



The Disposable Diaper

The modern diaper is a high-tech, high-performance miracle machine

BY ALEXANDER ROSE

JUST AFTER THE Second World War, Marion Donovan stared despairingly into the crib where her baby daughter lay asleep in a sodden diaper and dripping clothes atop a soaked mattress. Reluctantly, she awoke the infant, changed both her and the bedding, and placed yet another call to the laundry service.

Donovan understood that the cloth diapers of the 1940s were no match for urine, the bane of every parent's existence. She had already tried rubber pants, but because these did not allow air to circulate against the skin, they caused diaper rash. Undeterred, she cut a panel from a moisture-proof shower curtain and sewed it to the outside of the diaper.

By 1949, after sacrificing untold shower curtains, Donovan switched to war-surplus parachute nylon and sold a batch of what she called "Boaters" (they kept babies afloat) to Saks Fifth Avenue. These reusable diaper covers proved such a hit that she sold her company for a million dollars just two years later.

At about the same time, Sybil Geeslin, a mother of three young children in Decatur, Georgia, found that safety pins were anything but safe when wrestling a squirming infant into a diaper. "I was tired of sticking

myself," she said. Her answer—studding white, enameled, rustproof snaps along the cloth—resulted in an easily fastened and detachable diaper, which she patented and sold in 1950. The Keystone Safe-T Di-Dee diaper was sold first in the South and then nationally distributed.

That same year, the owner of a

was integrated into Kendall's Curity cloth-diaper brand.

Elsewhere, Texan George Schroder had hit upon the idea of replacing washable cotton with a nonwoven fabric, while Johnson & Johnson executives had learned about a promising new Swedish product: Paulistróm had created a disposable absorbent diaper pad by using unbleached, creped cellulose tissue, held in place by rubberized pants. In 1948 J & J introduced the Chux brand diaper, targeting traveling American parents who lacked access to a laundry service.

By 1950 all the main elements that would ultimately constitute the modern diaper were present: Donovan's leakproof design; Geeslin's technique for quick affixing and detachment; the redesign of the basic "chassis" into the present familiar shape; Schroder's exploration of materials beyond cotton; and J & J's interest in absorbency and disposability. Yet no one had yet conceived of combining these individual refinements

into a single, mass-produced product intended to endure multiple lashings of "the insult," the industry euphemism for baby by-products.

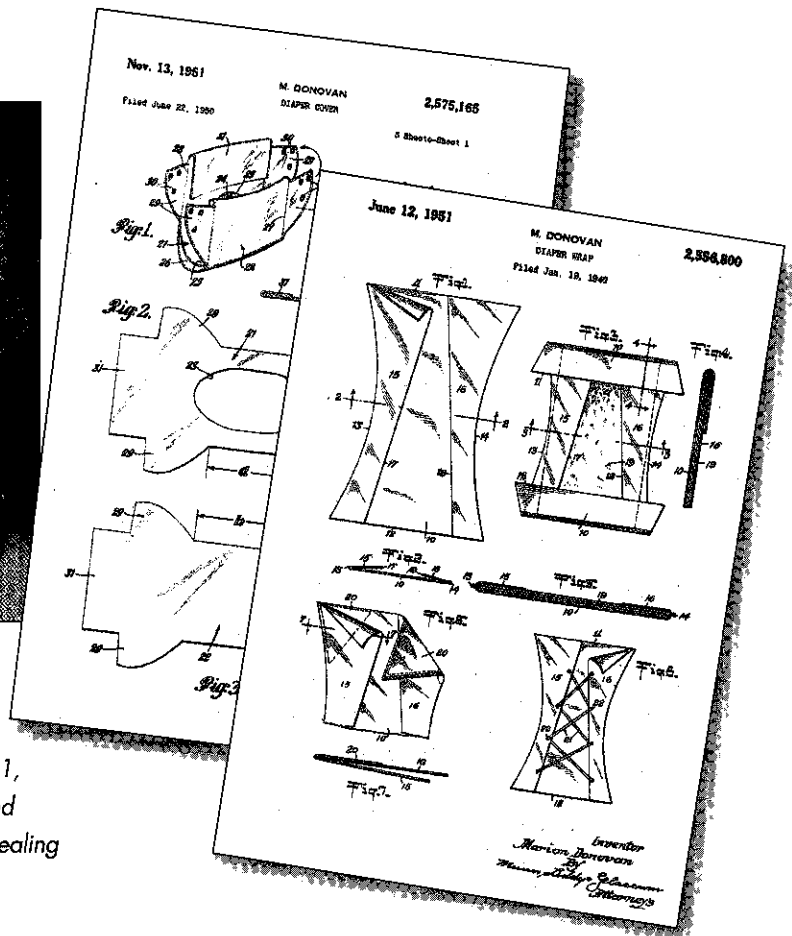
Procter & Gamble brought out the first modern disposable diaper, left, in 1961.



Milwaukee diaper service approached the Kendall Company with a prefolded diaper that offered a thicker, more absorbent center. The fold was sewn shut, which saved parents the drudgery of pleating every diaper before use. This design soon



Exasperated stay-at-home mom and savvy Westport, Connecticut, entrepreneur, Marion Donovan, above, waterproofed her children's diapers with reusable nylon covers called "Boaters," a technology that she patented in 1951, right. Johnson & Johnson's marketers promoted their Chux brand of disposable diapers in a 1959 magazine ad, below, by appealing to traveling families without access to laundry facilities.



It was an idea whose time had come. The postwar era had brought an unparalleled boom in middle-class consumer spending on home appliances (washing machines, refrigerators), prepared foods (TV dinners), and such domestic innovations as aluminum foil and paper towels, all of which furnished the nation's June Cleavers with "built-in maid service," as Secretary of Agriculture Ezra Taft Benson put it. "Convenience" had become paramount in consumer society. And what could be more inconvenient than changing a moist baby several times each day and night?

Accordingly, in 1956–57 Procter & Gamble tapped the head of its exploratory development division to devise products using paper pulp produced by a recently acquired plant. Victor Mills, a chemical engineer who enjoyed solving new problems by existing means, had already revolutionized the company's Ivory soap, Duncan Hines cake mix, Jif



he noticed that the plant already produced clean, absorbent paper. At the time, newspapers were covering the brisk sales of the various diaper refinements, and Mills had himself recently become a grandfather. Now reexperiencing the forgotten delights of changing babies, he tasked a team to create a product that could be used once and thrown away. Mills's genius was to perceive how existing diaper technologies could be

peanut butter, and Crisco shortening manufacturing processes. As he threw himself into the new project,

fused into an all-in-one package. Within two years P & G had test-marketed the new design in Rochester,

Thanks to a Boy

Decatur's Mrs. R. G. Geeslin Invents Diaper Nation's Eyed Since 1896

By Walter Reiman

Mrs. R. G. Geeslin, a busy Decatur homemaker, real estate woman with the Caty Bone Realty company and mother of three children, has invented a wonderful diaper. There's nothing exactly like it. It's as simple as ABC—one of those things you could have thought of. So simple, in fact, you may have thought of it.

Pediatricians, doctors, hospital authorities, homemakers and department store buyers have acclaimed it. Time and safety factors rated high with them. For with a flick of the hand the diaper is assembled and fastened with rust-proof white enameled Grip-ter Fasteners.

New York. After rejecting the names Tads, Solos, and Larks, the company settled on Pampers and introduced the first commercial version in Peoria, Illinois, in 1961. Built from such space-age materials as rayon and plastic, the first Pampers were relatively expensive at 10 cents apiece, but prices soon dropped as sales soared.

The disposable diaper continued to evolve. Manufacturers soon shifted from paper—which lacked the

capacity to retain much liquid, especially when wearers fell hard on their behinds—to shredded cellulose and eventually cotton fluff. The addition of superabsorbent polymers enabled an exponential increase in absorption rate; leg cuffs provided excellent protection against leaks; and adhesive elastic tabs fastened the sides together quickly and effectively. The modern diaper, in short, is a high-tech, high-performance miracle machine that is remarkably good at handling

In 1961 Procter & Gamble's Victor Mills, below, introduced Pampers, the all-in-one diaper that incorporated many improvements, including Sybil Geeslin's detachable fasteners, an innovation celebrated by her hometown newspaper, the DeKalb New Era, left, in 1950.




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repeated "insults" with aplomb.

Today, despite campaigns by environmental groups highlighting the landfill problems associated with increasing numbers of throwaways, and the rise of a nondisposable cloth diaper movement, the market is set to grow, especially in rapidly modernizing countries such as India and China, where relatively few infants use disposables (compared to 95 percent in the United States). The average Western baby uses between 3,700 and 4,200 diapers before he or she is fully toilet-trained, and the global industry is projected to hit \$26.6 billion in sales in 2012.

That's quite an achievement for an everyday object that costs just a few dimes yet allows babies to blissfully spend a penny, as the British say. 

Alexander Rose last wrote on the development of radar technology in the Summer 2009 issue.