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The Scientific Method

MARY ALEXANDRA AGNER

parallel press poetry series



A Parallel Press Chapbook

The Scientific Method

Poetry by
Mary Alexandra Agner

Parallel Press

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"Grace Hopper Sneers at the Feminist Reporter" paraphrases from quotations given in Kathleen Broome Williams' *Grace Hopper: Admiral of the Cyber Sea*.

"Apparition" paraphrases quotations taken from *Memoir and Correspondence of Caroline Herschel*.

"The Computers' Drinking Song" quotes from Jennifer S. Light's "When Computers Were Women," *Technology and Culture* Volume 40, Number 3, July 1999, pp. 455-83.

"Middle Night" quotes from Mary Barnard's translations of Sappho.

"Perception Test" was written as part of a collaborative sonnet crown with Kathrine Varnes, Moira Egan, Marilyn L. Taylor, Debra Bruce-Kinnebrew, Amy Lemmon, and Miriam N. Kotzin.

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The Scientific Method

You're welcome to burn it:
unhook it, pull it overhead,
let your breasts slap together
as you toss it on the fire.
The idea doesn't go away.
Observe: need underwire?
Hypothesize: pull in instead
of holding up? The test:
a bodice tight around the torso.
The Scientific Bra supports you
bungee-jumping DNA, snowboarding
through a cyclotron. Undress
when appropriate but stuff a spare
inside your little black bag.

Rockhounds 101

Mother Underfoot

You've walked all over me since the beginning.
Mostly ignored me, except to tell horror stories
of Pompeii (just a little agitation on my part)
or how tsunami water rushes in (a reflex, really)
after I scratch a crustal itch on a coastline.
It's true you've had nice things to say
about my jeweled aurora borealis and australis.
But your words are small. You don't remember
the important things: the ice creeping
down toward my midriff, or all the insect
asteroids that gave me such unsightly scars,
not even the one that cracked off the satellite
you moon over and sing such silly songs about.
I laugh while you scurry across moving fault lines
twigged by my molten mantle caught with a nickel clasp.
I'm amazed by the bridges you build, the submersibles,
telescopes the size of craters. And the rockets.
Oh, the rockets just make me sad.
Have I been so difficult? Haven't I paid enough
attention? Why do you try so hard to leave?

Mermaid Geophysicist

I fin-flip, diving down along the heat
to watch the Earth emerge, self-birth.
I taste the ancient temperatures diffused
through rising water ribbons, ripe
magnetic lines of force that somersault
within the slowly spreading ridge.
Basalt is bleeding gold and molten
light, which each year pries apart
the world ten centimeters. One large gasp
before I expel all my breath, before
I sink to standstill on the seafloor
to wait for the once upon a time
I shift with the expansion of the plates.

Venus to Her Terraformers

I've howled for more than a million years, clouds
screaming past each other, volcanoes blushing my blood
to the brim of my dark skin. I dance with heat.

And *now* you come, with your robots
reinforced against the pressure
of my personality, to unwrap my shifting
albedo sari, denature and denude my languid body.

I will defy the chemistry you work on me.
I have stormed and teased, dawn and dusk, longer
than your toes have stirred tepid water. I can outwait,
outwit, the sons of monkeys, tool-users

unused to being used by mountains, captured
by coronae, rent by rift zones. Your geology is cold,
kept underground, empty of the passionate poison I pulse.

Grounded

So many years of human work:
red dust to clay, shadows
of particles to water clouds,
judicious use of greenhouse gases,
plants whose roots no longer run
away in lower gravity. So nearly
Earth; our great accomplishment.
The want for what we haven't got
builds wonders—new worlds out of old—
and fuels nostalgia for the feldspar,
screaming sandstorms, *the alien*
that grounded us in knowing we were human.

Bio Lab

Ode to Pioneers

You were the first to tendril from the water
by leaf and stem in the Devonian.
Before Watson and Crick, your windborne daughters
were clones, copies that kept you chaste as nuns
who channel energy from sun to spores.
You bootstrapped up by stalk, your leaves a trap
for wetness and for nutrients, both sapped
by complex plants who grew to predators.

But when storms cease, you shrivel up and furl
your leaves to keep them wet, not tumbleweed,
water corralled by cellular cowgirls
until drought's rifle crack starts a stampede.
Desiccated, almost corpse, you remain
alive unless transplanted, roots ripped out
of home's soil. No single green will sprout
and bond without a breeze: use wind, or wane.

And how far can the winds of Earth
send seed? What mistake makes a berth
for moss out of a starship's hull?
The dry and cold of space might cull
a greater plant, but moss will roar.
To Mars, to Pluto, tiny ambassador.

Syllables of Drought

It was a wetter Africa you knew,
ancient giraffe—
more greenery, the sky a wider blue,
your longer horns more often used—
when your full size was less than half
today's. The climate changed; you grew.

More than the tongue, the spots, your neck
is what your name has come to *mean*. When said,
the sounds stretch out, long As from Arabic,
the hissing, slurring F which spreads
just like your neck in centuries of drought.
And if your paradise returned, would you
revert? For language takes safaris, too:
a wetter word, you're shortened to a shout.

After Math

Florence Nightingale, 1820-1910

Worth one thousand words, usually,
but thousands dead
were inked as a colored nautilus
with chambers counting corpses
by disease or sword or bullet.
Hold this shell to your ear;
hear only your heartbeat's echo.
Numbers never had such voice
until Florence drew
coxcomb wedges for the dead.

To the modern world,
pictures are not epiphanies.
Lump together all those bodies—
summed and graphed by hand—
and the nineteenth century
would ache with rot and TB
where today we see a piechart.

Nightingale, sing us the sweet song
of statistics, math made
to improve man's lot,
and of the sortie Dickens wrote,
his thousand thousand words
to overthrow your picture.
Sing up the ghosts of war
to we who are inured to what remains
after explosives and machine-gun fire.

Sketch the rows and columns of us, now,
that we might see ourselves
and plot to change.

Jump the Chromosome

Barbara McClintock, Nobel Prize in Physiology or Medicine 1983

Teach me to leave off counting,
reverence the difference of a single aberration.

Give me your thirty years of patience
waiting for the world to listen to your truths.

I want to jump the chromosome.

What twists of self, what sister strands,
remain inside my rings, never expressed?

Take me underneath the microscope's fierce light.
Teach me how to self-pollinate.

Fizzlers and Stinkers

Ros' Final Hike

Rosalind Elsie Franklin, 1920-1958

Would Watson or Crick have wound
their way around the paths of the dead
to bring her back for the ceremony?
Surely the bonds of science outweigh
those of Eurydice and her musician,
strengthened by the sugar-phosphate map
the three of them had made.

She walked down all those steps alone—
guanine, thymine, adenine, cytosine—
bombarding each with X-rays,
catching DNA's crooked reflection.
Mirror, mirror, made by spinster's hands
to map the human universe.
And still the apple lodged within her throat.

The dwarves of history don't come
to carry back her casket into canon.
Fairy stories—even scientific ones—
skirt edges, are denied by centers
which cannot hold without the webs
outsiders weave. Break the glass
ceiling and hike back up the sugar trail

so we might make a fable of you,
earworm for a thousand thousand nights:
Ros' final hike, up lava flows from sea
to mountaintop, burnt hands, scraped knees,
birth pains as the perspectives change
and the *pahoehoe* tubes collapse her footprints
into handholds sized for us.

Navier-Stokes Equations

Take the river, carve it up
in cubes and squeeze the cubes
down to their limits.

The cold, the foam: infinitesimals
the mind makes out of matter—
but still the river moves.

Orient yourself orthogonal:
the current flows through you,
here laminar, here turbulent.

Arrows-in/tails-out tattoo
the sinks and sources of yourself.
How does the changing pressure

pressure you to change? You'll weave
and wend according to 5 terms.
Transform what you take in. Submerge.

Ebb

Mary Sears, 1905-1997

He wants the tides for places he can't name.
The Unit closes down, the WAVES head home,
and we remain: an oceanographer,
war secrets, and the Joint Chiefs' man.
He watches as I do the math,
pull charts from safes, consult
the weather records from the front.

He watches as I do the math,
my mind submerged as night yawns on,
the upper layers tossed by wind,
susceptible to rain and Sun,
the seasons of the ocean blooming
life and death: breakers, atoll,
sand with respect to time, red tides.

Boys will die. I check my numbers
thrice. I underline for emphasis.
The sailors rise and slack
on one man's signature
whose loops and whirls will swell
by early-hour arithmetic, cramped shoulders,
quiet snoring from the Joint Chiefs' man.

Morning comes, the math is done,
it leaves my hands. It never leaves my hands.
Smeared pencil dust accumulates in time
like light falls off with depth,
the memories a bioluminescent nightmare.
Awake, my eyesight strained in the Hadean dusk,
my hands appear identical to every patriot's.

Bending Circuits

The Computers' Drinking Song

Yours was not the same old song.
No saga for your sacrifice in war
recalled only by photographs:
skirts, smiles, four-foot memory boards.
Clerical? You calculated bombing tables,
used your language brain
to rewrite maths as feminine,
required heels to square root
and a compact mirror to sort out
the sparks when relays shorted.
Yours was not the same old song
but we sing it still, with hope:
*We squared and we cubed and we plotted
And many lines drew and some dotted
We've all developed a complex
Over wine, sex, and $f(x)$...*

Grace Hopper Sneers at the Feminist Reporter

If you work hard enough, mountains will move.
They did for me: math PhD in 1934,
programming mainframes in the war,
twisting the admirals' arms to automate,
update, and standardize. The field:
wide open for a woman in computers.
My life is proof and truth.

So put your clothes back on. (Where are my gloves?)
I'm all for innovating circuitry
but culture bends, just put your back to it—
your work—and everything will follow.
My husband's dead, no kids—that's relevant?
My sister had it all: career and family;
I'm sure it can be done. Did you?

Of course I use those nasty women's tricks;
convincing men of anything, historically,
requires you to divert thoughts
or out-think them. And, yes, I'm always right.
They learn that as the years go by.
The perfect metaphor can make things clear
to any audience: this is my nanosecond,

wire stripped and cut down to the distance
which electrons travel in that time.
Take it. When this interview is over,
printed paper or e-zine, you'll have it still
and think about your laptop differently.
Maybe you're right: the mountains are all moved.
Lever a star, instead.

Last Lullaby

Star-bright, high-flier, eagle-eyed,
my prodigy who never lost her way
with one palm always sunward:
it's time to close your never-sleeping eyes.

A child's trust, that I am always here
to listen when you call, mid-night,
and praise the light you share with me.
It's time to close your never-sleeping eyes.

There are so many wonders yet to see.
Don't look inside, don't see your failing circuitry.
Fold in your tail and slow your heart.
It's time to close your never-sleeping eyes.

The age of AI's yet to come
but I have worn your lenses long enough
to change. My hands shake on the keys.
It's time. Now close your never-sleeping eyes.

Stars and 'Scopes

Duet for Leviathan and Glass

The telescope case, blue and grey at twilight,
shivers its length under my hands,
large and cold and clumsy as a baby whale.
We're enveloped by velvet, wind, and stars.

The ultrasonic squeak as I push the case,
its pivot point screeching the calls
on the square *National Geographic* records
of humpbacks, black as their depths:

one song sung to find a lover,
eerie and liquid to those who cannot speak
with the tongues of whales. The stars
reach out from pockets of light: echolocation.

I lean further into the sky to catch
them on my lips, spicy and brown.
They sink through my unmirrored flesh.
Cloud-schools flash silver at the horizon.

Warmed by my hands, the telescope bucks up,
rolls over, pectoral fins pinwheeling, flukes
spraying reflected photons up in arcs.
In the kelp tresses of the Milky Way

a star breaches above the glow: response.
Upward with the telescope I sing,
swimming my one song of constellation names
and heaving breaths in the ancient language of light.

Apparition

Caroline Herschel, 1750-1848

My eyes adjust.
My breath does not.
I must not fog the instrument.
So easy just to hold my breath
in wonder at the clearing sky,
my fingers losing heat
against the metal of the telescope.
I sweep
long swaths of black, white patches magnified
by smaller motions of the stars.
I stalk the apparition
through the polished lenses,
waiting for its hour overhead.
Tonight it's just a comet,
thrill of wild space reduced
to angles, numbers noted,
when I hoped to glimpse my brother
added to the heavenly register.
Crank the wheel. Give me a galaxy—
hydrogen-red and beating
yet to my own eyes—
who's met its end,
its traveling photons giving memory the lie.
I will not lie. The beauty overwhelms
everything but him, William Herschel.

Middle Night

an interpolation of Sappho

I lean back to steady myself. The sky, older than I, yet freshly crushed velvet. I watch the moon rise, rub out the stars, pass overhead, pass under into out-of-sight. Next, an oval, a cluster of blurred light smears hours by: the Pleiades.

The night is now half-gone, youth goes with these eternal sisters, hands decorated by kisses, dark curls framing bronze eyes, arms reaching into the blackness, embracing fire and tendon.

The night is now pale blue,
the sisters set. *I am in bed, alone.*

Research

What Light I Can Conjure

When I find that I walk through the land of the dead,
into Hades or Dante's inferno of hells,
and the water which seeps through the caulk of the halls
makes a glove for my hand as it brushes the wall
on my left, always left, in the maze of the dead

so my right reaches out to take hold of the void,
I call out, with what light I can conjure inside,
for my Virgil, born Mary in Fairfax and died
as a Somerville, scientist, writer. My guide
to the gears of the globe and the laws of the void

has the hands of the idle, though smudged with dark ink
from Laplace's *Celestial Mechanics* (the lines
of her English beside his mathematical signs).
And her eyes are small points in her face, though they shine
so I see my reflection emerge from the ink

of her pupil, alive in the haze and the cold.
Then it pivots, it looks at the rock, at her light,
at the whole of the dark, but for me. Hand clenched tight
on the wall, it looks up, just reversed to my sight.
Our eyes meet. Nested doll, there I am, in the cold

blue-grey pits that recurse, endlessly, and I curse
that the damp's not the dew, nor the darkness the skies,
that my pallor of skin is a whiteness that lies:
I'm a star and I burn past the blue of sunrise.
But this Escher self-portrait revolves, while I curse,

as an orrery, ticking, metallic, in birth
to a comet, plume waving when warmed: solid brass
for this twin who still wavers before me, no mass
for the strength of our sun to curl inward and grasp.
If we touch in this emptiness, what will we birth?

But the Lady of Science, voice roughened by years,
interrupts as our mirror of hands makes a plane
so we pause. In the tilt of its head is the claim
that it's more than my body reflected: not tamed,
no mere copy, a being with choices and years

left discovering the graben and karsts of its life,
a geology only askew from my own
by a difference in particle paths that are shown
by limp squiggles in textbooks, by worldlines in cones
in Minkowski spacetime. In that arc of its life,

of what seeds and what hollows did it craft the points
of desire, what fears the line segments? Would touch
be of intimate nature enough for how much
of this other I need? No handshake, I will clutch
with my words. I draw breath. Mrs. Somerville points

to my double, insistent; my oracle speaks
of Sir Newton's third law. I won't do as I ought,
I'll do both, so I'll meet with this self and the doubt
newly bodied, momentum increasing with shouts
of approval, in vectors, from Mary, and speak—

bite my lip on the sounds as they shatter the form
of the woman I was, who might share the unknown:
why I'm here, how I'm lost, where I'm headed alone,
all the tales she might tell of a girl she had known
less afraid of herself than the need to transform.

In the tears of my guide and her uneven breath,
I hear pity: this death as my payment. My flesh,
though in pain, still offends by its brightness immeshed
in this dark. But the shards of my double are fresh
with the spark of her life and they pulse with her breath,

the way lava flows flicker and cool. I bend down,
with my hand on the wall, and retrieve a small sphere
like a chondrule, misplaced, but so anciently clear
as a sign of formation I let go my fear
in my wonder. I whistle, it sings. My guard's down

to immensity, quantified, unquantifiable.
With all senses so open I finally note
my uneven scribblings on the hem of her coat,
in the shadows of Mary-light. Caught in my throat
is the question that asks for the unquantifiable,

for the number and nature of visits I've made
to this place where I die. But this time I will find
my way out on my own: I've the maze in my hand.
I hold tight to my light as your wick's smoke unwinds,
Mary mine, as you unblood the pact we have made,

and your lace and equations fade out, like all dead,
to the past. We're connected by names, by exchange
of photons and our breath, by quarks charming and strange.
And yet none of these binds me to you. I can change.
When I find that I walk through the land of the dead

it's a choice I have made, the road taken, a turn,
a refusal to leave from the energy shell
of the lowest potential, a force parallel
to my circular motion, the spiral my cells
just inherently seek. It's a choice. So I turn

to the blocks on the scale which determine the heft
of my heart: on my right, the large weight that's chock-full
with this dampness, forgetfulness, countered by pull
from the slice of a geode whose size can't annul
all the colors it casts on the cave. I would heft

the wet burden, if not for the rainbow in rock
whose kaleidoscope beauty reminds me of me.
And no matter the distance, square roots, gravity,
I delight in myself, in the sorrows and sea
of my name. In my death. I let go of the rock.

In the darkness that, with just a blink of the eye,
is *my* void, my interior stars multiply
and the chondrule ignites, my old self amplified.

Perception Test

To think we've counted all the stars!
Astrologers would say our fate is fixed,
but suns are speeding atoms, atoms part
by fission, spreading, bomb and birth admixed.

The common cloud's both particle and whole
and can transform to rainbows or to fog.
Its optics understood, who'll count the whales
and faces, listen to their monologues?

Ignoring blueness, depth, the lunar tide,
sonar removes the ocean's negligee.
That naked rift, this secret shelf—no pride
turns pink to find bathymetry displayed.

Each moment asks: which do you choose to see,
the infinite or finite mystery?



Mary Alexandra Agner writes of dead women, telescopes, and secrets. She's inverted a light curve from Pluto's atmosphere and modeled a low-density residuum in the Earth's upper mantle. Her writing has appeared in *The Raintown Review*, *The Flea*, *Astropoetica*, and *Science*. She can be found online at <http://www.pantoum.org>.



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