BEST INBREED

The rise of canine clones.

BY ALEXANDRA HOROWITZ

Since 2005, more than two thousand dogs have been cloned.

PHOTOGRAPH BY ROSE MARIE CROMWELL

A few miles off the highway in Hempstead, Long Island, on a gently curving street of tidy two-story homes and raked lawns, there is a sprawling ranch house with a back yard, a pool, and a large, netted enclosure, like an aviary, built to house seventeen cats. But when I drove there, on a bright, chilly fall day, I had not come to see the cats. I pulled in to the driveway, a screen door opened, and two small white dogs emerged, attached by harnesses and long leashes to John Mendola, a retired police officer in his fifties with a mild manner and a broad, kind face. (The house is his mother's; he lives in a smaller place nearby.) He introduced me to the dogs, Princess Ariel and Princess Jasmine. They were named for a deceased, much mourned dog named Princess—part Shih Tzu, part Lhasa Apso—whom they strongly resemble. As they should: they are Princess's clones.

Mendola took me inside and sat on a sofa, a new Princess on each side, while he told me about their forebear, a stray who was brought into the police precinct when he was on duty one day in 2006. "We had animals my whole life," he said. "I never had one that was so affectionate. She'd look at me and give me that soulful eye." He gave a sigh of satisfaction. "It was a special bond." As he spoke, he reached out and stroked Princess Jasmine reflexively.

In 2016, the original Princess was given a diagnosis of cancer, and Mendola was devastated. He had seen a television program about pet cloning, and, looking online, he found a company in Texas called ViaGen Pets & Equine. ViaGen could cryogenically preserve a pet's cells indefinitely and generate a new pet from the old cells, for a fee of fifty thousand dollars. Mendola sent off for one of ViaGen's biopsy kits, and, when Princess had surgery to remove a cancerous mass, he asked the vet to take a tissue sample, which he sent to the company.

Princess died in March, 2017, but Mendola spent months grieving before he made up his mind to go ahead with cloning her. Once he had made the decision, after ViaGen advertised a twenty-per-cent discount, he travelled to a suburb of Austin to visit ViaGen's genetic-preservation site. "I saw the facility," he said. "I have a picture of it, and a little video of where the liquid nitrogen is." Standing outside the building where Princess's cells were cryopreserved, he said to himself, "They're in there. Your little ones are in there."

Mendola placed his order with ViaGen on the first anniversary of Princess's death. Eight months later, he went to LaGuardia Airport to meet the two resultant puppies. In a video taken of their meeting, Mendola starts tearing up as he grabs hold of them. "Are you my little Princesses?" he coos. Two months old, they squirm in his grip.

The little Princesses, now five, fussed as Mendola stroked them and tried to hold them in place. As they moved, they were indistinguishable: small bundles of soft fur, trimmed close. When they sat still for a treat, I could see that they had similar, though not identical, golden markings on their bodies. And, like the original Princess, each has one misaligned eye—a different eye in each clone, so that they look like mirror images of each other.

It has now been nearly thirty years since cloning mammals became possible. The technology has mainly been used to produce cattle, sheep, and pigs. The F.D.A. has signed off on the use of cloned farm animals as meat, although most agricultural clones are used for breeding. Meanwhile, since 2005, more than two thousand dogs have been successfully cloned. Biolog-

ically, their genesis is not very different from that of cloned cows or sheep, but in other respects the cloning of pets is far more uncanny.

The domestic dog, *Canis familiaris*, is seen by most owners as a species of individuals, with distinct personalities and quirks. I am a scientist who studies dog behavior and cognition, and the pet dogs who participate in my studies all bring their own idiosyncrasies with them. Early in the domestication of the species, dogs were presumably kept for functional roles—guard, hunter, herder—but in contemporary society they are kept for companionship. As a result, we have projected our ideas of selfhood onto them, giving them biographies, preferences, fears, plans, and moods.

But, if it is dogs' individuality that we value, what should we make of the idea that their unique and unreproducible selves can, in fact, be reproduced? Cloning is the ultimate expression of genetic determinism—chromosomes as character. ViaGen's Web site declares that a cloned dog "is simply a genetic twin of your dog, born at a later date." The assertion is not untrue, as far as it goes, but it's a sales pitch that dodges a host of complicated ethical and identity issues. There are issues of exploitation—both of the bereaved owners whose desire to somehow cheat death is being monetized and, more viscerally, of the unseen animals whose bodies are used in making a clone. There's the issue of supply: the production of bespoke dogs in a society when so many good, naturally born ones in shelters are in need of adoption. Finally, there's an existential issue: who, exactly, is produced when a dog is cloned?

The business of cloning is an outgrowth of the discovery of genomic equivalence, the fact that the DNA sequence is identical in all the cell types of our body. Evidence for genomic equivalence began to accumulate in the mid-twentieth century, and, in 1962, the British biologist John Gurdon succeeded in growing adult African clawed frogs from the intestinal cells of tadpoles, work for which he later won the Nobel Prize in Medicine. In 1996, a sheep called Dolly became the first mammal clone to be born. Dolly was euthanized in 2003, at the age of six, after veterinarians found tumors in her lungs, but she was preserved in taxidermied form at the National Museum of Scotland and also had offspring of her own, fathered the old-fashioned way, by a ram named David.

In 2005, researchers at Seoul National University, in South Korea, took an ear-skin sample from an Afghan hound named Tai and made two dogs: Snuppy (a portmanteau of "Seoul National University" and "puppy") and another, unnamed twin, who died after twenty-two days. Snuppy lived for ten years, all of them in a laboratory. At the age of five, he was himself cloned: four re-Snuppys were born, of whom three survived. Since Snuppy's birth, dog cloning has joined the cloning of livestock as a retail business. All told, more than a dozen mammalian species have been cloned, including macaques, red deer, cats, and water buffalo. Hwang Woo-suk, who led the team that cloned Snuppy, now clones camels raised for racing and for *mazayna* (a kind of camelid Westminster Dog Show) in Abu Dhabi.

Like Dolly and Snuppy, all clones are conceived through somatic-cell nuclear transfer: the nucleus of a skin cell from one animal is extracted and implanted into an egg whose nucleus has been removed. The transplanted nucleus contains all the instructions needed to make the new organism. At ViaGen's genetic-preservation site, the building near Austin that Mendola had stood expectantly outside, I met with the company's cell-culture manager, Sanaz Arenivas, who told me that she recommends that people send a sample of skin cells around the size of half a pencil eraser, but sometimes people just send in a whole ear from their dead dog. "Time is of the essence in a post-mortem situation," ViaGen's Web site warns grieving (or pre-grieving) owners.

Often, the samples arrive at ViaGen accompanied by photographs and stories about the dogs from whom they came. Arenivas showed me the lab where she isolates the cells from the samples, after which she puts the cells in a petri dish with a growth medium until there are about a million of them. With a cryopreservant added, each of these cell lines is then kept chilled, by liquid nitrogen, at minus a hundred and fifty degrees Fahrenheit, in large silver tanks. Arenivas put on insulated gloves and safety glasses and opened the top of one of the tanks for me. Clouds of vapor escaped as she reached in and pulled out a rack of vials, like a core sample from a sulfurous spring. The tanks house up to fifty thousand vials of cells. Each sample has a unique identifying number—"like V100-Buddy," she told me. "We have a lot of Buddys."

When it comes to actual cloning, each attempt requires making use of two other dogs. The first of these, the donor, provides developing eggs, known as oocytes. A dog in estrus is operated on to extract these oocytes. Then, under a microscope, the nucleus of an oocyte is sucked out with a tiny pipette and replaced with the nucleus from a skin cell of the dog who's being cloned. Electricity is used to stimulate cell division, and, when this embryo is still just a bundle of cells on the scale of micrometres, a second dog, also in estrus, is operated on to become a surrogate mother. Her ovaries are pulled outside her body, and a catheter full of embryos is plunged into her oviduct. Typically, the surrogate receives multiple embryos from several different cell lines. Many of these embryos will die; those that survive live in her uterus for the usual canine gestation period, around sixty days, after which, with any luck, a pup is born.

ViaGen is the only business in the U.S. that clones dogs, and its cloning process is patented. A few months ago, I drove to visit its president, Blake Russell, who lives on a hundred-acre ranch ninety minutes north of Dallas. As the buildings lining the interstate got smaller and the scrubby forest grew denser, I noticed a dead armadillo on its back, legs splayed. I wondered if this unfortunate creature might be a nine-banded armadillo, a local species that gives birth to four genetically identical young—almost like clones of one another.

A tall man wearing a blue Baja hoodie and a day's worth of stubble, Russell had to crouch to see me in my compact rental car, but he was talking even before I rolled down my window. "That's Beatrice," he explained, as a long trailer pulled by a pickup slowly rolled by, emitting a series of whinnies. Beatrice was a surrogate horse, and she was with her foal, a two-month-old clone.

Russell joined ViaGen in 2005. At

the time, the company cloned many farm animals, but the agricultural business, which produces cattle, sheep, and pigs, is now separate from the pet-cloning side, which produces dogs, horses, and cats. Oddly, for the head of a company that has cloned hundreds of dogs, Russell said that he is "not a dog person." As a child, he was mauled by a German shepherd and needed a large number of stitches in his face. Still, he owns two ranch dogs, including Lucy, a large hound mix. Before he adopted her, she was the surrogate mother to a litter of wolf-dog hybrid clones.

Russell—a third-generation horseman, as he told me several times—is much more hands-on when it comes to cloning horses. The ranch is home to a couple of hundred mares—many pregnant—and a few dozen foals. Most of these are the company's, not Russell's, but he has gene-banked his father's favorite horse, Chief Comanche, and plans to revive him for his presumed future grandkids. He led me to a heated stall with two newborn foals: a day-old quarter horse, his head fuzzy and tail short, and another, born prematurely without a suckle reflex, who had a tube inserted from his nose to his stomach. Later, Russell escorted me to the horse-cloning facility, a two-room office in a tiny cluster of low-rise buildings a short drive from his ranch. The site's embryologist led me past a small fridge labelled "oocytes," then gestured toward a cluster of large boxes where the embryos were developing. "These are our incubators," she told me, unwittingly quoting a line from "Brave New World" nearly word for word.

As Russell showed me around the ranch, he pointed out a "really famous horse"—he meant a clone of a really famous horse—from England, who, at four months old, was all legs, and a chestnut foal destined to be a polo horse. The client had ordered five clones each from five different polo-horse antecedents. Russell is keen on the idea that cloning could be used for conservation—ViaGen has helped clone endangered species, such as the Przewalski's horse and the black-footed ferret—or even to bring back the woolly mammoth. "One day, my pastures are going to be filled with baby rhinos in draft mares," he said. "Would that not be the coolest thing ever?"

Dogs were comparatively late to the cloning game. One set of reasons for this is biological. Canine eggs are very dark, almost black, because of an unusually high lipid content, and as a result it is hard to see the nucleus that is to be removed. Dogs ovulate only once or twice a year and mature their eggs in the oviduct for a relatively long time. This makes it difficult to determine the timing for extraction, and the maturation process has proved challenging to re-create in the lab. And the failure rate of dog clones is higher than that of many other mammals; for some reason, many dog embryos in petri dishes don't survive past about eight cells.

The other big reason for dogs' late start is societal. There are plenty of mammals that contemporary society treats purely instrumentally; we are prepared to risk harming horses in races, to kill livestock for food, to shoot deer for sport or for pest control. Our attitude toward dogs is that they are members of our families. They share our sofas and beds; we throw them birthday parties and dress them in sweaters. But, for each special, beloved dog that is cloned, two non-special, nameless dogs must be operated on, giving up their eggs or womb. For many potential customers, this creates an uneasiness that the Harvard veterinarian and bioethicist Lisa Moses calls the "ick factor."

I asked Moses if she would find cloning more ethically palatable if, say, an embryo could be grown in an artificial womb. She paused. "In some ways," she said, "that's actually even more distasteful to me. Because that means, from the beginning until birth, that individual animal's life is completely divorced from—I don't like to use the word 'natural'—but from the way that animals are created normally." Another bioethicist, Jessica Pierce, was even more emphatic, telling me that although, in her line of work, she mostly navigates the gray areas between right and wrong, that wasn't the case here. "Cloning to me is black-and-white," she said. "I just don't see any countervailing benefit. It seems frivolous and wasteful and ethically obnoxious." Even if the cost were not so exorbitant, and even if it could be done without using other animals, it would still highlight our objectification of dogs, she added—"viewing them as products or toys or somehow not quite animate beings with feelings and thoughts and life projects of their own, but as our *stuff*." As heartbroken as we are when a beloved family member dies, it doesn't occur to us to bring a dead child or parent back as a clone.

In serving to both replace and recapitulate a past dog, the business of cloning becomes a kind of scientific magic trick, dealing in the language of cell cultures, cryopreservation, embryo transfers—opaque words for an opaque process. It's a black box, into which cell and electricity are deposited, producing, after a suspenseful pause, a copy of the original. ViaGen works hard to keep all ickiness inside the black box. Its social media and its waiting-room walls show images of happy clones, with no hint that any other dogs are involved. "We chose many years ago to just go trade secret on everything we do," Russell said. The dog side of the business is managed by ViaGen's attending veterinarian, Kerry Peacock, who performs the surgeries required to extract the eggs from the donor dogs and implant the embryos in a surrogate. Speaking to me over Zoom from a ViaGen location someplace near Rochester, New York, she cited "biosecurity" concerns as the reason for keeping the dog-cloning process under wraps.

ViaGen doesn't own the dogs that supply the eggs and the wombs; instead, they're rented from what the company calls "production partners." "People often ask if we're using shelter animals as surrogates, and, unfortunately, we can't do that," Peacock said. "There's just too many germs out there." But she wouldn't divulge who the owners were, or anything about the dogs' living conditions or post-operative fates. Peacock described these dogs as "purpose bred" but cited the confidentiality of the breeders as the reason that ViaGen could not allow me to meet the dogs, see photographs of them, hear about their personalities, or learn their names. She did tell me that "they come

in all different kinds of shapes, sizes, and colors," and that working with a variety of dogs "makes it fun" for her team. Russell told me that he has production partners all over the country, including in Texas, South Carolina, Hawaii, and upstate New York.

Peacock said that ViaGen does its best to have ex-surrogates adopted, but, since they are owned by the company's production partners, "some of them are utilized for other projects." People I spoke to who cloned their dogs had expressed an interest in adopting the surrogate and were told that they couldn't. The dogs used for their eggs are even more invisible. Hwang, in scientific papers about his cloning work, describes donors that are mixed-breed dogs, between one and seven years old, housed in indoor kennels, and fed once a day. ViaGen would not confirm whether its donors live in similar conditions, but U.S.D.A. guidelines specify that dogs kept for such use must be provided a minimum amount of floor space, calculated as the square of the sum of the dog's length plus six inches. Thus a beagle (the typical lab dog) who is twenty-four inches long might be housed in a cage three feet long and two feet wide.

After a clone is born, Peacock oversees the process of exposing it to stimuli—noises and smells, new objects—which is important in the first weeks of a puppy's life. Some clients send photographs, or voice recordings for Peacock to play for the puppy. Sometimes, as with Mendola's two Princesses, there will be more than one puppy from a given cell line; any extras are thrown in for free. The puppies are sent to their new homes at around ten weeks of age. Clients who ask to pick up their puppies in person are turned down; instead, they meet the reincarnations of their beloved dogs at a distant, neutral site, such as a parking lot or a hotel lobby.

Of course, these are the clones that make it—most cloned embryos do not. Others may wind up deformed: researchers working under Hwang have reported on defects that have appeared in cloned dogs, such as puppies born excessively large or with a hypertrophied tongue, a cleft palate, a very small eye, a fatal overdevelopment of musculature, or genital abnormalities. These problems are likely due to epigenetics—broadly, the effect of non-DNA matter, like proteins in the cell, on gene expression. The exact source of such mutations is not yet clear, but they do not come as a surprise to biologists. In cloning, the nucleus of the epithelial cell needs to essentially erase its memory and be reprogrammed. If the reprogramming is incomplete, the subsequent development will be affected. The egg cell, too, may have components from the donor dog, such as mitochondria, that influence how the cloned dog's DNA is expressed.

Peacock told me that she had not seen any of the abnormalities I mentioned. "Not to say that we've never seen anything abnormal," she said. "Just like in any breeding system, we do occasionally see some congenital abnormalities"—birth defects or embryo deaths—"and things like that." Like many ViaGen employees, she herself owns a clone, Pippa, who was cloned from her Cavalier King Charles spaniel Piper. Pippa is tricolor, with long ears, a distant gaze, and an underbite that, Peacock mentioned, Piper didn't have. She recalled that one of Piper's littermates did have an underbite, but I immediately thought about a research paper that noted the incidence of underbites in cloned dogs, which might be traceable to epigenetic effects of cloning.

The United States is home to some eighty million owned dogs, and the most popular type is the so-called purebred. Unlike with a mutt, the purebred's parentage is assured, recorded by such national dog organizations as the American Kennel Club. Physically and genetically distinct breeds have been developed through intensive inbreeding. A registered, purebred German shepherd results from a mating of two other

"Listen, I know you're both worried that I haven't made any friends, but it will really pay off in twenty to twenty-five years, when I'll be spared from having to attend a wedding every weekend."

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registered dogs, often closely related. And each can trace its ancestry back to one Horand von Grafrath, a dog from Thuringia who, in 1899, was chosen as an ideal specimen to form a newly named breed. Dog breeding began in order to segregate what were seen as the best exemplars of the species from the canid hoi polloi.

It's possible to see dog cloning as merely an extension of what is already a bizarre and highly unnatural process. In Fort Worth, Texas, I met a clone of a dog called Eudoris. The clone's owner, Jeff, who didn't want his last name used, was on the phone as I approached, but Eudoris 2—or E2, as he's known—turned to look at me. His body was shaped like a German shepherd's, but he lacked the swayed back of the kennel-club German-shepherd lines, whose hind legs buckle in a way that people liken to frog legs. E2's face was more vulpine, too. I made a sound of greeting to him, and he folded his ears back. Within half a minute, he had turned his rump toward me beseechingly, the universal dog body language for requesting a scratch above the tail.

The original Eudoris was a mix of a Belgian Malinois and a Dutch shepherd, and had been bred by Joshua Morton, a trainer of tactical working dogs, who felt that Eudoris was the ideal specimen. He had ViaGen clone him, and not just once. Thirty-five clones have been made from Eudoris so far. Jeff got E2 as a protection dog for his wife, who travels frequently to compete in rodeos. E2 was their second Eudoris clone. The first, E4, drowned in an irrigation ditch four months after they got him. Jeff and Morton felt that E4 was so special that they sent some of his tissue to ViaGen. Since then, Morton has used E4's cells to clone yet another line of dogs, which he dubs the Red Squadron Myrmidons, called M1, M2, and so on. "The DNA of M1 is the same as the DNA of E1 through E-whatever," Jeff said. "And the same as Eudoris Actual, the biological Eudoris." Hearing his name, E2 began wagging his tail.

Though E2 is highly trained to distinguish friend from foe, the primary impression he gave, like all the clones I met in person or over Zoom, was of a very normal dog. The dogs all did *dog things*—barked at noises, rolled onto their backs for belly rubs, chewed on bones, nose-bumped their owners for attention.

With every dog clone I encountered, I went through two stages. I'd start out looking for resemblances to the original—a characteristic marking, the fold of an ear, distinctive behaviors. But soon I'd find myself looking for differences. They were numerous. Although the genome is for the most part identical in cloned and clone, from the moment that the host cells begin dividing the clone inexorably diverges from its parent. Each experience of the surrogate's that affects her health—an uptick of stress or a dip in nutrition—affects the growing embryo. After birth, the number of individuals, canid and hominid, who interact with and shape the clone skyrockets; the possible environments go from finite to indescribably many. There can be no cloning of the world that shaped the original, no repetition of the scenes and smells they encountered. Life leaves its mark.

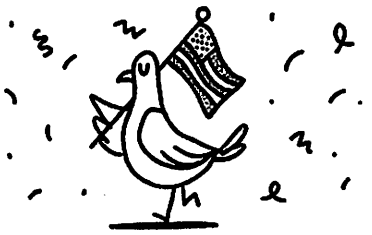
Few people who clone their dogs believe that they are truly buying the same individual that they once cherished. Zehra Peynircioglu, a psychology professor at American University, teaches a graduate seminar on cognition and memory. She opens one class with a provocative question: "Without your memories, are you 'you'? If you had a head injury and lost all your memories, would that still be you?" Her interrogation of the subject is especially interesting given her decision to clone her handsome white husky-poodle mix, JonJon. But she went into the process with open eyes. "I knew I was not going to get another JonJon," she told me, of her clone,

named Joniki. "But I knew I was gonna get an *essence* of JonJon."

Most of the cloning clients that I spoke to struggled to say exactly what it was about the original animal that they had wanted to reproduce, especially in contrast to other dogs they had loved but hadn't felt like cloning. Many spoke of the original as simply "special"—but the specific nature of that specialness seemed to be ineffable. This dog was sociable, that one was empathetic; this one loved to swim, that one had curly hair; this one was moody, or grouchy, or affectionate. I began to wonder if the desire was less about re-creating the dog qua dog than about restoring the distinctive relationship that had been forged with the animal. In several cases, the cloned dog's appeal appeared to lie partly in physical problems or a difficult start in life: the dog found as a mangy stray or rescued from a kill shelter or a bad breeder; the needy dog or the purebred with a non-ideal characteristic.

Lara Gale, a Seattle-based photographer who cloned her Ibizan hound Georgia and now lives with Georgia's clone, Kismet, told me over Zoom that Georgia's physical problems were so severe that vets recommended euthanizing her as a puppy. Georgia was born with dwarfism and hyperflexion—Gale held out her fists and bent them down, as though revving a motorcycle—so her legs were angled backward, leaving her unable to walk. After that was treated, Georgia developed luxating patellas, a condition where her kneecaps shifted out of place. Before her second birthday, Georgia blew out one of her knees and wound up having two surgeries on it. Gale assiduously massaged Georgia's hamstring and took her to many rounds of rehab. As we talked, Kismet bobbed her head in and out of view of the computer camera. She has none of her predecessor's maladies. Scratching Kismet's neck playfully, Gale acknowledged that Georgia could be grumpy, no doubt because of those ailments. "You know, I spent a lot of time worrying about her," Gale said. "Just having to stay away from everybody" when Georgia was recovering, she added, "kind of made us a little more attached to one another."

The intensity of the experience of caring for "damaged" dogs may be part of what some people are trying, unconsciously, to recapture. Nurturing, like parenting, is neurologically rewarding for humans. James Serpell, an emeritus professor of ethics and animal welfare at the University of Pennsylvania's veterinary school, has suggested that humans' drive to nurture has, in fact, led us to breed pets with health and behavior problems. The brachycephalic (small-skulled) dogs, including pugs and French bulldogs, who are bred to have ever-flatter faces, usually have severe difficulty breathing, requiring a dependence on owners that, research has found, the owners actually enjoy. Some studies indicate that owners of dogs with extreme phenotypes caused by inbreeding are more attached to their dogs than those with healthier or more "normal" dogs; similarly, owners of dogs with behavioral problems because of challenging early-life events still rate their relationships with their dogs as decidedly positive. Barbra Streisand famously cloned Samantha, her small white-coated Coton de Tulear, after the dog's death. Streisand has written that she chose cloning because she "couldn't find another curly-haired Coton": the breed's coat is usually straight or wavy, whereas tightly curled hair is considered a fault, according to the breed standard. Of the four pups produced by the cloning, one died within a few weeks of being born, one was given away by Streisand, and two were kept. Accompanying an article she wrote in 2018 to explain her decision to clone is a photograph that captures the two clones sitting in a stroller



in a garden, gazing toward Samantha's headstone. Having insinuated themselves into human society, dogs are now the objects of both our salutary and our pernicious impulses.

When Finnegan, my family's charismatic black mutt, was in the final weeks of his life, in 2022, I felt myself prematurely grieving his loss. Age had robbed him of voluntary control of his rear quarters, foreclosing the possibility of him performing any Finnegan-characteristic behaviors, like racing through puddles or wagging his tail. What wouldn't I have given to have him rejuvenated, brought back to an earlier stage of life in which he could run and gallivant? More specifically, *would* I have given a small skin sample and fifty thousand dollars? And, had I done this, would the result be the same Finn? Certainly not. For some people, though, even just the *possibility* of a future Finnegan is enough to leaven the grief of losing the current one. The great majority of the samples at ViaGen will remain in their cryopreserved state in a vat of liquid nitrogen. Their owners never clone them—for want of money or nerve, or because cloning is less straightforward and morally messier than they'd realized, or simply because time steps in and reveals that grief, unimaginably, does fade.

When Dolly, the cloned sheep, was born, there was a lot of speculation and concern about the possibility that people might soon be cloned, too. President Bill Clinton tasked the National Bioethics Advisory Commission with making recommendations on human cloning; the commission came out resolutely against it, calling it "morally unacceptable," and citing the risk of harm to the fetus, child, donors, and surrogates, as well as ethical concerns around individuality, objectification, and the slide toward eugenics. Writing in *The New Republic*, the physician Leon Kass argued that cloning a person would be "inherently despotic," because creating a copy undermines the intangible otherness of a new life, the unknown child whom parents should accept for whomever that child becomes. The cloned person, he wrote, "will not be fully a surprise to the world."

But a lack of surprise turns out to be just the thing that people seem to want, at least when it comes to their dogs. When I visited John Mendola, in Long Island, he scrolled through his social-media feed for me, lingering on the posts that showed the Princesses sitting, begging, panting in tandem. "Look at this one," he said. "Look at this." The Princesses peered up at him, momentarily still. Then, as if on command, they shook off, pivoted, and turned away. I watched as they both began to drink from the same water bowl, lapping in perfect synchrony. ♦