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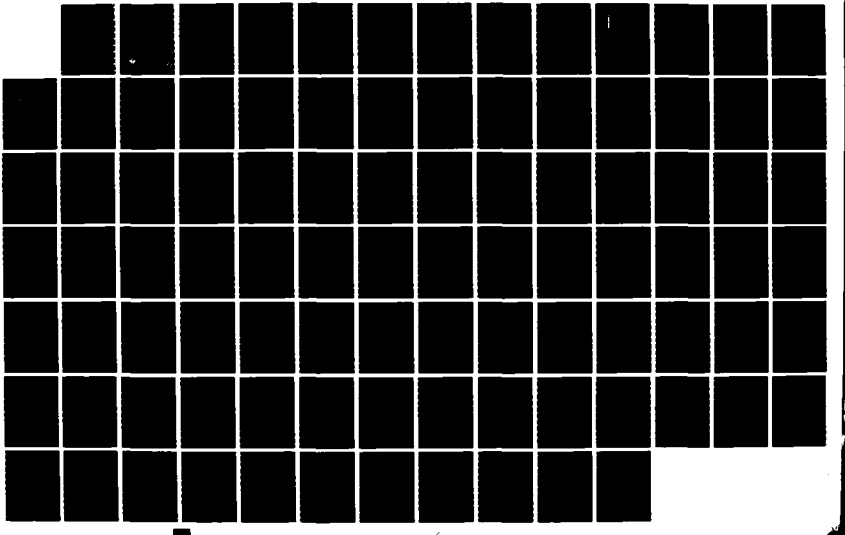

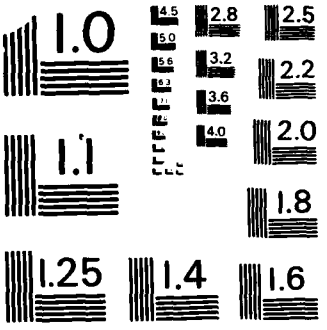

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HFOSL Technical Note 72-86-07 JUNE 1986

QUALITY MANAGEMENT: AN ANNOTATED BIBLIOGRAPHY

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DEPARTMENT OF THE NAVY
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SAN DIEGO, CALIFORNIA 92152-6800

12 June 1986

From: Commanding Officer, Navy Personnel Research and Development Center

Subj: QUALITY MANAGEMENT: AN ANNOTATED BIBLIOGRAPHY

Encl: (1) HFOSL Technical Note 72-86-07

1. Enclosure (1) is an annotated bibliography on quality management developed in support of task area PE63739N (Navy Logistics Productivity), project T1885 (Methods for Managing Quality Improvement in Navy Maintenance Activities). This project is sponsored by the Chief of Naval Operations (OP-40). This bibliography provides an introduction to the quality management concept, its terminology, and the personalities associated with the quality management movement.

R. E. BLANCHARD
Director
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19 ABSTRACT (Continue on reverse if necessary and identify by block number)

This annotated bibliography is oriented toward those persons who are new to the concept of quality management. It combines several sources, including books, journals, videotapes, and magazines, from academia and industry. The main body of articles, books and videotapes focuses on the introduction of the concepts, terminology, and personalities associated with the quality management movement as well as on the components of a successful implementation.

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QUALITY MANAGEMENT: AN ANNOTATED BIBLIOGRAPHY

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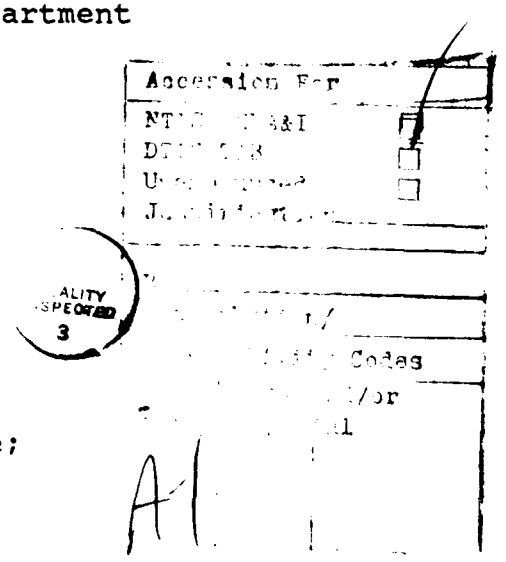

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Laboratory Director

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SUMMARY

Introduction

As America strives to compete in the international marketplace, many U.S. businesses have adopted a new way of managing and measuring quality and productivity. The quality management methods focus on the systematic measurement and control of work processes. Successful quality management programs are credited with increases in profit, reduction of waste, and improved management-worker relations.

Purpose

This annotated bibliography is oriented toward those persons who are new to or only recently acquainted with the concept of quality management. The main body of journal articles, books, videotapes, and magazines selected from academia and industry focus on the introduction of the concepts, the terminology, and the personalities associated with the quality management movement.

Citations

Citations total 181. All of them include information about the author, date, title, and source, as well as a set of terms that summarize the key concepts of the citation and a brief abstract. Several articles are identified and recommended as an orientation to the field of total quality management.

CONTENTS

INTRODUCTION

Background

In response to the increasing level of competition for the market share of American products both here and abroad, American businesses have begun to examine the effects of their operating procedures and corporate philosophies on their competitive position in that marketplace. In many cases, this reassessment has led to the adoption of a new way of managing and measuring quality and productivity.

The focus of this new method of quality management is on the systematic use of techniques for the measurement and control of work processes. These techniques give managers and process operators the information necessary to do the job right the first time, thus reducing or eliminating the need for a final inspection of products where defects are sorted out and rejected. When these measurement techniques are combined with management policies emphasizing communication and trust, the new method of quality management has led to the continuous improvement of work processes and products.

The quality management programs cited most frequently in current literature (total quality control, statistical process control, cost of quality, or company-wide quality control, to name a few) are associated with names such as Deming, Juran, Crosby, and Ishikawa. Although some of the program elements and implementation factors differ in practice from company to company, successful quality management programs designed by them and others are credited with increases in profit, reduction of waste, and improved management-worker relations.

Purpose

This annotated bibliography is oriented toward those persons who are new to or only recently acquainted with the concept of quality management (QM). It combines a multitude of sources, including books, journals, videotapes, and magazines from academia and industry. The main body of materials focuses on the introduction of the concepts, terminology, and personalities associated with the quality management movement as well as the components of a

successful implementation. All citations are readily available.

Citation Profile

All citations (N = 181) include the following information: (1) the author, date, title, and source; (2) a set of terms that summarize the key concepts of the citation; and (3) a brief abstract. The citations are listed alphabetically by author and organized by source: (1) journal articles, (2) professional magazines, (3) books (including chapters from edited books), (4) manuals, (5) technical papers presented at conferences, (6) popular magazines, (7) newspaper articles, and (8) videotapes. Figure 1 depicts the distribution of the citations among these sources. While the majority of the citations come from professional journals (n = 77) and technical papers presented at conferences (n = 21), there are a number of articles from the popular literature (professional magazines, n = 25, popular magazines, n = 16, and newspapers, n = 8). The books cited in this bibliography (n = 23) are a small sample of those available. These books were chosen because they represent the most definitive overviews of the different orientations to quality management.

The publication dates for the citations span 42 years, a testament to the age of these "new" management techniques. Figure 2 depicts the distribution of the articles over this time period, with the majority of the articles written since 1980. This indicates the increasing interest in and acceptance of the new quality management techniques and their applicability to American industries.

Key Terms

The terms used to summarize the key concepts in the citations were designed for the development and organization of a computer-assisted data base. These key terms are listed in Table 1. Each key term represents a general subject matter area in the QM literature. The subject matter paired with each key term in Table 1 gives a more detailed description of what a reader may expect of a citation associated with that key term. Since a key term may represent one or more of the subject matter topics and since the topics used are not listed in order of importance, it is recommended that the key terms be used in conjunction

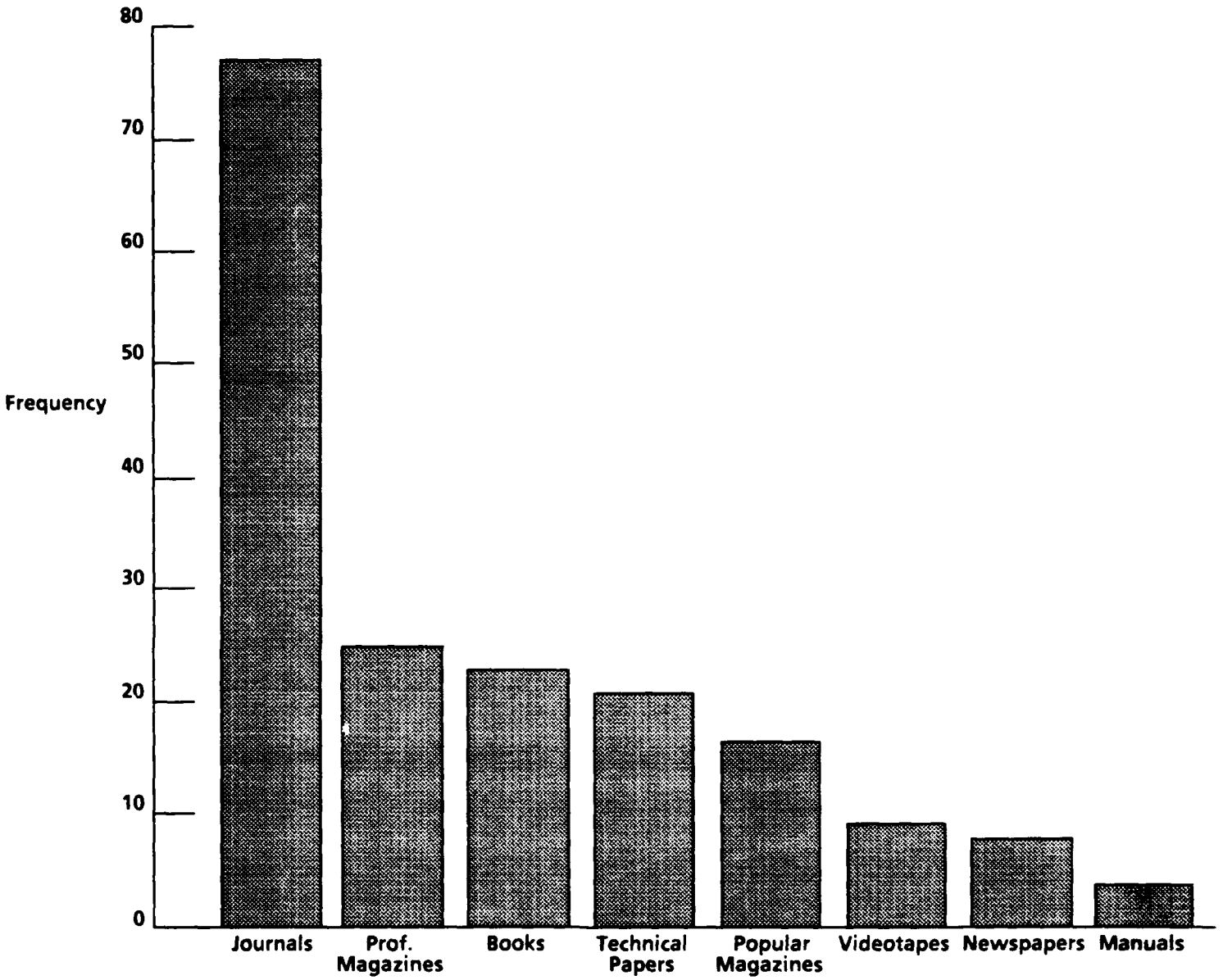

Figure 1. Frequency of citations by source.

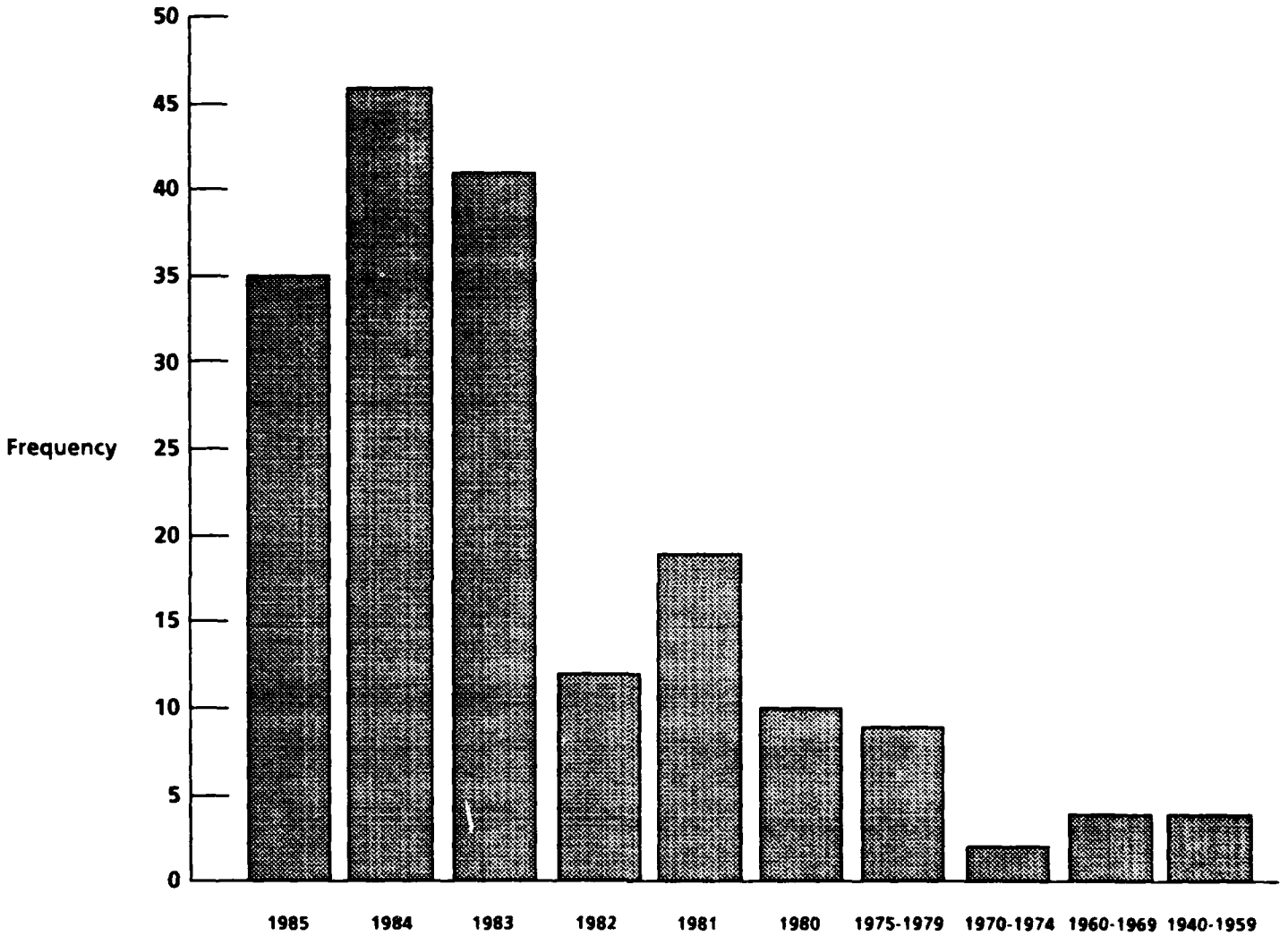

Figure 2. Frequency of citations by date of publication.

Table 1

Key Terms and Related Subject Matter

SPC	Statistical process control. Definitions and use of control charts, statistical tools, problem-solving methods, sampling, and experimental design.
Approaches to QM	Generic and specific definitions of QM programs, including those associated with Deming, Juran, and Crosby.
Case Histories	Examples of QM programs from the federal and private sectors, including successes and failures in sales, services, manufacturing, and purchasing.
Implementation	Implementation issues, including strategies, management-worker relations, barriers, driving forces, and management commitment.
Justification and Results	Issues in the evaluation of QM programs including the Deming Prize, financial implications, benefits, barriers, driving forces, and attitude changes.
Training	Issues in training all levels of management and workers in QM techniques including problem solving, SPC, graphic techniques, and experimental design.
History of QM	In Japan and the U.S., including the development of the Deming, Juran, Crosby, Shewhart, and Taguchi approaches to QM.
Structure and Organization	How QM affects the way companies conduct their daily business. Topics include quality circles, intracorporate communication strategies, company-wide quality control (CWQC), plan-do-check-act cycle of continuous improvement (PDCA), and quality improvement teams and boards.
Other	Miscellaneous category which includes topics such as software, mission statements, sociotechnical analysis, and just-in-time (JIT) inventory.

with the abstract to help to determine the value of that citation.

Figure 3 depicts the frequency of use of key terms throughout the citations. Note that each citation usually has more than one key term related to it, bringing the total number of key terms to 426. Reflecting the orientation of this bibliography toward the concepts, terminology, and personalities of the QM movement, the most frequently cited key terms are Statistical Process Control (SPC) (n = 83), Approaches to QM (n = 81), and Case Histories (n = 60). An author index for each key term is provided at the end of the report.

Recommended Readings

Although all of the articles cited in this bibliography have their relative strengths, a subset has been identified that we highly recommend as an orientation for newcomers to the field of QM. These articles were chosen for their clear treatment of the basic tenets of QM philosophies. Each recommended reading is identified by an asterisk (*) placed next to it.

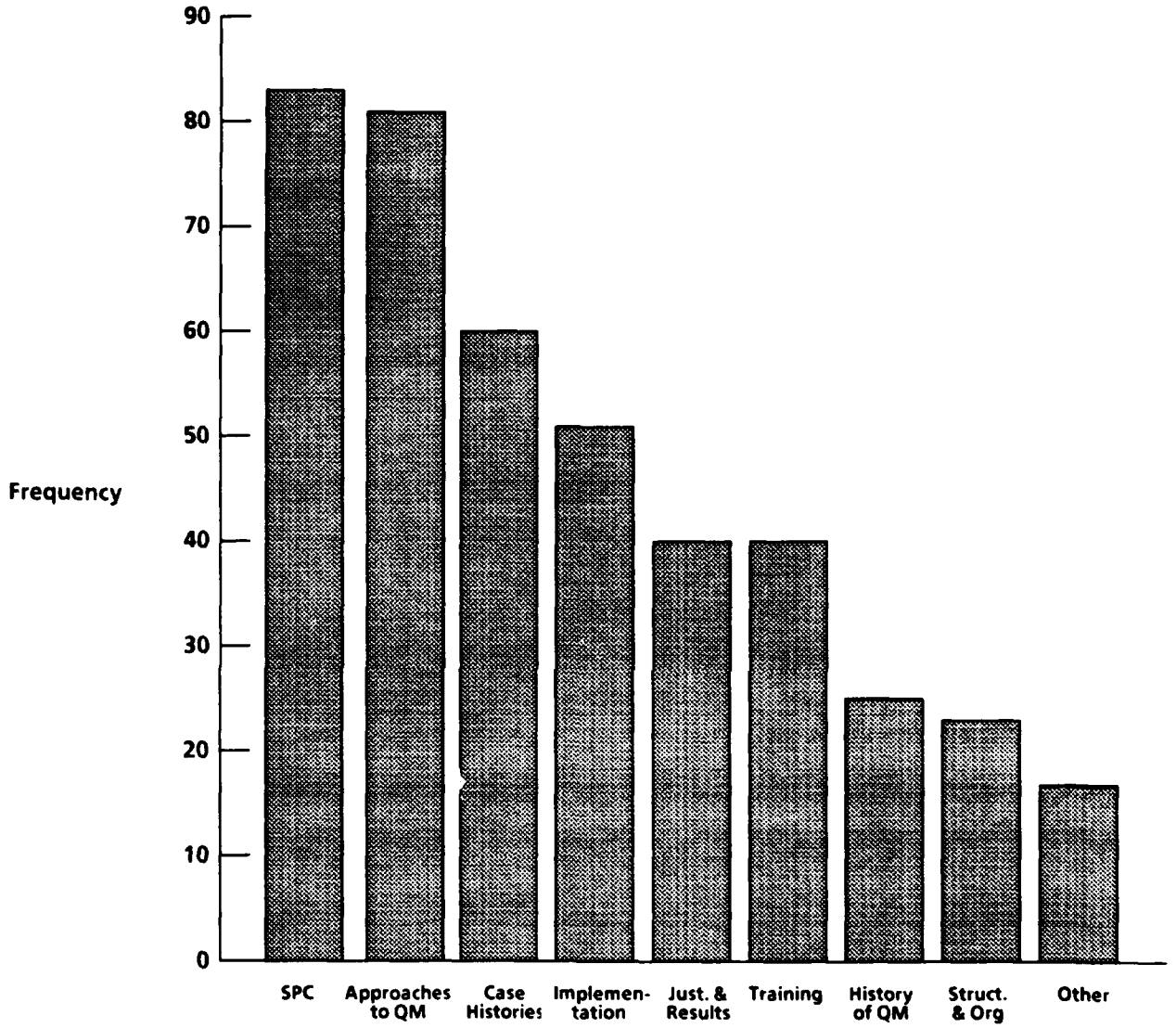

Figure 3. Frequency of use of key terms in the citations.

REFERENCES

Journals

Andrews, M. (1985). Statistical process control: Mandatory management tool. Production, 95(4), 56-59.

Key Terms: Case Histories/Implementation/SPC/Justification and Results.

Abstract: The author discusses the quality management program at Grand Haven Stamped Products Co. (makes stampings and stamped products). Topics include factors for and obstacles against implementation.

ASQC software directory. (1985). Quality Progress, 18(3), 28-63.

Key Terms: Implementation/SPC/Other (software).

Abstract: This is a series of 4 articles, including "How to buy quality software," "User-supported software," "Guide to software products," and "Directory of software for quality assurance and quality control."

Aubrey, C. A., II, & Eldridge, L. A. (1981). Banking on high quality. Quality Progress, 14(12), 14-19.

Key Terms: Structure and Organization/Case Histories.

Abstract: The authors discuss the quality control program at the Continental Bank. Topics include management support, group participation, and the development of expertise in quality control of bank services.

Baker, E. M., & Artinian, H. L. (1985). The Deming philosophy of continuing improvement in a service operation: The case of Windsor Export Supply. Quality Progress, 18(6), 61-69.

Key Terms: SPC/Structure and Organization/Case Histories/ Justification and Results.

Abstract: The authors present a case history of Dr. Deming's continuing improvement philosophy at Windsor Export Supply, Windsor, Ontario (exports automotive parts to Ford Motor Co.'s foreign and North American operations). Two problem--critical shipping status report and notice of engineering change--are presented as examples of how flow analysis can provide improvement in quality without the use of control charts.

*Berry, B. H. (1981). Preventing defects through statistical quality control. Iron Age, 224(29), 59,61,63.

Key Terms: History of QM/Case Histories.

Abstract: The major characteristics of statistical process control are presented. Deming's 14 points of management commitment are also discussed. This article provides an introduction of statistical quality control.

Bryson, M. C. (1984). Sample size determination - revised and simplified. Quality Progress, 17(12), 40-41.

Key Terms: SPC.

Abstract: The article presents a revision of sampling formulas developed by Gerald B. Heyes in the November, 1984 issue of Quality Progress. The revision is presented to help determine sample sizes based on a finite population.

Burr, I. W. (1984). Management needs to know statistics. Quality Progress, 17(7), 26-30.

Key Terms: SPC.

Abstract: The use of statistical and graphic methods in setting realistic manufacturing specifications are discussed. Other topics include the roleof SPC in managerial decision making and process improvement.

Callahan, J. M. (1981). The Deming era arrives in Detroit. Automotive Industries, 161(11), 45-47.

Key Terms: History of QM/SPC.

Abstract: This is the first part of a three-part article that discusses Dr. W. Edwards Deming's effect on the auto industry and its suppliers. Other topics include the 85-15% rule and Dr. Deming's consulting role in Japan in the 1950s.

Callahan, J. M. (1981). The Deming era: A new US industrial revolution? Automotive Industries, 161(12), 73-74.

Key Terms: Approaches to QM.

Abstract: This is the second part of a three-part article that continues the discussion of the "Deming Method." Other topics include Dr. Deming's 14 points of management commitment and an applied example in control charting.

Callahan, J. M. (1981). Insight analysis: Detroit. New religion impacts auto industry. Automotive Industries, 161(11), 13.

Key Terms: SPC.

Abstract: The author discusses applications of the statistical quality control philosophy of Dr. W. Edwards Deming at Ford, General Motors Pontiac Division, and Chrysler.

Callahan, J. M. (1982). Deming involves suppliers, engineers. Automotive Industries, 162(1), 32.

Key Terms: Approaches to QM/SPC.

Abstract: This is the third part of a three-part article that concludes the discussion of the "Deming Method" with an insight into the role of the supplier in a quality improvement program.

Caplan, F. (1985). Managing for success through the quality system. Quality Progress, 18(2), 29-32, 57-58.

Key Terms: Implementation/Structure and Organization/ Justification and Results.

Abstract: A nine-point implementation plan for a total quality control system is discussed. Examples of prioritized goals and rating systems are included.

Connell, G. W. (1984). Quality at the source: The first step in just-in-time production. Quality Progress, 17(11), 44-45.

Key Terms: SPC/Implementation/Justification and Results/ Other (just-in-time).

Abstract: The author of this article discusses the roles and responsibilities of vendors in SPC projects. Just-in-time inventory is also discussed.

Craig, C. C. (1969). The X-bar and R-chart and its competitors. Journal of Quality Technology, 1(2), 102-104.

Key Terms: Approaches to QM/History of QM/SPC/Training.

Abstract: The author discusses the applicability of the X-bar and R-charts for depicting statistical process control and compares them to analysis of variance with replications and cumulative sum charts.

Crosby, P. B. (1982). The management of quality. Research Management, 15(4), 10-12.

Key Terms: Approaches to QM.

Abstract: This article is a summary of the Crosby approach to quality management. Topics include the definition of quality, prevention versus detection, performance standards, and the cost of quality.

Davis, L. E. (1983-84). Workers and technology: The necessary joint basis for organizational effectiveness. National Productivity Review, 3(1), 7-14.

Key Terms: Implementation/Justification and Results/Other (sociotechnical analysis).

Abstract: The author stresses the need for the integration of the workforce with the high technology in use today. Two examples of nonintegration, the Three Mile Island accident (1979) and two wildcat strikes at Lordstown (1972-73), are presented.

Dedhia, N. S. (1985). Education and training for quality. Quality Progress, 18(1), 14-15.

Key Terms: Training.

Abstract: The author discusses the effect of technology and increased consumer demand on the recent push in the area of education and training for quality management. A sampling of available training options for companies and their major points of emphasis is included.

Deming, W. E. (1944). Some principles of the Shewhart methods of quality control. Mechanical Engineering, 66(3), 173-177.

Key Terms: SPC/Training.

Abstract: Dr. Deming discusses statistical quality control and the Shewhart control chart. Other topics include the interpretation of the control chart and management responsibility in the use of the control chart.

Deming, W. E. (1967). What happened in Japan? Industrial Quality Control, 24(2), 89-93.

Key Terms: Approaches to QM/History of QM/Implementation/SPC/Training/Case Histories.

Abstract: Dr. Deming describes the development and implementation of statistical quality control in Japan. Examples from Japanese manufacturers of steel, pharmaceuticals, and insulated wire and cable are provided. Other topics he discusses include the use of the plan-do-check-act cycle in problem solving, the differences between special and common causes of variation, and the role of the statistician within the organization.

Deming, W. E. (1975). On some statistical aids toward economic production. Interfaces, 5(4), 1-15.

Key Terms: SPC/Training/Structure and Organization/ Justification and Results.

Abstract: Dr. Deming discusses his philosophy of management's responsibility to quality. To illustrate this philosophy, he cites many examples of both good and bad management decisions.

Deming, W. E. (1975). On probability as a basis for action. The American Statistician, 29(4), 146-152.

Key Terms: Approaches to QM/SPC.

Abstract: Dr. Deming discusses the differences between enumerative (descriptive) studies and analytic (comparative) studies. Recommendations for the use of each in SPC research are given.

* Deming, W. E. (Winter 1981-82). Improvement of quality and productivity through action by management. National Productivity Review, 1, 12-22.

Key Terms: Approaches to QM/Implementation.

Abstract: Dr. Deming outlines his 14 points of obligation for top management. Topics include a discussion of the interrelationship of the 14 points and some strategies for their implementation.

Deming, W. E. (1985). Transformation of Western style of management. Interfaces, 15(3), 6-11.

Key Terms: Approaches to QM/Training/Justification and Results.

Abstract: Dr. Deming discusses the shortcomings of management practices in the United States and suggests management policies be changed to reflect understanding of his 14 points of management commitment and the statistical control of quality.

Dmytrow, E. D. (1985). Assessing process capability in the federal government. Quality Progress, 18(10), 35-40.

Key Terms: Implementation/Case Histories.

Abstract: The implementation of a quality management program in a service organization (U.S. Bureau of Labor Statistics) is described in this article. Improvement of the update process for the Consumer Price Index is illustrated with process flow diagrams and control charts. This improvement illustrates the success and needed continuation of quality management.

Dorsky, L. R. (1984). Management commitment - to Japanese apple pie. Quality Progress, 17(2), 14-18.

Key Terms: Approaches to QM/Implementation/Training/ Justification and Results.

Abstract: This article addresses the importance of top management commitment to quality management programs. Topics include the importance of "participating management"; a quality philosophy statement; and interlevel, inter-departmental communication.

Feigenbaum, A. V. (1957). The challenge of total quality control. Industrial Quality Control, 13(11), 17-23.

Key Terms: Approaches to QM/History of QM.

Abstract: This is one of Dr. Feigenbaum's first articles on total quality control (TQC). It provides a summary of his book Quality control: Principles, practice and administration(1956), and includes a definition of TQC. It also provides a defense of TQC as a more saleable and effective method than the more popular QC methods of the day--statistical quality control and inspection quality control.

Feigenbaum, A. V. (1984). The hard road to quality excellence. National Productivity Review, 3(4), 442-445.

Key Terms: Implementation.

Abstract: Several reasons for an increased focus on quality and quality management techniques are discussed in this article. The author outlines some basic philosophical changes to be made if American industry is to renew quality and productivity growth in the '80s.

Feigenbaum, A. V. (1985). Quality: Managing the modern company. Quality Progress, 18(3), 18-21.

Key Terms: Implementation/Structure and Organization.

Abstract: The author discusses the characteristics of the modern marketplace that increase the demand for a total quality management approach in American manufacturing. The implementation of this approach is based on increased management commitment in three areas: front-line supervision, productivity through automation and robotics, and attention to customer requirements.

* Freund, R. A. (1985). Education and training in the workplace for statistical process control. Quality Progress, 18(1), 19-21.

Key Terms: Training.

Abstract: The author briefly presents a three-step approach to training personnel in statistical process control (SPC) techniques. The three steps are: (1) an overview, which includes a general introduction to the concept of SPC techniques and their uses; (2) application sessions, in which the mechanics such as recognition of the existence and form of the process, flow charts, and cause-and-effect diagrams are explained; and (3) a review of how the applications fit into a broader scheme.

Gale, B. S., & Klanans, R. (1985). Formulating a quality improvement strategy. Journal of Business Strategy, 5(3), 21-32.

Key Terms: Implementation/Case Histories/Justification and Results.

Abstract: The author discusses the use of the profit impact of marketing strategy (PIMS) to document the economic benefits of improving product quality. Case histories of organizations that improved their competitive positions through this approach to quality management are discussed. The organizations discussed are IBM, the tire industry, the heavy-duty truck industry, and the automotive industry.

*Garvin, D. A. (1983). Quality on the line. Harvard Business Review, 61(5), 64-75.

Key Terms: Case Histories.

Abstract: The author provides a comparison between the U.S. and Japanese air-conditioning industries. Production and quality control policies are explored. The attitudes of the Japanese and U.S. companies are stated. These attitudes support the need for quality management practices in the U.S. in order to regain a competitive edge.

*Garvin, D. A. (1984). What does "product quality" really mean? Sloan Management Review, 26(1), 25-43.

Key Terms: Approaches to QM/Other (management perceptions).

Abstract: The author reviews and synthesizes the different perspectives of, and approaches to, defining product quality as viewed by philosophy, economics, marketing, and operations management. The importance of the dimensions for strategic purposes and targeting is emphasized and examples from American and Japanese industries are given. In conclusion, the author explores the relationship of quality to: (1) price, (2) advertising, (3) market-share, (4)cost, and (5) profitability, giving theory and evidence in each area.

*Gitlow, H. S., & Hertz, P. T. (1983). Product defects and productivity. Harvard Business Review, 61(5), 131-141.

Key Terms: SPC/Approaches to QM/Implementation.

Abstract: This article is a review of several topics dealing with product defects and productivity, including sources of variation (common causes), control charting (calculations and interpretation), operational definitions, and management guidelines (constancy of purpose, driving out fear). Several advantages of process improvement such as increased quality and increased capability with lower cost per unit, are also discussed.

Gottlieb, D. W. (September 10, 1981). Purchasing's part in the push for quality. Purchasing, 75, 77-78.

Key Terms: Approaches to QM/Case Histories/Justification and Results.

Abstract: The author of this article presents a review of Dr. Deming's 14 points of management commitment as they relate to the purchasing aspect of manufacturing.

Hayes, G. E. (1985). Quality and productivity: Five challenges for management. Quality Progress, 18(10), 42-46.

Key Terms: Structure and Organization/Justification and Results.

Abstract: The author discusses five challenges a company may face on its way to becoming a total quality company. Managerial attitudes and responsibilities associated with each challenge are discussed. The five challenges are: (1) the cultural posture, (2) the deinstitutionalization of corrective action, (3) means can become an end, (4) the prevention quandary, and (5) quest for teamwork.

Hayes, R. H. (July-August 1981). Why Japanese factories work. Harvard Business Review, 56-66.

Key Terms: History of QM/Implementation/Justification and Results.

Abstract: The author provides us with a general description of quality management in Japan. Topics include quality circles and differences in Japanese and American management styles.

Hillier, F. S. (1969). X-bar and R-chart control limits based on a small number of subgroups. Journal of Quality Technology, 1(1), 17-26.

Key Terms: SPC.

Abstract: The author presents guidelines for the evaluation of the reliability of control limits when they are based on less than 25 subgroups. An alternate method of computation of control limits independent of the number of subgroups also is presented.

Hromi, J. D. (1980). Training quality control technicians. Quality Progress, 13(10), 35-37.

Key Terms: Training.

Abstract: The author raises and briefly discusses some interesting issues in the development and implementation of a quality management training program. Topics include the varying entry-level knowledge of the trainees, the structure and logistics of the training course, and the place of training in a bigger quality management program.

Irving, R. R., Baxter, J., Weimer, G. A., & McManus, G. J. (1980). What can American manufacturers learn from the Japanese? Iron Age, 223(37), 45, 47, 49-51.

Key Terms: Approaches to QM/Structure and Organization/ Case Histories.

Abstract: The authors discuss Japanese management techniques. Other topics include the use of statistical quality control (SQC) to maintain control of product quality, Dr. Deming's early teachings in Japan, and quality circles. The article also emphasizes the need to understand the basics of quality control before implementing SQC programs or quality circles.

Ishikawa, K. (1984). Quality and standardization: Program for economic success. Quality Progress, 17(1), 16-20.

Key Terms: Approaches to QM/History of QM/SPC/Structure and Organization/Justification and Results/Other (quality analysis, standardization of material and systems).

Abstract: This article emphasizes the importance of combining quality assurance, standardization, and Shewhart's control charts for an effective quality program. Other topics include quality by inspection and company-wide involvement in quality improvement.

Kindlarski, E. (1984). Ishikawa diagrams for problem solving. Quality Progress, 17(12), 26-30.

Key Terms: SPC.

Abstract: The author examines the Ishikawa (fishbone) diagram and its function. The author provides examples of how the Ishikawa diagram can be used for team building and as a tool for visualizing the causes of problems.

Launsby, B. (1984). Why aren't we doing our job? Quality, 23(9), 106,110.

Key Terms: Implementation/Case Histories.

Abstract: This is a brief article concerning the need for implementing quality control to stay competitive. The author demonstrates this concept through examples. He places the responsibility for implementing a quality program on the quality managers and emphasizes that the best method is to combine the theories of Juran, Crosby, and Deming.

Lawler, E. E., III, & Mohrman, S. A. (1985). Quality circles after the fad. Harvard Business Review, 63(1), 64-71.

Key Terms: Structure and Organization/Implementation.

Abstract: The authors discuss different stages in the implementation of a quality circle program. Included in the article is a chart describing associated activities and destructive forces in each stage.

Loeser, E. A. (1983). Management commitment to quality: Rockwell International. Quality Progress, 16(8), 18-21.

Key Terms: Case Histories/Other (mission statement).

Abstract: This article is a discussion of the components which make up the quality philosophy statement at Rockwell International. The author emphasizes that the company's philosophy concentrates on the basics -- functional excellence and functional integration. He then defines and discusses these basics and how they apply to Rockwell International.

Mandel, B. J. (1985). Statistics for contract cost control. Quality Progress, 18(8), 12-15.

Key Terms: SPC/Case Histories.

Abstract: This article describes several sampling techniques used in monitoring government contracts. The use of control charts to monitor contracts is briefly addressed.

Mandel, B. J. (1985). What to teach management about statistics - and how. Quality Progress, 18(1), 16-18.

Key Terms: Training.

Abstract: The author discusses a modular instructional method to management problem solving which emphasizes statistical application. Each of the 28 modules can be presented as an independent topic or they may be integrated into a cohesive program. The author provides a rationale that will help the reader choose between the modular or programmatic approach.

McCabe, W. J. (1985). Improving quality and cutting costs in a service organization. Quality Progress, 18(6), 85-89.

Key Terms: Implementation/SPC/Training/Case Histories/ Justification and Results.

Abstract: In this article, the author discusses the application of SPC to a service organization (IBM, Kingston, NY). When IBM Kingston decided to use control charts to follow administrative processes, it was found that the process of developing charts produced more gains than the interpretation of the final charts by providing management with a different and more thorough description of its process.

McElroy, J. (February 1985). Experimental design hits Detroit. Automotive Industries, 165(2), 48-50.

Key Terms: Approaches to QM/SPC.

Abstract: The author presents a brief introduction to the Taguchi method of experimental design. This methodology employs orthogonal arrays (Latin squares) and linear graphs to reduce designs with hundreds of variables and interactions to a few key relationships. Through the use of formulae and a "recipe book," these key variables can be further analyzed to reduce their variability, resulting in a low cost/quality ratio. An example of an orthogonal array and its linear graph is given but not explained.

Mead, E. F. (March 1985). Building a corporate quality culture: A test case. Quality Progress, 10-13.

Key Terms: Case Histories.

Abstract: The author describes the introduction and implementation of quality management, based on the philosophies of Dr. Deming, at the Medical Manufacturing Division of Tech Plastics. Topics include analysis of customer needs, prevention versus detection, and training in statistical techniques. The Division's long-term commitment to quality has resulted in increases in productivity and cost reductions.

* Metz, E. J. (1984). Managing change: Implementing productivity and quality improvements. National Productivity Review, 3(3), 303-314.

Key Terms: Approaches to QM/Implementation/Structure and Organization/Justification and Results.

Abstract: The author discusses patterns of quality management implementation in three types of programs: productivity/quality, quality of work life, and organizational redesign.

Mozer, C. (1984). Total quality control: A route to the Deming Prize. Quality Progress, 17(9), 30-33.

Key Terms: SPC/Structure and Organization/Case Histories/ Justification and Results.

Abstract: The author examines a six-step approach to total quality control employed by two recipients of the Deming Prize for outstanding improvement in quality control. This approach yielded dramatic increases in productivity, profit, and market share.

Pavsidis, C. (1983). Zero defect programs thriving in Japan. Quality Progress, 16(5), 34-35.

Key Terms: Approaches to QM/History of QM/SPC.

Abstract: The author of this article discusses Japanese zero defect (ZD) programs (not the same as the U.S. zero defects programs of the sixties). As defined by the Japanese Management Association, the ZD programs "...continuously motivate employees so that each one will be made to exercise care and develop ideas in order to eliminate work defects and bring about higher customer satisfaction by means of greater product and service reliability." Other topics include the differences between quality circles and ZD and the role of statistical quality control in quality circles, total quality control, and jisu konri (a combination of quality circles and zero defects).

Pavsidis, C. (1984). Total quality control: An overview of current efforts. Quality Progress, 17(9), 28-29.

Key Terms: Structure and Organization/Case Histories/ Justification and Results.

Abstract: This article is the result of a review of 20 total quality control (TQC) programs. The author found six stages that were common to most of the attempts at TQC. These stages are: (1) the setting down of specific company (division) objectives and goals, (2) commitment of time and resources, (3) team effort, (4) use of pilot program, (5) use of a person or persons having stature to implement and facilitate the activities, and (6) establishment of a foundation for expanding the activity. He then briefly discusses and defines each of these stages.

Pennucci, N. J. (1983). Statistical in-process control. Quality Progress, 16(1), 32-34.

Key Terms: Training/SPC.

Abstract: The author of this article discusses several aspects of statistical process control, including in-process control, attribute charts, and X-bar charts and R-charts. Other topics include inspection plans and problem prevention.

Pipp, F. J. (1983). Management commitment to quality: Xerox Corporation. Quality Progress, 16(8), 12-17.

Key Terms: Approaches to QM/Justification and Results.

Abstract: This author presents the history of Xerox Corporation's Reprographic Business Group quality control program. This program, which combines elements of Deming, Juran, and Crosby quality management philosophies, enabled the Fugi-Xerox subsidiary to win the Deming Prize.

Priestman, S. (1985). SQC and JIT: Partnership in quality. Quality Progress, 18(5), 31-34.

Key Terms: Implementation/SPC/Case Histories/Other (just-in-time).

Abstract: The author interviews managers from Hewlett-Packard's Computer Systems Division about their just-in-time (JIT) system of inventory. The advantages of a program which combines JIT and statistical process control also are discussed.

Ryan, J. M., & Wong, H. (1984). Tiered data systems for statistical quality control. Quality Progress, 17(9), 22-24.

Key Terms: SPC.

Abstract: The author of this article presents a plan for the organization of process control data into two tiers. The first (Level I), an umbrella data base, contains flow information to monitor what is happening in the manufacturing process. The second tier (Level II) contains process data which are more specific and problem-oriented.

Scanlon, F., & Hagan, J. T. (1983). Quality management for the service industries - Part I. Quality Progress, 16(5), 18-23.

Key Terms: Case Histories/Approaches to QM.

Abstract: This is part one of a two-part article in which the authors discuss quality management in the service industry. Topics include management commitment, setting quality standards, and measuring performance. A case history of Japan Airlines' successful QM program is presented.

Scanlon, F., & Hagan, J. T. (1983). Service industry quality management - Part II. Quality Progress, 16(6), 30-35.

Key Terms: SPC/Case Histories.

Abstract: This is part two of a two-part article in which the authors discuss elements of a system to improve quality, such as sampling, process analysis, and analysis of results. Also discussed is the implementation and managing of a quality improvement program.

Scherkenbach, W. W. (1985). Performance appraisal and quality: Ford's new philosophy. Quality Progress, 18(4), 40-46.

Key Terms: Approaches to QM/History of QM/Justification and Results.

Abstract: In this article, the author discusses the liability created by the use of performance appraisals in the quality organization and discusses alternatives to employee evaluation.

Schilling, E. G. (1984). The role of statistics in the management of quality. Quality Progress, 17(8), 32-35.

Key Terms: History of QM/SPC.

Abstract: The author discusses the "how and why" of Dr. Shewhart's control charts and statistical quality control philosophy.

Schonberger, R. J. (1984). Just-in-time production - the quality dividend. Quality Progress, 17(10), 22-24.

Key Terms: SPC/Justification and Results/Other (just-in-time).

Abstract: Just-in-time (JIT) inventory is a system of managing production resources. Reduction in lot size is a big step towards JIT. From this reduction, problems can then be discovered quickly, simple problems can be solved on the spot, large nonconforming lots can be avoided, and data collection can be simplified. JIT also reduces the need for large storage facilities, thus freeing space for other, more productive use. Various company successes from using JIT are listed, including the program from Hewlett-Packard.

Sentell, G. D. (Ed.). (1984). Quality management: Concepts and applications. Survey of Business, 19(3).

Key Terms: SPC/Case Histories/Implementation.

Abstract: This article provides a focused review of statistical process control (SPC) at several well-known U.S. corporations, such as General Motors, Federal Express, and the Nashua Corporation. Topics include: quality control, quality monitoring programs, and components of change in the management system. Case studies of SPC at Buick, ALCOA, McCord Winn, Inc., and Eastman Chemical Division are presented.

Skinner, W. (1974). The focused factory. Harvard Business Review, 52(3), 113-121.

Key Terms: Approaches to QM/Other (sociotechnical analysis, mission statement).

Abstract: The author of this paper emphasizes the need to develop a consistent organizational mission statement. Any organization has many competing goals and purposes: quality, production control, productivity, and least cost. If an organization tries to satisfy all of these goals, it may do none of them well. Most organizations emphasize productivity and least cost, but these may not be the keys to competitive success. Consequently, the mission of the organization must be precisely stated and well-focused.

Smallwood, H. M. (1944). Quality control in manufacture of small arms ammunition. Mechanical Engineering, 66(3), 179-182.

Key Terms: History of QM/Implementation/SPC/Case Histories.

Abstract: The results of the initial application of quality control indicated that in a substantial number of areas statistical control was not obtained. The author feels that this failure was due to limits of time and freedom of movement by wartime conditions of manufacture. Despite this failure, the company obtained benefits through the use of statistical quality control and planned to continue implementation.

Stalter, J. (1984). Process in control for conformance. Quality Progress, 17(4), 18-21.

Key Terms: Implementation/SPC/Training/Case Histories.

Abstract: The author describes a successful 3-year quality conformance program at Elco industries (producer of metal components). The philosophy and benefits of this program are discussed.

State of quality in the U.S. today: A. V. Feigenbaum, Joseph M. Juran, Philip C. Crosby. (1984). Quality Progress, 17(10), 32-37.

Key Terms: Approaches to QM/SPC.

Abstract: Feigenbaum, Juran, and Crosby discuss several quality issues. Topics include management participation, the use of statistical quality control techniques to improve product quality, and education in quality.

Taguchi method comes to computers. (1985). Automotive Industries, 165(10), 97.

Key Terms: Approaches to QM/SPC.

Abstract: This article is a review of a software package that implements the Taguchi method of experimental design. This package runs on 264k IBM microcomputers and compatibles.

Taylor, J. C. (1975). The human side of work: The socio-technical approach to work system design. Personnel Review, 4(3), 17-22.

Key Terms: SPC/Other (sociotechnical analysis).

Abstract: The author presents a technical analysis approach to the workplace. The author provides an example of this system including a variance matrix. Although this article does not deal with SPC as such, it details sociotechnical analysis, a tool often employed in the early stages of a quality program.

Thulin, B. (1985). Framework for improvement. Quality Progress, 18(10), 21-25.

Key Terms: Structure and Organization/Case Histories/ Justification and Results.

Abstract: The author presents a case study of the successful quality improvement program at Tenmark Company, MN (producer of hydraulic cylinders).

Torbeck, L. D. (1985). A bibliography for quality in the service industries. Quality Progress, 18(6), 74-83.

Key Terms: Case Histories/Other (bibliography).

Abstract: This article contains a bibliography of articles pertaining to the improvement of quality in service industries (i.e., banking, insurance, telecommunications, health, retailing, etc.).

Tribus, M. (1984). In improving the quality and decreasing the cost of America's defense, is DoD to be part of the solution or part of the problem? National Productivity Review, 3(4), 439-442.

Key Terms: Implementation.

Abstract: Tribus puts forward the observation that the DoD could give industry great incentives to increase the quality of products and service supplied to DoD, thereby causing an overall increase in productivity in industry. In academia, there are very few schools that have courses in quality and productivity. To promote the development of an integrated approach to quality, the DoD is encouraged to base its purchasing method on statistical quality control rather than on inspection.

*Tribus, M., & Hollomon, J. H. (1982). Productivity...Who is responsible for improving it? Agricultural Engineering, 63(7), 10-20.

Key Terms: Approaches to QM/Implementation/Justification and Results.

Abstract: In this article the authors express their concern for the future of the American industry systems of people, machines, and technology. Components of a successful management program for implementation in American companies are discussed.

Tuttle, H. C. (1981). The quality push is on. Production, 87(4), 88-90, 92-94.

Key Terms: Structure and Organization/Case Histories.

Abstract: The author discusses the results of a quality survey from the previous month's issue of Production. Building quality into the process rather than inspecting defects is emphasized. Some of the many companies mentioned are: Pontiac Motor Division of General Motors, TRW's Science and Technology Department, and Ford Motor Company's North American Automotive Operations.

Walter, C. (1983). Management commitment to quality: Hewlett-Packard Company. Quality Progress, 16(8), 22-24.

Key Terms: SPC/Case Histories/Justification and Results.

Abstract: The author of this article provides examples of how an emphasis on quality of product can drive down costs and improve productivity. Two divisions of Hewlett-Packard were used as examples, the Loveland Instrument Division and a joint venture company in Japan--Yokagawa/ Hewlett-Packard (YHP).

Wheelwright, S. C. (1981). Japan - where operations really are strategic. Harvard Business Review, 59(4), 67-74.

Key Terms: Training/Case Histories.

Abstract: This article contrasts Japanese and American management policies in the manufacturing process. Eight areas are discussed: capacity, facilities, vertical integration, production technologies and processes, work force, quality control and product assurance, production planning and materials control, and organization.

Winter, D. (1984). Just-in-time works! Production, 93(1), 42-46.

Key Terms: Case Histories/Justification and Results.

Abstract: This article is a review of the quality management programs of several companies (General Electric, General Motors - Buick Division, Harley-Davidson) using just-in-time (JIT) inventory. A discussion of some of the benefits and problems in setting up a JIT program is included.

Professional Magazines

Adams, T. (April 1984). Weirton Steel bets on quality. Quality, pp. 23-25.

Key Terms: Case Histories.

Abstract: The author discusses the quality management program at Weirton Steel, a former division of National Steel. Weirton's current three-fold quality management program (employee involvement, product cleanliness, and statistical quality control) and future implementation plans are discussed.

Barbour, W. B. (August 1984). Step-by-step SPC. Quality, pp. 14-15.

Key Terms: Training/Structure and Organization/ Justification and Results.

Abstract: This article is a summary of the quality management program at Machined Products Group, Simpson Industries (provides contract machining for construction and farm equipment). The author lists who received training and what areas the training covered. Barbour briefly discusses several steps which the company considered key to the training process. These steps are: (1) motivation and attitude, (2) relevance, (3) individuation, (4) structure, (5) feedback and reinforcement, and (6) active participation and practice. In conclusion, the author mentions some of the results that are evident after only one year of implementing SPC.

Beels, G. J. (April 1985). Strategy for survival. Quality, pp. 16-18, 20, 22.

Key Terms: SPC/Case Histories/Justification and Results/ Other (just-in-time).

Abstract: Through an interview, V. L. Beals, CEO of Harley-Davidson Motorcycle Company, discusses the quality management program installed there. The training for this program was obtained from the University of Tennessee, Knoxville. Logistics and results of the training also are discussed.

Bothe, D. R., & Marvin, C. G. (March 1985). The group control chart. Quality, pp. 53-54.

Key Terms: Training.

Abstract: The author briefly introduces the use of group control charts as an alternative to X-bar and R-charts for certain production operations. The rationale, theory, and the statistical construction of group control charts also are discussed.

Dr. W. Edwards Deming - The statistical control of quality: Part 1. (February 1980). Quality, pp. 38-41.

Key Terms: Approaches to QM.

Abstract: This is the first part of a two-part article in which the key points from an interview with Dr. W. Edwards Deming are discussed. The main topic of this initial interview was the early history of statistical quality control in this country and in Japan. Dr. Deming also discusses the acceptance of statistical quality control in both countries as well as his involvement in teaching statistical quality concepts to the Japanese.

Dr. W. Edwards Deming - The statistical control of quality: Part 2 (March 1980). Quality, pp. 34-36.

Key Terms: Approaches to QM.

Abstract: This is the second of a two-part article in which the key points from an interview with Dr. W. Edwards Deming are discussed. Dr. Deming presents his views regarding the current status and future of quality control and business in both the U.S. and Japan.

Friesecke, R. F. (July-August 1983). The quality revolution: A challenge to management. Managerial Planning, pp. 7-9, 26.

Key Terms: Approaches to QM/Justification and Results.

Abstract: The author discusses how a quality management program is influenced by single suppliers, inventories, and attitudes of managers and workers.

Hart, R. F. (June 1984). Steel by Shewhart. Quality, pp. 66-69.

Key Terms: Case Histories.

Abstract: This author gives an example of how a "typical steel mill" used SPC techniques to correct serious problems in their cold-rolled steel process. Also included is an example of the use of the Shewhart control chart to locate and correct major process problems.

High-tech gaging and SPC. (January 1985). Quality, pp. 19-20.

Key Terms: Case Histories/Justification and Results.

Abstract: The author of this article examines the quality management system at Morse Controls (Hudson, OH), which manufactures cable and control systems for various types of vehicles. The benefits of the SPC portion of the system are outlined.

Hoover-Siegel, L. (November 1982). What's new at Ford? More than a model change. Plastics World, pp. 36-40.

Key Terms: Implementation.

Abstract: The author of this article talks about the implementation of the quality management program at Ford Motor Company's Saline, Missouri plant.

Hopper, K. (Summer-Fall 1982). Creating Japan's new industrial management: The Americans as teachers. Human Resource Management, pp. 13-34.

Key Terms: Approaches to QM/History of QM/Implementation.

Abstract: The author gives a historical account of the work and influence of three American engineers (Frank A. Polkinghorn, Charles W. Protzman, and Homer M. Sarasohn) in Japan's emergence as a major industrial power through the teaching and application of traditional American management practices.

Houston, J. (May 1984). Start small: Make a success out of statistical process control (SPC). Quality, pp. 42-45.

Key Terms: Implementation/Justification and Results.

Abstract: This article is an excerpt from a forthcoming book by Datamyte Corporation on data acquisition and statistical process control. It describes a five-point, "start small" approach to implementing an SPC program. The five steps are: (1) start with a pilot program, (2) select just a few characteristics, (3) train a group involved in statistics, (4) adapt gauging for variability, and (5) document your results.

Inglesby, T. (December 1984). Good enough...isn't. Quality, pp. 20-24.

Key Terms: Approaches to QM/Implementation/Training/ Case Histories.

Abstract: The author discusses the implementation of a quality management program (McDonnell-Douglas Astronautics Company) based on the philosophies of J. M. Juran. Through the use of computer-aided machines for measuring and inspection, new levels of quality were reached that permitted less inspection and rework. Top management was actively involved in the quality improvement effort.

Inner Views: Dr. W. Edwards Deming. (1981). Military Science and Technology, pp. 26-33, 78.

Key Terms: SPC/Approaches to QM.

Abstract: This interview with Dr. Deming discusses his philosophy of statistical process control. Topics include reasons for implementation, the responsibilities of top management, and the importance of personnel training.

Juran, J. M. (November 1978). Japanese and Western quality: A contrast in methods and results. Management Review, pp. 26-28, 39-45.

Key Terms: Approaches to QM/History of QM.

Abstract: Juran uses the color television industry as an example to point out the differences in Japanese and Western management techniques. He discusses quality planning, product design, vendor relations, quality organization, and employee relations.

Juran, J. M. (June 1981). Product quality - A prescription for the West. Part I: Training and improvement programs. Management Review, pp. 8-14.

Key Terms: Approaches to QM/History of QM/Implementation/ Training.

Abstract: This is part one of a two-part article. Dr. Juran discusses how the Japanese gained their present quality leadership through massive quality-related training programs and annual quality improvement programs.

Juran, J. M. (July 1981). Product quality - A prescription for the West. Part II: Upper-management leadership and employee relations. Management Review, pp. 57-61.

Key Terms: Approaches to QM/History of QM/Implementation/ Other (upper management, mission statement).

Abstract: This is part two of a two-part article. Dr. Juran discusses the responsibilities of upper management in implementing quality management and the development of a quality mission statement. Included is a discussion of common managerial pitfalls in the implementation of total quality control.

Lachance, R. W. (October 1985). Quest for quality. Quality, pp. 67-68.

Key Terms: Structure and Organization/Case Histories.

Abstract: This article describes the quality improvement program at General Electric, Somersworth, NH. The program, called QUEST (QUality, Excellence, Service, Technology), includes 39 project teams involved in the improvement of both manufacturing and administrative work processes. A short description of the key components of QUEST is given.

Laurito, A. D. (February 1985). Quality gains with SPC. Quality, pp. 61-63.

Key Terms: Approaches to QM/SPC/Case Histories.

Abstract: The author presents an example of a quality improvement project at Bourns Trimpot Division, California (electronic components). The case history includes "before" and "after" control charts, as well as the 14-step approach to the control of quality that the company implemented.

Meyer, G. W., & Stott, R. G. (Spring 1985). Quality circles: Panacea or Pandora's box. Organizational Dynamics, pp. 34-50.

Key Terms: Case Histories/Structure and Organization.

Abstract: The authors present two case studies of manufacturing organizations that tried, without success, to implement a quality circle program. A brief history of the organizations is presented, emphasizing the problems encountered during implementation. The authors then provide three analytic perspectives for understanding experiences with QC programs and integrate their perspectives by looking at quality circle effectiveness.

Nelson, C. A. (October 1984). The road to quality improvement. Quality, pp. 53-54.

Key Terms: Training/Case Histories/Justification and Results.

Abstract: The author of this article discusses the quality management program at the 3M's Decorative Products Division. The five phases of the Division's quality management program combine the approaches of Deming, Juran, and Crosby. Other topics include SPC training, vendor audits, white collar quality improvements, and the cost of quality.

Quality in the balance. (1983, June). Quality, pp. 57-58.

Key Terms: Implementation/Case Histories.

Abstract: This article discusses the quality management program at the Ohaus Scale Company in Florham Park, NJ. The author describes three areas involved in the program: (1) employee flexibility, (2) quality function, and (3) quality planning. He also presents a brief side note about the company's quality philosophy.

Williams, L. (January 1984). For managers only: A do-it-yourself statistical process control training program. Quality, pp. 61-63.

Key Terms: SPC/Training/Case Histories.

Abstract: The author of this article discusses the construction and use of control charts, specifically P-charts, X-bar charts, and R-charts.

Wilson, J. D. (December 1983). Logic...not magic. Quality, pp. 60-61.

Key Terms: Implementation/Case Histories/Justification and Results.

Abstract: This article presents a case study of a quality management program implemented by Printronix, Inc. (a computer printer manufacturer). The author states that through the implementation of statistical quality control the company was able to considerably increase productivity and decrease scrap. A discussion of barriers and benefits is also included.

Wurster, R. (January 1985). Quality is applause...after the performance. Quality, pp. 25-28.

Key Terms: Implementation/Training/Case Histories.

Abstract: The author presents the key components of the quality improvement program at Hyster, Portland, OR (lift truck manufacturer). Topics include just-in-time inventory, measures of quality, training elements, vendor relations, and continuous improvement.

* AT&T Technologies. (1956). Statistical quality control handbook. Charlotte, NC: Author.

Key Terms: SPC/Training.

Abstract: AT&T compiled this handbook to be used by Western Electric's personnel as a guide to statistical quality control. There are four sections: (1) fundamental principles, (2) engineering applications, (3) shop applications, and (4) inspection procedures. The book is written in nontechnical language and has many charts and tables for reference.

Crosby, P. B. (1979). Quality is free. New York: McGraw-Hill Book Company.

Key Terms: Approaches to QM/Implementation/SPC.

Abstract: In the first part of this book the author discusses the elements of a quality improvement program, including the cost of quality, the role of management, and common obstructions to implementations. In the second part, he illustrates these concepts using case studies.

Deming, W. E. (1978). Making things right. In J. M. Tanur, F. Mosteller, W. H. Kruskal, R. F. Link, R. S. Pieters, G. R. Rising, & E. L. Lehmann (Eds.), Statistics: A guide to the unknown (2nd ed.). San Francisco: Holden-Day, Inc.

Key Terms: SPC.

Abstract: Dr. Deming discusses statistical quality control using several examples from industry. The emphasis of this article is on detecting trends and measuring common causes.

Deming, W. E. (1982). Quality, productivity, and competitive position. Cambridge, MA: Center for Advanced Engineering Study, MIT.

Key Terms: Approaches to QM/History of QM.

Abstract: This book contains a comprehensive coverage of Dr. Deming's philosophy of quality management. Topics discussed in the 18 chapters include the 14 points of management commitment, quality management in Japan, common and special causes, and control charts. Graphs and case studies are used to illustrate the concepts discussed.

Fukuda, R. (1983). Managerial engineering. Stamford, CT: Productivity, Inc.

Key Terms: Approaches to QM/Training.

Abstract: This book investigates management techniques for increasing productivity and quality. Topics include principles of managerial engineering, reliable work, cause-and-effect diagrams, and stockless production.

Grant, E. L., & Leavenworth, R. S. (1980). Statistical quality control. New York: McGraw-Hill.

Key Terms: SPC/Training.

Abstract: This book presents the statistical aspects of quality management in a textbook format and is aimed for supervisors, engineers, and management. Topics include process control, sampling, control charts, and acceptance sampling plans. The latter two received the most coverage.

Growth Opportunity Alliance of Greater Lawrence (GOAL). (1983). Diseases that must be cured (Spring Compendium, pp. 6-17). Lawrence, MA: Author.

Key Terms: Approaches to QM.

Abstract: In this article, the author discusses the "7 deadly diseases"--the inhibitors to productivity in industry and business.

Growth Opportunity Alliance of Greater Lawrence (GOAL). (1983). An overview: Dr. Deming's method for quality and productivity. Lawrence, MA: Author.

Key Terms: Approaches to QM/Implementation/Case Histories.

Abstract: This book was written to accompany a one-day seminar on W. E. Deming's quality management philosophy and methods. Topics include Dr. Deming's 14 points of management commitment, the 7 deadly diseases, and implementation examples.

Growth Opportunity Alliance of Greater Lawrence (GOAL). (October 14, 1983). The transformation of American industry by Dr. W. Edwards Deming. America responds: Articles and examples (Vol. 1). Lawrence, MA: Author.

Key Terms: Approaches to QM/SPC.

Abstract: This book contains several articles on Deming's methods and philosophy as well as several illustrative case histories. Contributors include Myron Tribus, W. J. Latzko, R. F. Friesecke, and R. King.

Hatakeyama, Y. (1985). Manager revolution! Cambridge, MA: Productivity Press.

Key Terms: Approaches to QM.

Abstract: In this book the complexities of management strategies are discussed. Topics include the division of labor between predecessors and successors, personnel selection, communication, and the human aspect of managing.

Ishikawa, K. (1976). Guide to quality control. Tokyo: Asian Productivity Organization.

Key Terms: SPC/Training.

Abstract: This book is a self-paced textbook that introduces the seven basic graphic methods, namely, flow charts, cause-and-effect diagrams, Pareto diagrams, histograms, scatter diagrams, run charts, and control charts. Other topics include the use of binomial probability paper and sampling.

Ishikawa, K. (1985). What is total quality control? The Japanese way. Englewood Cliffs, NJ: Prentice-Hall.

Key Terms: Implementation/SPC/Structure and Organization/ Justification and Results.

Abstract: The components of total quality control (TQC) are discussed in this book. Topics include Japanese quality control, quality assurance, management responsibilities in TQC, quality circles, and statistical methods.

Juran, J. M. (1981). Juran on quality improvement workbook. New York: Juran Enterprises, Inc.

Key Terms: Approaches to QM/Implementation/SPC/Training.

Abstract: This workbook accompanies the "Juran on quality improvement" videotape series. It contains 16 sections that correspond to the 16 topics/tapes.

Juran, J. M., Gryna, F. M., & Bingham, R. S. (Eds.). (1974). Quality control handbook (3rd ed). New York: McGraw-Hill.

Key Terms: Approaches to QM/SPC.

Abstract: This edited book combines 52 articles from experts in statistics, management techniques, quality control techniques, and consumer relations.

Ott, E. R. (1975). Process quality control. New York: McGraw-Hill.

Key Terms: SPC/Training.

Abstract: The author examines a number of approaches to trouble-shooting and process improvement in manufacturing. Topics include the seven basic graphic methods, principles of statistical quality control, and experimental design.

Pava, C. (1983). Managing new office technology. New York: Free Press.

Key Terms: Implementation/Structure and Organization/ Other (sociotechnical analysis).

Abstract: The author discusses the use of sociotechnical design in offices for both routine and nonroutine work. Although it doesn't discuss SPC per se, the sociotechnical analysis is often used in the early phases of QM programs.

Peach, P. (1967). Quality control for management. Englewood Cliffs, NJ: Prentice-Hall.

Key Terms: SPC.

Abstract: Apart from one chapter on the background of statistical quality control, this book deals with statistical aspects of quality management. It is written at a relatively nontechnical level. Topics include probability, sampling, X-bar charts and R-charts, and measurement.

Ritter, D. S., & Willis, D. C. (Spring 1983). Basic graphical techniques. In GOAL (Eds.), An overview: Dr. Deming's methods for quality and productivity (pp. 33-51). Lawrence, MA: Growth Opportunity Alliance of Greater Lawrence (GOAL).

Key Terms: SPC.

Abstract: This chapter outlines the seven basic graphic techniques: flow charts, Pareto diagrams, histograms, run charts, scatter diagrams, control charts, and cause-and-effect diagrams. Definitions, illustrations, and examples of each technique are provided.

Rockwell International Corporation. (1983). The attribute charts for statistical control of manufacturing processes. Pittsburgh, PA: Author.

Key Terms: SPC/Training.

Abstract: This is a how-to booklet on the computation and construction of control charts for proportion conforming (p), proportion nonconforming (np), and C- and U-charts.

Rockwell International Corporation. (1983). The X-bar - R chart for statistical control of manufacturing processes. Pittsburgh, PA: Author.

Key Terms: Training/SPC.

Abstract: This is a how-to booklet for the computation and construction of X-bar and R-charts.

Rogers Corporation. (1982). TQC handbook - basic statistical concepts. Rogers, CT: Author.

Key Terms: SPC/Training.

Abstract: This handbook is a guide to implementing and maintaining total quality control (TQC). It includes chapters on variation, probability, causes and measurement of variability, process stability, X-bar and R-charts.

Shewhart, W. A. (1980). Economic control of quality of manufactured product (republication). Milwaukee: American Society for Quality Control.

Key Terms: Approaches to QM/Implementation/SPC/Training.

Abstract: Shewhart presents a seven-part book in which he discusses a scientific basis for attaining economic control of manufactured products. He thoroughly defines and explains statistical quality control using postulates and advanced statistical formulas. Each step in the process of statistical control is defined and elaborated upon, with examples.

Wheeler, D. J. (1983). Four possibilities. Knoxville: Statistical Process Controls, Inc.

Key Terms: QM.

Abstract: This pamphlet defines and discusses four stages of work process growth. The four stages are (1) ideal state, (2) threshold state, (3) brink-of-chaos, and (4) chaos.

Noble, C. E. (1983). Implementing statistical methods for productivity and quality. Washington DC: George Washington University.

Key Terms: Approaches to QM/Implementation/SPC/ Case Histories.

Abstract: This manual accompanies a seminar of the same name. The focus of this manual is to present specific quality principles and techniques and to apply them to a broad range of problems. Topics include Dr. Deming's 14 points of management commitment, the computation and construction of control charts, variation, and data collection.

Tektronix Corporate Quality Assurance. (1983). Applied statistics for engineers seminar. (Spring). Beaverton, OR: Author.

Key Terms: SPC/Training.

Abstract: This manual provides a basic introduction to statistics. Topics include descriptive statistics, probability, inference, process capability and control, and statistical tolerances.

Tektronix Corporate Quality Assurance. (1983). Fundamentals of statistical quality control seminar. Beaverton, OR: Author.

Key Terms: SPC/Training.

Abstract: This seminar manual consists of eight sections with corresponding workshop sections that provide a basic introduction to statistical quality control. Topics include how to describe work processes, variation, basic graphic techniques, sampling, control charts, attribute charts, the benefits of SQC, and a "statistical tool kit."

Conway, W. E. (May 26, 1981). The productivity secret. Paper presented at the meeting of the Brazilian Association of Training and Development, Rio de Janeiro, Brazil.

Key Terms: Case Histories/SPC.

Abstract: The author discusses how the use of statistical quality control at Nashua Corporation has resulted in an increase in productivity and decrease in cost. The Nashua Corporation is a Fortune 500 manufacturer of coated papers, office copy systems, and other high technology products.

Deming, W. E. (April 14, 1983). Transformation of management needed: Must remove deadly obstacles. Paper presented at the George S. Eccles Distinguished Lecture Series, College of Business, Utah State University, Logan, UT.

Key Terms: Approaches to QM.

Abstract: Dr. Deming lists and discusses the "seven deadly diseases," some obstacles to good management, and the continuous improvement of quality in a company.

Golomski, W. A. (June 3, 1983). Quality control in administration and applications. Paper presented at Statistics Product Design and Quality Control Seminar, University of Wisconsin - Madison. Chicago: W. A. Golomski & Associates.

Key Terms: SPC/Case Histories/Justification and Results.

Abstract: In this paper, the author discusses some practical applications of total quality control principles based on case studies. Topics include: invoice processing, cost accounting, data processing, drafting, bus line operation, insurance, banking, government, research and development, and distribution. Some of the companies involved are the Spurt Auto Parts Company, Kuir Beef Company, and the U.S. Government.

Haller, H. S. (1983). Institutionalizing the Deming philosophy at Lone Star Steel. Bay Village, OH: Statistical Studies, Inc.

Key Terms: Approaches to QM/Implementation/SPC/Training/ Case Histories.

Abstract: The author of this article examines the quality management program at Lone Star Steel. The case study follows the implementation of the program (it uses a Deming approach) and documents its pitfalls and gains.

Scherkenbach, W. W. (March 1983). How to train employees in statistical techniques. Paper presented at the ASQC 24th Annual Quality Clinic, Knoxville, TN.

Key Terms: Approaches to QM/SPC.

Abstract: The author of this article discusses Dr. Deming's 14 points of management commitment in the context of an operations philosophy. Control charts, histograms, and several other statistical tools are related to each point where appropriate.

Scherkenbach, W. W. (1983). The process of continuing improvement. Paper presented at the Conference for Managing Systems of People and Machines for Quality and Productivity, Boston, MA.

Key Terms: SPC.

Abstract: The author defines and discusses three building blocks of continuous quality improvement--data collection, control, and capability. Illustrations of these three building blocks are included.

Scherkenbach, W. W. (1984). The process of never ending improvement. Paper presented at the Conference for Managing Systems of People and Machines for Quality and Productivity, San Diego, CA.

Key Terms: SPC.

Abstract: The author defines and discusses data collection, process control, and process capability in relation to product quality control through the use of practical examples.

Siegel, J. C. (1982). Statistical management methods to improve quality, productivity, and competitive position: A synopsis of remarks. Paper presented at the Industrial Liaison Program Symposium. Cambridge, MA: MIT.

Key Terms: SPC/Case Histories/Approaches to QM.

Abstract: This article illustrates each of Ford Motor Company's quality management philosophies by relating each of Dr. Deming's 14 points of management commitment to Ford's corporate goals.

* Siegel, J. C. (1982). Managing with statistical methods (SAE Technical Paper Series No. 820520). Warrendale, PA: SAE.

Key Terms: SPC.

Abstract: The author discusses the use of statistical techniques as tools to improve quality and productivity with emphasis on the calculation and interpretation of the control chart.

Terninko, J. (1983). Statistical applications in automotive urethane molding (SAE Technical Paper Series No. 830140). Warrendale, PA: SAE.

Key Terms: SPC/Case Histories.

Abstract: The author presents several examples of statistical process control in the manufacture of automotive molding parts with an emphasis on the use of experiments designed to achieve process control.

* Tribus, M. (April 1982). Deming's way. Cambridge, MA: Center for Advanced Engineering Study, MIT.

Key Terms: Approaches to QM/History of QM.

Abstract: This article presents an overview of Dr. Deming's management philosophy. Topics include Dr. Deming's effect on Japan's industry after WW II and his efforts in the U.S. to reinstate statistical quality control.

* Tribus, M. (June 1983). Reducing Deming's 14 points to practice. Cambridge, MA: Center for Advanced Engineering Study, MIT.

Key Terms: Apprcaches to QM/Structure and Organization/ Justification and Results.

Abstract: The author surveys several Deming Prize recipients and discusses the implementation of Dr. Deming's 14 points of management commitment within each of these companies.

Tribus, M. (1983). Creating the quality company through company wide quality control. Cambridge, MA: Center for Advanced Engineering Study, MIT.

Key Terms: Approaches to QM.

Abstract: The author discusses some corporate assets that have a great impact on quality, namely, people, materials and machines, processes, information, organization, and policies and practices.

* Tribus,M. (1983). Managing to survive in a competitive world. Paper presented at the meeting of the Society of Automotive Engineers, Detroit, MI.

Key Terms: Approaches to QM.

Abstract: By invoking new approaches to management, the Japanese have been able to gain the competitive edge. What is required now by American managers is a different way of thinking about their jobs. Tribus discusses those parts of Deming's 14 points for management that seem to challenge the currently held beliefs of many managers.

* Tribus, M. (1983). Deming's redefinition of management. Cambridge, MA: Center for Advanced Engineering Study, MIT.

Key Terms: Approaches to QM.

Abstract: Tribus feels that a useful approach in defining management's job is to determine the essential responsibilities that a manager may not delegate. Using Deming's 14 points for management, Tribus begins the task of defining the job of a manager. Tribus discusses each of the 14 points in terms of what the manager must do and how the manager must do it.

Tribus, M. (July 20, 1983). Improving productivity in government services. Cambridge, MA: Center for Advanced Engineering Study, MIT.

Key Terms: Approaches to QM.

Abstract: Dr. Tribus discusses the definition of a manager's job, quality performance, and the impact of managing by objective.

Tribus, M. (1983). Statement on quality. Paper presented at the meeting of the National Society of Professional Engineers, Washington, DC.

Key Terms: Approaches to QM.

Abstract: Dr. Tribus discusses productivity in the U.S. and presents some case histories of companies in Japan that made the decision to work towards productivity using statistical process control.

Tribus, M. (October 15, 1984). Progress report. Report to friends and founders of AQPI. Cambridge, MA: Center for Advanced Engineering Study, MIT.

Key Terms: History of QM/Implementation/Other (nationwide organizations for SPC).

Abstract: This report describes the history and progress of the American Quality and Productivity Institute (AQPI). It includes AQPI's goal statement and an activity and milestone chart. AQPI's efforts for education, organization, and linkage with other organizations are described.

Tribus, M. (February 1985). Creating the quality service company. Cambridge, MA: Center for Advanced Engineering Study, MIT.

Key Terms: Approaches to QM/Implementation/SPC/Training/ Case Histories/Justification and Results.

Abstract: This article discusses how Deming's 14 points of management commitment can apply to a service industry. The company used is a fictional newspaper publishing company. The importance of a clear statement of purpose is discussed as well as management commitment and process improvement.

Tribus, M., & Tsuda, Y. (October 1983). Creating the quality company. Cambridge, MA: Center for Advanced Engineering Study, MIT.

Key Terms: Approaches to QM/Implementation/SPC/Training/ Structure and Organization/Justification and Results.

Abstract: The authors discusses five factors of a Deming quality management program. The five factors are (1) establishing a clear statement of purpose, (2) understanding the role of quality, (3) changing manager roles, (4) acquiring new skills and capabilities, and (5) implementing change.

Vardeman, S., & Cornell, J. A. (August 1985). A partial inventory of the statistical literature on quality and productivity. Unpublished manuscript, American Statistical Association.

Key Terms: SPC/Other (bibliography).

Abstract: This annotated bibliography provides an inventory of statistical literature on quality and productivity. It encompasses a wide variety of books, journal articles, case studies, and audio-visual materials. The article also lists journals, review articles, and bibliographies about or related to the statistical aspects of quality and productivity.

Popular Magazines

Crawford-Mason, C. (September 8, 1980). 'Made in Japan' is no joke now, thanks to Edwards Deming: His new problem is 'Made in U.S.A.' People, pp. 77, 80, 82.

Key Terms: Approaches to QM/History of QM/Implementation/ SPC/Justification and Results.

Abstract: The author discusses Dr. Deming's involvement with Japan's quality improvement efforts, what it has meant to Japanese workers, and key issues pertaining to statistical quality control.

Deming, W. E., & Gray, C. S. (July 20, 1981). Japan: Quality control and innovation (special advertising section). Business Week, pp. 18-44.

Key Terms: Approaches to QM/Structure and Organization/ Other (TQC).

Abstract: Dr. Deming's philosophy of quality management is discussed. The authors also discuss total quality control (TQC), a Japanese company-wide quality control concept.

DeMott, J. S. (March 26, 1984). Manufacturing is in flower. Time Magazine, pp. 50-52.

Key Terms: Case Histories.

Abstract: The author discusses an upswing in U.S. manufacturing. Case histories of several companies now using quality control methods espoused by Deming, Juran, and Crosby (AT&T, Apple Computer, and General Electric) are presented.

Halberstam, D. (July 4, 1984). Yes we can! Quality: What we can learn from the American who taught Japan. Parade Magazine, pp. 4-7.

Key Terms: SPC/Approaches to QM.

Abstract: The author provides us with an introduction to Dr. Deming and his philosophy of statistical process control. Topics of discussion include Dr. Deming's work in Japan and the increasing interest in Deming and quality control in the U.S.

In quest of quality. (March 26, 1984). Time Magazine, p. 52.

Key Terms: Approaches to QM/History of QM.

Abstract: The author presents a brief biography of Philip B. Crosby. It discusses his involvement in quality improvement, his quality college, and his publications.

Juran Institute, Inc. (Eds.). (November 1983). IMPRO 83 (special issue on proceedings of annual conference on quality improvement). The Juran report 2.

Key Terms: Case Histories.

Abstract: This issue of The Juran Report is dedicated to case studies of quality management in both manufacturing and non manufacturing areas.

Main, J. (April 18, 1983). Ford's drive for quality. Fortune, pp. 62-64, 66, 70.

Key Terms: Approaches to QM/History of QM/Implementation/ Case Histories/Justification and Results.

Abstract: The author describes the quality management program at the Ford Motor Company's Louisville plant. The author discusses the changes that took place to improve quality, atmosphere, and workers' attitudes.

Main, J. (June 25, 1984). The curmudgeon who talks tough on quality. Fortune, pp. 118-122.

Key Terms: Approaches to QM/SPC/Case Histories.

Abstract: In this article, the author presents a profile of Dr. W. Edwards Deming. A brief discussion on the use of statistical methods in business is included.

Making money - and history - at Weirton. (November 12, 1984). Business Week, pp. 136, 138, 140.

Key Terms: Approaches to QM.

Abstract: In this article the author discusses the turn-a-round in profit and changes in management policies that occurred when Weirton Steel Company (Weirton, WV) instituted an employee stock ownership plan that got the employees directly involved in the company's survival.

Mann, N. R. (February 1984). Profile: Dr. W. Edwards Deming. Road and Track, pp. 14-15.

Key Terms: SPC/Approaches to QM.

Abstract: The author presents a brief history of Dr. Deming's early work in statistical process control, beginning with his work at the U. S. Dept. of Agriculture and ending with his post-WW II work with the Japanese.

Meyer, M. R., Dahlby, T., Lewis, D., & Bailey, E. (July 2, 1984). A paper tiger? Newsweek, pp. 28-33.

Key Terms: Approaches to QM.

Abstract: The author discusses problems encountered when Western industries attempt to select and implement Japanese methods of quality management.

Parker, S. (Spring 1984). Dr. Deming: Quality guru. The Friendly Exchange, pp. 44-45.

Key Terms: Approaches to QM/Justification and Results.

Abstract: This article is a brief overview of the development of quality management in Japan and the influence of Dr. W. Edwards Deming. The author presents a brief history of Dr. Deming and also emphasizes his quality management philosophy. Dr. Deming's views about the future of quality management and industry in the U.S. are also discussed.

Quality: The U.S. drives to catch up. (November 1, 1982). Business Week, p. 69.

Key Terms: Approaches to QM.

Abstract: This is an article on the need for and development of total quality management (TQM) in U.S. industry. The author introduces Juran and Deming's ideas and attitudes about TQM and the future outlook for U.S. companies. Statements from companies that have found successful results through implementing quality management are given.

Schultz, L. E. (March 1984). Improving productivity through statistical quality control. Quality Circle Digest, pp. 59-67.

Key Terms: Case Histories.

Abstract: This article provides a general overview of the implementation of a quality control program at Control Data's Peripheral Products Company. The three major parts to their program are (1) quality circles, (2) process flow analysis, and (3) statistical quality control. The company philosophy was derived from Deming's 14 points. The question of who gets what type of training was addressed. An outline of the training program was also presented.

Walton, M. (March 11, 1984). Making America work again. Philadelphia Inquirer Magazine., pp. 20-35.

Key Terms: Approaches to QM.

Abstract: Dr. W. Edwards Deming's contribution to the Japanese manufacturing revolution and his 14 points of management commitment are discussed in this article.

Zemke, R. (June 1985). Stalking the elusive corporate credo. Training, pp. 44-51.

Key Terms: Mission statement.

Abstract: The author discusses the corporate credo or mission statement. Topics include the benefits and pitfalls of developing a credo.

Newspapers

Bean, E. (April 10, 1985). Cause of quality-control problems might be managers - not workers. Wall Street Journal, p. 31.

Key Terms: History of QM/Case Histories.

Abstract: This article provides two examples of quality efforts based on the approaches of Deming and Crosby. The two companies discussed are: 1) Tennant Co., Minneapolis, MN. (manufactures maintenance equipment for industrial floors), and 2) Carolina Freight Corporation, Cherryville, NC (trucking company). Several of Deming's key notions (e.g., prevention versus detection and the need for the adoption of a long-term management commitment) are briefly discussed.

Gottlieb, D. (January 15, 1984). Outlook interview: W. Edwards Deming, U.S. guru to Japanese industry: If Americans don't want to listen to me, it's their funeral. The Washington Post., p. D3.

Key Terms: Approaches to QM.

Abstract: This interview with Dr. Deming examines his philosophy of statistical process control and opinions of government, workers, and quality products in today's businesses.

Interview: W. E. Conway. (May 1984). New Hampshire Business Review, pp. 18-19.

Key Terms: Approaches to QM.

Abstract: In this interview W. E. Conway discusses Dr. Deming's 14 points of management commitment. Other topics include the role of the worker and the long-term commitment that SQC and quality management require.

Lohr, S. (May 10, 1981). He taught the Japanese. New York Times, p. F6.

Key Terms: Approaches to QM/History of QM.

Abstract: The author briefly discusses Dr. Deming's statistical quality control philosophy, his work in Japan and the Deming Prize.

Perfect plate of rice every time. (July 1982). New Hampshire Business Review, pp. 1,3,5-7.

Key Terms: Approaches to QM/SPC.

Abstract: The author describes and gives examples of two techniques, the Ishikawa diagrams and just-in-time inventory, used by Japanese industries in implementing quality management. He also briefly discusses Dr. W. Edwards Deming's role in Japan as well as his efforts to educate U.S. managers and companies about quality management.

Ringle, W. M. (February 1981). The American who remade "Made in Japan." Nation's Business, pp. 67-70.

Key Terms: Approaches to QM/SPC/Structure and Organization.

Abstract: This article is a discussion of the statistical aspects of Dr. Deming's product quality control philosophy. Other topics include Dr. Deming's views on the importance of management's involvement in the quality control process.

Two Vandalia departments rate high on Q. I. (January-February 1984). Islander, pp. 1,3.

Key Terms: SPC/Case Histories.

Abstract: The author of this article discusses the progress of two Inland Corporation (a subsidiary of General Motors) departments that have received awards for their use of statistical quality control methods to upgrade product quality.

Young, J. A. (July 25, 1983). One company's quest for improved quality. Wall Street Journal, p. 10.

Key Terms: Approaches to QM/SPC/Case Histories.

Abstract: This article discusses the early stages of implementation of a quality management program at Hewlett-Packard and its impact on the company. According to the author, a few years after the implementation of this program the company was able to considerably reduce service and repair, increase vendor quality, and cut inventory. He states that the company was a third of the way toward its 10 year goal of a 10-fold reduction in product failure rates.

Videotapes

American Supplier Institute, Inc. (Producer). (1983). Continuous improvement (videotape, 15 minutes). Romulus, MI: Producer.

Key Terms: SPC/Case Histories.

Abstract: This videotape presents a case study from the Ford Motor Company that compares the product quality that results from two different manufacturing approaches--conformance to engineering specifications (Ford) and the use of SPC to insure uniformity of parts (competition).

Brittanica Films (Producer). (1984). Management's five deadly diseases (videotape, 16 minutes). Lake Orlon, MI: Producer.

Key Terms: Approaches to QM/Implementation.

Abstract: Dr. Deming describes five areas of management that can negatively affect the productivity and competitiveness of American industry: (1) lack of constancy of purpose, (2) emphasis on short-term profits, (3) annual rating of performance, (4) mobility of management, and (5) the use of visible figures only for management.

Brittanica Films (Producer). (1984). Roadmap for change: The Deming approach (videotape, 30 minutes). Lake Orlon, MI: Producer.

Key Terms: Approaches to QM/History of QM/Implementation/SPC/Training/Case Histories/Justification and Results.

Abstract: This tape presents a case study of the implementation of Dr. Deming's quality improvement philosophy at the Pontiac Fiero Plant. Practical applications of Dr. Deming's 14 points of management commitment are given and include: the involvement of vendors in the quality training program, involvement of all employees in the area of decision making, new process methods, and the implementation of statistical methods.

Center for Advanced Engineering Study, MIT (Producer). (1984). Action plans for implementing quality and productivity (3 videotapes, 30 minutes each). Cambridge, MA: Producer.

Key Terms: Implementation/Training.

Abstract: In this three-tape series, Dr. Myron Tribus presents an orientation to issues germane to the implementation of a quality improvement program. Topics include goal statements, definitions of quality and quality jobs, variation in production, goal setting, and training plans.

Deming, W. E. (1981). Quality, productivity, and competitive position (16 videotapes, 50 minutes each). Cambridge, MA: Center for Advanced Engineering Study, MIT.

Key Terms: Approaches to QM/Implementation/Training.

Abstract: In this 16-tape series, Drs. Deming and Tribus present a detailed discussion of Dr. Deming's philosophy of quality, productivity, and competitive position as it applies to American industry. Topics include why productivity increases as quality improves, the 14 steps of management commitment, obstacles to success, principles of training and supervision, and the role of quality in service organizations.

Juran, J. M. (1981). Juran on quality improvement (16 videotapes, 30 minutes each). New York: McGraw-Hill.

Key Terms: Approaches to QM/Implementation/SPC/Training.

Abstract: In this 16-part video series, Dr. Juran presents his action-oriented approach to problem solving. Each of the 16 tapes presents a different stage of problem solving, guidelines for action in that stage, and associated statistical and graphic techniques. Topics include project identification, organizing for improvement, organizing for diagnosis, brainstorming, data collection, the seven basic graphic tools, resistance to change, and continuous improvement.

NBC (Producer). (1980). The NBC white papers: If Japan can, why can't we? (2 videotapes, 80 minutes total). New York: Producer.

Key Terms: Approaches to QM/History of QM.

Abstract: Mr. Lloyd Dobbins presents an introduction to Dr. Deming's role in the improvement of Japanese quality and productivity. Other topics include the relationship of this improvement to the decline in American automotive and electronic industries and the early implementation of Dr. Deming's techniques in the Ford Motor Company.

Statistical Process Controls, Inc. (Producer). (1984). A Japanese control chart (videotape, 17 minutes). Knoxville, TN: Producer.

Key Terms: SPC.

Abstract: In this videotape, Dr. Donald Wheeler presents and discusses the computation and monitoring of a control chart from a Japanese manufacturer.

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