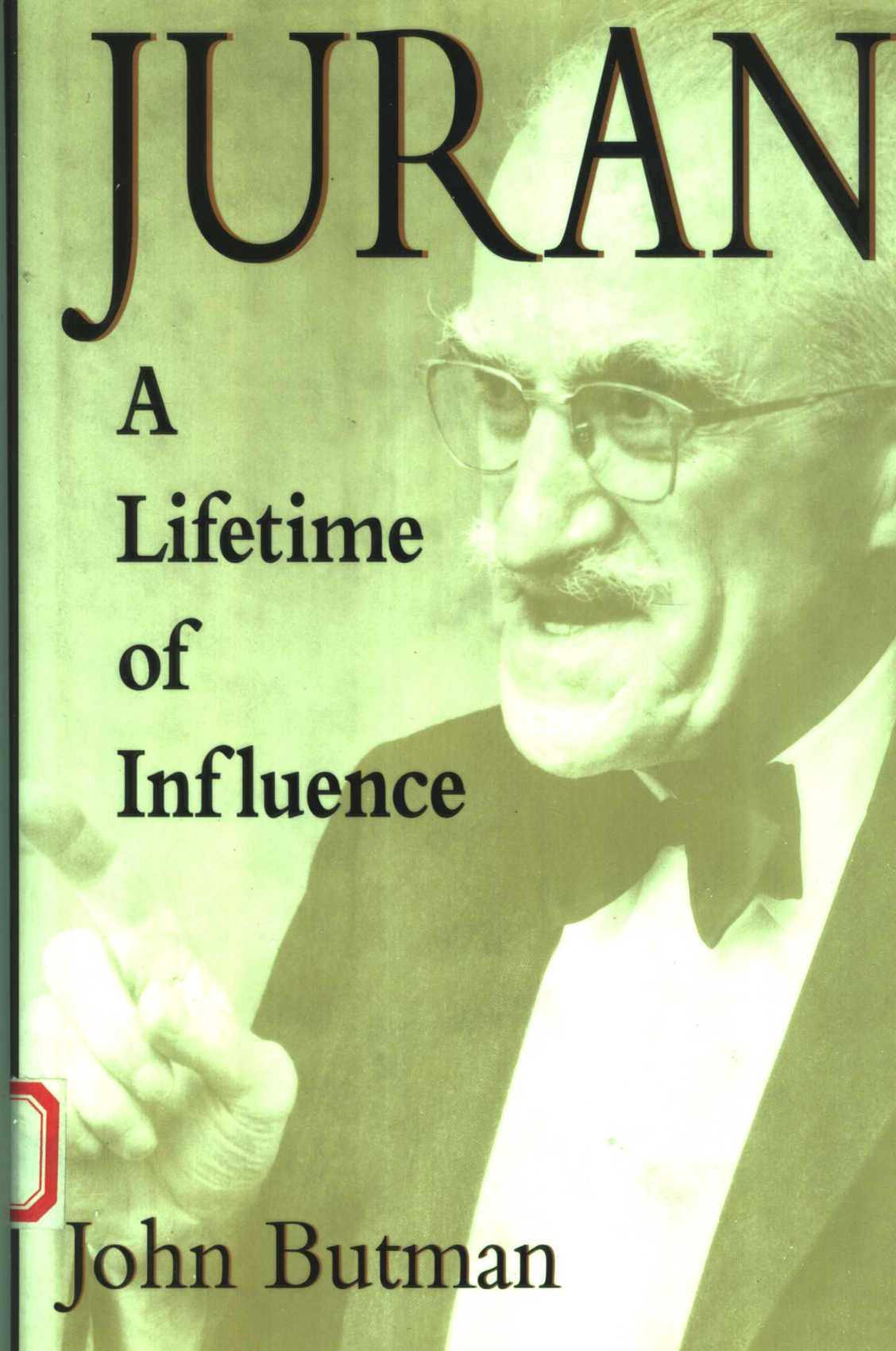
JURAN

A Lifetime of Influence



John Butman

JURAN

A LIFETIME OF INFLUENCE

JOHN BUTMAN

JOHN WILEY & SONS, INC.
New York • Chichester • Weinheim • Brisbane • Singapore • Toronto

This text is printed on acid-free paper.

Published by John Wiley & Sons, Inc.

Library of Congress Cataloging-in-Publication Data:

Butman, John.
Juran : a lifetime of influence / John Butman.
p. cm.
Includes bibliographical references and index.
ISBN 0-471-17210-3 (cloth : alk. paper)
1. Juran, J. M. (Joseph M.), 1904– . 2. Industrial engineers–United States–Biography. 3. Quality control–History. 4. Total quality management. I. Title.
TS140.J87B88 1997
658.5'0092–dc21
[B] 97–14194

Printed in the United States of America

10 9 8 7 6 5 4 3 2 1

Preface: The Pantheon

Quality is an idea; it changes with time.

As the world entered the twentieth century, quality implied an essential goodness of nature (a thing of great quality) or a special, usually expensive, grade of manufacture (high-quality goods).

In the second half of the century, quality escaped its burden of luxury and was liberated from its association with high cost. It emerged as a classless idea that comprises precision (expert execution of manufacture or service delivery), reliability (no failures or mistakes), usefulness (meets a need), and a positive response from those who encounter it (satisfaction and even enjoyment).

As the twenty-first century nears, the idea of quality has taken on an even richer, broader meaning. It is no longer considered to be a methodology for improvement and cost reduction primarily of industrial products and commercial services. We seek to apply quality methods to improve entire systems: organizations, governments, educational systems, the environment, national cultures.

This powerful idea has been shaped and refined, starting early in the twentieth century, through the efforts of a small number of quality advocates and practitioners. Their ideas catalyzed into dramatic

action our natural inclination to improve; their methods and tools have enabled us to improve more quickly than we might have otherwise.

This book is the story of one of those quality proponents, Joseph Moses Juran. If there were a quality pantheon, Juran would be a charter member. William Edwards Deming and Walter A. Shewhart would stand beside him. Others, whose contributions are not deeply considered here (including Armand V. Feigenbaum, Kaoru Ishikawa, and Philip Crosby) would have their advocates.

Juran is distinguished by the breadth and depth of his knowledge, the clarity of his ideas, the practicality of his methods, the scope of his activity, and his extraordinary longevity as a major contributor to the field.

Juran provided the most precise and applicable definition of the elusive phenomenon we call quality. He defined two universal sequences of action steps, one for achieving *breakthrough,* one for achieving *control.* He articulated the Pareto Principle, which holds that a small percentage of factors in any situation will yield a large percentage of the effect. And Juran argued—forcefully and tirelessly—that a supportive organizational structure and management commitment are essential to the achievement of quality.

Juran's ideas, methods, and teachings have earned him a respect that borders on reverence from the quality community and have had a major impact on how we manage our businesses, how we create our products and services, and, indeed, upon the quality of our lives. "I think I am sitting with God," remarked one seminar attendee when he found himself seated at Juran's luncheon table.

Juran's life story and the story of quality are intertwined. His personal history has not been told before in print; a television documentary *An Immigrant's Gift* provides the only introduction to his life. The quality story has been told in pieces, through examinations of specific periods of activity (the 1920s, World War II, the 1980s), specific industries (most notably, the auto industry in such books as *The Reckoning* and *The Machine That Changed the World*) or in summary (such as Juran's own *A History of Managing for Quality*).

This book explores—through the story of Joseph Juran—the evolution of the quality movement in the twentieth century, primarily in the United States. It is, therefore, as much a biography of quality as it is of one person who helped define it.

JOHN BUTMAN

Boston, Massachusetts
April 1997

The Japanese liked Deming because he had a list.

Peter Drucker

Deming had a philosophy, not a list.

Lloyd Dobyns

Dr. Juran's visit marked a transition in Japan's quality control activities from dealing primarily with technology based in factories to an overall concern for the entire management.

Jungi Noguchi

Deming was the philosopher. Juran was the trainer. I was the implementer.

A.V. Feigenbaum

Had Deming and I stayed home, the Japanese would have achieved world quality leadership all the same.

J. M. Juran

I am number one in Japan.

Peter Drucker

Contents

1

A World without Quality

(1904–1920)

What is so fascinating as the journey of a human creature through life?

Joseph Juran

Old World Boyhood

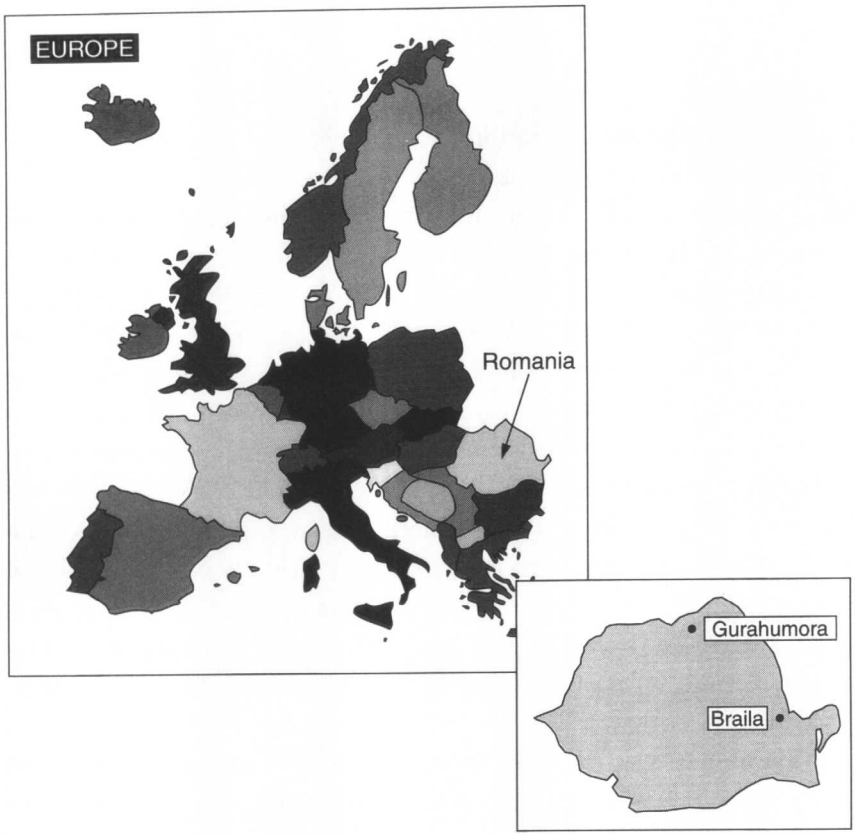
In the past three generations, each of the men of the Juran family seems to have taken one spectacular risk in his life.

Naftuli Juran, Joseph Juran's grandfather, emerged from the Carpathian Mountains one day, probably in the late 1860s, and settled in a tiny village nestled between the foothills and the Moldava River, in what is now Romania. Where Naftuli came from, who he was, why he was on the run—even his real name—no one now knows. He may have been a bank robber, a horse thief, a traveling teacher, or a young man fleeing from Russian Cossacks to escape conscription. Whatever the catalyst, Naftuli had taken a bold once-in-a-lifetime chance in crossing the pinnacled mountains and sudden gorges of the landscape we associate with Count Dracula, where wolves howl and few people live, to settle in a new region and pursue a new life. Naftuli came with a friend, Mordecai, and the two newcomers took temporary refuge with a local family named Juran, whose name they permanently borrowed.

The region was then part of the Austro-Hungarian empire (now Romania; see Figure 1.1) and under Austrian rule. The village, called Gurahumora (now Gura Humorului), had a small, but significant, Jewish population, which Naftuli joined. He married and started a family which grew to eleven children: eight girls and three boys. Joseph Juran's father, Jakob, was born in 1874.

Naftuli died young, leaving Jakob to be raised by sisters and aunts. He showed some promise at school and the family hoped he would become a scholar or a rabbi. But he much preferred cards to schoolwork, and he sought the company of Gentiles rather than Jews. After four years, he abandoned his studies and apprenticed to a shoemaker. Around 1900, Jakob left Gurahumora to set up shop in the more prosperous city of Braila, a shipping town on the Danube in southeastern Romania, where Jakob's sister and brother owned a restaurant. There,

Figure 1.1 Juran was born in what is now Romania.



Jakob fell in love with Gitel Goldenburg, a pretty, dark-haired girl who worked—as most dowry-less girls did—as a domestic, a house keeper. They married and their first son, Rudy, was born in 1901. Rebecca followed in 1903. Joseph Juran was born on December 24, 1904. (Juran selected his own middle name, Moses, when he was a teenager.)

Business did not flourish for Jakob in Braila so, in 1906, he moved his family back to Gurahumora and into a rough house next door to another sister and her prosperous husband, a metals merchant. It was a primitive house in the primitive village, with dirt floors, mud

streets, and planks for sidewalks. As Juran grimly jokes, "They had no quality problems" in Gurahumora—there was no electricity, they had no automobiles. Here, Gitel gave birth to a fourth child, Nathan, in 1907.

Jakob took a dim view of Romania, where "nobles will always be noblemen, and shoemakers' sons will always be tradesmen," as he told his sons. Besides, the spread of factory-made shoes was beginning to cut into the business of custom shoemaking. So, at age 34, Jakob took his once-in-a-lifetime risk—his version of crossing the Carpathian Mountains—he would set up shop in America. In January, 1909, Jakob bade farewell to his wife and four children, and journeyed to Minneapolis where he had a sister and successful brother-in-law, Sussy and Herman Kliffer, with whom he could stay until he had raised enough money to bring the rest of the family over. The change of venue did little to improve Jakob's work habits. He loafed in America, and took three years to put together enough money to buy five tickets for sea passage.

With Jakob gone, Gitel managed the family in Romania. Illiterate and deeply religious, even superstitious, she told the children terrifying stories about the persecution of Jews that had begun in ancient times and continued in the pogroms of the late 1800s and early 1900s. Two particularly horrific pogroms had taken place in the nearby Ukrainian towns of Kishinev, in 1903, and Odessa, in 1905. Danger, hatred and anti-Semitic behavior lurked much closer to home as well. A neighbor shouted obscenities against Jews, schoolyard bullies beat them up. Joe Juran's most vivid recollection of his life in Gurahumora is of an "all-pervasive fear."

Townspeople called Joe "spider" because he was so small and wiry. One day, while rambling in the foothills, he slipped on a wet plank and dislocated his hip. Passersby carried him to a hut inhabited by a hermit who had some knowledge of bone setting. But, without traction, Joe ended up with a shortened leg which, in conjunction with a kink in the spine (possibly from scoliosis), left him with an uneven gait. On another ramble in the hills, Joe came across a hideous and

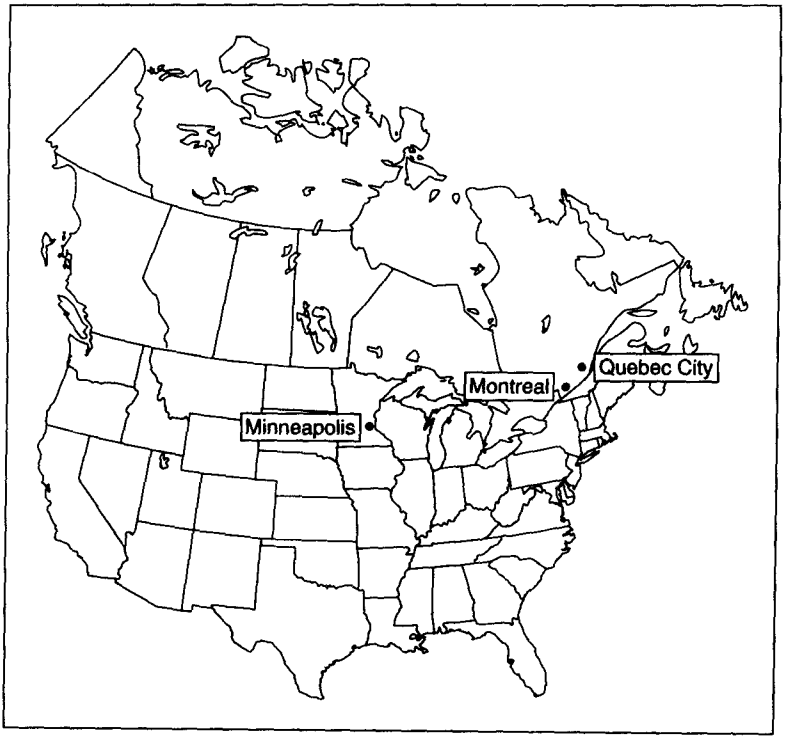
unforgettable sight: A man had hanged himself from a tree and there he dangled, his oxygen-starved tongue sticking out, rigid and blue.

Joe may have been fearful; he was also extremely bright. He attended the village Hebrew school, where they spoke Yiddish, and the Gurahumora public school, where classes were conducted in German. Joe caused a commotion in the Jewish community when he taught himself to read Rashi, a form of ancient Hebrew text written, in large part, without vowels. People thought: Perhaps Joe will be a scholar, even a rabbi. But Joe viewed Rashi as an intriguing code, a secret writing, something to be deciphered. He would be attracted by the mystery of codes, linguistic challenges, and puzzles throughout his life—learning English, studying cryptanalysis in the Signal Corps, and working as an industrial problem solver.

Finally, the tickets for passage aboard the ship *Mount Temple* arrived from Jakob, along with a delightful novelty, a calendar in English. The kids—Rudy (11), Rebecca (9), Joe (7), and Nat (5)—delighted in pronouncing the abbreviations for the days of the week, MON, TUES, WED. On their day of departure from Gurahumora, it seemed to Joe that the whole town turned out at the train station to bid the family good-bye. He saw that his mother had the respect of the village. The train chugged north into Ukraine, across Poland and finally to the seaport of Antwerp, Belgium.

In August 1912, the Jurans boarded the ship *Mount Temple,* with some trepidation: the *Titanic* had sunk in April of that year. Their tickets were for steerage, where women and children slept on bunks—stacked three and four high—on one side of the ship, and men slept on the other. When Joe got the top bunk, he was wary of the scalding steam pipes that clanged and sputtered just overhead. Despite the dangers and discomforts, Juran remembers the voyage to America as "a big adventure." The ship docked at Quebec City, Quebec—east of Montreal, on the St. Lawrence River—on August 19, 1912 (see Figure 1.2). Atop the sharply rising cliffs stood the Chateau Frontenac, a hotel so grand it looked like a palace. A great railroad bridge spanned the river above the city. With most of their cash exhausted, the Jurans

Figure 1.2 The Jurans arrived in Quebec City on August 19, 1912, then traveled by train to Minneapolis.



stayed a few days in a hotel, until more money arrived. There, they experienced for the first time some of the supreme delights of a technological society—flush toilets and ice cream.

When the money came, they continued their journey by third-class rail to Sault Ste. Marie, Michigan. They crossed the border into the United States on August 22, and continued west to Minneapolis. Aboard the train, Gitel bought an exotic piece of fruit—a banana—for the children to try, but they couldn't figure out how to eat it. Finally, another passenger suggested they peel it, and everyone enjoyed a taste.

In Minneapolis, Jakob's sister met them at the station and helped them onto the Central Avenue streetcar, another novelty, which carried them out to their new home at the very outskirts of the city. A tarpaper shack.

New World Hardships

Although Minneapolis was a burgeoning Mississippi River town, busy with flour-milling and lumber production, Jakob had not found a way to contribute to or participate in its prosperity. Rather than set up his own shoemaking shop, he'd taken a job as a cobbler, at $9 a week. He liked to sleep late, smoke hand-rolled cigarettes, drink coffee, and play pinochle with his newfound cronies.

He had managed to secure a lot—apart from the Jewish community—on Central Avenue, then surrounded by woods and fields, now part of central Minneapolis. There he built a shack, measuring 12 by 30 feet, where the six Jurans now lived—just as they had in Gurahumora—without electricity, gas, indoor plumbing, or central heat. The ate their meals in the kitchen, warmed by the wood-burning stove. All the children—who soon totaled six (two more daughters, Minerva and Charlotte, were born in America)—slept together in the middle room. Jakob and Gitel slept in the front parlor. And Jakob's pal Nikolai would often scale the ladder at the end of the house for a snooze in the loft. Behind the shack stood a shed and, behind it, the outhouse, which "buzzed with flies in the summer and whistled up icy drafts in the winter," according to Joe's brother Nat. Streetcars thundered back and forth, yards from the front door.

In the fall of 1912, Rudy, Joe, and Nat reported to the Prescott School on Lowry Avenue, about a mile away. All were assigned to the first grade until they could be evaluated. Soon enough, Joe was catapulted from the first grade to the fourth. Although proud of his ascendancy, Joe now found himself as not only the smallest person in his class, but the youngest as well—a natural target for school bullies. To

make matters more difficult, the Juran boys at first spoke only German. With a war brewing in Europe, they were identified with the enemy. "When school let out for a recess and we stepped out the door, here were all these kids saying, 'Charge the enemy!'," wrote Nat. "If we could outrun them, we were safe. If not, we got a beating." They learned English quickly.

For all its perils, school also brought rewards. Joe was pleased to be the youngest and smartest in his class, he loved to read, and he excelled at math and science. But his life in Minneapolis was dominated by work. During the school year, Joe worked mornings before school, after school until dinner, and on weekends. Summers, he worked full time. His first job, in the fall of 1912, was selling newspapers. Every morning except Sunday, he and Rudy would get up early to divide a big bundle of the Minneapolis *Tribune* that had been dropped outside their door. Rudy lugged his papers up to the 37th Street streetcar stop, Joe took his down to 33rd Street. At a penny a copy, they grossed about forty cents on a sellout day. They split the money with the company, and every penny the boys earned went straight to their father. No allowance. No pocket money. When the *Tribune* raised its price to two cents, the Jurans' profits did not rise with it. Joe thought it was unfair, but he said nothing about it.

As poor as they were, the Juran children did not feel particularly disadvantaged. Everybody else they knew was poor, too. When the kids weren't at school or working, they worked at home. They cut and split firewood for the stove, tended the vegetable garden, fed the chickens, and scoured the railroad tracks for lumps of coal to burn in the stove. In winter, they crawled underneath the shack and, with a hatchet, hacked out hunks of frozen sauerkraut from the barrel stored there. They ran to the butcher for unsalable bits of offal and organs. The children liked brains and liver pretty well, but the animals' stomach and lung coated the child's mouth with fat and often resulted in a bout of diarrhea.

Gitel worked constantly to keep her children healthy and prospering. She jarred pickles and preserves. She baked bread and, sometimes, an apple strudel. Most often, she fed the children a hot cornmeal