

# POP ROCKS®

*The Inside Story  
of America's  
Revolutionary Candy*

**Marv Rudolph**



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## Acknowledgments

THE GULF BETWEEN DECIDING TO WRITE A FIRST BOOK OF NONFICTION and seeing it come off the press is vast, and bridging this distance can be an emotional roller coaster. Loneliness stalks every writer, as well as the nagging self-doubt that can only be conquered by a vast reservoir of faith in what you're doing. A number of people lent me their faith when mine was scraping bottom. Since I couldn't remember all the details of Pop Rocks technology and marketing, and knew Bill Mitchell only superficially as a colleague, I would like to thank those individuals without whose support *Pop Rocks: The Inside Story of America's Revolutionary Candy* would not exist.

First off, my colleagues and friends at the formerly great General Foods Corporation: thanks to Paul Kirkpatrick, Gerry Wasserman, Joseph Hegadorn, Frederic Kleiner, Richard Hynson, and Robert Weber, who were involved in Pop Rocks manufacturing from the very beginning; to Gabrielle (Gaby) Korab, Jerry Saltzgaber, Sean Rice, Howard Brody, and Jim Echeandia, who furnished marketing and distribution details; to Al Clausi who worked with Bill Mitchell from the 1950s onward and knew the origins of many General Foods products.

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*May the road always rise to meet you!*

*May the wind always be at your back!*

## Preface

THIS BOOK IS ABOUT A CANDY THAT WAS A PHENOMENON. IN THIS short volume, the story of Pop Rocks is told: the motivations and methods behind its invention, its development after twenty years of corporate inaction, the persons who made it a success, and how unanticipated, outside events brought down the business.

In 1974, I was newly hired by the General Foods (GF) Corporation, with a fresh Ph.D. in physical chemistry and three years of on-the-job training at a large dairy co-op. I was happy to become a part of GF, then considered the postgraduate school for food technology and marketing. The company was populated by extremely smart professionals, and it possessed the best trademarks not only in the food industry, but also in all of consumer products.

GF was a beehive of new product development activity. Every day I would see and taste novel products evaluated off the bench-top to be launched in the world of consumer testing. It was a heady environment, with a large complement of experienced food technologists and chemists to help answer questions that are not found in textbooks or research papers.

One of these veteran chemists was William A. (Bill) Mitchell, who was getting ready to retire from a thirty-five-year career at General Foods as a holder of forty-four patents. Do not glide lightly past those figures. If you generate enough intellectual property in the laboratory to issue a patent, on the average, every ten months of your career, you have joined a very exclusive club. His work touched every aspect of General Foods' businesses, most notably beverages (Tang, Kool-Aid) and desserts (Jell-O, Cool Whip, Swans Down Cake Mixes), and Pop Rocks carbonated candy. GF sold over 2 billion packets of Pop Rocks, starting at fifteen cents each, between 1976 and 1982.

When Bill died at the age of ninety-two on July 26, 2004, the obituaries I read, which were understandably focused on Pop Rocks, depicted Bill as the mad scientist. Pop Rocks was always portrayed as

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a sheer accident; one account was that “he mixed some sugar flavoring with carbon dioxide and tasted the results. Instantly the concoction began to pop in his mouth. . . .”

Nonsense. As everyone connected with Pop Rocks knew, the candy was extremely difficult to produce, and was the result of a larger research effort to understand how to store large volumes of carbon dioxide in a food-ingredient-based matrix. Some GF engineers even declared it was impossible to manufacture in large quantities, until a laconic southern-born technician, Paul Kirkpatrick, who worked with high pressure and temperatures in the oil and gas salt domes at Skelly Oil Co. in Mississippi, demonstrated with an equipment budget of less than five hundred dollars how the product could be reliably made.

Pop Rocks is the story of a great technical triumph and business disaster; it demonstrates how a giant company can marshal its resources in a short time on a focused objective, and how, when the objective is reached, unanticipated problems can cause the whole effort to come crashing down.

I know. I was there.

Marv Rudolph  
Sharon, Massachusetts  
2006

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CHAPTER 1

# The Amazing Bill Mitchell

**O**ctober 1956: Bill Mitchell is mixing samples in the Central Research Laboratory of the General Foods Corporation in Hoboken, New Jersey. At forty-five, he has wavy black hair, a rugged face, and intense hazel eyes that convey a contagious enthusiasm coupled with mischievous curiosity. Throughout the industry, Bill has a reputation as a true inventor—the sort of person who looks at problems differently and can find elegant, sometimes simple solutions that no one else considered. As a food chemist, he usually tastes samples himself, and he has an uncanny ability to tell what chemicals are present and what flavors still need some work. When Bill steps out of the lab, his secretary often doubles as his guinea pig.

A fifteen-year veteran of General Foods' research and development staff, Bill already holds a significant number of patents. During World War II, when the supply of tapioca, found in cassava granules grown in the Far East, dried up, he developed an alternative starch that fueled the growth of the starch-based convenience foods of the 1950s. He's helped to develop such revolutionary foods as Cool Whip, Jell-O Instant Pudding, quick set Jell-O, and boxed cake mixes. Now, though, he's attempting to modify his process for making carbonated ice. The goal is to create carbonated Kool-Aid, a powdered mix that when added to water would result in a sparkling drink. Such an invention would allow



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General Foods to enter the lucrative carbonated beverage market dominated by Coke and Pepsi. The hook would be an instant, powdered alternative that wouldn't require bottles or cans.

Bill's lab is part chemistry laboratory and part kitchen. Clean flasks, burettes, and pipettes fill cabinets next to shelves stacked with jars of brightly colored powders. Hobart mixers, bowls, and sacks of flour, salt, and sugar crowd the bench-tops. A freezer and refrigerator, both having seen better days, stand in a corner humming loudly. Pervading the room is the smell of coffee from the neighboring Maxwell House plant, the largest division of General Foods.

At this time, General Foods is a major research and development company for the convenience foods industry. Since the end of World War II, this market sector has changed perhaps more rapidly and more significantly than in any other time period. Developments such as boxed cake mixes and instant pudding have fundamentally altered the way people prepare foods, as well as what they eat. It's now the age of instant, processed foods, and Bill Mitchell is one of the preeminent pioneers in this culinary revolution.

An indirect path brought Bill to his station in the General Foods lab. Born in Raymond, Minnesota, in 1911, Bill had to learn early on the sort of tenacious, practical ingenuity that came from living through adversity. His father, Ernst, died when Bill was only a year old, and his father's brother, William, took over responsibility for the family, moving them from Minnesota to Rocky Ford, Colorado. When Bill was eight, his mother, stepfather, and four siblings caught the virulent flu of 1918. The only one who didn't get sick, Bill had the nursing responsibilities for all of his family members for almost a year. In addition to hunting and trapping, he began working in the fields, picking peas, beans, and fruit as a way to help his family survive. All this burden fell on Bill before he was ten years old.

Bill's mother died in the fall of 1924, and thirteen-year-old Bill was raised from then on by his sister, Elsie. He continued throughout his teen

The Amazing Bill Mitchell

years picking vegetables and fruits. As a high school junior, he worked for the American Beet Sugar company throughout the night, running sugar crystallization tanks, an experience that would eventually inform his work with Pop Rocks and other sweet foods. Bill's demanding schedule took him to school during the day and to work in the sugar factory at night, leaving a mere two hours, from 4:30 to 6:30 a.m., for sleep.

Years later, reflecting on his childhood, Bill would talk excitedly about the airplanes that flew over his home in Rocky Ford, Colorado. The first time he saw a plane, he tried to speak to it, thinking it was only as big as his hand. When the plane landed and the pilot stepped out, he was stunned.

Many of the planes he saw were World War I leftovers that pilots would modify in sometimes inventive, sometimes disastrous ways. Bill eventually compiled histories of early races with these planes, involving people who would refuel their planes in flight by walking out onto the wing where they had strapped gas tanks before taking off. To Bill, these pilots, flying their makeshift crafts and attempting incredible feats, represented the daring spirit of the age as well as a make-do-with-what-you-have attitude that would later become one of his hallmarks as an inventor.

During the Depression, Bill worked as a carpenter and managed to pay his tuition to Cotner College, in Lincoln, Nebraska. He jumped a train to get to college, arriving covered in dust and soot. Although interested in psychology he excelled in chemistry, and a professor encouraged him to study the hard sciences. By his sophomore year, he had become a chemistry assistant, which paid for his tuition. Cotner College went bankrupt in 1933, but Bill was able to secure a position as a chemistry assistant at Nebraska Wesleyan. After graduating, he taught high school and coached basketball in the Cornhusker State for one year, before entering a graduate program in chemistry and earning his master's from the University of Nebraska.

While a freshman in college, Bill met Ruth Cobbey. After years of going together, she wanted to marry, but Bill thought it best if he could first earn some money. He took a short-term research project at

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the state's Agricultural Experimental Station. Plans changed, though, when Bill was severely injured in a laboratory explosion.

The explosion occurred when Bill, in his usual seat-of-his pants manner, held a beaker full of alcohol over a Bunsen burner. The beaker had a slight crack in it, and it shattered, covering Bill in flames. The people who extinguished the fire thought it unlikely that he would survive his injuries. They tried to convince him to be comfortable, figuring that he only had a few moments left to live. However, with typical tenacity, Bill stood up and walked himself to a nearby hospital.

Burns covered 80 percent of Bill's body, and the doctors doubted he would survive. For many months, Bill endured excruciating pain. He often spoke through a morphine-induced delirium, giving chemistry lessons to the nurses who cared for him. As his health improved, his relationship with Ruth grew. Later in life, he'd say that if he hadn't met Ruth before the fire and had her to think of during his recuperation and recovery, he would not have lived. Still in bandages, he married Ruth in 1938.

Bill took a job as a chemist with Eastman Kodak in 1939, and he and Ruth moved to Rochester, New York, where they had their first son. Despite solving many long-term problems relating to Kodak's development of color film, Bill grew increasingly concerned about the chemicals to which he was being exposed. With little worker safety regulation and no OSHA laws in place to guard workers, chemists regularly handled extremely hazardous substances. To protect his health, Bill left Kodak in 1941 and went to work for General Foods Corporation as a food chemist.

Bill and Ruth eventually settled in Lincoln Park, New Jersey, where they raised seven children. Although Ruth became the mayor of Lincoln Park, they chose to live on a farm outside of the city, where the five boys and two girls would have enough room to run around without getting into too much trouble. Bill, who'd always felt a close connection to the land, worked a large garden in his spare time, using a tractor that he'd repaired with baling wire. His children raised chickens, cows, and rabbits, and the farm was always bustling with dogs, cats, and other animals that

The Amazing Bill Mitchell

Bill adopted. Neighboring children often gathered at Bill's house, and the table was usually set with the expectation that a few extra might arrive.

At General Foods, Bill was looked upon among the technical staff as a star innovator. His reply to praise was, "It's all in a day's work," which was not false modesty. His work ethic, centered in the laboratory, was strong. Despite being offered management roles on several occasions, Bill always turned them down flat, preferring to stay in the lab.

Bill responded best to a challenge. In 1956, after developing ice cubes that would carbonate whatever liquid they were dropped in, Bill bragged that he could put pressurized carbon dioxide into nearly anything. When someone bet him he couldn't put it into sugar, Bill took up the challenge and developed a highly charged carbonated candy using sorbitol, a sugar alcohol, as an edible storage matrix for carbon dioxide. On October 10, 1956, he gave one of the first nuggets of his new candy invention to his secretary, Alice Kiick. Wary from past experience with Bill's inventions, Alice spit out the hard candy. The instant the candy hit the floor, it exploded, confirming the secretary's suspicions that Bill might be trying to kill her. The first Pop Rock was born.

Bill promptly mixed up a batch to test on his children, flavoring the sugar with pineapple, the only flavor available in the lab that day. He took home the exploding pineapple candy and had his four oldest boys line up, putting the candy in their mouths at the same time. The boys, who were also wary from taste testing their father's previous inventions, were pleasantly surprised.

Despite the novelty of this confection, informally called "Popping Candy," General Foods showed no interest in patenting the invention. At the time, the company wasn't in the candy market. Instead, they encouraged Bill to develop a carbonated Kool-Aid powder that could be marketed as an instant soda. Nevertheless, Bill continued to make his exploding candy to give out at his children's birthday parties. He produced this unusual mixture on his own for nearly twenty years before broader audiences had their chance to buy it.

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In Bill's time at General Foods, during which he earned forty-four patents in thirty-five years, he developed products ranging from obscure inventions, such as powdered (dry) alcohol and carbonated ice, to everyday brands such as Tang, Cool Whip, and, of course, Pop Rocks. He was revered in the company as a grandfatherly figure who often took younger scientists under his wing and encouraged them to stretch their ways of thinking about problems. Although he retired in 1976, he continued to invent well into his eighties.

After Ruth died in 1999, Bill moved back to Colorado, and later to California where he spent his last years with his youngest daughter, Cheryl, who in 2001 formed a food research company, Creative Research Management, Inc. (CRM). Bill developed a healthy, natural beverage mix called Dacopa, made from inulin-rich dahlia tubers. (Inulin is a white plant polysaccharide used especially to improve the flavor and texture of low-fat and low-sugar processed foods.) By roasting the roots, he gave them a coffee flavor. He also developed several rice-based product and process patents for CRM. One of the leading nondairy rice beverages in the United States, Rice Dream, was derived from his CRM patents.

Until his death on July 26, 2004, CRM benefited from Bill's wit, songs, and extensive memory of applied food chemistry. He is survived by his seven children. His headstone displays some of his favorite phrases, capturing his spirit as a tenacious innovator and a caring teacher.

TO BECOME A CHAMPION:  
WORK HARD AND PLAY HARD  
USE YOUR COMMON SENSE,  
BE KIND AND POLITE,  
DELIVER THE MESSAGE TO GARCIA  
NOW I LEAVE YOU FIRST IN COMMAND  
THAT'S ALL FOR YOUR DIME.