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Photograph by flickr member Elliott Brown.
Dr. Christine McCarthy

Madsen is a librarian and academic whose research aims to re-center libraries at academic whose research aims to re-center libraries at the heart of all the disciplines, and re-focus the work of librarians on creating a space for the transformation of information into knowledge. Her dissertation project was a critical analysis of the impact of digitization on scholarship and practice in the Tibetan and Himalayan region, but her larger research agenda is to recapture an integrated space in and from which to study and explore the world, and to explore the work of the heart of all the disciplines, and re-focus the work of librarians on creating a space for the transformation of information into knowledge.

CONTRIBUTORS

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Georgia B. Barnhill has been at the American Antiquarian Society since the fall of 1968 and was the curator of the graphic arts department from 1978 to 1996. She has written extensively on aspects of graphic arts. Among her recent accomplishments is a definitive descriptive bibliography of books and articles on American print culture. She is director of the Center for Historical American Visual Culture, and as director of the Center for Historical American Visual Culture, she places the emphasis at the center of a number of activities.

Donald Thomas Burgy is the only child of Helen Stebler and Lucien Burgy who fled World War I from Alsace to New York. He was born in Manhattan in 1937. His first one-man art exhibition was at age 10. He married Joy Reynolds in 1957, they had two children. He lives in a bungalow in the woods of southeastern Massachusetts.

Megan Michalak is an interdisciplinary artist whose studio practice spans sculpture, new media, performance and drawing. She lives in New York State where she is an assistant professor at the State University of New York at Stony Brook. Her works have been exhibited internationally at the Moscow Biennale for Young Art, Galleria Titanik in Finland, Fonds Regional d’Art Contemporain in Montpellier France, and the Bronx Museum of the Arts. Her projects have been featured in Art in America, Sculpture, New York Times and the Boston Globe. She is an assistant professor at Stonehill College and has been the recipient of a fellowship from the American Academy in Rome. She received her MFA in Sculpture from Bard College and an MFA in Studio for Interrelated Media from the Massachusetts College of Art. Her exhibition was at age 10. He married Joy Reynolds in 1957, they had two children. He lives in a bungalow in the woods of southeastern Massachusetts.

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Dr. Matthew Reed has been an imaging scientist for over twenty years and specializes in image analysis, quantitative microscopy and stereology. He has cofounded two companies, QuanToxPath Ltd and Spiral Scratch Ltd, and is a visiting professor at the University of Ulster, UK. Matt recently re-designed, re-typeset and reprinted the stereology handbook he coauthored with Vyvyan Howard in 1998. The book is still selling well, is used in numerous training courses and has more than 900 academic citations. Matt lives in West Kirby, on the northwest coast of the UK, with his wife Dawn, daughter Lorna and son Ben.

Dr. Matthew H. Schneps studied calligraphy as a child in Japan, and thanks to his father who was head of design at a major publishing house, grew up in a home surrounded by typography. Schneps has a PhD in Physics from MIT, and is an astrophysicist at the Harvard-Smithsonian Center for Astrophysics (CfA). There, he was co-Director of the Wolbach Image Processing Laboratory, and founding director of the Science Media Group, where he creates television and other visual media. He is founding director of the Laboratory for Visual Learning, conducting research in the neuroscience of visual perception and learning.

Juliet Shen was born and raised in New York and now lives in Seattle, Washington, where she has an independent design firm and teaches typography at the School of Visual Concepts. In 2005–2006 she closed her doors for one year and moved to England to earn a master’s degree in typeface design at the University of Reading. Her typefaces include Bullen (Font Bureau), inspired by early American foundry type; Earlybird (Oxford University Press), for primary level readers; and Lushootseed School (Tulalip Tribes of Washington), a Native American font. She has a special interest in American type history and recently organized the first Type Americana conference in Seattle. She is a sometimes letterpress printer and a dedicated student of tai chi.

Ryan Sullivan has been drawing since he developed thumbs in the womb. After being yelled at for obsessive-ly doodling during class for the better part of 12 years, he enrolled in the Illustration program at the University of Massachusetts in Dartmouth and graduated in 2008. Though he tends toward creating comics, primarily about crows that smoke butts, he is also available for copious amounts of freelance work. He currently lives in Weymouth, Massachusetts with his fiancée, Rachel, and an ungrateful Boston Terrier named Nickels.

Dr. André Skupin is an associate professor of Geography at San Diego State University. He received a master’s degree in Cartography at the Technical University Dresden, Germany, and a PhD in Geography at the State University of New York (SUNY), Buffalo. Dr. Skupin’s core research area involves leveraging geographic metaphors, cartographic principles, and computational techniques towards the visualization of high-dimensional data. He has developed new visual data mining approaches for diverse data sources, from large text document collections to crime statistics and environmental sensor data. His research is strongly interdisciplinary, aimed especially at increased cross-fertilization between geography, information science, and computer science.
Activating Prayers
Textual landscapes of the Tibetan Buddhist diaspora

by Christine McCarthy Madsen
photographs by Robert Correia Jr.
Throughout the Tibetan diaspora, text permeates not only the culture, but the landscape. As the result of thousands of years of respect and reverence for the written word in all of its forms and instantiations, text in the form of prayers and mantras serve as a quotidian reminder of the importance of textual knowledge in the practice of Tibetan Buddhism.

Beyond the visible, the reverence for text continues further still—practitioners circumambulate the library, prayer wheels contain strips of written mantras and prayers repeated thousands of times, and library collections often house small shrines as well as texts, blurring the line between library and temple.

While this sort of deep cultural and spiritual relationship with text is only beginning to be studied and understood by Western scholars, it is apparent and striking in even the shortest visit to areas of the Tibetan diaspora. The integration of text into the physical and non-physical surroundings of practitioners is said to be a means of integrating prayers into daily life. Monks and lay people walk past these spiritual texts routinely. It becomes habit to spin prayer wheels when passing by them. Each of these movements and acts is said to bring the textual prayers to life.

While the saturation of texts into one’s surroundings is thought to be a means of daily integration, there are also particular activities that serve to emphasize a special engagement with text. The act of copying out texts, in particular, has long been considered a good or meritorious deed, and is indeed tied to some of the earliest teachings of the Buddha. The Lotus Sutra, which is often quoted in Tibetan

**The Boy Who Wrote Sutras on the Sky** is a centuries-old story of a boy who heard of the great merit that comes from writing out the Diamond Cutter Sutra. Too poor to afford paper and pen, he eventually writes the Sutra on the sky. “Then, in the space of the outline that he had fashioned, the rough grass became soft, the flowers had a sweet fragrance, and in neither day nor night was there frost, hail, wind, or rain—all through the blessing power of writing the holy object.”

Many Westerners may have been introduced to secular skywriting with the Wicked Witch’s broomstick-in-the-sky scribbling of “SURRENDER DOROTHY” in The Wizard of Oz, but the first form of airplane skywriting was seen in England, courtesy of John C. Savage. In 1922, Savage hired Captain Cyril Turner to write “Daily Mail” over England and subsequently, “Hello USA” over New York. Soon after, the American cigarette maker, Lucky Strike, adopted skywriting for marketing purposes, and the Pepsi-Cola Corporation followed suit.

Skywriting is typically performed by one plane that can write up to around six characters. It is accomplished by heating low-viscosity oil to 1500 degrees using the aircraft’s engine exhaust, where the oil is then vaporized, thus creating the plumes of white letters you see against the blue sky. Typically, the letters are around 1 mile high, take about 1 to 1 and 1/2 minutes to create, usually last about 20 minutes and can be seen for 30 miles. Skytyping is somewhat of an improvement on the skywriting medium. Using an array of planes, skytyping emits biodegradable vapor puffs in a dot-matrix pattern; an onboard computer controls the sequencing of the vapor that forms the letters in the sky.

- Christine McCarthy Madsen / Rachel Sapin
Buddhism in defense of the worship of textual scriptures, says:

If a good man or good woman shall receive and keep, read and recite, explain or copy in writing a simple phrase of the Scripture of the Dharma Blossom... that person is to be looked up to and exalted by all the worlds, [and] showered with offerings fit for a Buddha... Let it be known that that person is a great bodhisattva.2

So strongly associated are texts and writing with good deeds that both the act and the medium are considered both economically important and sacred. Printing on water—where the characters of prayers and mantras are slapped out on the water—and printing on the sky are both practiced as well as being the center of important Tibetan legends.3 Great value is placed on learning to read at a young age, and paper has always been an important economic commodity. It is not only the act of copying out a text, but also the act of commissioning a copy of a text that holds merit for the actor.

While the act of copying out a text by hand is laudable,4 the act of printing by mechanical means has also been considered meritorious. Just as the use of text is heavily embedded in the culture and practice of the Tibetan diaspora, so too is the use of technology; and

(Left) Mani stones, circumambulation trail, Dharamsala, India. (Above right) Tibetan book, Library of Tibetan Works and Archives. (Below right) A young monk reads on a balcony, Gyuto Tantric University, outside Dharamsala, India. Photographs courtesy of Robert Correia Jr.
one of the first and longest associations of the diaspora with technology is through the mechanical reproduction of texts. If in Tibetan Buddhism, to copy a text is to do a good deed and to earn merit, then to automate the copying of that text is to do the same, only faster and more efficiently. This notion often seems counterintuitive to Westerners who are inclined to romanticize Tibet as pure and untainted by modern technologies; but the truth is that Tibet has long had a love affair with automating the reproduction of texts. Block printing is known to have existed in Tibet and China from the 9th or 10th century, with the first major commissions for larger texts (under the patronage of the Mongols) in place by the 13th century. There is also some evidence that the Tibetans were using an early form of moveable type as early as the 13th century for the mass production of prayer flags. By the end of the 13th and beginning of the 14th centuries, there was the mass printing of the Kanjur and Tenjur (which together compose the Tibetan Buddhist canon).

This view of how technology has been used to automate the reproduction of texts illustrates the beginning of an ongoing affinity for combining technology and text. The next steps in technological automation are closely aligned with the significance of recitation of prayers and mantras in Tibetan Buddhist practice. Like writing or copying out the sutras, recitation is seen as another means of engaging with text that produces meritorious results.

If you recite ten malas—a thousand mantras—a day, then when you go to wash in the river or at the beach, all the water becomes blessed. Because your body is blessed by the mantra, all the water becomes blessed as it touches your body, and so the water purifies all the animals who live in the water, who drink the water, and those who touch the water.

This statement indicates the extreme power imbued within the recitation of simple prayers or mantras in Tibetan Buddhism. It illustrates both the qualities with which these prayers are infused, but more importantly, the power ascribed to the quantity of repetition. Like with the reproduction of text, if more mantras means more merit, to automate the recitation of mantras makes good sense. Prayer flags are one form of such automation. Prayers are printed onto thin and loosely woven squares of cloth, which are hung outside. As the wind passes through and around the flags, it is said to release the prayers printed on them into the wind and to bless anyone
If reciting a mantra or prayer releases it, then prayer flags can in some ways be thought of as automating this process.

While prayer flags perform the recitation of a mantra or prayer through wind power, prayer wheels are able to automate the recitation of thousands of mantra in only a few seconds. Prayer wheels appear as metal cylinders inscribed or painted with a mantra around the outside and set atop a dowel or turning mechanism. Inside all of them are mantras (most commonly, *om mani padme hum*) written or printed hundreds or thousands of times on scrolls of paper wound tightly into the center of the wheel. The size of the prayer wheels vary from a few inches to many feet. Small prayer wheels are perched atop a handle and contain a weighted lanyard to provide momentum and to assist in the spinning of the wheel; they are carried by practitioners who spin them in a clockwise direction as they walk—also always clockwise—around a sacred space such as a temple, monastery, or library. Larger prayer wheels are affixed to walls, while the largest (several feet in height) are placed in small rooms by themselves. These wheels are turned by passing practitioners as they follow circumambulation trails.

Just as prayers are released onto the wind from flags, mantras inside of prayer wheels are said to be released through the rotation of the wheel. To spin a prayer wheel is the equivalent of reciting each of the mantras written inside. In the words of the Amitabha Buddha, “anyone who recites the six syllables while turning the Dharma wheel at the same time is equal in fortune to the Thousand Buddhas.” In this way the prayer wheel can be seen as a powerful means of automating the recitation of mantras.

Most prayer wheels are turned by hand, and can be seen as a common form of technology used to deliver more mantras than could be read or recited manually. Taking the notion of automation one step further, the prayer wheels themselves are frequently automated. Some are turned by water, others by the warmth of a lamp or even a light bulb.

Given this long and productive history of automating the reproduction and recitation of text, it should come as no surprise, then, that the adoption of digital texts in this diaspora has been so common. If the goal is quantity, then digital media have some tremendous benefits.

Early forms of digital media share the same spinning quality of prayer wheels, even the same clockwise direction. Taking this to the next step, rumours abound on the Internet that the Dalai Lama himself has said that having a digital prayer wheel—or even just the text of the mantra *om mani padme hum* on your spinning hard drive is the same as using a traditional prayer wheel. From this idea, copious animated GIF files, computer applets, gadgets, and widgets have appeared to fulfill the practice of setting text into motion with the greatest ease. Animated illustrations of prayer wheels, opened in web browsers will spin in a clockwise direction.

Some Western practitioners of Tibetan Buddhism have taken this notion of digital prayer wheels to an extreme through the manufacture of prayer wheels filled with DVDs each containing millions of mantras. Each prayer wheel contains 128 DVDs, for a total of over 1.8 trillion prayers. While not typical of the Tibetan diaspora, when viewed in the context of the long affinity of the Tibetan Buddhists with automating the repetition and reproduction of texts, the Tibet-Tech™ Prayer Wheel does not seem incongruous.
The Library of Tibetan Works and Archives. (Above left) Digitized texts displayed on a computer monitor, The Library of Tibetan Works and Archives. (Left center) Tibetan book, being used to check against digitized versions, The Library of Tibetan Works and Archives. (Below left) A monk at Shechen monastery in Kathmandu, Nepal transcribes a Tibetan text into the computer to make it searchable. (Right) The Library of the Tibetan Works and Archives contains a small shrine. On the table in the foreground is a single book removed from the shelf. Photographs courtesy of Robert Correia Jr.
If prayer flags, prayer wheels and printed and carved mantras are all ways of integrating text into daily life, then the adoption of digital technologies can also be seen as an extension of this principle. Daily life for many around the world now takes place in front of a computer, so does it not make sense for that space to contain these same integrations? Considered from this perspective, the leap from stone to paper to digital bits does not seem inconsistent and may provide a reason for the early adoption and widespread uptake of digitized texts in this field. Projects to digitize Tibetan texts are now widespread throughout the field of Tibetan and Himalayan Studies.14

ENDNOTES

1. Boudhanath is a section of Northeast Kathmandu that is famous for its giant stupa. Located on the traditional trade route from Tibet to the Kathmandu valley, it has been a pilgrimage site for Tibetan Buddhists since at least 450 BCE, before Kathmandu was established. It is now home to at least 50 Tibetan Buddhist monasteries. http://en.wikipedia.org/wiki/Boudhanath


5. The earliest known printed book in the world, is in fact a Buddhist sutra, or teaching. The Diamond Sutra (http://www.bl.uk/onlinegallery/hightours/diamsutra/) is a central teaching of Indian Buddhism and was first translated from Sanskrit into Chinese in about 400 AD. This copy of the Diamond Sutra was found in the caves of Dunhuang and is the earliest block print to contain a date: 11 May 868.

6. Palmieri, Richard P. “Tibetan Xylography and the Question of Movable Type,” Technology and Culture 32: 82-90. This article by Palmieri looks at the case of three blocks for printing lungta (prayer flags) that used a set of interchangeable “keys” for setting in alternate texts. Palmieri argues that this was an early form of combining wood block printing with moveable type.

7. A mala is a string of beads (usually 108) used, like a Catholic Rosary, for reciting and counting prayers. To recite a mala, therefore, means to say a prayer or mantra for each of the beads in the mala. To recite ten malas is simply to do this ten times.


11. This quote appears on a number of web sites, http://www.dharma-haven.org/tibetan/digital-wheels.htm but could not be substantiated in any of the Dalai Lama’s writings or teachings.


14. The most well known Tibetan digitization project is currently being made into a documentary film, Digital Dharma: http://www.digitaldharma.com/