THE MICROSCOPE IMAGE ON THIS PAGE SHOWS HOW THE COLLOTYPE PROCESS APPLIES VARYING AMOUNTS OF INK TO PRINTING PAPER SURFACES. INK ABSORPTION IS CHANNELED BY THE PAPER FIBERS TO CREATE TINY IRREGULAR PATCHES, WHICH RESULT IN SMOOTH TONES TO NAKED-EYE VIEWING. COVERAGE CAN BE VARIED CONTINUOUSLY FROM DARK TO LIGHT. PLATES ARE PREPARED BY POURING LIGHT-SENSITIVE EMULSION OVER THE ROTATING PLATE (INSET). THIS MAGAZINE, LIKE MOST CURRENT PRINTED MATERIAL, IS PRODUCED BY OFFSET PRESS TECHNOLOGY. VARIATIONS IN TONE ARE CREATED BY PRINTING TINY HALFTONE DOTS. THE MICROSCOPE IMAGE AT RIGHT SHOWS DOTS AT THE SAME MAGNIFICATION. Charles Kazilek Photos
"No other system is as fine in terms of retaining detail." by Melissa Olson-Petrie
It’s “sour pickle” time circa 1920.

The end of summer is near, and the barometric pressure rises and falls with each passing thunderstorm—a true test of the printing press.

Four bare-chested pressmen labor in a small room with a huge collotype printing press. Steam pumps into the air to maintain a relative humidity of 65 to 70 percent as posters of Rudolph Valentino and his latest leading lady roll off the press.

“Collotype has been referred to as a wicked mistress,” says Professor James Hajicek of the Herberger College School of Art at Arizona State University. “If the weather is even about to change, the printing changes.”

Collotypes print from a metal plate coated with gelatin. “Gelatin is in tune with the universe,” Hajicek says. “This is the sludge made from every animal part you can’t even put in hotdogs. But when you make it light sensitive by adding various chemicals, gelatin becomes a wonderful tool. It has been an important basis of photography and printing for the last 150 years. No other system is as fine in terms of retaining detail.”

Nineteenth-century collotype technology produces images unrivaled by today’s highest-quality presses. Instead of breaking images down into the dots of modern printing, the gelatin carries ink in continuous tones. No matter how high the resolution—how high the number of dots per inch—modern presses can’t re-create the subtle details and tonal values of collotypes.

“It’s half printmaking, half photography, and half alchemy,” Hajicek says.

Despite the attributes of fine art collotypes, the presses themselves are near extinction. The process, with its required man-hours and comparatively slow speed, hasn’t remained commercially viable.

The collotype process is also a victim of its own beauty, in the form of lost trade secrets. “The last thing the best collotype printer in England would have wanted to do was publish what made their collotypes so special,” Hajicek says. “The printers on the next street could have taken that information and put them out of business.”

Recipes for mixing and cooking the gelatin, as well as for other parts of the process, were guarded closely. Some workers wouldn’t even divulge the secrets to their employers. “They could make plates like nobody else, and it was their job protection,” Hajicek says.

Some of this information lived on in the printmakers. Other printers kept their proprietary information on record, but those notes are often just a starting point.

“Anybody’s trade secrets can say, ‘After you cook the gelatin do this, this, and then you pour it on the plate.’ Well, how do you pour it on the plate?” Hajicek asks.

“That plate is a special piece of magnesium, aluminum, and zinc. It has to be put into a huge device that spins it around and heats it at the same time. Somebody has to learn how to pour gelatin onto that in such a way that there is this perfect coating—no air bubbles, no speck of dust.”

Hajicek knows this type of challenge well. He has spent the last 35 years working on a small Vandercook press adapted to print collotypes. His present project: a limited-edition book that couples his photographs of broken stone walls in Provence (some dating from prehistory) with the words of poet and novelist Gustaf Sobin.

So far, the printing hasn’t gone well. To produce one image on 20 sheets, a small print run, was taking him weeks. Nevertheless, Hajicek was in the midst of what had drawn him to fine-art photography in graduate school—the alchemy of mixing potions. He enjoys using 19th-century processes in which the results can change from day to day. He enjoys creating unique objects that don’t bow to the standardization of modern photography.

“I was at this point with my work where I somehow had to solve this problem. Then, all of a sudden, this press arrived,” he says.

The “press” was the last commercial collotype press in the United States—part of a donation that arrived with proprietary information (a.k.a. trade secrets) from Black Box Collotype of Chicago. Using the press’s 4 by 5 foot printing plate, Hajicek looks forward to printing multiple images on larger sheets of paper—reducing months of work into weeks.

The press hasn’t been used for 15 years. It is currently being renovated at its temporary home on the ASU East campus.

The renovation project is at the mercy of grants and whatever funds Hajicek can find. Ultimately, the press is destined to become the centerpiece of an international photography and fine print research center under the auspices of the Herberger College of Fine Arts.

At ASU, the collotype press will stay alive. Its secrets, once veiled by commercial interests, will be examined, exchanged, and expanded. Currently, graduate student Joseph Rheaume is testing gelatin formulas and techniques for pouring plates. The work is for his master’s thesis in printing technology as he also works on a master of fine arts degree in photography.

The press will become neither scrap metal nor a historical curiosity, as was its possible fate with a museum. The collotype process, which was patented in 1855, will be used in collaboration with today’s technologies. Hajicek foresees a cutting-edge computer artist having his or her work printed using the collotype process.

“We are in the midst of a digital revolution,” Hajicek says.

“Everything is digitized, everything is pixelized, and everything is reduced to a zero or a one. There’s probably no more critical time in history than right now to keep alive these processes that have a physical presence like no other.”

Hajicek thanks the ASU Herberger College for a grant to buy the press and work on it. The press will stay at ASU, and Hajicek has plans for it to be used in the new photography and fine print research center.

“Collotype is perfect for a digital revolution,” Hajicek says. “It’s all there, it’s all right there. The colors are right there. And you can’t put the gelatin that on a computer.”

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