A midwife’s hands. Photo by Christa Marshall.
The machines I use and value most are my hands.

I have big hands with long fingers. There is a scar on my left palm from the time I fell off a horse at eighteen and skidded to a stop on a dirt road. The veins on the back of my palms are prominent; the thick, blue lines under pale skin made a younger me self-conscious. In seventh grade, I sprained my middle finger trying to catch a softball, and wearing a bulky splint, I got to skip gym class for a week. In high school, my hands knew the perfect ballet stance, sculpted for turning and jumping. My hands fit perfectly in my dance partner’s as we moved across the floor.

The human hand has twenty-seven bones wrapped in muscles, ligaments, and tendons. At the end of the arm, the palm, fingers, and thumb have almost unlimited variations of movement. The fingertips have dense collections of nerve endings to feel sharp, rough, smooth, soft, sticky, hot, cold, and wet. From before birth, the prints of our fingers contain our unique signature. As infants, hands are our first tools. Mostly blind when we arrive out of the womb, we use our hands as blunt fists to swat and to suck. But then we discover them by sight. We hold our hands in front of our small faces and unfold our fingers, eyes locked. We use our hands as mitts, stroking and patting and grabbing. They scratch: as the nerves in our fingertips come alive, tiny fingernails go scratch scratch on every surface. We start to pass objects from one hand to another, and our hands begin to
work together. We hold things and examine them with our eyes, not our mouths. We learn to use our fingers independently, pinching and poking. As we grow, our hands—endlessly versatile—adapt to whatever task we give them.

I have midwife hands, my fingernails rarely painted and always trimmed short. They are with me at every gynecology appointment, every prenatal appointment, and every birth. My hands evaluate women’s bodies, even the hidden parts—vagina, cervix, uterus, and ovaries. These hands touch teenage women and menopausal women and pregnant women. The pelvis of a pregnant woman is often measured with what’s called “pelvimetry” to confirm its capacity for a vaginal birth. My fingers are rulers—eleven centimeters long. In a vagina, my fingers measure how far away the sacrum—the bottom portion of the spine—is from the pubic bone. A woman lies on the exam table, and I stand between her legs with my fingers pointed straight back, deep in her vagina, parallel to the floor in the direction of her sacrum. This measurement, the diagonal conjugate, is a diameter of a woman’s true pelvis, the bony passageway between the dark sea of the womb and the earth. The passage curves along the sacrum, past the prominent inward-facing bones of the pelvis, known as the ischial spines, and ends at the coccyx—the tailbone—and the pubic bone. Tracing the boundaries of this passage, my fingers judge the angle of the pubic arch, the shape of the ischial spines, the curvature of the sacrum, and the flexibility of the coccyx. The near universal suitability of these dimensions affirms my trust in women’s bodies and their brilliant engineering. In a few moments, my fingers have done the job that an x-ray machine once did. Decades ago, x-ray was used to visualize the bone structure of a woman and her fetus, but my hands do the job best and safest. These tools of muscle and bone are best suited for working with muscle and bone.

While a woman is in labor, I periodically examine her body and her baby. A cervical exam includes evaluating the openness or dilation of the cervix, the effacement or thinness of the cervix, the station or height of the baby in the pelvis, and whether her water has broken. My fingers feel the crown of her baby’s head as he descends through the open cervix and vagina, following his movements and rotations. The cervix ultimately opens
to a diameter of ten centimeters; my pointer and middle finger stretch apart and circle the baby’s head as I check for that rubbery band of cervix and measure the diameter of the opening within a half centimeter. I feel the posterior fontanelle—a space between the bones of the skull that allow the baby’s head to mold to the shape of his mother as he’s being born—which tells me where his face and body are and whether his head is tucked or tilted or extended. Caring for women in labor is informed by science, but it will always be an art. My hands follow the changes in the woman’s body, and the three of us—mother, baby, midwife—work together. As the baby navigates this passage, he actively participates in his birth; his head flexes and extends, his shoulders twist and turn, until he reaches the air. After a birth, my hands retain the chemical, plastic smell of sterile gloves and antimicrobial washing; the smell won’t wash off. The smell reminds me of the new bodies my hands caught that day: wet, naked arms and legs flailing in search of their mother. My hands are strong. With these hands, I welcome generations.

I’m not the first woman in my family to work in birth. My mom was a nurse at a freestanding birth center, staffed by midwives, where natural births in a homelike setting were the norm. Most American families welcome their babies in hospitals, and there is no one way to describe a hospital birth: practices vary from hospital to hospital and from doctor to doctor. But, in general, hospitals have a stronger institutional feel: a standard-issue gown, iv fluids, a fancy mechanical bed, and a large, rotating staff of doctors and midwives and nurses. In many hospitals, a laboring woman will be restricted from eating during her labor. Her baby is often monitored continuously with devices that are pressed against her belly with belts. Her iv fluids connect her arm to the iv pole. Her fetal monitors connect her to the computer. Her blood-pressure cuff connects her to the automatic blood-pressure device. If this woman has an epidural for pain relief, she will have the epidural tube coming from her back and probably a urinary catheter coming from her bladder. Sometimes women give birth with a just-in-case iv line that is not connected to anything. Some hospitals do provide intermittent monitoring where a doctor or midwife listens to the baby with a handheld device at regular intervals, but this practice is
not the norm. The typical hospital room is crowded with machines that blink and alarm; technology is everywhere. In my experience, the image that represents hospital birth best is the laboring woman with lines and cords tying her down. A woman restrained.

While women and babies who are “high risk” are served best in hospitals by specialized teams with operating rooms and neonatal intensive-care units down the hall, women without these risk factors can make another choice. It’s a much less common choice, at least in America, but historically—and still in many places around the world—out-of-hospital birth was a common and safe practice for most women. Out-of-hospital birth includes giving birth at home or in a freestanding birth center and is typically attended by a midwife. Women birth in their own clothing or even naked. Unattached to any machines, women can move from room to room and birth wherever they choose. There are no anesthesiologists to give epidurals, but women receive pain relief by soaking in warm water, showering, massage, walking, and minimizing stress. Many women I know talk about having a feeling of control during an out-of-hospital birth—control of who saw or touched their vagina, control of where they could go, control of how they could move in labor, and control of how they pushed out their babies. My mom talks about having had control over her new babies after she helped to birth them. Unlike in a hospital, after being born, babies never leave their mothers’ arms. Babies are not whisked off to the newborn nursery an hour after birth, or given exams and injections across the room. Everything the baby needs can be done while he rests on his mother’s chest.

When I was a kid, my mom worked on-call, usually overnight, and I grew to believe that all babies arrived in the darkest hours of the night. My siblings and I spent a lot of time at the birth center as kids, often rolling around on birthing balls—large, round exercise balls—while my mom resupplied and organized the birth rooms. As a reward for good behavior, my mom would let my little brother and sister take bubble baths in the Jacuzzi tub that offered pain relief to laboring women. I would tag along with my mom to check on mothers and new babies at their own homes, waiting in the living room while she was in the bedroom.
When my mom was pregnant with my little sister, I used construction paper and glue to make a picture of my new sibling, complete with uterus, placenta, and umbilical cord. My mother referred to “the birth canal” with such frequency that I thought it was a separate passage altogether, unique to pregnant women. There was a photograph in a hall near one of the birthing rooms of a baby crowning. It was a black-and-white shot of a woman’s perineum stretched thin, a baby’s head peeking out. Eye-level with the perineum, her thighs rising out of the frame, the pale skin of the woman’s body made a perfect circle around the baby’s head, which was covered in dark hair. It was an awesome and mesmerizing scene: one body emerging alive from another.

As a four-and-a-half-year-old at my little sister's birth, I stayed up all night playing with my grandparents and older brother and waiting for my sister to arrive. My mom's best friend and I baked a birthday cake and put a “zero” candle on top. I didn't watch the actual birth, but I remember being in and out of the room my mother was in and meeting my sister right after she was born. My memories of the night are all positive. It was a family celebration, preschooler included. My sister was not swaddled or placed in a plastic bassinet. Taking one arm out of my nightgown, I cuddled her against my skin.

Babies held with their bare skin against the bare skin of caretakers are calm. Their body functions regulate, and the stress of adjusting to this world of light and noise and cold dissolves. No incubator can replicate a mother’s chest. Nature is the most advanced technology.

Robots can reproduce the movements of the hand. On assembly lines, machines replace hands and repeat the same motion thousands of times without needing a break. But the sensory ability of hands cannot be replicated in a machine. My robotic vacuum attempts to sense as a hand does when it bounces off of the baseboard, turns, and bumps into a chair. When its sensor encounters pressure, the vacuum stops and changes direction. But this sensor does not prevent it from pushing the dog’s water bowl across the kitchen floor or dragging electrical cords through the living room. The ability of our hands to integrate movement and sensory information is unparalleled.
Palpation, a foundation of medical assessment, is skilled touch. And touch, even in the exam room, is intimate. The way we touch each other communicates what our words cannot; respectful touch builds trust, and a trusting relationship between patient and provider begets optimal care. When I studied to become a midwife, we did our first pelvic exams on each other. The correct touch is the hardest skill to acquire; the hands should be confident and heavy, neither sensual nor abrupt. I remember the first time we practiced in groups of three with an instructor; undressed from the waist down, I allowed a fellow student to hold the speculum, rotating it and opening it to see my cervix. At first the speculum is an unfamiliar appendage: shaky and slippery and confusing. But with time, it can become an extension of my hand, its movements second nature.

Now, I start every pelvic exam by telling the woman that she'll feel the back of my hand on her thigh. The back of my hand is less intimate, and her thigh is less sensitive than her vagina. Throughout the exam, I tell her what I am doing, because giving her information puts her in control. With that first touch, her body will tense, but then it relaxes a bit, and I begin. We’ve talked about her medical history, and I’ve listened to her heart and lungs, but we’ve just met. I am responsible for her physical and emotional safety; I take it seriously. The last part of the exam is the bimanual exam. Like my stethoscope, speculum, and specimen collection kits, my hands are just another tool. I use two fingers in the vagina and one hand on the abdomen to palpate the uterus and ovaries.

To learn about the position and size of the baby in the uterus, I use my hands. The woman lifts her shirt to expose her stomach and reclines on the exam table. I lay my hands on her belly. They glide in circles until I locate a smooth, curved back and a jumble of hands and feet. Hello, baby. A knee or fist pushes slow, stretching against my hand. A quick kick surprises the mother and me. When I grasp it and jiggle from side to side, the fetal head nods back and forth in my hand, independent from the body; it is ballotable. Because the baby’s bottom is continuous with the torso, the same hand movement will cause the entire body to bob in the amniotic fluid. I take the mother’s hand in mine and place it on her baby’s back, bottom, foot. We are three in the room. I place my hand on the head
and the other on the bottom, and then I place them on the baby’s back and one on the arms and legs. I weigh the baby. Five pounds. Six pounds. Seven-and-a-half pounds. My hands can estimate the weight of a fetus as well as an ultrasound machine.

I learned to be a midwife with a senior midwife’s hands directly on mine. During pelvic exams and births, I tried to feel her energy. My hands learned where she directed pressure, when she pushed, and when she pulled her hands away. Our four hands sometimes crowded each other and made awkward motions, but I needed her guidance. Most babies are born facing down towards the mother’s sacrum, reaching the perineum with their chins on their chests, and emerging by extending their heads, faces reaching skyward. The speed with which the head extends is often controlled by giving support to the perineum to prevent excess trauma to the woman’s body. During birth, each midwife has her own style of supporting the perineum. Some press flat against the perineum, some squeeze, pulling their thumb and fingers together. Sometimes their hands hover in wait, occasionally touching the perineum lightly as if to test it. At the first birth I attended as a student, it was little more than literal catching; the baby was born so quickly, I didn’t even have time to think about how to adjust the pressure or placement of my hands—yet my novice hands had caught their first baby. The senior midwife’s hands fluttered around mine—checking and suctioning and clamping and cutting.

Now my hands perform all of the tasks independently. My left hand keeps the head flexed as it emerges, pushing down as the woman pushes her baby out. My right hand is on her perineum, that magnificent space between the vagina and the anus, as it stretches and accommodates. I feel the skin extending, and I push back, countering the mother’s expulsive force. I’m also talking to her as I feel the skin become taut; I tell her to pant and stop pushing, so the skin can relax a bit. Then, as she pushes again, I push the bulging perineum back past the baby’s ears, nose, and mouth, allowing the head to emerge. My hands pull away for a moment to check the baby’s neck for an umbilical cord and to watch the head turn ninety degrees so that the shoulders pass through the widest diameter of the pelvis. I place my hands on the sides of the baby’s head and move it downwards to allow
the top shoulder to be born. Once the top shoulder passes the pubic bone, I lift up and gather the newborn into my arms and pass her to her mother.

On her mother, the baby takes her first gasping breath with an effort that must fill her lungs with air and force the remaining amniotic fluid into her bloodstream. It's the hardest breath she'll ever take. There are a number of elements that encourage this inhalation—the relatively cool temperature outside the womb, the squeeze of the vagina and the subsequent release, a need for oxygen after the taxing birth process—but sometimes the baby lands naked and still on her mother's soft belly. She is still being oxygenated by the umbilical cord, but outside the mother's body, that lifeline starts to contract, and blood flow slows. So I reach my hands up and rub the baby's back. With the up-and-down strokes, air fills her lungs, and she cries those first beautiful cries. I realize I've been holding my breath with her. As she inhales, I exhale.

Birth is a lot of waiting and a lot of rushing and a lot of holding of breath. Hands off. Hands on. Hands two steps ahead of my brain. My hands are steady and calm and quick, even though there is always fear in my chest. I let it live there because I must not forget how fragile our entry is into this world. My hands are resuscitation tools. They stimulate. They suction. They hold the bag-valve mask over a baby's mouth and nose and give breaths that are just the right size. They wrap around tiny rib cages and give chest compressions. In that pause between birth and first breath, we all hang in limbo, and the fear starts to rise in my throat. Each lung-clearing cry pushes that fear back.

I am humbled by birth, privileged to attend women in their most intense moments. My hands are consecrated by their work. Trained to be tools, they are made holy by each baby they usher into the world. They are made holy by each birthing woman who allows my hands to comfort her, who trusts my hands to keep her and her baby safe. My hands hold the hands of scared, hurting, grieving women; birth is often joyful, but sometimes it is not. There is miscarriage and loss and sickness and infertility, and in the church of the exam room, I am both midwife and minister. I once cared for a woman in labor with a son who had died in the womb around the seventh month of pregnancy—what is called a fetal demise. She had been
under the care of another doctor, but I was called when she was ready to birth unexpectedly. I had not met her until I came into the delivery room with a senior midwife. I had never seen a dead baby before. His small, thin body showed signs of decay after spending weeks in amniotic fluid after his heart stopped beating. I wrapped up her son in a receiving blanket and cleaned his face as best as I could and handed him to her. His skin was peeling, his eyes empty. She was already crying. At that moment, my hands were those of a mortician.

Less than a month after I finished midwifery school, I birthed my daughter into the hands of a midwife. As I neared my due date, I would try to check my cervix in hopes of learning how close I was to labor: that gate between the dark, aquatic womb and the dry land of earth. The cervix changes throughout a woman’s menstrual cycle and also throughout pregnancy, becoming softer or harder and even moving forward in line with the vagina or facing backwards. In labor, the cervix shortens, opens, and shifts forward. It eventually disappears completely, creating that open passage. With my own enormous belly, no matter how deeply I squatted, I just couldn’t reach my cervix. My fingers searched, but my cervix remained closed and tucked away.

On a hot Thursday afternoon in August, my labor began. Slowly. I was in our pool enjoying the warm sun and decadent buoyancy of the cool water when I had a couple of uncomfortable contractions. Not yet sure that I was in labor, I went inside to take a nap and woke up with a strong contraction. Determined to distract myself from what could be a false alarm or the beginning of a days-long labor, I kept my hands busy: making fried rice for dinner and baking a cake. But the contractions continued, so I migrated to the bathtub to relax. My partner was anxious and unbelieving that this was labor, and I was still hesitant to declare that it was. I was excited and restless; my body was on autopilot, my brain left behind. I kept thinking of all of the women I had triaged who were barely in labor; I would be so embarrassed if I, the midwife, showed up at the birth center with a closed cervix. After a long soak in the tub, then a shower, and then another soak in the tub, I decided to try and check myself. I squatted again on the bathmat and reached around my belly. My two fingers entered my vagina—spongy, slippery, and
soft. My fingers hardly had to reach; just a few centimeters in, I felt my thin cervix—it had moved forward and opened up almost four centimeters, a bag of water protruding through it. Inside that bag was amniotic fluid, and floating in that ocean was my baby. As another contraction started, I removed my fingers and stood up. My body was changing, yes, but I still had doubts. My hands weren’t able to work as the tools I had come to know and to trust. Those fingers that had confidently felt other women’s bodies open up and push out their babies didn’t seem to believe what my own body was capable of. At midnight, with contractions coming every two to four minutes, I called my mom to ask her if it was time. She didn’t hesitate. It was time.

We left for the birth center at one o’clock on Friday morning, and when we arrived, my midwife checked me, and I was seven-and-a-half centimeters dilated. My cervix had thinned completely, and the baby’s head was engaged in my pelvis, just beginning to descend. Her hands confirmed what I had felt; there was a pocket of amniotic fluid in front of the baby’s head pushing through the cervix. It turned out that my hands still worked. After my mom arrived, my water broke in one enormous gush.

I moved into the bathtub to seek relief from the warm water. The contractions roared. I reached down and felt her head traveling lower and lower between each push, but there was still a strange disconnect between my hands and my body. Feeling the head of a baby inside a vagina was familiar, but feeling my own baby in my own vagina was new and strange. I had only felt this before with sterile gloves on. I was used to feigning complete relaxation as I watched mom, baby, and dad, arranging the tools on my sterile table—clamps, scissors, bulb syringe, needle holders. Now, for the first time, I was the one lying naked in a bathtub, awaiting another contraction. My baby was coming now—four days early—and my hands were ungloved, and one rested on my vulva, protecting. I had imagined that I would catch my own baby, but when my midwife asked, I knew I needed her to do it. The angle was all wrong, and I couldn’t see my perineum at all in the dark bathroom, and the pain arched my back, my head thrown back, my eyes closed.

This time, I was the mother, not the midwife.
And so I allowed the midwife’s hands to welcome my baby into the warm water and to bring her up to my chest. My daughter’s arms were stretched out in front of her, reaching, her eyes puffy, her blood still flowing through the umbilical cord to our shared placenta. She looked up at me, in between worlds. Air had not yet filled her lungs; her blood still flowed to and from the placenta. An alien from a watery world, journeying across galaxies. And although I had known her for months, I held her then for the first time. I took my hand and rubbed her back. She took that first, most difficult breath, and she cried.

After I carried her from the tub to the bed, after her dad cut her umbilical cord, after I delivered our placenta, after she bobbed her head around on my naked chest and found the breast, I examined her. As she nursed, I opened her walnut-sized fists and stroked her hands. She had passed from my body into my arms, but she didn’t feel like mine until I saw her hands. There were my long fingers, my wide fingernails. I knew those hands: my own reborn.

In time, her hands will grow. She’ll paint her nails at sleepovers and get paper cuts. Her hands will hold a pencil and type on a keyboard. Her hands will tan and wrinkle and scar. Our machines are the same model—strong and graceful—but she must decide what functions hers will perform.

Now my daughter’s hand is tucked in the collar of my shirt, her fingertips pressing into my skin, lightly kneading as she sleeps. We rock in the rocking chair. I kiss the top of her head and smell her sweet straw smell. I remember the first time I touched the crown of her head, early on that Friday morning, my knees bent against the side of the tub, my belly rising above the water. My hips ached, and my thoughts were both frantic and in slow motion. My hand moved from where it had been braced on my thigh and to my vagina. I touched her. For months I had felt her inside of me, kicking and pushing and rolling, but now my hands could reach her. I felt her hair and the wrinkled skin of her scalp. I felt her in my uterus—kicking and twisting. I felt her with my hands—her flesh squeezed tightly within mine as our bodies molded together.

I brush her head with my hand now. Big hands with long fingers smooth her fine hair, and we rock.