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W. Edwards Deming and the Origins of Quality Control in Japan

When the management consultant and "quality guru" W. Edwards Deming died in December 1993, the American media eulogized the passing of a veritable American hero. Dubbed "the man who discovered quality," [1] Deming rose to prominence in the 1980s as a scathing critic of American business and a tireless advocate for the techniques of statistical quality control. Lionized as a visionary savior for U.S. industry and even a "capitalist revolutionary," [2] Deming preached a gospel of economic redemption based on a renewed commitment to the quality of manufactured goods. In the industrial doldrums of late-twentieth-century America, Deming's sobering message hit home, eventually suffusing public debates over social and political (as well as economic) change. To Labor Secretary Robert Reich, Deming was "a guide, a prophet, an instigator"; to populist billionaire Ross Perot, he demonstrated that "one person can still make a difference"; and in the opinion of U.S. House Speaker Newt Gingrich, Deming's philosophy of quality constituted a "pillar of American civilization." [3]

Fundamentally, however, Deming's fame—and his very credibility as a tutor to American business—rested less on the intellectual power of his managerial vision than on his much-touted contributions to the rebuilding of Japanese industry after World War II. Indeed, what provided Deming a pulpit and the authority to preach was the widespread belief that he was personally responsible for introducing the methods of quality control to Japan in the early 1950s. According to the popular wisdom, Deming took to Japanese industry the powerful concept of quality, a concept that found

1. Andrea Gabor, *The Man Who Discovered Quality* (New York: Penguin, 1990).

2. Lloyd Dobyns, "Ed Deming Wants Big Changes, and He Wants Them Fast," *Smithsonian,* Vol. 21, No. 5 (August 1990), p. 75.

3. Gabor, *The Man Who Discovered Quality,* p. i; Newt Gingrich, "Renewing American Civilization, Pillar Five: Quality as Defined by Deming," *Quality Progress,* Vol. 28, No. 12 (December 1995), pp. 25–33.

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more fertile soil across the Pacific than at home, spurred the postwar renaissance of Japanese manufacturing, and led ultimately to the eclipse of U.S. producers in the international marketplace. As "the genius who revitalized Japanese industry" and "the man who gave Japan the business," [4] Deming came to be revered as the very incarnation of American know-how and a genuine oracle of management wisdom.

Yet for someone who (the American media assure us) is "something of a god" in Japan,[5] W. Edwards Deming remains an enigmatic character to American specialists in Japanese studies. Despite the remarkable public acclaim accorded Deming over the past 15 years, his work in Japan has received little scholarly attention.[6] Even today, accounts of Deming's influence on Japanese industry and, more broadly, of the origins of Japan's celebrated quality control (QC) movement, remain largely anecdotal. This essay will reexamine Deming's contributions to production management in early postwar Japan, subjecting the popular orthodoxy of his seminal role in the genesis of Japanese quality control to unaccustomed historical scrutiny. As I will argue, Deming's significance to Japan's nascent quality movement was far different from that commonly assumed, and his legacy—in contemporary America as in "miracle economy" Japan—is far more ambiguous than the flourishing Deming mythology suggests.

Deming: Life and Legend

As a rags-to-riches tale in the best tradition of Horatio Alger, the life story of W. Edwards Deming seems almost cliched. Born at the turn of the century, Deming grew up in ungenteel poverty in the rough frontier outpost of Powell, Wyoming. As a boy, Deming lived with his family in a tar-paper shack, was educated in a one-room schoolhouse, and made pocket money by lighting the town's street lamps. He subsequently put himself through the University of Wyoming (earning a degree in engineering in 1921) by mopping floors, shoveling snow, and even working at a soda fountain. A preco-

4. Mary Walton, *The Deming Management Method* (New York: Perigee Books, 1986), jacket copy; Daniel Boorstin, "History's Hidden Turning Points," *U.S. News and World Report,* Vol. 110, No. 15 (April 22, 1991), p. 65.

5. David Halberstam, *The Reckoning* (New York: Avon, 1986), p. 312.

6. Deming is only treated in passing in the major works of English-language scholarship on Japanese quality control and production management, notably Robert E. Cole, *Work, Mobility and Participation* (Berkeley: University of California Press, 1979); Robert E. Cole, *Strategies for Learning* (Berkeley: University of California Press, 1989); Michael Cusumano, *The Japanese Automobile Industry* (Cambridge, Mass.: Council on East Asian Studies, Harvard University, 1985). For gentle debunkings of the Deming legendry, see Robert Cole, "What was Deming's Real Influence?" *Across the Board,* Vol. 24 (February 1987), pp. 49–51; Noguchi Junji, "The Legacy of W. Edwards Deming," *Quality Progress,* Vol. 28, No. 12 (December 1995), pp. 35–37.

cious and diligent student, Deming went on to receive a master's degree from the University of Colorado and, in 1928, a doctorate in mathematical physics from Yale.[7]

It was during his time in graduate school that Deming first became involved with the fledgling discipline of statistics. In the summers of 1925 and 1926, Deming was employed at the renowned Hawthorne Works of Western Electric, then a showplace of progressive labor management and mass production technology. At Hawthorne, Deming was introduced to the work of Walter Shewhart, the Bell Laboratories mathematician now considered the "father of statistical quality control." Shewhart, who would later become a close friend and associate of Deming, pioneered the use of statistical techniques to understand variation and increase uniformity in the manufacturing process.[8] The early exposure to Shewhart's research proved formative for Deming, who resolved to pursue a career as a statistician. After graduating from Yale, Deming turned down several job offers from the private sector to work for the government, first as a researcher for the U.S. Department of Agriculture and eventually as the head mathematician of the Census Bureau. In these capacities Deming made notable contributions to statistical methodology (particularly in the area of sampling procedures), and by the late 1930s he was acknowledged as one of the leaders in this new and growing field.

The onset of World War II and the exigencies of economic mobilization placed a premium on the skills of American statisticians. The wartime burgeoning of assembly-line industries gave rise to widespread concerns over product quality, concerns that, it seemed, could only be addressed by the wholesale application of statistical analysis to the production process. In the ensuing public and private efforts to systematize and disseminate the methods of statistical quality control, Deming played a major role. Beginning in 1942, Deming organized a series of short-term training courses for managers and engineers in munitions factories. The courses, sponsored by Stanford University and the War Production Board, emphasized the basic statistical theories and practical techniques originally outlined by Shewhart in the 1920s and 1930s. Helped in no small part by Deming's enthusiasm and effectiveness as a teacher, the training program was a great success, gradu-

7. Plentiful information on Deming's youth and prewar career are provided in Cecelia S. Kilian, *The World of W. Edwards Deming,* 2d ed. (Knoxville, Tenn.: SPC Press, 1992); Lloyd Dobyns and Claire Crawford-Mason, *Quality or Else: The Revolution in World Business* (Boston: Houghton Mifflin, 1991); Gabor, *The Man Who Discovered Quality.*

8. According to Deming, "Statistical quality control is the application of statistical principles and techniques in all stages of production directed toward the most economic manufacture of a product that is maximally useful and has a market." This is the definition Deming suggested to his Japanese audiences in 1950. Kilian, *The World of W. Edwards Deming,* p. 63.

ating almost 10,000 new practitioners of statistical quality control by the end of the war.[9]

In 1946, Deming joined the postwar exodus from government service to become a professor at New York University's Graduate School of Business Administration. He also hung out his shingle as a self-styled "consultant in statistical studies," fully expecting that the many firms that had experimented with quality control during the war would beat a path to his door. Yet according to the popular wisdom prevalent today, "Corporate America, after World War II, told Deming to get lost." Deming, we are informed, became a "prophet without honor in his own land," a visionary "spurned by American managers" more interested in profits than in quality.[10] Indeed, much of the early demand for Deming's expertise did come from abroad: in addition to his work in Japan, Deming served as a consultant to the governments of India, West Germany, Mexico, and Turkey during the 1950s. Although the rush of corporate interest Deming anticipated never materialized, his consultancy practice remained viable and attracted a steady stream of domestic clients.[11] As one of the multitude of independent management consultants that proliferated after the war, Deming did not initially become a celebrated figure in the business community, yet he was hardly so marginalized as is now widely assumed.

In any case, W. Edwards Deming's life changed overnight in June 1980 with the televising of an NBC documentary entitled "If Japan Can, Why Can't We?" The piece profiled Deming—whose story the producers had only stumbled upon by chance—and suggested that his postwar teachings in Japan had sparked that country's "quality revolution" and its remarkable industrial regeneration.[12] The documentary attracted a large audience and clearly struck a chord with American business, which by 1980 was feeling the pressure of Japanese competition and was struggling to understand Japan's perceived edge in product quality. Within days, Deming was inundated with requests from American companies desperate to learn the secrets of quality control he had earlier shared with the Japanese. Although nearing his 80th birthday, Deming was only too happy to oblige and soon could claim corporate giants such as Ford, General Motors, and Dow Chemical among his consulting clients.

9. Andrea Gabor, "Deming Demystifies the 'Black Art' of Statistics," *Quality Progress,* Vol. 24, No. 12 (December 1991), pp. 26–28; Eugene L. Grant (as told to Theodore Lang), "Statistical Quality Control in the World War II Years," *Quality Progress,* Vol. 24, No. 12 (December 1991), pp. 31–36.

10. Hobart Rowan, "Deming's Simple Message: Never Compromise on Quality," *Japan Times,* December 25, 1993, p. 16; Jim Henry, "Plant Doctor," *Automotive News,* No. 5531 (December 27, 1993), p. 6; Mary Ann Maskery, "Quality Time," *Automotive News,* No. 5420 (November 18, 1991), p. 3.

11. Walton, *The Deming Management Method,* p. 16.

12. Ibid., pp. 17–20; Kilian, *The World of W. Edwards Deming,* ch. 2.

Thus "discovered" in 1980, Deming was catapulted from relative obscurity to being "an unadulterated superstar." [13] In addition to his hectic consulting schedule, Deming authored several business best-sellers, was a much sought-after speaker, and led hundreds of training seminars for executives and engineers over the course of the decade. His prescriptions for management reform—the "Fourteen Points," "Seven Deadly Diseases," and "System of Profound Knowledge"—readily entered the American business argot. An acerbic critic of U.S. industry—which he chided endlessly for not recognizing his wisdom sooner—Deming even became an unlikely media darling. Dispensing caustic tidbits such as "Export anything to a friendly country except American management," [14] the irascible octogenarian gained popular acclaim as a crusader for quality and a nagging conscience for the business elite. By the early 1990s, as "quality" became a societal buzzword, the Deming phenomenon seemed to infiltrate virtually every corner of American life. Even since his death, Deming's thought has inspired proposals for educational reform, his managerial techniques have penetrated fields as disparate as library science and orthodontics, and the torrent of books on "Demingism" continues unabated.[15]

At the core of the Deming mystique lay always the widely assumed (and seldom challenged) notion that Deming was directly responsible for Japan's postwar triumphs in quality control. In boardrooms, business schools, and the popular press, it came to be accepted, almost as an article of faith, that Deming was (in the words of management mandarin Tom Peters) the "father of the Japanese quality revolution." [16] This assumption of paternity was particularly compelling at a time when Japanese industry was emerging as the new international benchmark for quality and competitiveness in manufacturing. Amidst the legions of self-proclaimed experts offering managerial elixirs to American business in the 1980s—many of whom were hawking "Japanese" methods and quality management—Deming's legitimate links to Japan's "quality miracle" provided an almost irrefutable claim to authority.[17]

The story of Deming's work in Japan is now the stuff of legend, so often has it been told, retold, embroidered, and embellished over the past 15 years. The standard version, that offered by Deming himself and repeatedly en-

13. Steve Lohr, "He Taught the Japanese," *The New York Times,* May 10, 1981, p. III.6.

14. Quoted in Dobyns and Crawford-Mason, *Quality or Else,* p. 17.

15. See, for instance, Melvin Mayerson and Edwin Sylvester, "Teamwork, Quality and Competitive Advantage: The Deming Philosophy in Orthodontics," *Journal of Clinical Orthodontics,* Vol. 26, No. 5 (May 1993).

16. Tom Peters, *Thriving on Chaos* (New York: Knopf, 1987), p. 74.

17. For example, a 1992 guide to the various strategies of implementing quality control suggested that "Deming's approach is selected because of his well-known role in the reconstruction of Japan's industrial base following World War II." V. Daniel Hunt, *Quality in America* (Homewood, Ill.: Business One Irwin, 1992), pp. 49–50.

dorsed by the American media, is as follows. In 1950, Deming was invited to Japan under the auspices of the Allied Occupation, charged with helping Japanese industry overcome its reputation for shoddy products. In a series of lectures, Deming introduced the concept of quality and the principal statistical methods of quality control to Japanese industrialists, managers, and engineers. In the devastated Japan of 1950, Deming found a receptive audience, one that eagerly embraced the teachings of the "great American *sensei*" [18] and moved decisively to put his vision into practice. "I taught hundreds of engineers statistical methods," Deming once remarked. "It took fire straightaway. . . . It was spread all over in less than four years. Prairie fire." [19] Out of this managerial maelstrom, we are told, Japanese industry was reborn. Attentiveness to quality control—which transformed the phrase "Made in Japan" from a joke to a threat—was ultimately what powered Japan's postwar economic resurgence. And, needless to say, the individual ultimately responsible for Japan's turn to quality, the man who "sparked the Japanese industrial revolution" and gave Japanese business "the key to unlock world markets," was none other than W. Edwards Deming.[20]

Even the converted might have been excused for finding such a tale slightly farfetched, because (prior to 1980) this narrative figured in no English-language treatments of Japan's high-growth economy. Yet Deming had persuasive evidence to support his claim. As many Western visitors to Japan would testify, Deming was venerated in Japan, his name a household word virtually synonymous with quality control. As David Halberstam noted, "With the possible exception of Douglas MacArthur he was the most famous and most revered American in Japan during the postwar years." [21] In his honor the Japanese had created the Deming Prize, the most sought-after laurel in Japanese industry, presented annually to firms and individuals for their accomplishments in quality control. Moreover, in 1960, he was awarded the Order of the Sacred Treasure by the Japanese emperor, only the second American (after MacArthur) to be so recognized. To many observers, it was apparent that the Japanese considered Deming a national hero, and this seemed evidence aplenty to confirm Deming's credentials as "the man whose ideas transformed Japanese manufacturing." [22]

Much of the mythical aura that came to surround Deming in the 1980s and 1990s was fashioned by a corps of ardent American disciples and by

18. John Byrne, "Remembering Deming, the Godfather of Quality," *Business Week,* January 10, 1994, p. 44.

19. Quoted in Walton, *The Deming Management Method,* p. 31.

20. Rafael Aguayo, *Dr. Deming: The American Who Taught the Japanese About Quality* (New York: Lyle Stuart, 1990), jacket copy; Walton, *The Deming Management Method,* p. 247.

21. Halberstam, *The Reckoning,* pp. 312–13.

22. Hobart Rowan, "The Prophet Gingrich Knew," *The Washington Post,* December 15, 1994), p. A27; Bob Johnstone, "Prophet With Honour," *Far Eastern Economic Review,* Vol. 150, No. 52 (December 27, 1990), p. 50.

popular media inclined toward the sensational. But Deming himself did little to mute the increasingly hyperbolic assertions of his seminal contributions to Japanese quality control. Indeed Deming feigned no modesty regarding his work in Japan: "I exported to Japan what had never been done before," he once declared. "I took to them a new theory, a theory of a system. They learned it. . . . I taught them."[23] As he noted elsewhere, "The whole world is familiar with the miracle of Japan, and knows that the miracle started off with a concussion in 1950."[24] To ensure that his links with Japan were never far from mind, Deming wore the lapel pin of the Order of the Sacred Treasure every working day from 1960 until his death.[25]

It should, of course, come as no surprise that Deming was a vigorous self-promoter, and that he and his followers tirelessly cultivated the fabled tales of his endeavors in Japan. Deming had always been a jealous guardian of his image, and was never more so than in his last 15 years. As the journalist Andrea Gabor observed on a trip to Japan in 1988,

> Just as Tokyo's first great skyscrapers are becoming hard to distinguish amid the exploding skyline . . . , Deming seems afraid that Japan's rapid progress will eventually obscure his own contributions to the country's revival. Deming is like a gifted father who is at once proud and fearful that his accomplishments are being eclipsed by those of a precocious son. . . . Deming is listening only for the stories that will preserve the legacy of Demingism in Japan.[26]

In the end, the Deming legacy has stood firm, even with the passing of the "god of quality control" himself. Although some observers have come to criticize Deming's managerial philosophy, and many still bristle at his appraisals of American business, few indeed have questioned the familiar legends of Deming's work in Japan.

The Genesis of Japanese Quality Control

The quality of manufactured goods was historically a sore point for Japanese industry. Through the interwar period, pallid efforts at standardiza-

23. Quoted in Dobyns and Crawford-Mason, *Quality or Else,* p. 94.

24. Deming, *Out of the Crisis,* p. 486. Nancy Mann provides the following example: "Many credit Deming with lifting war-ravaged Japan to its current dominant position in world trade. Deming agrees. 'I did it, yes certainly,' he says." Nancy Mann, *The Keys to Excellence: The Story of the Deming Philosophy* (Los Angeles: Prestwick Books, 1985), p. viii. In another interview, Deming declared, "Would Japan be different [had I not gone in 1950]? Could well be different. Could someone else have done it? I don't know. Nobody else did." Peter B. Petersen, "The Contributions of W. Edwards Deming to Japanese Management Theory and Practice," *Best Paper Proceedings* (Athens, Georgia: The Academy of Management, 1987), p. 136. See also W. Edwards Deming, *The New Economics for Industry, Government, Education* (Cambridge, Mass.: Center for Advanced Engineering Study, MIT, 1993), pp. 58, 63.

25. Dobyns and Crawford-Mason, *Quality or Else,* p. 86.

26. Gabor, *The Man Who Discovered Quality,* p. 72.

tion, the limited spread of mass production technology, and the prevalence of unsystematic, "rule of thumb" techniques (even in nominally modern workshops) translated into a poor record of product precision, reliability, and uniformity. The "cheap and shoddy" character of Japanese manufactures reached its nadir during the Pacific War, when mobilization emphasized quantity to the virtually complete sacrifice of quality. After the war, as industrialists and economic planners began to think anew of reentry into world trade, the abysmal international reputation of Japanese goods would haunt those who put their faith in export-led growth.[27]

Despite current American suppositions to the contrary, the "discovery" of quality control in Japan predated the arrival of W. Edwards Deming. The concept of modern statistical quality control—that is, the use of statistical analysis in the production process to ensure conformity to standards—was formally introduced into Japan by management expert Kiribuchi Kanzō in a 1934 monograph.[28] Even prior to that time, however, a few firms with foreign technical tie-ups had begun experimenting with managerial statistics. For example, starting in 1931, the engineer Ishida Yasushi studied the latest American techniques and developed a distinctive "scroll" (*makimono*) system of control charts for use in Tokyo Shibaura Electric factories.[29]

As in the United States, World War II catalyzed a surge of interest in quality control techniques among academic statisticians and managers in the military industries. In 1942, Ishida and Kyushu University professor Kitagawa Toshio published a translation of the classic E. S. Pearson work *The Application of Statistical Methods to Industrial Standardization and Quality Control.* The following year, a public-private "research group" (*kenkyū tonarigumi*) of engineers and statisticians was formed under the auspices of the Technology Agency (Gijutsu-in) to study mathematical approaches to mass production.[30] Nevertheless, such wartime initiatives remained more theoretical than practical in outlook. Although traditional methods of assuring quality (particularly inspections) were widely used, modern statistical

27. On prewar and wartime production management, see Okuda Kenji, *Hito to keiei: Nihon keiei kanrishi kenkyū* (Tokyo: Manejimento-sha, 1985); Nakaoka Tetsurō, "Senchū, sengo no kagakuteki kanri undō I," *Keizaigaku zasshi,* Vol. 82, No. 1 (May 1981), pp. 10–27; William M. Tsutsui, "From Taylorism to Quality Control: Scientific Management in Twentieth-Century Japan" (Ph.D. diss., Princeton University, 1995).

28. Kiribuchi's book, *Kōgyō kanri yōran* (Tokyo: Yoshida Kōmujō Shuppanbu, 1934), only included three pages on what he called *hinshitsu tōsei.* See also Sasaki Satoshi and Nonaka Izumi, "Nihon ni okeru kagakuteki kanrihō no dōnyū to tenkai," in Hara Terushi, ed., *Kagakuteki kanrihō no dōnyū to tenkai—sono rekishiteki kokusai hikaku* (Kyoto: Shōwadō, 1990), p. 261.

29. "Zadankai: Nihon no hinshitsu kanri no ayumi o kaerimiru," *Hinshitsu kanri,* Vol. 9, No. 6 (June 1958), pp. 34–37; Sasaki and Nonaka, "Kagakuteki kanrihō," p. 262.

30. Sasaki and Nonaka, "Kagakuteki kanrihō," pp. 263–64.

quality control was not systematically applied in any Japanese workshops before 1945.[31]

In the wake of the war, the first significant effort to address the nagging problem of industrial quality in Japan was initiated by elements in the American Occupation bureaucracy. The Industrial Division of the Civil Communications Section (CCS) of MacArthur's headquarters was charged with rebuilding the shattered infrastructure of Japan's telephone network and radio broadcasting system. Members of this unit, despairing of crude production techniques in the Japanese electronics industry, resolved that fundamental managerial retraining was necessary to ensure a dependable supply of telecommunications hardware. In 1949 and 1950, three American officers—all engineers with experience in major U.S. corporations—designed and taught a series of intensive eight-week management seminars for the top executives and technical staff of Japanese electronics concerns. This program, known simply as the "CCS course," offered a comprehensive introduction to best practice methods of production management in the United States, but placed considerable emphasis on quality and gave a broad overview of statistical techniques in manufacturing. The course proved immediately influential in the Japanese business community, and many observers credit it with kindling top-management interest in quality and laying the groundwork for later initiatives in quality control.[32]

Although it is tempting to conclude (as some have) that the officers of the CCS were the real American instigators of the Japanese "quality revolution," this interpretation is ultimately no more persuasive than the Deming legendry.[33] Notwithstanding the catalytic effects of the CCS seminars, or Deming's now-weighty reputation, concentrating on the descent of an American *deus ex machina* leads inevitably to an incomplete understanding of the genesis of Japanese quality control. Instead, reconstructing the emergence of the quality concept in early postwar Japan requires due attention be given to Japanese contributions and, above all, to the pivotal role of one

31. Fujita Tadashi, "Hinshitsu kanri hatten no rekishiteki kōsatsu," *Hinshitsu kanri,* Vol. 5, No. 11 (November 1954), p. 69; see also Nakaoka Tetsurō, "Senchū, sengo no kagakuteki kanri undō II," *Keizaigaku zasshi,* Vol. 82, No. 3 (September 1981), pp. 54–56.

32. On the CCS activities in management reform, see the detailed studies by Kenneth Hopper: "Creating Japan's New Industrial Management: The Americans as Teachers," *Human Resource Management,* Vol. 21, Nos. 2–3 (Summer, Fall 1982), pp. 13–34; and "Quality, Japan and the U.S.: The First Chapter," *Quality Progress,* Vol. 18, No. 9 (September 1985), pp. 34–41. See also Robert Chapman Wood, "A Lesson Learned and a Lesson Forgotten," *Forbes,* February 6, 1989, pp. 70–78; Nonaka Izumi, "SQC no dōnyū (2)," *Hinshitsu kanri,* Vol. 41, No. 3 (March 1990), pp. 56–60. A copy of the training manual written by CCS staff for the course (*CCS Industrial Management,* 1949) is available at Baker Library, Harvard Business School.

33. Hopper, "Creating Japan's New Industrial Management"; Dobyns and Crawford-Mason, *Quality or Else,* pp. 10–17.

organization, the Union of Japanese Scientists and Engineers (Nihon Kagaku Gijutsu Renmei, usually abbreviated JUSE). The history of JUSE and the evolution of the Japanese quality movement are intertwined and inseparable: JUSE pioneered the study of QC in Japan immediately after the war and, even today, continues to be the driving force in quality research, training, and publicity. As Japanese observers have repeatedly confirmed, it is in the story of JUSE—more so than in the accomplishments of the CCS or even the travails of W. Edwards Deming—that the origins of Japan's postwar "quality miracle" can best be found.

The Union of Japanese Scientists and Engineers was formally established in May 1946, but it had roots stretching back well into the war years. JUSE was the successor to the Dai-Nihon Gijutsu-kai (Greater Japan Technological Association), an umbrella organization formed in 1944 from the merger of three prominent groups of scientific personnel.[34] The members of these wartime organizations were primarily government engineers and technical officers, specialists who were barred by tradition from top bureaucratic posts and who consequently shared a certain disaffection. Emphasizing the value of scientific expertise to modern industry, the associations aimed, through collective action, to increase the social status and professional opportunities of engineers and scientists.[35] While some have asserted that the group adopted the title "union" just to satisfy Occupation authorities, JUSE clearly had a politicized heritage and an activist edge. The inaugural issue of the organization's newsletter was headed with the slogan, "Scientists and Engineers! Join hands for the sake of our native land!" and called for a "united front in science and technology."[36]

Nevertheless, as Nakaoka Tetsurō has remarked, JUSE was hardly "an engineers' trade union."[37] Rather, in the first years after the war, JUSE had more of the air of a social club. Offering "chic" and "comfortable" sitting rooms in the Osaka Shōsen building near Tokyo Station, the "Engineers' Club" was a forum for informal contacts among government technicians and, increasingly, private-sector engineers and executives.[38] Styled an "oasis," the club was a haven of sorts for technical personnel whose factories

34. The groups were the Kōseikai (Industrial Policy Association, founded 1918), the Nihon Gijutsu Kyōkai (Japan Technological Association, 1935) and the Zen-Nihon Kagaku Gijutsu Tōdōkai (All-Japan Federation of Science and Technology, 1940). Sasaki and Nonaka, "Kagakuteki kanrihō," pp. 269–70.

35. Nakaoka, "Senchū, sengo II," p. 52; see also Mizuno Shigeru, *Zensha sōgō hinshitsu kanri* (Tokyo: JUSE, 1984), p. 364; Ikezawa Tokio, "SQC no reimeiki," *Hinshitsu kanri,* Vol. 41, No. 1 (January 1990), pp. 74–75.

36. *Nihon kagaku gijutsu renmei nyūsu,* No. 1 (July 25, 1946), p. 1; "Zadankai: Nihon no hinshitsu kanri," p. 41.

37. Nakaoka Tetsurō, "Production Management in Japan Before the Period of High Economic Growth," *Osaka City University Economic Review,* Vol. 17 (1981), p. 16.

38. *Enjinia kurabu,* No. 1 (June 1948), p. 1.

were bombed out or who were underemployed in the postwar hyperinflation.[39] In a broader sense, the JUSE "Engineers' Club" had significance as a venue for debating the scientific aspects of economic reconstruction, and as a place where managers and bureaucrats could transcend the "feudal" proclivities of the past and freely discuss their visions of the future.[40]

From the start, JUSE was keenly aware of its members' potential importance to Japan's economic recovery. As managing director Koyanagi Ken'ichi observed in 1948, Japanese industry lacked many essential inputs—capital, raw materials, and so forth—but what it needed most desperately was modern scientific knowledge.[41] "Industrial rationalization is in your hands!" the group's chairman declared; "the technical level of our workshops can skyrocket as a result of your stimulus and exertions." [42] Such an approach, of course, promised not only industrial prosperity, but also enhanced status for engineers and scientists: "The mission of technologists is growing ever more weighty," one association slogan averred.[43]

On a more mundane level, however, the JUSE leadership was aware that contributing to the nation's industrial recovery could provide the organization with a sharper sense of purpose and a means for raising much-needed funds. JUSE flirted with bankruptcy after losing its wartime subsidies, but in 1949 was granted a generous contract from the Economic Stabilization Board (Keizai Antei Honbu) to produce a report on recent technological advancements abroad.[44] The project not only ensured solvency, but it also allowed the organization's staff to investigate the relevance of new scientific discoveries to Japan's economic reconstruction. JUSE apparently recognized the opportunity to identify—and then appropriate—promising foreign technologies for introduction into Japan. After combing the Occupation's American library at Hibiya and evaluating subjects such as atomic energy and ultra-high-frequency communications, JUSE's leaders finally settled on a topic that could serve as the fulcrum of the organization's research, educational and promotional activities.[45] The new technology

39. *Enjinia kurabu,* No. 3 (August 1948), p. 2; Miura Shin, "Hinshitsu kanri sōgyō jidai no kaiko," *Hinshitsu kanri,* Vol. 31, No. 3 (March 1980), p. 28.

40. See Ishikawa Ichirō, "Gijutsusha no shinboku to renraku," *Enjinia kurabu,* No. 1 (June 1948), p. 1.

41. Koyanagi Ken'ichi, "Atarashii minshū sekai to gijutsusha no nichijō," *Enjinia kurabu,* No. 1 (June 1948), p. 2.

42. Ishikawa Ichirō, "Fukkō e no michi . . .," *Enjinia kurabu,* No. 12 (May 1949), p. 1.

43. *Enjinia kurabu,* No. 14 (July 1949).

44. "Zadankai: Nihon no hinshitsu kanri," p. 41; Nakaoka, "Senchū, sengo II," p. 53; Watanabe Eizō and Miura Shin, "SQC no dōnyū (1)," *Hinshitsu kanri,* Vol. 41, No. 2 (February 1990), pp. 68–69.

45. Nakaoka, "Senchū, sengo II," p. 53; Miura, "Hinshitsu kanri sōgyō jidai," p. 29; "Zadankai: Nihon no hinshitsu kanri," p. 41.

judged most relevant and promising for JUSE-sponsored introduction was statistical quality control.

The selection of modern QC—and, more generally, the field of industrial management—was well considered and well timed. In the wake of the war, management experts began to recognize the importance of statistical methods in American mass production, and their almost total absence in Japanese industry.[46] As JUSE officer Niki Shōichirō argued in 1949,

> We were deeply impressed by our recent finding that in Britain and the United States statistical quality control developed enormously during the war. . . . Why can we not have such refined techniques? . . . Every Japanese will remember the fact that during the war our industry produced innumerable planes which couldn't keep aloft long enough to meet any enemy plane to fight with. Many promising youths were doomed to die in the Pacific Ocean because our production control, so formidably imposed, lacked the least bit of scientific spirit. It is even more regrettable, however, to find that many company managers still believe that such refined techniques are not suitable to the methods of "backward Japan." This is a terrible complex which will keep Japan permanently an underdeveloped country. . . . We must realize that cheap, intensive labor and old-fashioned craftsmanship are of no use for modern industry now. . . . If our manufacturers want to keep up the competitiveness of their products in overseas markets, the only solution is to adopt scientific techniques right now.[47]

Striking a less strident note, the chairman of JUSE explained in 1950 that Japan needed a "positive" approach to industrial rationalization that avoided the "negative," job-slashing strategies of the past. At the same time, he warned, industry was too strapped financially to undertake the massive investments in new technology prescribed by government economic planners. The way out of the dilemma seemed obvious: the newfound quality control expertise of JUSE offered companies a cheap technological shortcut in reducing costs and boosting competitiveness.[48]

In the vanguard of the JUSE initiative was the "Quality Control Research Group," the committee of corporate engineers and academic scientists that "discovered" QC and subsequently organized JUSE's first training seminars in quality techniques. The Group's "Basic Course," inaugurated in September 1949, covered the fundamentals of statistical quality control,

46. Nakayama Takasachi, *Shin nōritsu soshiki no tatekata* (Tokyo: Sangyō Keiri Kyōkai, 1947), p. 2; Noda Nobuo, "Amerika-shiki kagakuteki keiei," in Noda Nobuo et al., *Amerika no keiei gijutsu* (Tokyo: Daiyamondo, 1951), p. 6.

47. Niki Shōichirō, "Kojō seisan ni tōkei hinshitsu kanri o saiyō seyo," *Enjinia kurabu,* No. 15 (August 1949), p. 2. Quoted in Nakaoka, "Production Management," p. 17. Translation Nakaoka's.

48. Ishikawa Ichirō, "Sōkan no kotoba," *Hinshitsu kanri,* Vol. 1, No. 1 (March 1950), p. 2; see also "Kagaku gijutsu undō no tōitsu sensen no kyūmu," *Nihon kagaku gijutsu renmei nyūsu,* No. 1 (July 25, 1946), p. 2.

using laboriously translated foreign materials as texts. In addition to some rather dated works—such as the statistical research of E. S. Pearson and prewar British standardization literature—students read selections reflecting the state of the art in U.S. quality control, including pieces by Walter Shewhart and the American wartime standards for military procurement (Z1.1, Z1.2, and Z1.3). The course proved so successful among corporate engineers and managers that it was repeated on a larger scale in 1950 and led to the development of more advanced offerings.[49]

Designing JUSE's early management education programs became a sort of on-the-job training for the young and enthusiastic members of the Quality Control Research Group, many of whom would later assume leadership roles in the Japanese quality movement. Among them were future QC luminaries Koyanagi Ken'ichi, Gotō Masao, Miura Shin, Mizuno Shigeru, Watanabe Eizō, Kogure Masao, and Nishibori Eizaburō.[50] A noteworthy participant was Ishikawa Kaoru, who would eventually emerge as the intellectual rudder of the quality movement, but was then a newly appointed professor of engineering at the University of Tokyo. Ishikawa was recommended to the group by his father, the founding chairman of JUSE, Ishikawa Ichirō.[51] Beyond bequeathing his son to the quality cause, Ishikawa senior had a profound influence on the early QC movement: as a wartime leader of the chemical industry control association, the postwar president of corporate giant Shōwa Denkō, and the first chairman of the powerful industrial federation Keidanren, he established strong, lasting links between the big business community and JUSE.[52]

Thus, by the time Deming arrived for his allegedly pathbreaking lectures in 1950, a core group of technical personnel familiar with the Western theory of QC and devoted to its application in industry had already been assembled in Japan. Moreover, these Japanese pioneers in quality control had a solid organizational base in JUSE, had forged close relationships with the industrial elite, and had begun the process of disseminating up-to-date

49. Nakaoka, "Senchū, sengo II," pp. 58–59; Miura, "Hinshitsu kanri sōgyō jidai," pp. 28–29; Kusaba Ikuo, "SQC no suishin (1)," *Hinshitsu kanri,* Vol. 41, No. 4 (April 1990), pp. 58–61; Koyanagi Ken'ichi, *The Deming Prize,* rev. ed. (Tokyo: JUSE, 1960), pp. 2–3.

50. The original members of the Research Group were Koyanagi, Gotō, Miura, Mizuno, Watanabe, and Baba Shigenori. Others who were closely associated with this circle and participated in the organization of the Basic Course were Moriguchi Shigeichi, Kawata Tatsuo, Masuyama Motosaburō, and Niki Shōichirō. Koyanagi, *The Deming Prize,* pp. 2–3; *Enjinia kurabu,* No. 16 (September 1949), p. 1; Mizuno, *Zensha sōgō hinshitsu kanri,* pp. 364–65; Ikezawa Tokio, "SQC no reimeiki," p. 75.

51. Ishikawa Kaoru, "Koyanagi-san no omoide," *Hinshitsu kanri,* Vol. 16, No. 2 (February 1965); Ishikawa Kaoru, "Taidan: Nihonteki hinshitsu kanri no tenkai," *Keiei to rekishi,* Vol. 9 (September 1986), pp. 18–20.

52. Since Ishikawa Ichirō, every chairman of JUSE has been a serving or past president of Keidanren (Keizai Dantai Rengōkai, the Federation of Economic Organizations). Cole, *Strategies for Learning,* p. 276; Cusumano, *Japanese Automobile Industry,* pp. 323–24.

statistical methods among Japan's technologists and executives. Although Deming would always believe that the Japanese industrial world he encountered in 1950 was adrift and searching desperately for an American messiah, in fact, Japanese manufacturers and the engineering community were already being mobilized for a broad offensive on quality control.

Deming in Japan

W. Edwards Deming first visited Japan in 1947, as part of an Occupation team assisting in the preparation of a postwar census. Based on this experience, and his reputation as an authority on statistical methods, he was invited by JUSE in 1950 to return to Japan and deliver a series of lectures on quality techniques.[53] Refusing remuneration and expressing an "earnest desire to help . . . in every possible way,"[54] Deming agreed to a gruelling schedule of teaching, speaking, and consulting. In July 1950, Deming gave almost daily public lectures (to gatherings as large as 600) and conducted full eight-day training courses in the statistical aspects of quality control. The courses, offered in Tokyo and Fukuoka, were attended by over 300 academic statisticians, corporate engineers, and production managers. Deming also presented several special lectures for the top management of Japanese industrial concerns, explaining "in simple language" the importance of statistics in the manufacturing process.[55] Through the good offices of Ishikawa Ichirō, Deming could count among his audiences some of the most influential members of the Japanese business elite.[56]

To further spread the good news of QC, JUSE published both an English edition and a Japanese translation of Deming's lectures from the eight-day course. Deming graciously donated the royalties to JUSE, although his generosity was more symbolic than financial: at the exchange rate of the time, the gift was only a small sum in U.S. dollars.[57] Nonetheless, the leaders of

53. There is some contention over who initially proposed inviting Deming to Japan as a quality control consultant, representatives of JUSE or Homer Sarasohn, one of the Occupation engineers responsible for the CCS course. See Watanabe and Miura, "SQC no dōnyū (1)," p. 70.

54. Koyanagi, *The Deming Prize,* p. 6.

55. Ibid., p. 10.

56. Among the participants were Nishimura Keizō (Furukawa Electric) and Yukawa Masao (Yawata Steel); Karatsu Hajime, *QC undō: Naze Nihon de seikō shita ka* (Tokyo: NHK, 1987), p. 69. Deming subsequently visited Japan on an almost annual basis, developing a close relationship with JUSE and teaching additional QC courses for technical personnel. For example, in 1951, on his second trip to Japan as the guest of JUSE, Deming led seminars in quality control, market research, and advanced statistical methods with a combined enrollment of over 800.

57. As of 1960, the total royalties that had accrued to JUSE from the Deming donation were ¥261,764. At the ¥360 = $1 exchange rate, this amounted to only $727. Koyanagi, *The Deming Prize,* p. 21.

JUSE shrewdly used these funds to create an award, named for its American benefactor, which they hoped would help draw attention to the fledgling quality movement. In this, of course, the Deming Prize exceeded all expectations. Within a decade of its inception in 1951, the prize was acknowledged as the premier accolade in corporate Japan and had become a source of considerable publicity for JUSE. For Deming, a modest donation ended up yielding huge returns in prestige: the success of the prize cemented Deming's reputation as a pathbreaker in Japanese management and guaranteed that his name would become inextricably linked with Japanese advances in quality control.[58]

In later years, Deming and his admirers would frequently stress the novelty and substance of what he taught in Japan in 1950. Deming, it was said, did not simply "export 'American' management methods," but provided the Japanese with an entirely new philosophy of industrial life.[59] Nevertheless, the courses Deming conducted in Japan were virtually identical in content to the training seminars he had organized in the United States almost a decade earlier. Emphasizing statistical methods—and particularly the specialized techniques of random sampling—Deming's lectures were a thorough introduction to the nuts and bolts of modern QC, but were hardly a profound new exegesis of managerial philosophy.[60] Strikingly, the aspect of Deming's teachings that proved most influential in Japan—the "Plan-Do-Check-Action" cycle of continuous improvement—was far from novel and was not even a Deming innovation. Although developed by Walter Shewhart in the 1930s, the "Shewhart Cycle" (as it is known in the United States) became so closely associated with Deming's lectures that the Japanese soon rechristened it the "Deming Cycle." This terminological twist had the eventual consequence of effacing history, as Deming would later claim that the "Plan-Do-Check-Action" schema "originated in my teaching in Japan in 1950."[61]

The appropriation of the Shewhart Cycle is not the only expedient rewriting of Deming's 1950 lectures to have occurred in recent years. Indeed, the current legendry suggests that the most valuable lessons Deming taught the Japanese were not related to statistical analysis, but instead advocated participative methods of labor management, teamwork, and cooperation in the factory as well as the marketplace. "Deming's lasting legacy to Japan," one obituary noted, was the idea that "quality control should be the responsibility of, and can only be achieved with the cooperation of workers at

58. On the Deming Prize, see Koyanagi, *The Deming Prize;* Kusaba, "SQC no suishin (1)," pp. 61–63.

59. Maskery, "Quality Time," p. 3.

60. See W. Edwards Deming, *Elementary Principles of the Statistical Control of Quality: A Series of Lectures,* rev. 2d ed. (Tokyo: Nippon Kagaku Gijutsu Renmei, 1952).

61. Deming, *The New Economics,* p. 134, note 2.

every level of a corporation." [62] According to David Halberstam, Deming dispensed to the Japanese "a manner of group participation that fitted well with the traditions of their culture." [63] Some observers have even suggested that Deming's wisdom was behind the quality control circle, a Japanese innovation in workshop management of the late 1950s. Yet as Robert Cole has bluntly concluded, "The facts of the matter are quite to the contrary." [64] Current perceptions notwithstanding, the gospel Deming took to Japan was thoroughly Taylorite, stressing the scientific analysis of work, managerial expertism, and top-down control of the production process. Although Deming did warn his Japanese charges to keep the consumer ever in mind and to remain aware of conditions on the factory floor, he was certainly no prophet of worker participation, spoke only vaguely of the importance of cooperation, and provided no road map to the quality control circle concept.

In any case, Deming's first lectures in the summer of 1950 were well received, especially in the business community, and undoubtedly stimulated broader interest in quality control at a crucial juncture for the nascent movement. "They were fine talks," one participant noted at the time; "I could listen for hours without losing interest." [65] Nevertheless, Deming's offerings did not have the incendiary intellectual impact most current observers assume. To the young engineers and scholars coordinating the JUSE quality initiative, Deming was an august teacher who explained statistical concepts clearly and engagingly, not a visionary innovator who proffered novel approaches and methods.[66] Indeed, Deming's statistical material appeared rather old hat to the vanguard of quality experts in JUSE who had exhaustively studied the prewar and wartime Western literature on QC. Even by the time of Deming's second lecture tour in 1951, thinly veiled expressions of disappointment and disillusionment were common in JUSE publications. Expecting to be dazzled with new statistical advances from abroad, many Japanese observers were discouraged to find that Deming had no new tricks to pull from his statistical hat.[67] A few even suggested that the most important thing to be learned from Deming was not his statistical methodology, but his style of teaching.[68] Deming did continue to inspire some in his Japa-

62. "He Taught Quality Control to Japan," *The Japan Times,* December 26, 1993, p. 14.

63. Halberstam, *The Reckoning,* p. 314.

64. Cole, *Strategies for Learning,* p. 112.

65. Karatsu, *QC undō,* p. 69. See also Fukui Iwao, "Hinshitsu kanri hatten no jōkyō," *Hinshitsu kanri,* Vol. 3, No. 2 (February 1952), p. 34.

66. Ishikawa, "Taidan," p. 22.

67. "Zadankai: Deming hakase no shidō ni manabu," *Hinshitsu kanri,* Vol. 2, No. 9 (September 1951), pp. 9–14; Mizuno Shigeru, "Deming hakase no sokuseki," *Hinshitsu kanri,* Vol. 2, No. 10 (October 1951), pp. 7–8.

68. "Zadankai: Deming hakase," p. 10. Deming's reputation for being an impressive and persuasive speaker endured even after his death; "Recollections from Japan," *Quality Prog-*

nese audiences, but the sense that the Japanese students had already drawn even intellectually with their American *sensei* was unspoken but widely assumed.

Although the reception accorded Deming's statistical teachings was somewhat jaded, the experts of JUSE were by no means disparaging. At least in the beginning, Deming's highly mathematical and technically sophisticated approach to quality was embraced enthusiastically. Yet, as JUSE's early history indicates, the Japanese QC pioneers had arrived at their understanding of statistical quality control independently of Deming's teachings and prior to his fabled 1950 lectures. As one veteran of the Japanese movement simply put it, "Quality control theories were well known then." [69] Thus rather than enlightening the uninformed Japanese—providing the "spark that lighted the way" as he once put it[70]—Deming's work in Japan served more to reinforce and confirm the existing inclinations of JUSE's precocious QC activists. Deming was, in other words, preaching to the converted, and the gospel was already familiar and cherished by his earnest congregation. This fact was emphasized in a brief editorial that appeared in the JUSE journal *Hinshitsu kanri* (Statistical quality control) in January 1952. Responding to a recent news commentary on NHK radio that credited Deming with awakening Japanese industry to QC, the editors at JUSE contended that

> ascribing to Dr. Deming the introduction of [quality control] methods to Japan is inaccurate. Dr. Deming's achievements in propagating, training, and teaching QC are, of course, great. But quality control was not introduced by him in the first place, and so on this point we should probably demand a correction [from NHK].[71]

Even though W. Edwards Deming was not in fact the progenitor of Japanese quality, he did perform significant functions within the early QC movement. Contrary to the popular mythology, Deming's lasting importance was as an instrument, rather than as an instigator, in the promotion of quality control in postwar Japanese industry. Almost from the start, Deming's value lay not in his knowledge (which was as easily acquired from books) but in his very presence in Japan. As a status symbol, as a source of authority, and

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ress, Vol. 27, No. 3 (March 1994), p. 48. See also Watanabe and Miura, "SQC no dōnyū (1)," p. 70.

69. Kobayashi Kōji quoted in Maskery, "Quality Time," p. 41.

70. "Statistical Techniques as a Natural Resource: A Message from W. Edwards Deming to the Ceremony for the Annual Award of the Deming Prize," *Hinshitsu kanri,* Vol. 6, No. 12 (December 1955), p. 2.

71. "NHK nyūsu kaisetsu to hinshitsu kanri," *Hinshitsu kanri,* Vol. 3, No. 1 (January 1952), p. 2.

as a kind of living talisman for quality control, Deming was a boon for JUSE and the QC movement. As an American who could lay claim to a certain professional stature, Deming added cachet to JUSE's QC initiatives and provided a drawing card that improved the organization's financial standing and its profile in the business world.[72] Prior to the 1960s, Western management specialists were infrequent visitors to Japan and JUSE's exclusive association with Deming was a prestigious and highly visible feather in its institutional cap. "Deming made a great contribution," one JUSE leader later conceded. "We needed his authority. He fascinated the Japanese people." [73]

JUSE was by no means averse to making the most of its special relationship with Deming. The extensive media attention given to Deming's visits was free advertising for the QC movement, and the organization was scrupulous in massaging the image of its patron saint. For instance, the Deming Prize medal, designed by faculty at the Tokyo University of Fine Arts and depicting the donor in full profile, was used prominently in JUSE publications and was for many years something of an unofficial logo for the organization. Thus the image of Deming—as well as his name—was appropriated as a tool in marketing quality control to the Japanese public.[74]

Beyond this symbolic role, Deming also provided invaluable psychological support to the first generation of leaders in the quality movement. The relationship between Deming and JUSE sometimes seemed little more than a sugar-coated mutual admiration society.[75] Deming was treated with deference, respect, and even indulgence in his visits to Japan, and he reciprocated by showering hyperbolic praise on his Japanese students. Fulsome with compliments, encouragement, and expressions of faith, Deming told the Japanese QC pioneers exactly what they wanted to hear. If industry adopted QC, he assured his audiences, Japan could be a great exporter in a matter of years. Over and over again, he stressed that Japanese quality control was in the hands of exceptionally skilled specialists, and that he had great confidence in their prospects of success. "Statistical talent is Japan's

72. Nakaoka, "Production Management," p. 18; Nakaoka, "Senchū, sengo II," p. 61; "Zadankai: Nihon no hinshitsu kanri no ayumi o kaerimite," *Hinshitsu kanri,* Vol. 9, No. 6 (June 1958), pp. 44–45. See also Kilian, *The World of W. Edwards Deming,* pp. 20–21.

73. Kobayashi Kōji quoted in Brad Stratton, "Gone But Never Forgotten," *Quality Progress,* Vol. 27, No. 3 (March 1994), p. 28.

74. On the design of the Deming medal, see Ikezawa, "SQC no reimeiki," pp. 76–77.

75. On his visits to Japan, Deming was catered to, venerated, and cajoled. Deming took to the role well. He noted in his diary that "I never felt so important day after day" (quoted in Gabor, *The Man Who Discovered Quality,* p. 80). He was constantly indulged by his Japanese hosts who recorded his every sentence and tried to read significance into his every action. Koyanagi Ken'ichi, "Dr. Deming to tomo ni," *Hinshitsu kanri,* Vol. 2, No. 9 (September 1951), pp. 5–7; Nishibori Eizaburō, "Deming-san to Ete-san," *Hinshitsu kanri,* Vol. 9, No. 6 (June 1958), p. 25.

natural resource," he repeatedly announced, to the great satisfaction of his hosts.[76]

Deming's self-assured pronouncements made good copy for JUSE publicity—and they were readily used as such—but his words also confirmed and encouraged the ambitions of the Japanese QC vanguard. Deming's sincere interest in the Japanese quality initiative and his vocal faith—in Japan's future, in JUSE's mission, and in the power of statistics[77]—had a considerable impact on the leaders of the nascent movement. In a 1960 testimonial, JUSE stalwart Koyanagi Ken'ichi declared:

> When Dr. Deming gave his 8-day course in 1950, Japan was in the fifth year of Allied occupation. . . . Most of the Japanese were in a servile spirit as the vanquished, and among Allied personnel there were not a few with an air of importance. In striking contrast, Dr. Deming showed his warm cordiality to every Japanese whom he met. . . . He loved Japan and the Japanese from his own heart. The sincerity and enthusiasm with which he did his best for his courses still lives and will live for ever in the memory of all the concerned.[78]

Although Koyanagi's sentiments suggest a certain nostalgic excess, from 1950 until the present day, most of the leaders of Japan's quality movement have appraised Deming and his contributions in similar terms. Deming's greatest achievement, QC expert Kano Noriaki concluded, was that "he made us believe that there would be a possibility to improve quality even amidst the disaster after the Second World War."[79] As a "true friend of the Japanese people," Deming was esteemed for his kindness, enthusiasm, and trust far more than for the substance of his managerial teachings.[80]

Ultimately, Deming's contributions in Japan—his contagious confidence, his talismanic authority, his media appeal—were only catalysts in propelling the quality movement forward. As he would later boast, Deming may well have been present at the "birth of the New Japan,"[81] yet he was neither the father nor the midwife in this momentous nativity. In the end, it was the efforts of the indefatigable JUSE faithful—and the opportune contributions of other American management experts—that had the more profound influence on the evolution of quality control in postwar Japan.

76. Kilian, *The World of W. Edwards Deming,* pp. 8–10; Koyanagi, "Dr. Deming," p. 6; Mizuno, "Deming hakase," p. 7; "Statistical Techniques as a Natural Resource," pp. 2–3.

77. "Zadankai: Deming hakase," p. 12; Suzuki Takeshi, "Deming hakase no inshō," *Hinshitsu kanri,* Vol. 2, No. 11 (November 1951), p. 21.

78. Koyanagi, *The Deming Prize,* p. 8.

79. Quoted in Frank Voehl, *Deming, The Way We Knew Him* (Delray Beach, Fl.: St. Lucie Press, 1995), p. xii.

80. Gotō Masao, "Deming hakase o mukaeru ni atatte," *Hinshitsu kanri,* Vol. 1, No. 4 (June 1950), p. 3. See also "Recollections From Japan," pp. 47–48; Suzuki, "Deming hakase no inshō," p. 21.

81. Kilian, *The World of W. Edwards Deming,* p. 23.

Making the Break with Deming

The first postwar decade has frequently been characterized as Japan's "Age of Statistical Quality Control." Strongly influenced by the traditional mainstream of American QC thought and affirmed by the teachings of W. Edwards Deming, the early advocates of quality in Japan concentrated on narrow, mathematically rigorous approaches to management reform. Stressing statistical sampling methods and the use of elaborate control charts in the production process, the initial JUSE efforts were highly specialized, technical, and arid. Some quick successes (as at Furukawa Electric and the chemical maker Shōwa Denkō) provided good publicity and, by the early 1950s, statistical techniques made solid headway in the advanced sectors of Japanese manufacturing. Although a 1954 survey showed that only 13 per cent of some 46,000 factories used modern quality control techniques, the figures suggested that QC was relatively well diffused through larger firms and in those industries using mass production technology. Thus, 34 per cent of electronics companies reported using QC, as did 25 per cent of chemical producers and about three-quarters of the firms surveyed with more than 200 employees.[82]

Nevertheless, there was a nagging sense that despite a growing quality movement, and considerable advances in publicizing QC and understanding it theoretically, progress on the shop floor was not keeping pace. What is striking in retrospect is how quickly JUSE's leaders perceived the shortcomings of the highly specialized, statistical approach to quality control considered American best practice. By the end of the Occupation—indeed even by the time of Deming's second lecture tour in 1951—the QC vanguard was beginning to show its dissatisfaction with the sophisticated but abstract principles endorsed by Shewhart and Deming. A growing concern of the JUSE leaders was that Japanese experts, by scrupulously following their American mentors, had become excessively theoretical in their conception of quality control. The general impression was that, fired by a precocious zeal to learn from the United States, Japanese students of QC had fixated on the statistical paraphernalia of quality control while ignoring the question of how to apply their textbook knowledge to actual workshop situations.[83]

Despite this realization, bridging the gap between abstraction and appli-

82. Statistics from Ishikawa Kaoru, "Nihon no hinshitsu kanri (2): QC team hōkoku," *Hinshitsu kanri,* Vol. 9, No. 9 (September 1958), pp. 89–95. The figures showed only 5 per cent of spinning firms and 16 per cent of machinery firms were using modern QC. Only 8 per cent of small enterprises (4–29 employees) and 26 per cent of medium-sized enterprises (30–200) reported using quality control. See also Nakaoka, "Production Management," p. 19.

83. Nihon Seisansei Honbu, ed., *Amerika no hinshitsu kanri,* Productivity Report 65 (Tokyo: Nihon Seisansei Honbu, 1959), pp. 204–5; William S. Landes, *Nihon no keiei o shindan suru* (Tokyo: Nihon Seisansei Honbu, 1956), pp. 40–41.

cation was a constant challenge to the first generation of Japanese quality control activists. As Kogure Masao reflected on the early days of the movement (with the limited hindsight available in 1954), "Statistical methods themselves occupied the seat of honor in QC. One might say it was a time when tools used people, when it was thought that statistics were the same thing as quality control." [84]

The fundamental predicament faced by the postwar quality pioneers was, quite simply, that many of the techniques greedily imported to Japan were too advanced to be put into practice at the time. As both Japanese and American observers were quick to admit, even a decade after the end of the war, the general standard of factory management in Japan remained depressingly low.[85] Whereas modern quality control was premised on the existence of a highly developed mass production order (as realized in many American industries), a majority of Japanese firms had not subjected their work routines to systematic administration, let alone full-blown Fordist reorganization. The fundamental components of modern production management, and the very elements prerequisite to the effective use of statistical QC—standardization, specialization, and simplification—were acknowledged to be primitive in much of Japanese manufacturing.[86] In those sectors prepared managerially and technologically to profit from statistical quality control, progress in the first postwar decade was significant.[87] Yet elsewhere, QC experts faced a challenge analogous to fitting jet engines on wooden biplanes. While there were other roadblocks to the spread of quality techniques—a shallow commitment from corporate boardrooms, indifferent middle managers, and an occasionally uncooperative workforce[88]—the disjunction between American theory and Japanese industrial reality lay at the root of QC's early impasse in Japan.

Through the early 1950s, the leadership of JUSE groped for a way out of the apparent dead end they had reached with Deming's model of statistical quality control. Although Japanese practitioners were moving uncer-

84. Kogure Masao, "Nihon ni okeru QC shisō no hensen," *Hinshitsu kanri,* Vol. 5, No. 10 (October 1954), p. 6.

85. A scathing American appraisal of Japanese production management is provided in William Landes's 1956 *Nihon no keiei o shindan suru.* Landes was an American industrial engineer commissioned by the Japan Productivity Center (Nihon Seisansei Honbu) to compare factory management practices in Japan and the United States. For Japanese evaluations, see Nihon Seisansei Honbu, ed., *Amerika no hinshitsu kanri,* pp. 106–18; Takase Shōtarō, ed., *Sangyō gōrika to keiei seisaku* (Tokyo: Moriyama Shoten, 1950), pp. 19–23.

86. Ishikawa Kaoru, "Nihon no hinshitsu kanri (1): QC team hōkoku," *Hinshitsu kanri,* Vol. 9, No. 8 (August 1958), pp. 9–10; Kogure, "Nihon ni okeru QC shisō," p. 6; Nihon Seisansei Honbu, ed., *Amerika no hinshitsu kanri,* pp. 26–28.

87. Nakaoka, "Production Management," p. 19.

88. Ishikawa, "Taidan," p. 24; Hinshitsu Kanri Shi Henshū Iinkai, ed., *TQC kōza: minna de yaru hinshitsu kanri* (Tokyo: JUSE, 1962), pp. 14–19.

tainly toward solutions, it was the intervention of yet another American expert, Joseph Juran, that would spark the reconceptualization of the Japanese quality movement. Juran, like Deming, was a prominent QC consultant yet, unlike his predecessor in Japan, he was not a professional statistician and took a considerably less technical view of quality control.[89] Invited to Japan in 1954 by JUSE, Juran inspected factories, conducted training courses, and evaluated the QC movement. Based on his observations, Juran pronounced that Japanese experts (like most American corporations) had made the mistake of defining quality control in too narrowly mathematical a fashion. Criticizing the "mania" for statistics on both sides of the Pacific, Juran decried the construction of QC as an arcane code for engineers divorced from normal managerial functions, the fabric of the workshop, and the organization as a whole. Effective QC, Juran stressed, depended more on pragmatism than theoretical competence, on the appreciation of economics as well as science, and on the mobilization of the entire company. Juran advised the Japanese to reframe their vision of quality control, to consider QC an integral part of the production process, a "tool of management" rather than a statistical veneer.[90]

Juran's critiques accorded closely with the perceptions of the JUSE vanguard, and his suggestions for a reconceptualization of QC were almost immediately hailed as the movement's salvation.[91] Indeed, the general thinking of Japanese quality experts had been moving gradually toward the idea of a broadened QC since the early 1950s, and Juran's intervention finally provided the impetus and direction for a major reevaluation.[92] Juran's central message—that quality control had to go beyond statistics and diffuse outward from the specialist staff—seemed a comprehensive prescription for the ills afflicting the Japanese movement. "QC's sphere of activities must be extremely broad," one convinced listener reported. "The measures QC ad-

89. Juran attracted Japanese attention after the publication of his *Quality Control Handbook* (New York: McGraw-Hill, 1951). As early as 1952, the conceptual differences between Juran and the Shewhart/Deming approach were being discussed extensively in the JUSE literature. See, for example, "Shewhart no hinshitsu kanri kara Juran no hinshitsu kanri e," *Hinshitsu kanri,* Vol. 3, No. 4 (April 1952), p. 11.

90. J. M. Juran (Koyanagi Ken'ichi, trans.), "Nihon ni okeru hinshitsu kanri ni taisuru inshō," *Hinshitsu kanri,* Vol. 5, No. 9 (September 1954), pp. 1–4; Kogure, "Nihon ni okeru QC shisō," pp. 4–6; Nishibori Eizaburō, "Juran hakase ni manabu mono," *Hinshitsu kanri,* Vol. 5, No. 8 (August 1954), pp. 1–4; Ishikawa, *What is Total Quality Control?,* p. 19.

91. Nishibori, "Juran hakase," p. 1; Kogure Masao et al., "Juran hakase ni yoru hinshitsu kanri kōshūkai ni sanka suru," *Hinshitsu kanri,* Vol. 5, No. 8 (August 1954), p. 19; Morioka Shirō and Kumasaka Hiroshi, "QC to hoka no kanri to no kanren oyobi chōsei," *Hinshitsu kanri,* Vol. 8, No. 5 (May 1957), p. 16.

92. Kogure Masao, "TQC e no taidō to tanjō," *Hinshitsu kanri,* Vol. 41, No. 7 (July 1990), pp. 61–62.

dresses should include everything."[93] For some, Juran's wisdom was a virtual epiphany: "QC by all employees, by the whole firm, is the true QC," one Japanese convert affirmed.[94] Above all, though, Juran preached pragmatism, shifting the movement's focus from the perfection of mathematical techniques to the attainment of the actual objectives of management reform. Herein, it seemed, lay the blueprint for cracking the deadlock in Japanese quality control. As Nishibori Eizaburō remarked at the time, Juran's inspiration was like "welcome rain" to JUSE's parched and wilting quality crusade.[95]

As is apparent from the subsequent trajectory of the movement, Joseph Juran's teachings had a more profound impact on Japanese QC thought than Deming's earlier and more celebrated contributions.[96] But while Juran's 1954 tour galvanized the Japanese to chart a new strategy, making the break from old conceptions was not entirely painless. Since the evolving model was premised on the rejection of much of Deming's bureaucratic, statistics-heavy approach, JUSE was in the difficult position of having to repudiate its patron saint as well as its own past practice. The spokesmen of Japanese QC were thus forced into agonizing rhetorical contortions to promote the new conceptions without overtly disparaging the old orthodoxies. In what would become a refrain in the quality literature of the mid-1950s, Mizuno Shigeru explained that one should not simply conclude that Juran is right and Deming is wrong, "but it is clearly an error to contend that if you just understand statistical methods, you'll be able to do QC."[97] Another commentator offered a horticultural metaphor: "Deming planted a seedling that has grown into a big tree with a large trunk and many branches. Now Juran has given this tree a fabulous pruning."[98]

In the decade following Juran's visit, the Japanese quality movement reassessed, retooled, and refashioned itself. By the early 1960s, JUSE had sweepingly redefined its methodologies, promotional techniques, and strategies for diffusing QC into industry. While control charts and statistical

93. Suzuki Takeshi, "Juran hakase no kanri shisō to wagasha no soshiki," *Hinshitsu kanri,* Vol. 5, No. 10 (October 1954), p. 34.

94. "Juran hakase raichō," *Hinshitsu kanri,* Vol. 5, No. 8 (August 1954), p. 18.

95. Nishibori, "Juran hakase," p. 1.

96. On Juran's importance in Japan, see Otis Port, "Dueling Pioneers," *Business Week,* special issue, October 25, 1991, p. 17; Joseph M. Juran, "Made in U.S.A.: A Renaissance in Quality," *Harvard Business Review,* Vol. 71, No. 4 (July-August, 1993), pp. 42–44. It has been widely reported (but never confirmed) that in 1969 JUSE offered to name a "superprize" (for previous winners of the Deming Prize) after Joseph Juran. Juran is said to have politely refused this honor.

97. Mizuno Shigeru, "Nihon ni okeru hinshitsu kanri shisō no hensen," *Hinshitsu kanri,* Vol. 5, No. 10 (October 1954), p. 3; see also Nishibori, "Juran hakase," p. 1.

98. "Juran hakase raichō," p. 18.

analysis were by no means abandoned, the pursuit of technical virtuosity and rarified expertism (which lay at the heart of the Deming approach) gave way to a more practical bent. The impasse of the mid-1950s was broken and soon forgotten, as the reborn movement grew to be the most dynamic element of management reform efforts in "miracle economy" Japan.

At the root of this renaissance was a profound broadening of the Japanese approach to quality control, a process that can be traced along two principal axes. First, consciousness and technical knowledge of QC were extended from the specialist staff into the line, spreading from statisticians and engineers upward to top executives, across to middle management, and downward to shop floor supervisors (and eventually, to the workers themselves). Second, the domain of quality thought was enlarged beyond mathematical analysis to a more expansive view of management reform, one that could embrace techniques both old and new, from the basics of workplace standardization to the innovations of the human relations school and behavioral science. In short, between 1955 and 1965, Japanese quality control was transformed from a narrow specialty, the obscure sorcery of progressive engineers, into a far-reaching, comprehensive framework for making Japanese factory management more systematic and scientific.

This new synthesis, which came to be known as Total Quality Control (TQC), was not a simple knock-off of American managerial advances. Juran's intervention in 1954 was crucial in spurring the Japanese to reassess, and eventually abandon, an approach they had embraced for almost a decade. Yet the expansive TQC concept that grew out of this reevaluation was thoroughly "Made in Japan."[99] As the handiwork of the quality experts of JUSE, TQC was a pragmatic and innovative means of adapting American quality control methodologies to the specific context of postwar Japanese industry. In departing from abstract mathematical approaches, in breaking down the detached elitism of the specialist staff, and in emphasizing basic reforms of production management practice, Total Quality Control challenged many of the conventions of American QC thought. In so doing, however, the practitioners of TQC achieved extraordinary results in the industrial workshops of Japan. In the end, as many observers have recognized, it was the philosophy and methodology of TQC that drove the Japanese "quality revolution" of the 1960s and 1970s.[100]

99. The Japanese were also influenced by the work of Armand V. Feigenbaum, a General Electric QC specialist who first coined the phrase "total quality control" in 1957. Although JUSE would borrow Feigenbaum's terminology, the Japanese conception of TQC was considerably different from Feigenbaum's more bureaucratic model. Armand V. Feigenbaum, *Total Quality Control: Engineering and Management* (New York: McGraw-Hill, 1961).

100. See, for instance, Karatsu, *QC undō;* Ishikawa, *What is Total Quality Control?,* especially ch. II.

Ironically, much of what would later be touted as the Deming legacy in Japan was, in fact, developed by the Japanese themselves as they strove to overcome the limitations of Deming's teachings. Efforts to intensify top management involvement, diffuse statistical information, and adopt participative management practices—all central aspects of the TQC paradigm—were not inspired by Deming, but instead evolved in response to the stagnation of Deming's methods in Japanese factories. By the mid-1950s, the Japanese had repudiated, with almost unseemly haste, a good deal of the Deming gospel. Moreover, most of the subsequent innovations in Japanese QC were born of the failures of the model Deming had so confidently impressed upon his Japanese students. One is tempted to conclude that the greatest achievements of Japan's quality control movement did not so much derive from the guidance of W. Edwards Deming as emerge in spite of it. At the very least, it is apparent in retrospect that breaking with the orthodox methodology of American statistical quality control—and thus with Deming's teachings—was crucial to the progress of Japan's postwar "quality miracle."

The Deming Legacy

Given the considerable discrepancies between popular wisdom and the historical narrative charted above, the enduring appeal of the Deming legend is remarkable indeed. The vitality of the myths surrounding Deming's work in Japan, as well as the longstanding resistance to exploring these myths historically, suggest that the ongoing Deming phenomenon should not be dismissed as a faddish excess born of media hoopla and public credulity. If anything, the durability of the Deming legendry begs the question of why so many people, on both sides of the Pacific, were inclined to accept so blithely the tall tales of Deming's role in the creation of Japanese quality.

In the American case, much of the appeal of the Deming mythology adhered in its strong therapeutic properties. Facing the apparent demise of U.S. industrial might, Americans seemed to take a certain reassurance from the belief that the Japanese economic machine was, at least in part, the outgrowth of good old Yankee know-how. As Robert Cole has suggested, this conviction provided encouragement to a beleaguered and pessimistic American business community. At a time when it was widely believed that "culture" was Japan's secret weapon and that societal differences precluded the adoption of Japanese management models in the United States, the Deming legend restored to American business a sense of control over its own destiny. As Cole concluded,

> it was easier for American managers to think in terms of "borrowing back" than it was for them directly to swallow borrowing from a foreign competi-

> tor. This was especially the case when the borrowing reflected so negatively on their past management style and when pride had been hurt by a former student who was suddenly "beating their pants off" in the marketplace.[101]

Thus, if Deming's story offered a salve for the damaged American psyche and an optimistic vision of U.S. industrial regeneration, it betrayed a deep-seated and constrictive American chauvinism as well.

While Deming was styled a symbol of American ingenuity and perseverance in the 1980s, he also became a rallying point for those critical of "business as usual" in U.S. manufacturing. Deming was, after all, a living rebuke to the postwar business elite: in the Deming legendry, the clear villains were the captains of American industry, the short-sighted and irresponsible top brass who had ignored Deming's teachings and allowed U.S. competitiveness to decline. Thus Deming and his gospel of quality found a receptive audience among corporate "wannabes"—business school academics, middle management, technical staff—all of whom saw the potential for empowerment in the fallout of the Deming phenomenon.[102] Moreover, the moral of the Deming fable proved alluring to labor and a broad slice of the general public, suggesting as it did that America's ills had sprung from corporate myopia and were not rooted in a decaying work ethic or a deeper societal malaise.[103] By laying the blame for economic decline squarely at the feet of America's industrial leaders, Deming's legend tapped into a rich vein of populist energy and provided the detractors of American business with formidable ideological endorsement.

To a certain extent, of course, the uncritical acceptance of the Deming mythology in the United States can be explained by the language barrier that effectively (and conveniently) prevented close scrutiny of Deming's record in Japan. As so little information has been available in English to contradict Deming's narrative of the genesis of Japanese quality control, the enshrinement of the Deming legend as American business orthodoxy is hardly astonishing. What is more striking is how reluctant the Japanese press and veterans of the Japanese quality movement have been to offer any objections to the swelling Deming hagiography of the past 15 years. Those best prepared to deflate the exaggerations and fabrications of the Deming myth have, it seems, been among the most reticent observers of the Deming sensation.

The reasons for the apparent Japanese acquiescence in the Deming legendry are by no means self-evident. That postwar Japanese industry would

101. Cole, *Strategies for Learning,* p. 113. It is significant in this respect that Deming has not attained the same acclaim in European business circles as he has in American.

102. Deming, for example, declared that "This whole [quality control] movement may be instituted and carried out by middle management, speaking with one voice." *Out of the Crisis,* p. 87.

103. See Dobyns and Crawford-Mason, *Quality or Else,* ch. 5; Deming, *Out of the Crisis,* pp. 134–35.

continue to express such gratitude to an American benefactor, even after Japan's singular economic achievements had become apparent to all, is curious indeed. Yet sited in the particular context of postwar Japan, and examined in light of the psychological dislocations of war, defeat, and occupation, JUSE's embrace of Deming and the long Japanese allegiance to the Deming myth appear far less incongruous. As John Dower has noted, the Japanese image of America was recast in the wake of the Pacific War, with the once-reviled enemy becoming a new "tutelary deity," a powerful and protective patron for a humbled and vulnerable Japan.[104] Just as subordination to the United States in cold war geopolitics proved comforting and beneficial for Japan as a nation, so deference to Deming, the great American *sensei,* seemed prudent, reassuring, and almost instinctive to the postwar Japanese business community.

At the same time, the enduring vitality of the Deming myth can also be traced in large part to good public relations, the charm of celebrity, and the inertia of memory. As a symbol of progress, hope, and American expertise, Deming entranced Japanese industrialists and engineers in the early 1950s. With his public image painstakingly groomed by JUSE and his stature institutionalized in the Deming Prize, Deming was readily—and almost imperceptibly—transformed in the Japanese popular imagination from newsmaker to founding father, from participant to progenitor. Thus accepted as common knowledge, the Deming legendry would, even in subsequent decades, remain thoroughly embedded in the creation stories of Japan's "miracle economy."

Moreover, come the 1980s, some Japanese observers found it expedient to affirm—and even to encourage—the American conviction that Deming was the architect of Japan's industrial glories. Locked in trans-Pacific trade skirmishes, prominent elements in the Japanese business community sought to mobilize the Deming myth as a defensive weapon. In response to U.S. charges of unfair business practices, Japanese corporations wielded the accessible and convincing half-truth that their competitive success was born of the teachings of an American statistician. At Toyota's Tokyo headquarters, for instance, Deming's portrait was prominently displayed in the entrance lobby, hung side by side with likenesses of the corporate founder and the current chairman.[105] Exhibiting less flair for symbolism—but reaching for a larger audience—several Japanese firms ran advertising campaigns in the United States emphasizing their considerable obligations to Deming. In 1981, Sumitomo Metals took out full-page ads in American business magazines that proclaimed "The most famous name in Japanese quality control is American." After sketching the Deming legend, the copy stated

104. John Dower, *War Without Mercy* (New York: Pantheon, 1986), p. 305.
105. Kilian, *The World of W. Edwards Deming,* p. 267.

> Sumitomo Metals owes a great deal to the American quality control expert who became one of Japan's greatest inspirations. On that point, the management and employees of Sumitomo Metals would like to take this opportunity to say simply, "Thanks, Dr. Deming, for helping to start it all." [106]

In the discourse of U.S.-Japan trade friction, such public obeisance to an American teacher was compelling, and strengthened the hand of those who were inclined to bash American business—rather than Japan—for the crisis in international commerce. "Don't blame the Japanese," Deming himself would proclaim. "We did it to ourselves." [107]

Although Japanese industry thus found accommodation with the Deming legend unproblematic, for Japanese quality experts—and particularly for the stalwarts of JUSE—living with the Deming phenomenon was more of a challenge. On the one hand, it was apparent to many that the international and domestic acclaim accorded Japan's QC movement in the 1980s was, in large measure, a direct result of U.S. media fascination with Deming and his role in Japanese quality. Karatsu Hajime, for example, noted with regret that an appreciation for Japanese QC achievements had to be "reimported" to Japan: only after Americans began to celebrate Japanese quality control did the Japanese press and the public join in the growing mania.[108] In other words, although Deming came to monopolize the international spotlight, the attention and recognition that was cast, almost in reflection, on the work of the Japanese quality movement was welcomed by the long-unheralded veterans of JUSE.

Even if grateful for its newfound fame, the Japanese QC elite was by no means disposed to foster the already virulent spread of the Deming myth. As Deming's prominence soared, and as his legend grew ever more capacious, many appeared wary lest the very real accomplishments of Japan's quality pioneers be diminished or effaced. Yet while endeavoring to accentuate their own achievements, Japanese QC experts seemed understandably hesitant to attack the reputation of their one-time patron saint, no matter how unsound they knew that reputation to be. Thus, while recent Japanese chronicles of the history of quality control have not glorified Deming's exploits (as has usually been the case in the United States), neither have they directly challenged the veracity of the Deming myths. Instead, most Japanese accounts have cultivated an ostensibly neutral approach, albeit one with a relatively transparent subtext. By damning Deming's contributions with faint praise, enveloping his work in saccharine, sentimental hyperbole,

106. *Business Week,* July 20, 1981, p. 30.

107. Quoted in Boorstin, "History's Hidden Turning Points," p. 65; see also Rowan, "Deming's Simple Message."

108. Karatsu Hajime (David J. Lu, trans.), *TQC Wisdom of Japan* (Cambridge, Mass.: Productivity Press, 1988), pp. 9–10. See also Ishikawa, *What is Total Quality Control?,* p. 10.

or simply by eliding his role in the narrative of Japanese QC, Japanese commentators have diplomatically rendered judgment on the Deming legend.[109] As in 1954, when JUSE renounced Deming's methodology with kid-glove decorum, so, nearly half a century later, Japanese quality experts discreetly challenged the foundations of the Deming monolith, while allowing its facade to stand intact.

In the end, the studied restraint of Japanese observers ensured that Deming's mythological aura would remain essentially uncontested. Over the last decade of his life, Deming so jealously guarded his fame, his disciples were so fervently loyal, and his public idolization was so thorough that any direct questioning of his reputation seemed tantamount to blasphemy. As Japanese and Americans alike embraced the simple morals of the Deming story, few dared challenge the popular account of his record in Japan. Among those that did was Joseph Juran, who would eventually become Deming's most vocal detractor. As Juran once wrote in a brief history of American quality control,

> In 1980, there emerged a widely viewed videocast, "If Japan Can, Why Can't We?" It concluded that Japanese quality was due to their use of statistical methods taught to them by Deming. This conclusion had little relation to reality; however, the program was cleverly presented and was persuasive to many viewers.[110]

Yet despite the ample historical justification for this contention—and many of the other criticisms leveled by Juran over the years—his objections to the Deming legend could easily be dismissed as sour grapes.[111] Other scholars and executives took Deming to task for his methodology, his analytical inconsistencies, and his apparent anti-American bias, but their jibes hardly tarnished Deming's popular appeal and never threw into question his presumed contributions in Japan.[112] As only befitted an American hero in the making, Deming thus acquired a Teflon-coated reputation that transcended—and even obviated—the need for historical affirmation.

109. See, for example, the following accounts: Ishikawa, *What is Total Quality Control?,* pp. 17–18; Noguchi, "The Legacy of W. Edwards Deming," pp. 35–37; Kamikubo Minoru, *Watakushi no hinshitsu kanri, tsuzuki* (Tokyo: JUSE, 1989), pp. 42–43; Karatsu, *QC undō,* pp. 68–70; Mizuno, *Zensha sōgō hinshitsu kanri,* p. 359; Nishibori Eizaburō, *Hinshitsu kanri kokoroechō* (Tokyo: Nihon Kikaku Kyōkai, 1981), pp. 49–52, 223–48; Sasaki and Nonaka, "Kagakuteki kanrihō," p. 271. See also Gabor, *The Man Who Discovered Quality,* p. 98.

110. Joseph M. Juran, "World War II and the Quality Movement," *Quality Progress,* Vol. 24, No. 12 (December 1991), p. 24.

111. Juran also perceptively noted that "recognition has become the biggest thing in Deming's life. But the Deming Prize is much more important than he is—just like the Nobel Prize and Alfred Nobel." Port, "Dueling Pioneers," p. 17.

112. See, for example, Ray and Cindelyn Eberts, *The Myths of Japanese Quality* (Upper Saddle River, N.J.: Prentice Hall PTR, 1995), especially pp. 322–23.

In light of this public beatification, how can we appraise the legacy of W. Edwards Deming in the late twentieth-century United States? Or, perhaps more broadly, how can we reconcile conceptually the genuine narrative of Deming's work in Japan (however irrelevant this historical record may be in the popular consciousness) with the almost metaphysical Deming phenomenon of the 1980s and 1990s?

After dispensing with the most egregious overstatements currently in circulation—Deming as messiah, as father of a new industrial revolution, as visionary innovator—there is a certain appeal to figuring Deming as a two-way, trans-Pacific conduit for managerial wisdom. As many commentators have argued, just as Deming took state-of-the-art U.S. methods to the battered industry of Occupied Japan, so he would later bring cutting-edge Japanese advances in quality control to the reeling manufacturers of post-oil shock America.[113] But if, as demonstrated above, the notion of Deming as the Commodore Perry of management fails under close historical scrutiny, so too does the idea that Deming was pivotal in "Americanizing" Japanese QC methods for domestic consumption in the 1980s.

In the first place, Deming had, at best, a tenuous grasp of the reality of Japanese management practice. In his later years, for example, Deming consistently (and wrongly) declared that Japanese firms avoided merit ratings of workers, and that Japanese factories and schools were free of competitive pressures. Moreover, he was also outspokenly opposed to several central aspects of the Japanese TQC system, notably the use of quality control circles.[114] As even some of his disciples had to admit, Deming's prescriptions for the reform of American management were idiosyncratic and were frequently inconsistent with both his 1950 teachings in Japan and the innovations subsequently made by the Japanese themselves. Deming, in other words, did not translate Japan's QC successes for American consumption, no more in any case than he "revolutionized" Japanese industry with his familiar (but soon discarded) creed of statistical quality control. Thus no matter how tempting it may be to memorialize W. Edwards Deming as an indispensable middleman in the transfer of managerial technologies between the United States and Japan, this conclusion is ultimately untenable.

Instead, we might best conclude that Deming's contributions to American industry and his lasting significance in the United States were, at least in broad outline, remarkably coincident with his work and his legacy in early postwar Japan. As proselytizer, agitator, and public icon, Deming sym-

113. Dobyns and Crawford-Mason, *Quality or Else,* pp. 102–3; Gabor, *The Man Who Discovered Quality,* p. 12.

114. "Deming's Demons," *The Wall Street Journal,* June 4, 1990, p. R39; Walton, *The Deming Management Method,* pp. 248–49; Deming, *Out of the Crisis,* pp. 136–37; W. Edwards Deming, *Quality, Productivity and Competitive Position* (Cambridge, Mass.: MIT Center for Advanced Engineering Study, 1982), p. 109.

bolized the ideal of quality, as well as the imperative for managerial reform, in both 1950s Japan and late twentieth-century America. Just as a sympathetic, obliging, and authoritative Deming "fascinated the Japanese people" in the first postwar decades, so a direct, abrasive, and domineering Deming captured the imagination of the American public almost half a century later. This enduring magnetism—born in no small part of Deming's profound self-assurance and sheer audacity—was instrumental in Japan's fledgling QC movement and America's belated quality campaign of the 1980s. In the United States, as in Japan decades earlier, it was Deming's media appeal and public persona—not his statistical virtuosity or the substance of his business wisdom—that defined his real contributions to managerial reform and industrial revitalization. As a front man for the concept of quality, a symbol that could serve disparate constituencies, and a talisman with uncanny popular charm, Deming was an accommodating and often valuable catalyst in quality movements on both sides of the Pacific.

In short, Deming was a facilitator, not a creator, a prodigy of public relations rather than a genius of management strategy, an ornament more than an oracle. To claim for him a more profound legacy—in either America or Japan—is to fall victim to a seductive but ill-founded legendry, to become lost in the dehistoricized haze of heroic fame. Only by surmounting the increasingly ornate and monolithic accretions of myth can the actual—and relatively modest—accomplishments of W. Edwards Deming be finally illuminated.

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