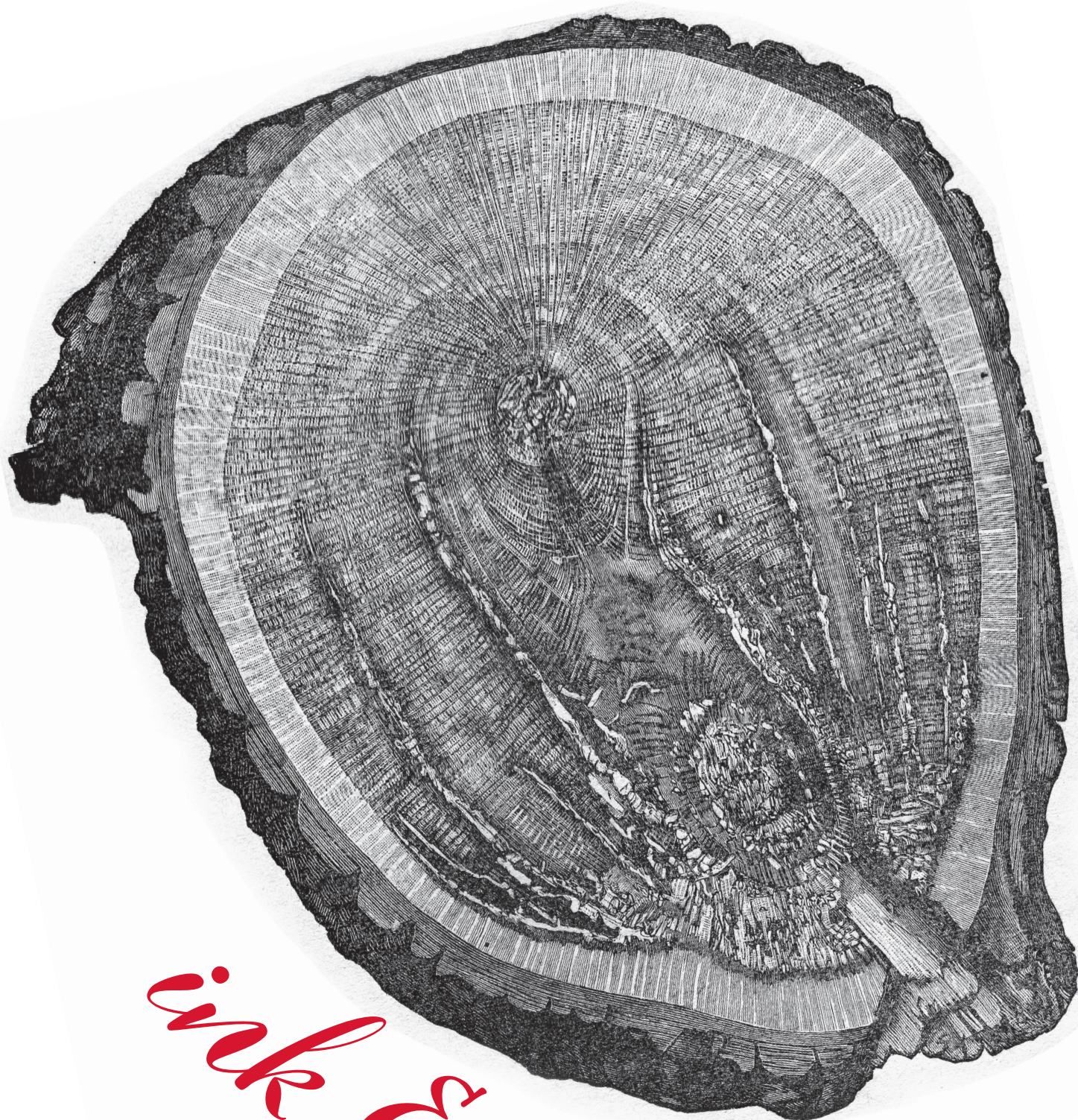


WEEKEND



ink & stone

learning lithography

// BY BEATRICE BARILLA

It was add/drop period, and I was mindlessly sifting through a sea of calculus and econometrics sections, when a class that wasn't another introductory biology lecture caught my eye: "Introduction to Lithography: Foundations of a 19th Century Planographic Process."

I wasn't sure at all what that meant, but I wanted to find out. My schedule, filled with prerequisites, ended the daydream of registering for such a course, but I still wanted to know what a "planographic process" really was — the AI overview could not satisfy my curiosity. So, I reached out to professor Irene Michniki and arranged a visit to the studio to talk all things lithography.

The Yale School of Art lithography workshop was below ground yet strikingly saturated with light and color: metal mechanical presses and laminate tables, scattered with inked papers, gleamed under the fluorescent lights. I followed Professor Michniki to one of the tables, propping myself up on a stool as I took in the space. A student across the room hunched over an inked stone slab.

Painfully aware that I had zero clue what any piece of equipment in the room did, I decided to start simple with that all-important question: "What is lithography?"

Professor Michniki answered my question, and I will share the answer, because at this point, you are on the edge of your seat. Essentially, lithography is a printmaking method distinguished by its use of stone — as opposed to paper — to transfer ink. It's "an art form that allows

people to create multiple impressions of images," which came about when people discovered that "the chemical properties of limestone allow you to do this crazy thing" that we now know as lithography!

"How is it crazy?" you might ask skeptically. Well, lithography is actually an incredibly scientific process — it's all about the chemical reactions that occur between stones, grease and a whole host of other things. Thus, the studio is a laboratory!

Although stone looks solid, it's actually porous. According to Michniki, it can absorb this type of grease used by lithographers to make certain parts of the stone hydrophilic and other parts hydrophobic — think bio-sequence lipid bilayers.

Armed with the basic idea, I wanted to know more about the process. Specifically, I wanted to know when the big machine presses came in. It's all very technical — I know.

First, the stone is kind of sanded down in a process called "graining," which removes any previous printing residue and readies the stone for new material. This means that the printing stones can be reused.

Seeing as stones could be reused, I naturally asked Michniki if she had a favorite stone. She humored me by saying that each stone has its own chemical "personality," and some people name them! "I have names for my rollers but not my stones," she said. If my lithographic aspirations take flight, I think I'll christen my stone Patricia.

Next, you draw on the stone with specific types of black pigment containing the special grease. These could be crayons,

sticks, pencils or — my personal favorite due to its lovely name — tusche, pronounced "toosh," which is a paste loosened with water. When the tusche dries on the stone it does something called reticulation — I told you this was a laboratory — where a super cool, web-like, distinctly lithographic pattern forms. Michniki described how you can also scrape into the stone to create the design.

"The stone itself, the beauty of it, is that it is this malleable object, and you can push and pull your image on the stone," she told me.

The stone canvas is then stabilized with gum arabic — which I feel like I've seen on the ingredient list of my Buldak ramen — that chemically binds with the calcium carbonate in the now grease-saturated stone. "It's all about ionic bonds, so you can get really sciency with it if you want to," Michniki said. The gum arabic seals off the grease, creating a kind of stencil through chemical stabilization. Tusche makes this a little more complicated: You have to add nitric acid and "etch" away the excess grease to stabilize it — the more grease used, the more nitric acid content required. To Michniki, this extra challenge is worth it: If you add salt to a tusche wash you can "see the chemical reactions," she says, showing me an example of tusche wash reticulation.

I asked what tusche is made of, but apparently it's a "trade secret" and there are special tusche recipes that suppliers make for lithographers. It's like a family soup recipe, but instead it's grease — for rock printing.

After the chemical stabilizing, during a process called "washing out," the drawing material is extracted from the stone. A lithographer will sponge the stone with water, which migrates to the gum arabic-treated hydrophilic segments of stone: the greased design. Next, rollers cover the stone in ink, which also chemically attaches to the water, readying the design for printing. The catch is that "over-inking" can occur, when too much ink makes the whole stone inky, ruining the piece irreversibly. I began to question whether I would be patient enough for this art form.

Now for the cool big machines — the presses! Lithographic presses are distinct because they use a polyethylene "scraper bar" with incredible pressure to print designs. This scraper uses 10,000 pounds of pressure per square inch of stone. Do not get on the bad side of a lithographic press. Finally, after all that science, you get a sick design — and a print that can be transferred to a variety of mediums.

Lithography used to be more practical — crucial for printing paperwork headers, business papers and more. The recent advances in digital printing have meant it's now used more for its artistic properties.

I asked Michniki what she wanted people to know about lithography. "In today's digital world, it is so worth getting your hands into something and physically doing it," she said. "Lithography really teaches you that."

If you're interested, which you should be, Michniki offers her lithography class every spring semester. I promise she can teach you much more about the fascinating art than I can in this crash course.

Contact **BEATRICE BARILLA** at beatrice.barilla@yale.edu.