A Hysteresis Loop

For any phenomenon there is a shape, dashed lines, points in a plot.
: a loop, say a fountain pen's italic f.
I want to tell you that it's beautiful.

Sir James Alfred Ewing, studying earthquakes in Tokyo, discovered that magnetic force, when applied to pianoforte wire—it was the Meiji era, late 1880s, Brahms hard at work on his third piano trio—both saturates and flees the wire at the same rate, creating a mirror image, chartable over time. There was a lag, however, between cause and effect. He called this hysteresis.

Fig. 11

Pianoforte steel wire
Normal temper

From the Greek verb hystereo:
I am late, I fall short, I lag behind.

In his 1885 paper, Sir Ewing put it thus: When there are two quantities M and N such that cyclic variations of N cause cyclic variations of M, then if the changes of M lag behind those of N, we may say that there is hysteresis in the relation of M to N.

: variations of a father on a daughter and the daughter's changes to herself variations on the daughter charting how her father changed her variations to the way a daughter struggles to erect an image of herself how she lags behind herself

It's not the truth you want, it's the process,

walking back tonight, one foot ahead of mine crossing traffic, my husband says.
Quick steps,
involuntary motions—
one moment, next, the way our lives
stitch into a shape behind us,
disappearing if we look.

Red light: a car stops, bass rumbling.

You’re right, I say.
Though it’s not enough.

: either soft or glass-hard, cooled, annealed, taut or
normal-tempered, either steel or iron—
saturate the wire with magnetic force, then chart its drop

Tame is what he
seems in this instant,
chewing his beef in
small efficient bites,

eyes looking down
at his dinner plate, those
long black lashes my
mother fell in love with
fluttering thin.

Old tiger prowling in
a kinder, gentler cage:
watched, he knows I’m
watching him.

I want to tell you that it’s beautiful—
one upward curve tracing the rise
in magnetic force, one plummeting

at precisely the same intervals, forming
a natural symmetry, a loop.
Little things—
pill bottles multiplying
in his bedside tray. Hand
against his back as
he shuffles to the sink. Twitch
of his white-socked foot
as he nods off, TV blaring.

I chat about the storm
driving home tonight, where
to shop tomorrow—
placemats on the table, trivet
beneath the bubbling dish—
everyone is safe.

So I am cruel
in this instant, an exploding
bottle of ink
because I can’t help thinking
no forgive and forget, no love
always wins.

Fig. 16

Graded cyclical magnetisations
of an annealed pianoforte steel wire

Let me tell you about remanence:

What remains of magnetism in the body
after the field has been removed.

We are talking, my sister and I, across
a lightly distressed farmhouse table, two cups
between us, about our parents, how difficult
our father has been, where they’ll retire,
our to-go cups wrapped in cardboard sleeves
cooling off between us, my sister the doctor
almost pleading he’s not going to change,
I think his neural pathways are set, the tears
beginning to pool in her eyes and I,
tearing up too, saying *it’s different* 
*for me, I had a different experience with him,*
though what I mean is I can’t care 
the way you do.

What remains (from the Latin *remanare*) varies with each 
material but can be plotted as a point on the horizontal *H* axis somewhere above the 

*Let’s do it again,* I say to the cellist—

rehearsing for a wedding, our notes 
sliding past each other’s on the beat.

Breathing in together, we start again: 
bows in unison, a rest, and then his eighths,

my quarter note, coming together. 
I could go on like this, can practice 
forever when perfection is at stake, when 
any emotion can be acted out regardless 

of how I feel, then put aside gently, 
like a sweater I don’t need, lifted up 

to a cool, discerning light.

Oily, salty: how his scalp smelled 
on a humid summer evening, neck 
of his white Hanes T-shirt no longer 
actually white, the cage of his lips 

narrowing in anger, crumbling 
like the tip of a pencil pushed 
too hard. I could do that to him. 
*Help him, help him,* part of me thinks.
The value of $M$ at any point of the operation depends not only on the actual value of $N$, but on all the preceding changes (and particularly on the immediately preceding changes) of $N$. . .

When you’re tuning a piano
you must choose which set of chords
should sound most in tune—there’s no perfect temperament, no perfect pitch: each note
borrows the shadow of its neighbor,
is the product of a host of strings struck
all at once, and every string exists
to be tightened, loosened, pushed.