SOUTHWEST AIRLINES Spirit

spirit

SOUTHWEST AIRLINES

Hey, I'm talkin' to you!

Babies have more to say than you think. Meet the man who hears them loud and clear—
on page 86.

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THIS IS OUR BRAIN. HERE'S HOW WE USE IT.

BY JOHN McALLEY

I'M TRYING TO FOCUS like a laser on what Dr. Sandra Bond Chapman is saying, but her iPhone keeps pinging with e-mail alerts. "A wealth of information creates poverty of thought." Ping! "We wear our ability to multitask like a badge of achievement when it's really the worst thing we can do to our brain." Ping! "Fifty percent of how we use our brain is toxic for the brain." Ping! "The most powerful part of the brain is its blocking ability, but teens aren't developing it because of information overload." Ping!

Chapman's chiming smartphone isn't the only thing pulling my attention in her office at the Center for BrainHealth, in Dallas. There's the bisected model brain atop the small conference table where we sit. Another brain likeness, abstracted into a luminous and colorful sculptural piece, catches the late-January morning light from a nearby window.

Then there is the large pair of eyes—a framed illustration—that peer down on me from above Chapman's neatly ordered desk.

Blocking—a cognitive gift I could use right about now—is the brain's great ability to neutralize distractions, to govern its own furiously thrumming pathways and trillions of synaptic connections for the purpose of heightened concentration and higher cognitive thinking. Clearly, Chapman, unfazed by her nagging iPhone, is more advanced at blocking than I am, but that's why I'm here—to join the 700 or so people who, in the past year, have taken her curiosity-piquing "brain health physical."

Recent advances in technology—particularly the remarkable exploratory powers of functional Magnetic Resonance Imaging (fMRI), a scan that allows neuroscientists to monitor the brain as it goes through its staggeringly complex paces—have made possible unprecedented strides in brain science. And the revelations are dizzying. The middle-aged brain, new studies show, isn't focused exclusively on crisis-management diversions like Ferraris and spa retreats. It's an unexpectedly robust, not a fading brain. Napping is good for the brain; multitasking is bad. Meditation? Aces for memory retention and stress relief. Obesity? A possible fast track to dementia. Love lights up the brain; habitual videogaming depresses it.

Innumerable new conclusions about the mind have been drawn. Some of them—like those related to the treatment of depression, autism, and Asperger's syndrome or the early diagnosis of Alzheimer's—are game changing. Others—like the conviction of growing numbers of "neuromarketers" that hard-sell messages about dog food and moisturizer can, even

more deeply than they already are, be embedded into the subconscious—are distressing.

The boom in brain science has been a boon for understanding human behavior and potential—even if it requires more patient cooperation from our little furry friends. In one *Onion*-worthy laboratory experiment intended to prove the positive impact of endurance exercise on brain function, scientists in Brazil had a group of rats repeatedly scale a ladder with tiny weights cinched to their tails. In another lab on another continent, the morphing neurons and blood vessels of a monkey's brain were microscopically photographed as the monkey stared at a smiley face. Wondrously—or appallingly, if you're a PETA member—the blood vessels in an area of the monkey's brain formed into the very same smiley face pattern. Similarly, in a development that will thrill the branding executives at Time Warner, my brain has taken the shape of the HBO logo.

NO BETTER TIME, then, to put the Center for BrainHealth team to work. "In the brain health physical, we focus on three areas," says Chapman, who founded the CBH in 1999 and whose sparkling, multi-purpose research facility is the beneficiary of private and public funding and the admiration of researchers from U.C. Berkley to M.I.T. "One of the areas is brain plasticity. We now know that the brain is constantly rewiring itself in good ways and bad, depending on how we use it. What the Center for BrainHealth wants to explore is, how can each of us change our active thinking in ways to make our brain more robust?

"Our second focus," Chapman continues, "is on frontal lobe function, which is the part of the brain that makes us dynamic, flexible, and strategic thinkers. As we get older, we worry obsessively about memory loss, but memory might be the least important thing in terms of what makes us successful and how we orchestrate our days. The final area of focus is on maximizing human cognitive potential—what it is that will make us the best higher-order thinkers possible through to the end of our lives. It matters every single day and to all of us: teens, millennials, thirtysomethings, boomers, seniors. We pay such close attention to how our hearts function. Why aren't we just as dedicated to making sure that our brains work as fluidly as possible? All of us have things that chip away at our cognitive function, whether it's sleep deprivation, sleep aids, depression, chemotherapy, the concussions we're now hearing so much about. The brain health physical helps each of us establish a benchmark—a level of functionality we can aspire to maintain as decades pass."

The thing about brain exploration is, it triggers fear. A lot of it. Poke and prod our bodies until we howl in pain, but do *not* goof around with our brains. There are some things we just don't want to know. Thanks to technology, "what used to be science fiction is now science faction," Chapman says ominously. Still, her "cognitive workout" doesn't involve the strapping on of wired headgear or a tête à tête with an EEG. If plaques associated with Alzheimer's are floating around in your head, the brain-physical proctors at CBH won't drop *that* news on you. Instead, the poking and prodding will be mental and stimulating, and will last for two hours. You'll be asked to repeat long strings of numbers, then asked to repeat them backwards. You'll be asked to summarize the meaning of certain axioms; transparently easy ones like "Don't judge a book by its cover" and—for me, at least—brain-freezing philosophical nuggets like "One swallow doesn't make a summer." (Note to self: less *Entourage*, more Erasmus.)

Puzzle pieces will be tossed your way, and long tales will be spun about a guy named Torres and a girl named Thompson that you'll have to retell in as much detail as possible. For reasons I won't explain, you'll find yourself cursing a nomad named Malcolm Muggeridge and kicking yourself, thinking, *Donkey! How could I have forgotten donkey?!* You'll play with a pencil, and, if you're like me, stare blankly at a drawing of a man poised gleefully over a goose.

A week later, you'll sit down for an hour's worth of test results, feedback, and strategies for maintaining overall brain health. You'll also take away a new and profound appreciation for the magnificence and power of the mind—many wonders of which are explored in the following pages of *Spirit*. From infancy to surprisingly acute old age, the brain is eagerly turning, helping us not only to define ourselves and find our way in the world but to constantly *redefine* ourselves and our world with eureka moments and stunning enterprise.

"Mr. McAlley's performance demonstrated robust abilities in the areas of strategic attention [and] integrated reasoning," my brain health physical summary reads in part. "He did, however, show relative vulnerability in the area of innovation in terms of idea fluency."

Ping! That's something I'll just have to work on. Delight your mind over the next 16 pages and let me know how I'm doing.

REALLY WANT TO SHARPEN YOUR MIND? PUT AWAY THE CROSSWORDS, CHAPMAN SAYS. INSTEAD...

LASER FOCUS When you've got something that needs to get done, block everything else out and tackle it in uninterrupted intervals of 30 minutes.

INNOVATE We tend to get more narrow-minded as we get older, only because we let ourselves. People who stay robust get more flexible in their thinking; they see *more* possibilities, not fewer. See yourself as an innovator. Stretch yourself every day. Create new ways of doing the things that really matter to you.

GO DEEP Holding onto strategic thinking skills requires going deeper with everything you do. After seeing a movie, rather than just chit chat, talk and think about it—its themes, its characters—on a deeper level. We do a lot of mindless reading. When you're reading a book, make it a habit to really absorb what you're taking in. Consider it weightlifting for the mind.

GET INTERESTED Wherever you are and in whatever you do, ask questions. Be an inquisitive mind.

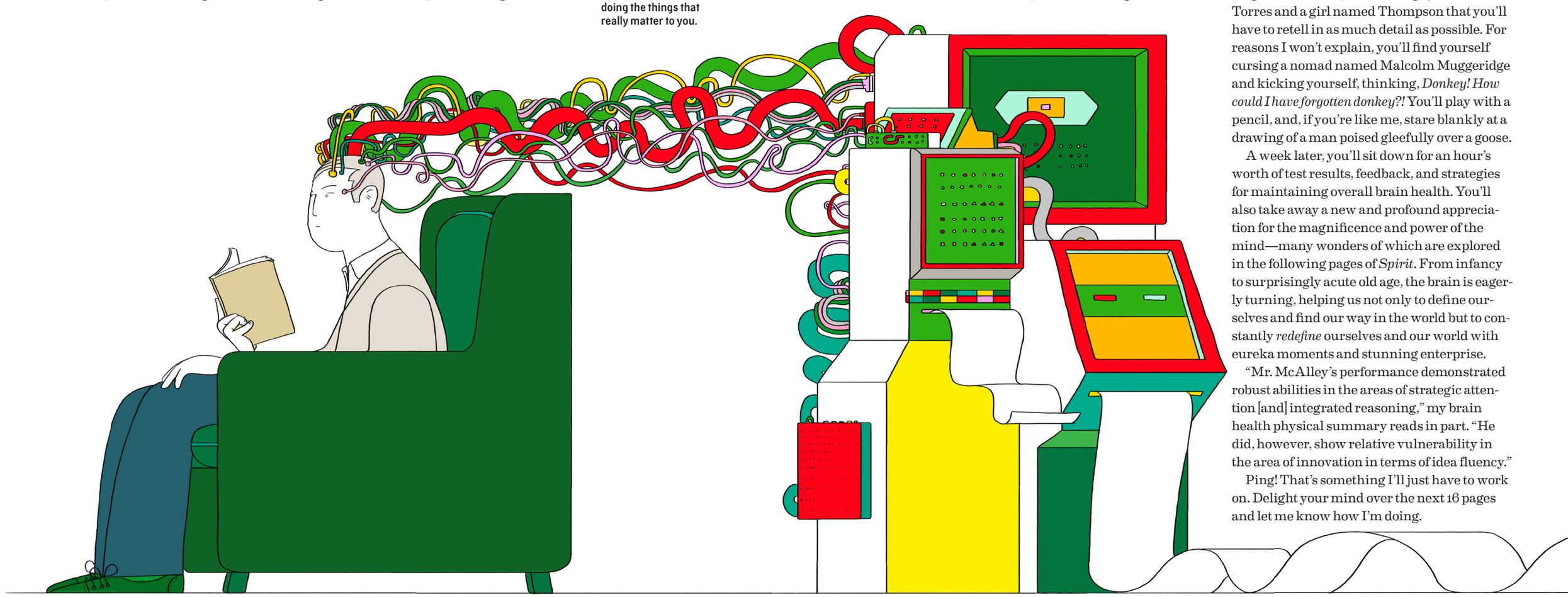


ILLUSTRATION BY CELYN

THE MOUSE HOUSE

SO MUCH OF WHAT WE KNOW ABOUT HUMAN PERSONALITY WE'VE LEARNED FROM LABORATORY MICE.

WHAT KIND OF WEASEL ARE YOU?

TWO THINGS DISTINGUISH the human personality from that of a mouse," Hannah Holmes writes in her entertaining book *Quirk: Brain Science Makes Sense of Your Peculiar Personality*. "One is our profoundly social lifestyle. Biologically, we're built to share. Without ever meaning to, we care. Even the nastiest person you know cares more than the nicest weasel or bear." The other distinction, Holmes says, is the substantial size of our brains: "Our tremendous mental wattage, plus our social instincts, yield nuances of behavior that we don't see in other creatures." In a word: quirks.

That one word is a lot better than the 17,953 distinct vocabulary words once thought to be applicable to human personality. The number has since been reduced to 30 "facets" (Trust, Intellect, etc.), which are traditionally grouped into five "factors" (Openness, Neuroticism, et al.). If we haven't lost you already—remember, you're the one with the *big* brain—wrap your mind around the following *Quirk* excerpt. Where does your personality fall: on the high ("Often") or the low ("Rarely") end of these measures? Go on, get out your pens. There's nothing here to be mousy about.

INSTRUCTIONS: **Rate the accompanying statement on a scale of 1 to 3 —1 indicating "Often," 2 "Sometimes," and 3 "Rarely."**

1 EMOTIONALITY
Factor: Openness

- JUSTICE SHOULD BE TEMPERED WITH MERCY
- PEOPLE SAY I'M A GOOD LISTENER
- I PREFER FICTION TO NONFICTION BOOKS

Your good friend spills red wine on your carpet but doesn't tell you about it. When you find out, quick: How do you feel? If your personality is high in emotionality, you will have the answer on the tip of your brain. You know how you're feeling, and you are able to describe your state of mind to others. If you feel a little stumped, or merely "mad," you probably rank lower on emotionality. It's laborious to rummage through your own head and try to name the feelings you find there.

2 ORDERLINESS
Factor: Conscientiousness

- I PUT THINGS AWAY WHEN I'M DONE WITH THEM
- I'M DETAIL ORIENTED
- "PLAN YOUR WORK, AND WORK YOUR PLAN"

The personality with high orderliness is calibrated for long-term success. When her ship comes in, it has a safe place to tie up, a crew on hand to unload it, and the dock is nicely swept. Of course, if her ship doesn't come in, she has wasted a great deal of time. Low orderliness—well, we all know what that looks like. This personality lent all his rope to a friend, and his dock is falling down. However, low orderliness allows one to jump on short-term opportunities.

3 ANXIETY
Factor: Neuroticism

- I'M EASILY STARTLED
- I'M A WORRIER
- I KEEP MY OPINIONS TO MYSELF

Anxiety is the quintessential "avoid" emotion. When it rises up, it's instructing you to step away from the edge of the cliff, back away from the spider, run away from the man with the axe. We all monitor our environment for danger. Some brains shrug off most of the omens and portents as meaningless, and others duck and cover for every passing sparrow.

4 IMPULSIVENESS
Factor: Extraversion

- I SPEAK WITHOUT THINKING
- I BUY THINGS THEN REGRET IT LATER
- I GET BORED WITH ROUTINES

The impulsive personality thrives on steady stimulation. Quiet contemplation, to this personality type, has all the appeal of a colonoscopy. These are explorers, and as their attention skips across the landscape of people and ideas, they can seem fickle and absentminded. People low on impulsivity are... boring. In a nice, reliable way. They don't play the lottery and they wouldn't take their 30 best friends on a cruise if they won. They nonetheless make ideal friends, because they make choices carefully and stick by their decisions.

5 ALTRUISM
Factor: Agreeableness

- I'M A CHEERLEADER FOR MY FRIENDS
- I DO FAVORS WITHOUT BEING ASKED
- POVERTY MAKES ME SAD

Altruism is cooperation on steroids: It's tolerating others to such an extent that you sacrifice for their benefit. A personality with high altruism enjoys being helpful. He holds the door for you and helps the old lady cross the street because it feels good. A personality with low altruism doesn't get that warm glow. He holds the door because his mother trained him to and perhaps has calculated that it's more efficient to spend his time earning money and writing a check to Friends of Old Ladies.

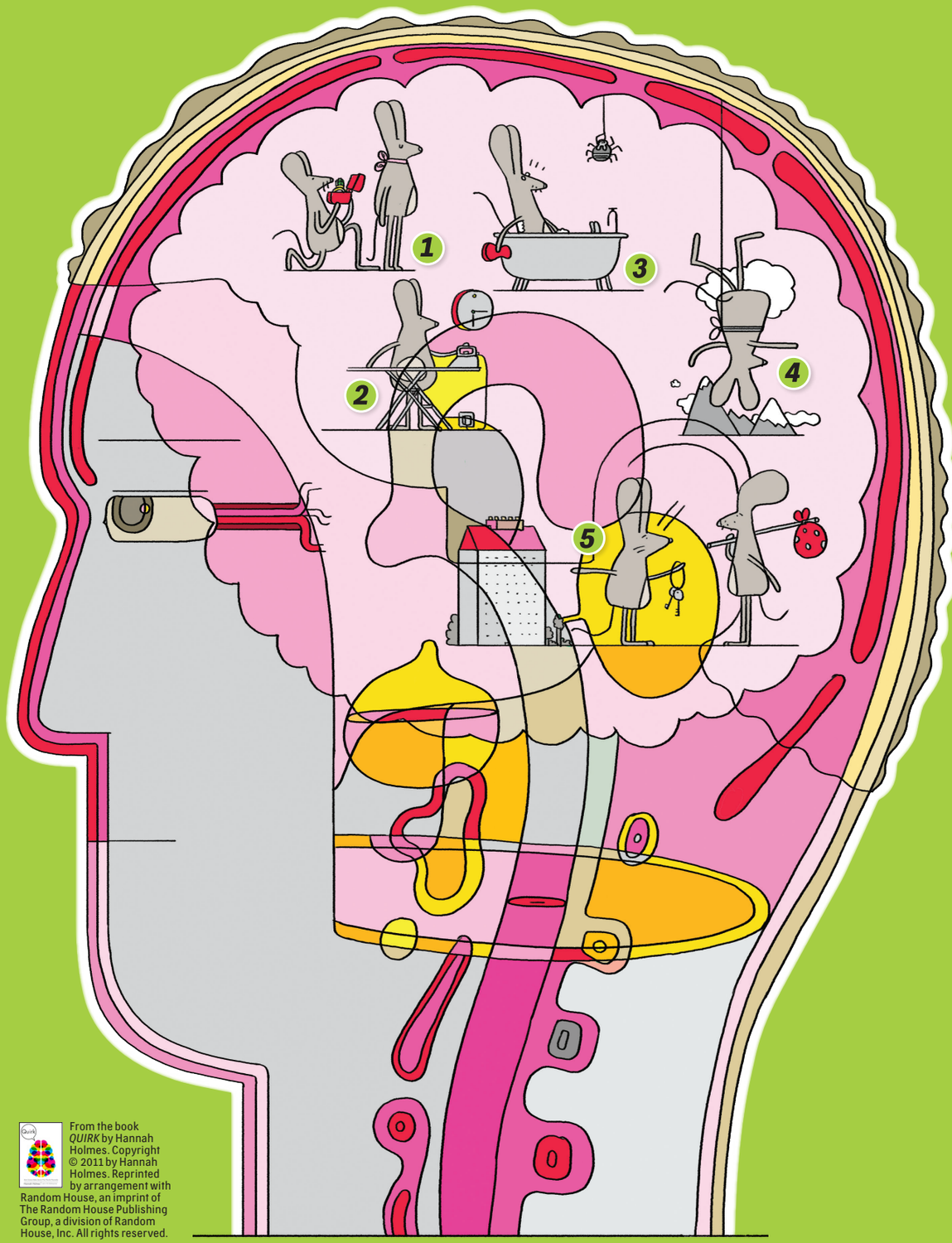
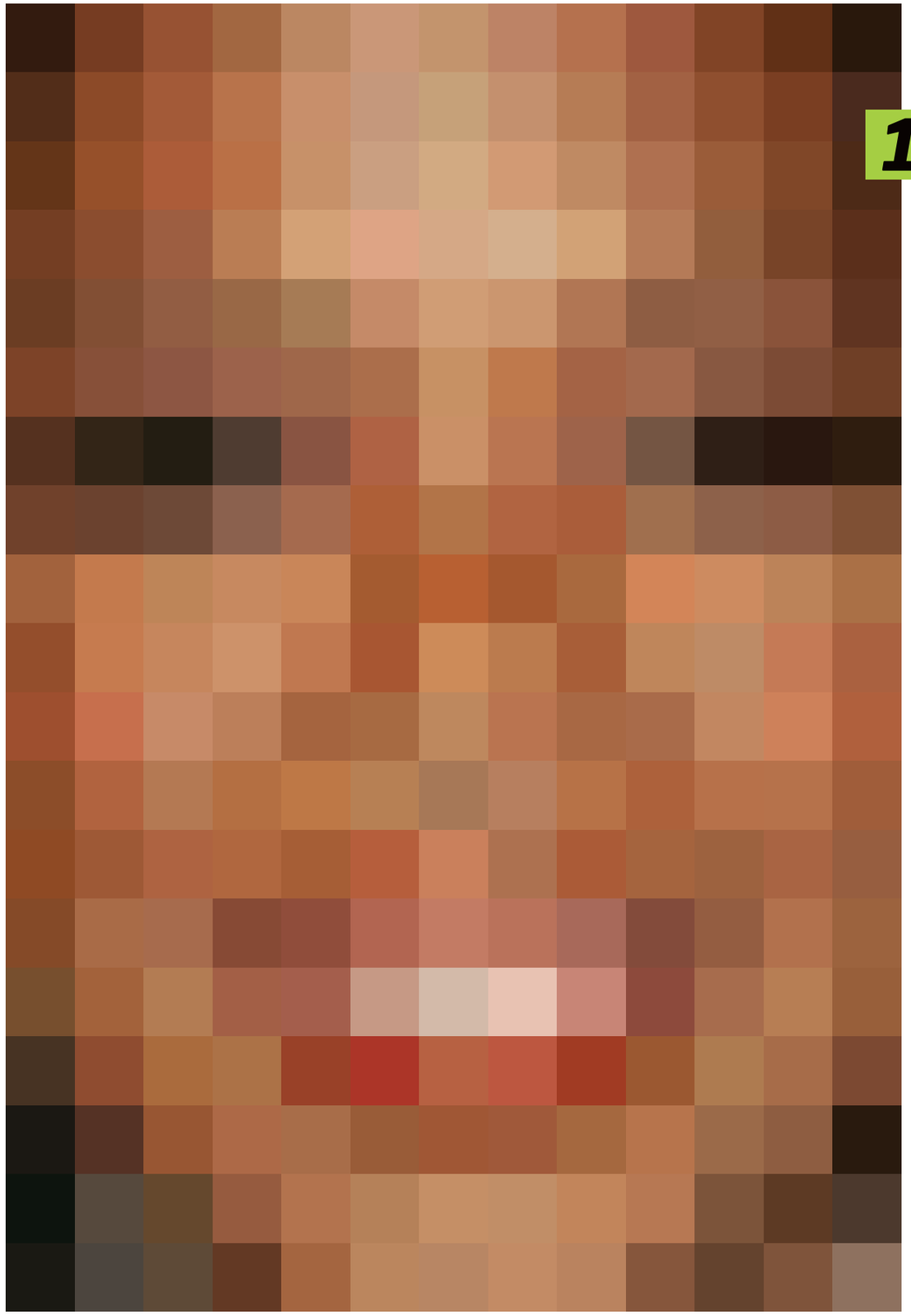


ILLUSTRATION BY CELYN

THE CASE OF THE MYSTERIOUSLY PUZZLED PEOPLE

HOW SHARP IS THE MIND? VERY. THE PROOF? EVEN IN A BLUR, MUGS CAN BE MIRACULOUSLY RECOGNIZABLE.

MAYBE IT HAS ITS ROOTS IN INFANCY. Imagine a brain madly wiring its facial recognition skills from the blurry immediacy of 10 inches—the approximate distance between the gaze of a cradled newborn and the adoring face of her mother. The pioneering visual experimentalists Leon Harmon and Béla Julesz would discuss it in the dizzying jargon of "low spatial frequencies" and "quantization." No matter the theories behind this perceptual phenomenon, our brains are capable of piecing together familiar faces from only the smallest amount of information. In a flash, some of you will recognize the famous folks on the following pages. Others might see Geraldo Rivera where Audrey Hepburn should be. All of you will go "Ha!" if you view these pixilated portraits from the distance between rows three and 30. Who do you see (or don't see)? Flip to page 156 for the reveal—but not before you've faced the Who's Who? challenge.



PHOTOGRAPHY JIM SPELLMAN/WIREIMAGE

2

PHOTOGRAPHY BY SILVER SCREEN COLLECTION/HULTON ARCHIVE/GETTY IMAGES

3

PHOTOGRAPHY BY EVERETT COLLECTION

4

PHOTOGRAPHY BY PARAMOUNT PICTURES

5

EUREKA!

In the history of humankind, what are the greatest feats of the mind? Electricity, yes. The telephone, certainly. But what about ingenious breakthroughs like the Q-tip, the oven mitt, and penny candy? We stuck our two cents into this opinionated—very—opinion matrix.

INVENTIVENESS
INTUITIVENESS
NECESSITY
LUXURY
I Voted
Democracy, because it works.*
The Printing Press, because granite business cards are so five centuries ago.
The Internet. How else would we know what time The King's Speech is playing in Kazakhstan?
Jazz, because it brought us Satchmo.
The Marx Brothers. Indispensible measuring stick for acceptable insanity.
The Remote Control, because otherwise we'd, you know, have to get up.
Currency. Can't put a pelt in a wallet.
Air Travel. Making the family vacation tolerable since 1914.
The Mirror. See: The Light Bulb.
The Old Fashioned, because it has booze and sugar.
The Blow Dryer, if only because of The Donald.
The Q-tip, because every day should start with a tingle.
Plumbing. Have you used an outhouse?
Soap.
Coffee, even though we don't need it.
Really, we don't. WE DON'T. NEED IT!
Bubble Gum. Breath freshener, pacifier, play-date. Genius.
Roller Luggage. Finally, The Wheel achieves its full potential.
The Slam Dunk, because nothing says "In. Your. FACE!" better—and we all need to say that sometimes.
Band-Aids. [If we're running long, feel free to cut.]
Spell-Check. Indubitably.
Equal Rights. Our only gripe: Why did it take so long?
The Dish Washer. Not the appliance, the husband.
Ice Cream. Cherry Garcia—enough said.
Butchers. Some things you really don't want to do yourself.
The Pencil.
The Eraser.
Takeout Food. The unanimous answer to, "What's for dinner?!"
The Village People. Paragons of diversity, patriotism, and locker-room etiquette.
The Light Bulb. Try tweezing your brows in the dark.
Shoes—despite what those Ethiopian marathoners say.
Heating and Air Conditioning. Brr...AHH! Ugh...BRR!
The High Five. More enduring than the fist bump, more exultant than the back pat.
"Please" and "Thank You." You'd prefer "Fuhgeddaboudit!"?
Utensils, and their slightly larger cousin, The Shovel.
The Belt. Without it, we'd all look like 50 Cent.
The Ball. Without it? Testosterone Armageddon!
Novocain. Drill, baby, drill!
Pockets. Like having four extra hands.
The Oven Mitt. No oven mitt, Yeeeooowwch!
Sunday. Wake. Eat. Nap. Repeat.
The Mattress, because the only floor one should get down on is the dance floor.
The Hug, because, well—come over here.

*For the most part.

DON'T KID YOURSELF. EVEN WITHOUT WORDS, NEWBORNS (AND THEIR NEWLY MINTED MINDS) ARE TALKERS FOR THE AGES.

BABY GAGA

BY NATHANIEL READE

PHOTOGRAPHY BY ABELARDO MORELL

THIS WAS NOT THE BABY THAT GRACE MILLER* HAD IMAGINED.

THE FULL CRY "You will find that your baby's cries differ in intensity and loudness, pitch and duration, even in their level of feeling," Nugent writes in his book *Your Baby Is Speaking To You*. "Hunger cries tend to begin softly and then to become loud and rhythmic. A cry of pain begins with a single shriek followed by a short silence and then continuous loud crying."

An athletic, 29-year-old advertising executive with auburn hair and hazel eyes, Grace had daydreamed throughout her pregnancy that she and her newborn daughter would cuddle happily together, like all the other new families she'd known. Everyone told her that having a child would feel wonderful. Why then, the day after becoming a mother, did she feel despair?

The doctors had assured her that her baby, Jennifer, although underweight, was healthy and normal. Yet Jennifer cried incessantly, she had trouble eating, and everything her new parents did to comfort her only seemed to make matters worse. Grace had never been bad at anything in life, but only one day into the experience she already felt like a failure at motherhood, which was supposed to be so basic and innate. She looked at squalling Jennifer and thought, *I can't seem to manage her. She pushes me away. I don't think she likes me.*

Most maternity-ward veterans would consider this mother-child disconnect to be a worrying sign, a flashing yellow light warning of trouble ahead. According to the American Psychiatric Association, "baby blues"—a mild form of postpartum depression characterized by days of parental sadness, crying spells, and anxiety—afflicts up to 70 percent of all new mothers. Scientists now know that the children of depressed mothers have lower rates of positive behavior and higher rates of childhood aggression. Attachment, that initial bond between parents and their baby, turns out to be crucial to a child's brain development and sense of self-worth.

**Patients names and some physical details have been changed to protect their privacy.*

Until remarkably recently, however, psychiatrists and pediatricians couldn't do much to help mothers like Grace and babies like Jennifer find their way to each other. That changes for Grace and Jennifer when Kevin Nugent walks into their room at Brigham and Women's Hospital in Boston. A gracious, smiling, 67-year-old native of Ireland, Nugent is, on this day, training a group of medical residents and interns in a new procedure called the Newborn Behavioral Observations, or NBO. With his black eyebrows, philosophical musings, and lilting accent, Nugent might impress you as a character from a novel—the country priest, perhaps, bringing comfort to the sick. In fact, he is a pediatric psychologist who teaches at the University of Massachusetts and the Harvard Medical School, and directs the Brazelton Institute, which is among the country's leading centers of infant knowledge. But first and foremost, Nugent is someone who believes in the healing power of babies.

Born in Mullingar, a small town west of Dublin, Nugent grew up more interested in soccer than infantile behavior. He says he found his true calling in 1977, at age 34, when as a doctoral candidate at Boston College he first saw the renowned pediatrician and author T. Berry Brazelton examine a newborn. He watched Brazelton hold a tiny, swaddled girl in his arms while her mother looked on. When Brazelton cooed the baby's name—"Sarah"—the infant locked onto his face, and as Brazelton moved his head from side to side, Sarah followed with her eyes, causing Sarah's mother to weep with amazement. Seeing this sparked an epiphany for Nugent. "I was very moved," he says. "At that moment, my life changed."

REACHING OUT "Visually guided reaching is a spectacular achievement," Nugent writes in his book. "Look at the excitement and determination in this little boy's eyes as he pinpoints his target. You will see your baby make a series of attempts to reach for something. He looks at the object and then at his hand, moves his hand closer to the object, sights it again, and keeps trying to reach until he grabs it."

Nugent says his strong response to the scene was in large part due to an "echo" from his own past. When he was just shy of his 11th birthday, his own mother died. "I was utterly bereft," he remembers. "Uncomprehending. Lost. The world looked very dark to me." What saved him, he says, was the caretaking of his baby brother. Nugent began to feed him, to change his diapers, and push him in a buggy around Mullingar. "Taking care of my brother lifted the blackness in my life," he says. "I recovered my hope thanks to him. So I knew from then on the capacity of babies to change our lives."

Watching Brazelton examine a newborn moved Nugent for another reason: It proved that the experts were wrong. In the 1970s, textbooks taught us that babies were blank slates, "subcortical" blobs, functioning only at the brain-stem level, roughly the biological equivalent of a flatworm. They could breath, eat, excrete, and circulate blood, the experts said, but they couldn't see, hear, or think. And they certainly couldn't communicate.

A decade earlier, however, a few pioneering researchers began to document the contrary: that babies could indeed see and hear, recognize their mother's voice, delight in the human face, and even communicate their likes and dislikes. One of the leaders of this effort was Brazelton. In order to conduct better studies of newborns, researchers needed data, and to create that data they needed an assessment scale. So Brazelton developed and published one—some call it "the Brazelton." Its official name is the Neonatal Behavioral Assessment Scale, or NBAS, and it evaluates 46 of a newborn's capacities, from following a red rubber ball with her eyes to grasping the examiner's finger

TEMPERAMENT
"Every newborn is unique," Nugent writes. "Your baby may be quiet by nature and able to remain still for long periods of time. Other babies are almost always in a state of motion. Most babies fall somewhere in between the two extremes. But all babies need to develop control over their motor behavior during the first months of life, and by being alert to your own baby's unique style you can give her the most profound support."

with her hand. Now in its fourth edition, its coauthors are Brazelton and Nugent.

The NBAS made possible a wave of research, revealing, for instance, that newborns are social and responsive from birth: They want to speak to us, if we only knew how to listen. It never became a staple of the maternity ward, though, mostly because it takes half an hour to administer and another half an hour to score—time most busy practitioners can't afford. As a result, Nugent and his colleagues decided to develop a more simplified, parent-friendly version of the NBAS, called the NBO. The NBO doesn't try to measure anything. Its goal is not to assess so much as to build relationships between parents, babies, and medical professionals. It takes less than half an hour and looks deceptively simple. "The NBO isn't a magic show," Nugent says, "but if you're open to it, it can actually change you."

Photography by Abelardo Morell, from *Your Baby is Speaking to You*. Houghton Mifflin Harcourt, 2011.

WHEN NUGENT WALKS into the pastel pink room on the 10th floor of Brigham and Women's Hospital and meets Grace Miller, her husband Michael, and her baby Jennifer, he radiates compassion. His voice soft and low, Nugent explains that the NBO isn't something he is going to do to Jennifer, and that it isn't a test. "Let's look at your baby together, shall we?" he says. "Let's see what little Jennifer can tell us about herself." The parents agree.

Nugent bends over Jennifer and admires her wisps of black hair and her tiny fingers.

(CONTINUED ON PAGE 114)

Baby Gaga

(CONTINUED FROM PAGE 92)

"You're *such* a beautiful baby, Jennifer," he says as she cries. "I'm so lucky to meet you." He asks Grace and Michael how they'd chosen her name, and marvels at their answers. Coming from another person, this might seem pandering or saccharine; from Nugent, it is remarkably soothing. Later he'll say, "I never lose sight of the fact that I have been allowed into the life of this baby just a day or two after its birth, and that this is a tremendous privilege."

In a perfect world, Nugent would examine babies who are asleep and halfway between feedings. He would start by looking at something called "habituation." To do this he shines a little flashlight into the baby's closed eye for a second, then moves it away. The baby usually startles, waving an arm or fussing a bit, then goes back to sleep. He waits five seconds and repeats it, up to 10 times, until the baby no longer responds at all. He then does something similar with a rattle beside the baby's ear.

A baby who can block out and ignore the light or sound entirely after three or four flashes is good at what Nugent calls "protecting sleep." Stray stimulus probably won't bother her; she's likely to be an easy sleeper. A baby who's still agitated by the light after eight or nine flashes will likely be a sensitive little person, requiring more help from his parents, such as a dark, quiet room for sleeping.

NEWBORNS MAY NOT HAVE MASTERED THE KING'S ENGLISH (YET), BUT THAT DOESN'T MEAN THEY'RE NOT TELLING US SOMETHING.

Because Jennifer is awake and fussing, Nugent can't observe her habituation. Instead he puts her on her back, asks Grace's permission to unwrap the baby's blankets and examine her "tone." He extends her feet and arms, and notices how quickly she retracts them into the fetal position. He comments to her parents that Jennifer is strong. He puts his pinky in her tiny palm, and compliments her on her healthy grasp. Her parents seem exhausted, but also pleased.

Now Nugent strokes the side of Jennifer's mouth and notes how quickly she turns her head towards his finger, an indication of her tendency to "root," or seek out the breast. "She's got a very clear-cut root, doesn't she?" he says to her parents, suggesting that she ought to feed well. Her suck, which he notes by putting a gloved finger to the roof of her mouth, also feels strong. Already, though, he notices something that concerns him: Besides the constant, ragged cry, Jennifer's responses strike him as unusually intense.

Ordinarily Nugent would now pick up the baby and see how she responds to his face, his voice, the red ball. When he picks up Jennifer, however, she stiffens dramatically and cries even louder. NBO examiners like crying; they say it tells them a lot. Once a baby starts to cry, they sometimes leave him alone for a bit to see how he "self-soothes." Some babies can calm themselves simply by altering their posture or putting a hand to their mouth. Many babies can be calmed just by an adult hand on their belly. Even the slightest touch, however, causes Jennifer to tense up. Nugent goes through his usual repertoire of soothing maneuvers, from tucking her tiny limbs back into the fetal position to presenting his face for her to view, but she remains stiff and rigid, arms out, fingers splayed, eyes tightly shut, crying.

Nugent says softly, "Are you okay, Jennifer?"

He puts her down, swaddles her tightly, which he says alleviates a newborn's need to control her limbs. He holds her against his shoulder and rocks her gently. After 30 years of working with babies—he's also had two of his own—Nugent generally knows how to calm them. Jennifer remains stiff, pushing her feet into Nugent's white dress-shirt. She is saying to him, he later explains, "Leave me alone!"

"She's very, very upset, isn't she?" Nugent says to Grace, who lies in a white terrycloth bathrobe on the hospital bed.

"She's been like that from the very beginning," Grace responds. "She keeps pushing me away."

"I can't help her, either," Michael says. "It's as if she doesn't want to be with us."

Grace seems about to cry. "I think she doesn't love me."

"It may be her nature," Nugent says.

Grace and Michael brighten a bit. Grace asks him what they should do.

Nugent isn't entirely sure. Birth is a wildly traumatic experience for babies; sometimes they're recovered and happier by day two. Sometimes they've simply had a difficult feeding. He says to them, "As of now, she's definitely having a hard time, but we can't say it'll be the same tomorrow."

"Can we see you again?" Grace asks.

"Of course," Nugent says. "Why don't I visit you at your house."

NUGENT LEAVES the Millers' room concerned about the intensity he's seen in Jennifer's responses, but also confident in the restorative nature of the NBO. Although it has only been in use for six years, studies already show that it helps parents to understand their babies. It increases their confidence in themselves, allays their fears, increases interaction, and makes them better observers of their baby's behavior. As one nurse who works with newborns put it, "A lot of the parents I deal with, especially the young ones, view their baby almost as a doll. The NBO helps to show parents that their baby is a little, thinking person."

BABY JENNIFER'S TOLERANCE FOR STIMULI IS SO LOW THAT LOOKING AT A FACE IS ALL SHE CAN HANDLE; A VOICE PUSHES HER OVER THE EDGE.

NBO practitioners recognize dozens of subtle signs. A baby's growing stress might manifest itself in color changes, sneezes, yawns, clenched fists, furrowed brows. Jerky movements might actually say, "Swaddle me. Cuddle me. I want to be contained." Rooting—jerking her head side to side—says, "I'm hungry." On the flip side, wide eyes and relaxed toes can mean, "I'm happy and fascinated," and a tiny sleep smile, "I'm at ease, please don't disturb me." A baby's reflex to pull her hand to her mouth isn't merely for the purpose of pacification. The calm it inspires allows the newborn to get to important work: the alert exploration of the new world around her.

Nugent has further distilled and made accessible to all parents his knowledge of infant behavior and expressions in the just-published *Your Baby Is Speaking To You*, a revelatory read for anyone who has struggled with and/or delighted in interpreting the surprisingly sophisticated and direct signals that newborns send us. In a passage from the book, titled "The Language of Babies," Nugent writes that "the word 'infant' derives from the Latin *infans*, meaning unable to speak."

Newborns and their thrillingly active minds may not have mastered the King's English (yet), but that doesn't mean they're not telling us something, and, in doing so, feeding vexed and often distressed parents the cues and clarity they desperately need.

WHEN, THREE DAYS after their hospital visit, Nugent arrives at the Millers' house in suburban Boston, Grace looks gloomy. She says that Jennifer's eating has improved some and she is sleeping better, but when she is awake she continues to fuss and cry. "If anything," Grace says, "it's worse."

Nugent finds Jennifer asleep in her room. This is good; it allows him to observe her habituation. "Shall we look at how Jennifer protects her sleep?" he says.

When he shines his little flashlight in her eyes, Jennifer startles and her hands extend, but she stays asleep. It takes quite a few flashes with the light—eight—but she eventually stops reacting. Eight is a fairly high number for habituation. Yes, this is a very sensitive little girl.

They wake Jennifer, and again Nugent looks at her muscle tone, all the while conversing with Grace about what he sees. Her rooting and sucking are still strong, and less intense than the first visit. When he picks her up, however, she is still "absolutely stiff as a board." She kicks at him again, pushing away from him with her feet. She cries. She is far

too cranky for him to attempt the red ball or the moving face.

Nugent is a placid man, but "my anxiety level was quite high," he'll say later; he desperately wants to find something *positive* to give this mother.

He puts Jennifer back down in her crib and asks Grace what she has done to soothe her.

Grace had swaddled her tightly. That helped some.

Nugent does the same, then holds Jennifer up in front of himself, rocks her, and silently waits.

One eye opens. He waits some more. Then the other.

Two tiny lights have appeared at the end of the tunnel.

Slowly, he moves his face to one side. Jennifer follows with her eyes. He moves to the other side. She is still with him. When he speaks to her in a soft voice, however, she looks away.

It's called "gaze aversion." Most of us would miss it entirely, or assume that the baby had spotted something fascinating in the distance. Nugent knows better.

"See that?" he whispers to Grace. "She just disengaged. She'd had enough, so she decided to shut me out." This baby's tolerance for stimuli is so low that looking at a face is all she can handle; adding a voice pushes her over her edge. Nugent explains that it is Jennifer's way of saying, "You're beginning to overwhelm me." It isn't quite a cry, but it is an early warning that she is headed in that direction.

"THERE ARE GHOSTS IN THE NURSERY," NUGENT LIKES TO SAY, "LEGACIES FROM OUR PAST ABOUT WHAT OUR BABIES SHOULD BE."

Jennifer has been an extremely hard case, but now Nugent understands what to do: only one stimulus at a time. He hands Jennifer to Grace, who sits down on a couch in a dark corner of the living room and holds Jennifer on her shoulder, tightly wrapped, and rocks her at her chest. Jennifer doesn't protest. Grace holds her a foot from her face, and smiles at her. Jennifer opens her eyes for a second.

This gets Grace excited. She coos too energetically, "Jennifer!"

The baby looks away, furrows her brow, extends her tongue, and develops a faint bluish cast around her small, soft lips.

"Do you see that?" Nugent says, pointing out these behaviors. "Do you think maybe she's telling you it's too much for her? That this takes so much out of her, that she has to take a break? Let's wait until her color gets back to normal."

Grace does. Without speaking or even looking at her baby, she waits. Gradually the blue tinge around Jennifer's mouth fades away, her forehead smoothes, her tongue relaxes.

Nugent compliments Grace, hoping she'll recognize her competence as a mother. "See? You really helped her when you gave her that break. Her developing mind needs those little moments."

Grace continues to quietly hold Jennifer. She smiles at her, but doesn't say a word. After a while Jennifer opens her eyes, looks up into her mother's face, and for the first time in this family's young life, holds her gaze.

Grace is ecstatic. "She sees me!"

As Nugent will say later, "The veil had been lifted."

To Grace he says, "The more you do that, recognizing when to pull back and let Jennifer recover, the more Jennifer will realize, 'somebody here understands me.'"

He talks to Grace about ways to help her baby—low light, minimal sounds and stimuli—and assures her that as the habituation observation has shown, Jennifer will gradually learn to react less.

"There are ghosts in the nursery," Nugent likes to tell his students, "legacies from our own past, and fantasies about what our babies should be."

He feels assured, however, when Grace says to him, "I guess this is who Jennifer is, and I just have to get used to that."

Nugent smiles compassionately. "It's a lifelong endeavor," he says, "learning to accept our children as they really are."

Nathaniel Reade wishes he'd met Kevin Nugent before he had two little babies of his own.