of content, form, and materials." The pages of the book are laminated layers of grocery bags, letterpress printed with wood type, and this one-of-a-kind book reflects her ongoing concerns with ecology and sustainability. <http://thefilterpress.com/>



***Baggage* by Sara Parkel, 2012. One-of-a-kind artist book; woven plastic bag cover, wood type on laminated plastic bags. 7.5 x 4.5 x 0.75 inches**



***Baggage* by Sara Parkel, 2012. One-of-a-kind artist book; woven plastic bag cover, wood type on laminated plastic bags. 7.5 x 4.5 x 0.75 inches**



***Baggage* by Sara Parkel, 2012. One-of-a-kind artist book; woven plastic bag cover, wood type on laminated plastic bags. 7.5 x 4.5 x 0.75 inches**

Violence made palpable: Julie Sirek's garments

JULIE SIREK STARTED MAKING PAPER at the Minnesota Center for Book Arts in the 1980s, studied joomchi with Jiyoung Chung, and was an intern for Cave Paper in Minneapolis. Even before she encountered hanji, her artwork has remained constant: “Domestic violence touched my life at an early age and thematically inspires my work. I frequently use the image of ‘dress’ to represent the soul, the intimate, and the hidden. For the victim of domestic violence, this is the place where the pain is intense, remains silent and is internalized. My primary source material is hanji, whose complex structure enables me to create sculptural pieces without the use of glue or armatures. My work has a handmade quality where the boundaries between paper, textile and sculpture collide. Through a process called Joomchi, I am able to create a cloth-like paper/textile that has a delicacy and conveys a compassionate feeling for the fragility of human life.” She usually creates the dresses and then manipulates them with joomchi techniques, but occasionally reverses the order. Sometimes, she creates yardage of pieced and joomchied paper that is constructed into dresses, finished with further handling to achieve ghostly webs. <http://juliesirek.com/>



***Dissolving Dream* by Julie Sirek, 2012. Hanji, thread, buttons.
34 x 17.5 x 5 inches**



Dissolving Dream (detail) by Julie Sirek, 2012. Hanji, thread, buttons. 34 x 17.5 x 5 inches



Secrets In My Closet by Julie Sirek, 2012. Hanji, dye, thread, buttons. 29 x 20 x 3 inches



Slipping Away Julie Sirek, 2013. Hanji, dye, thread. 60 x 17 x 4 inches