A Conspectus of Management Control Theory: 1900-1972

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A comprehensive review of the literature on control theory, this paper examines the state of the art and provides a basis for rejecting the view that the executive can find very little knowledge to assist him in performing the control function.

Planning, organizing, and controlling are each vital functions in the management process. While management theory provides much information concerning planning and especially organizing, the function of controlling has only recently begun to be analyzed systematically (3, p. 408; 4, p. 317). This, however, is not meant to imply that concern for controlling does not have a long history. Copley states that control was the "central idea" of scientific management (11, Vol. 2, p. 358; cf. 64, pp. 10-11). Taylor considered control to be the "original object" of his experiments. In his Presidential Address before the American Society of Mechanical Engineers, he advocated:

> . . . taking the control of the machine shop out of the hands of the many workmen, and placing it completely in the hands of the management, thus superceding "rule of thumb" by scientific control (82, p. 39).

Control has long been considered "to be one of the most neglected and least understood areas of management activity" (15, p. 42). Its managerial role has often been mistakenly considered to be synonymous with financial control. In such a frame of reference, it has frequently been regarded as the sole domain of the accountant or comptroller and, in turn, completely equated with such techniques as budgets and financial ratios.

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It is perhaps for this reason that "the word control has the serious shortcoming of having different meanings in different contexts" (47, p. 42). This quality has been noted by such authors as Drucker (30, p. 160; 31, p. 286), Kast and Rosenzweig (48, p. 467), Litterer (56, p. 233), and Luneski (57, p. 593). Each points out that management control may be viewed in two parts. One relates to the achievement of effective control over subordinates through the direction of their activities. The second relates to the evaluation of the desired outcome of an activity and the making of corrections when necessary. This dichotomy has been summarized well by Reeves and Woodward:

> In the literature relating to organizational behaviour there is ambiguity in the use of the word control. The confusion arises largely because to control can also mean to direct Precisely defined control refers solely to the task of ensuring that activities are producing the desired results Control in this sense is limited to monitoring the outcome of activities, reviewing feedback information about this outcome, and if necessary taking corrective action (66, p. 38).

As a partial consequence of this confusion, control is considered to be "one of the thorniest problems of management today" (65, p. 30). Although widely discussed, according to some writers it lacks a common area of understanding. It has "scarcely any generally accepted principles, and everyone in the field, therefore, works by intuition and folklore" (2, p. vii; cf. 1). Rowe has noted:

> Although management control is widely discussed, little has been done to formulate a body of principles for use in business system design (72, p. 274).

Furthermore, Jerome has pointed out:

> Principles and procedures and substantive content simply have not been rigorously developed in the area of executive control (47, p 28).

More recently, Mockler has written:

> In spite of the fact that management control is one of the basic management functions, there is no comprehensive body of management control theory and principles to which executives can turn for guidance in performing their management control functions (59, p 80)

Having recognized the ambiguity regarding the use of the term control and the alleged lack of control theory, the following definition is set forth. Control will be taken to refer solely to the traditional "constant cyclic-type activity of plan-do-compare-correct" with its "continuous, concomitant system of communication or flow of information" (61, p. 160). In effect, this eliminates from consideration the works of those authors—for example, Follett and Tannenbaum—who have used the word control in their writings to mean "to direct."[1]

Having set this restriction, it is the purpose of this effort to trace the development of twentieth century management control theory and, assessing the scope of this theory, to point out what knowledge the executive can turn to for guidance in controlling.

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[1] For an anthology of such writings, see Tannenbaum (81).

PIONEER WRITERS AND CONTROL CONCEPTS

Earlier Concepts

Emerson may be credited with the first meaningful contribution to the development of twentieth century management control theory. In his classic work, *The Twelve Principles of Efficiency,* he heavily stressed the importance of control. His "Eighth Principle: Standards and Schedules" was an attempt to stress the use of time standards in achieving increased results from lessened effort. His "Sixth Principle: Reliable, Immediate and Adequate Records" and his "Eleventh Principle: Written Standard-Practice Instructions" both were clearly attempts to achieve control through the comparison of present performance with past achievements. Emerson considered records to have two objectives: (a) "to increase the scope and number of warnings" and (b) "to annihilate time, to bring back the past, to look into the future . . " (36, p. 206). Emerson's "Ninth Principle: Sandardized Conditions" and "Tenth Principle: Standardized Operations" were efforts to obtain the uniformity necessary for control. While Emerson did not recognize control as an independent function of management, he did provide a framework for its further understanding.

Church also contributed to the development of early management control theory. He identified five "organic functions of administration" (8, p. 28). The third of these functions was "control" and the fourth "comparison." Control was considered to be "that function which coordinates all of the other functions and in addition supervises their work." Obviously, this view of control transcends the concept as defined and includes certain aspects of coordinating and directing. Church's "comparison" function was markedly similar to Emerson's Sixth Principle of "Records." It dealt with "that which concerns itself with the setting up and comparison of standards" (8, p. 81) and was based on "three elements: (a) recognition of what facts are truly significant; (b) accurate record and convenient presentation of these facts; (c) judicious action based on study of the facts" (8, p. 347; cf. 9, p. 859). As is evident, Church may be largely credited with recognition of the main facets of the control process.

Distinguishing between different types of control, Diemer considered control to mean "the methods by which the executive or managing heads of a business carry out their authority to regulate its affairs in accordance with the laws of the organization" (26, p. 2). Later, expanding upon this explanation, he commented:

> Control is that principle of management which demands that the management know what ought to be done and what is being done in all divisions and departments of the business. If what is being done differs from what ought to be done control means knowing why it differs Control means knowing how to overcome the located defects, shortages or excessive costs and actually remedying them (27, p. 282)

Fayol identified control as one of the five functions of management. He advocated its application to all things within the organization. To

Fayol, control meant "verifying whether everything occurs in conformity with the plan adopted, the instructions issued and principles established" (37, p. 107). It should be noted, however, that some question exists concerning the accuracy of the translation of Fayol's work in this area; see Goodwin (42) and Urwick (91).

The first text devoted entirely to the subject of management control was written in 1920 by Francis M. Lawson. Consisting of six lectures, its purpose was "to set before those who are engaged in organization work the true fundamental laws governing all direction and control . . ." (54, p. v). Lawson held that his work provided a base for scientific management and that only after the laws of control were interpreted could scientific management be applied correctly. His presentation dealt mainly with the preparation of charts and records and was truly a pioneer work in this area.

The lack of application of control theory in the United States during the early period of this century may be discerned from the 1921 national research study, *Waste in Industry*. Over one third of its recommendations for the elimination of waste in industry involved one or more aspects of control. The study's first recommendation, "Improvement of Organization and Executive Control," is especially telling. It reads:

> Planning and control should be adopted as fundamentals of good management. For the most part they have not penetrated the mass of American industry (10, p. 24).

Control was related to planning by Lichtner who believed that "planned control" was "imperative" for successful operation. In defining what was meant by "Planned Control," he explained:

> Planning is the managerial function of working out the best combination of procedures through co-ordinating the requirements with the facilities for carrying out the work of the division Control is the managerial function of putting these procedures into effect (55, pp 5-6)

Clearly, Lichtner's concept includes more than just control.

Franklin extensively discussed the relationship between control and records. He presented records of assurance, information and control (39, p. 135). As two of the required specifications of records, Franklin named "Standards or Measuring Rules" and "Comparisons of Results and Trends" (39, pp. 136-37). Both specifications were clearly designed to aid in the control and achievement of results expected.

Dutton presented control as a function of production and subdivided it into planning, supervision, inspection and information (32, p. 7; cf. 33, pp. 24-25; cf. 34, pp. 7-12). In a later work, Dutton stressed the importance of comparison, measurement and standardization (35, pp. 43, 63-67, 93). In doing so he recognized the importance of the control process.

Control was identified by Robinson as the sixth of his "Eight Fundamentals of Business Organization." He described control as

> . . . that fundamental which comprises the means of providing the manager and the executives of an organization with continuous, prompt, and accurate information concerning the efficiency of operation, what the business is doing, what it has done in the past, and what it can be expected to do in the future. A system of control collects the details of operation, segregates them, combines them, and classifies them into a form suitable for use (68, p. 147)

In addition, Robinson identified three principal elements of control: (a) forecasting results, (b) recording of results, and (c) the placing of responsibility for expected results with provision for corrective action (68, pp. 107-08, 137-39, 142, 147).

White identified what he believed to be the elements of control. Referring to them as "subfunctions" of the "function of control," he closely related his discussion to planning (95, p. 113). Williams, in discussing "top control," identified the principal methods of control as general accounting, estimating, cost accounting, budgeting and interpretation (96, 97).

The Beginning of a Framework

The first author to identify a set of control principles may well have been Lyndall F. Urwick. He presented control as being

> . concerned with the reaction of persons and materials to the decisions of direction, with the measurement of such reactions in terms of space, time, and quantity, and with methods of securing that the results of such reactions shall be in line with those contemplated by direction (89, p. 163)

The five principles of control Urwick listed were:

1. The Principle of Responsibility
2. The Principle of Evidence
3. The Principle of Uniformity
4. The Principle of Comparison
5. The Principle of Utility (89, p. 179).

By 1943, Urwick had dropped the first two of these principles and had provided the following definitions for the remaining three:

> *The Principle of Uniformity*—All figures and reports used for purposes of control must be in terms of the organisation structure
>
> *The Principles of Comparison*—All figures and reports used for purposes of control should be in terms of standards of performance required, and, of past performance
>
> *The Principle of Utility*—Figures and reports used for purposes of control vary in value directly in proportion to the period separating them from the events which they reflect (90, p. 122, see also pp. 107-108)

Davis initially began to construct his philosophy of management control in 1928. He defined control as "the instruction and guidance of the organization and the direction and regulation of its activities" (16, p. 82). He expanded upon these ideas in 1934 (18, p. 67) and by 1940 had largely solidified his understanding of management control. It was at this time that Davis, drawing on an earlier paper (17), popularly identified planning, organizing, and controlling as the three organic functions of man-

agement (19, pp. 35-36; cf. 20, pp. 8-10). In line with this, he listed eight control subfunctions: (a) routine planning; (b) scheduling; (c) preparation; (d) dispatching; (e) direction; (f) supervision; (g) comparison; and (h) corrective action (19, p. 109). In a later book, Davis maintained this same framework of analysis with only minor variation (21, pp. 647-52).

Expanding upon the ideas he had presented in an earlier book (12, p. 28), Cornell formulated one of the first listings of the principles of management. The eleventh of his sixteen principles was the principle of control. Cornell stressed the importance of performance standards, performance evaluation, and corrective action. His principle of control reads:

> Planning is of little value unless there is subsequent control to make certain that the plans are carried out (13, p. 212)

Glover and Maze attempted to explain the "instruments and methods" of control and endeavored to emphasize

> . . . the necessity for setting standards and measuring actual accomplishment as a basis for control. to point out the methods for determining causes for variations between planned and actual accomplishment, and . . [to indicate] the more important causes of such variations as well as their underlying reasons (40, pp. v-vi)

In accomplishing this task, they related managerial control to organization, manufacturing costs, and marketing and administrative costs.

One of the first empirical studies of corporate organization and control was performed by Holden, Fish, and Smith. It reported the top management practices of "thirty-one leading industrial corporations." As one of its conclusions, the study presented control as a prime responsibility of top management (44, p. 3). It further identified control as a process, embracing three elements: (a) Objective—to determine what is desired; (b) Procedure—to plan how and when a task is to be done, organization to determine who is responsible, and standards to determine what constitutes good performance; and (c) Appraisal—to determine how well a task was done (44, p. 77). Clearly, Holden, Fish, and Smith interpreted control very broadly including much of planning. This reflects the interrelatedness of these two functions.

The nineteen-forties were an era of continued interest in management control. Dimock defined control as "the analysis of present performance, in the light of fixed goals and standards, in order to determine the extent to which accomplishment measures up to executive orders and expectations" (28, p. 217). Both Hopf (45, 46) and Schreiber (75) recognized control as a function of management. Rowland associated control with planning by pointing out the relationship existing between the two (73, p. 3). Filipetti identified control as "the most important factor in organization" (38, p. 260). McCaully (58) discussed control for the foreman and supervisor. An earlier text by Schell (74) had analyzed control from the viewpoint of the executive. Both Somervell (77) and Thurston (53,

84, 85, 86) related control to organization and advocated the establishment of company control sections.

In 1948, Brech largely revised his initial framework of management principles. He presented control as the "obverse" of planning and advocated "standards of performance," "continuous comparison of actual achievement or results against these predetermined standards," and a balancing of long- and short-term consequences (6, p. 14). Brech has more recently defined control to mean:

> . . checking current performance against objectives and targets in terms of predetermined standards contained in the plans, with a view to ensuring adequate progress and satisfactory performance whether physical or financial; also contributing to decision in continuing or changing the plans, as well as "recording" the experience gained from the working of these plans as a guide to possible future operations (7, pp 13-14)

Control was identified as a process of administration by Newman. He defined control as:

> seeing that operating results conform as nearly as possible to the plans This involves the establishment of standards, motivation of people to achieve these standards, comparison of actual results against the standard, and necessary corrective action when performance deviates from the plan (63, p 4)

In line with this definition, Newman presented three essential steps in the control process: (a) setting standards at strategic points, (b) checking and reporting on performance, and (c) taking corrective action (63, p. 408).

Control and Functional Areas

Rose approached control from the position of a managing director. He divided control into three functional "viewpoints": business, trading, and financial. Rose considered his ideas to be the logical extension of the work of Fayol. He defined "higher control"

> as a monthly survey of the functional activities of a commercial undertaking, carried out from the business, trading, and financial viewpoints, and based upon direct trend comparison between the position at the moment and the position at the last financial year (69, p 67).

Rose further discussed control in a second book (70) and in a third (71) attempted to codify a number of his earlier writings. In the latter of these two works, Rose reentitled his four aspects of control as the business position, the operating position, the profit and loss position, and the financial position.

Dent approached management control from the viewpoint of a budget analyst. He defined budgetary control as "working to a plan to secure the greatest measure of all-round efficiency and teamwork" (24, p. 307; cf. 23). He felt that "budgetary control must be based upon the management principles of planning of activities, delegation of responsibility coupled with authority, definition of authority, and co-ordination of effort" (24, p. 307).

The writings of Trundle, Goetz, Rice, and Wharton also reflect a similar functional emphasis. Trundle (87, 88) associated control with manufacturing, sales accounting, and industrial relations. Goetz, approaching management control from the viewpoint of the accountant, interpreted control to consist of "securing conformity to plans" (41, p. 3). Rice (67) presented control charts for use by the business executive, and Wharton (93, 94) discussed control in office operations.

MODERN CONTROL CONCEPTS

Principles of Management Textbooks and Control

The nineteen-fifties witnessed the emergence of the first "principles of management" textbooks. The content of these books was basically developed from earlier management thought. Therefore, they presented the control function in a manner similar to pioneer writers such as Fayol and Davis.

A review of these and later texts shows a surprising similarity of presentation. From Terry (83) to Donnelly, Gibson, and Ivancevich (29), a consensus about the essence of controlling is easily discerned. Subjects generally discussed include an identification of the steps in the control process, the requirements of control, the determination of standards, means of measurement, and types of control mechanisms. In relation to the last topic mentioned, budgetary control and the human response to controls are also generally presented. With a few exceptions, the majority of these works take note of the exception principle. However, only three texts—Terry's (83), Koontz and O'Donnell's (52), and Sisk's (76)—identify additional principles of control. Of these three, Koontz and O'Donnell's provides the most complete framework of management control principles.

The widespread reluctance of writers to recognize specific concepts as control principles is indicative of the slow development in this area. While Terry and Sisk each present a few selected principles of control, uncertainty in this area is verified by the fact that Sisk refers the reader to the work of Koontz for a more complete discussion of this topic (76, p. 589n).

Koontz's initial formulation of control principles, showing the influence of Taylor, Urwick, and Goetz, may be traced to his well-known article in the *Academy of Management Journal* (49). Revised the following year, the framework identified fourteen principles of control (50). More recently, Koontz and O'Donnell have limited their framework to twelve control principles (52, pp. 672-76). Thus, thirty years after Urwick's first formulation, Koontz and O'Donnell added to management theory a more comprehensive framework of management control principles.

To date, Koontz and O'Donnell's management control theory as represented by their framework for the principles of control is the clearest and most comprehensive formulation of its kind. Its initial presentation has already been referred to as a "classic of management literature" (14, p. 116).

Research Studies

Research studies in the area of management control have recently been increasing in number. Paik (43, pp. 169-83) has analyzed the control procedures of selected branch banks. Hekimian (43) has reported the control operations of selected life insurance branch offices. Deming (22) has studied the control system of a large electrical corporation. Villers (92) has reported the planning and control practices of selected research and development organizations. Sord and Welsch (78) have studied managerial control problems from the viewpoint of lower-level supervisors. Each of these studies provides useful concepts and understanding about the control function based on empirical findings from the operations of a variety of control systems.

Six recent books, each dealing with various aspects of control, are also indicative of the growing interest in management control theory. Deverell (25) has shown the relationship between the planning and control processes, pointing out their interdependency. He has also presented a discussion of current control techniques. Strong and Smith (80) have dealt with current control techniques and attempted to show the essentiality of control. Taking a different approach, Mundel (61) has dealt mainly with the control concept and its application in the organic areas of production, sales, and finance. Stokes (79) has presented guidelines to aid in installing a "total control program." Viewing control from the vantage point of a top corporate executive, he has presented and discussed areas of critical control performance. Asplund et al. (5) have dealt with materials and production management as special aspects of management control. Mockler (60) has identified and explored each of the steps in the management control process.

Emphasis on Control and Control Models

Authors such as Jerome, Anthony, Koontz and Bradspies, and Muth have recently attempted to solidify the groundwork of management control theory. Jerome has advanced the belief that control is "a subject area with its own distinctive concepts and precepts" (47, p. 27). Anthony (2) has defined and discussed management control from a systems viewpoint and attempted to establish the proper role of control in a firm's operations. Koontz and Bradspies (51), drawing on the field of "systems engineering," have applied the concept of "feed forward" to managerial control problems. Muth, pointing out that "impressive attempts have been made to organize and unify" analytical techniques from various areas into a comprehensive control theory, has provided a "state-space" model for a general control system (62, p. 892)

SUMMARY AND CONCLUSIONS

Twentieth century concern for management control may be traced from the beginning of the scientific management revolution to present-day man-

agement thought. Introduced by the work of early writers such as Taylor, Emerson, and Church, the basics of what today may be identified as the control process became well known by the end of the first decade of this century.

While the importance of control was recognized by such authors as Lawson, Franklin, Diemer, Dutton, Lichtner, Cornell, Robinson, Williams, and White, a general lack of management control in the earlier years is attested to by the conclusions of the Federated American Engineering Societies' study, *Waste in Industry*. It was not until 1928 that the first set of control principles was formulated by Urwick.

Early texts, such as those by Rose, Dent, Glover and Maze, and Goetz, were predominantly oriented to accounting and financial control. The 1941 Holden, Fish, and Smith study was the first empirical attempt to explore corporate control. This interest has been revived recently by the works of Anthony, Paik, Hekimian, Deming, Villers, Sord and Welsch. It should also be noted that the interest in control has had a long record of international involvement. This is attested to by the works of Fayol, Lawson, Urwick, Rose, Dent, Brech, Deverell, and Asplund et al.

It has been only in recent years, since the advent of principles of management textbooks, that specific attempts have been made to lay a foundation for the development of a science of management control theory and to develop a unified theory as well as general control models. The Koontz framework of management control principles has been followed by the works of Anthony, Jerome, Smith and Strong, Mundel, Stokes, Mockler, and Muth, among others. Each has attempted to add to the area of knowledge generally referred to as management control. The works of the writers referenced in this conspectus provide a clear basis for rejecting the views of those who believe that executives have little to turn to for guidance in performing their control function. Specifically, executives can use:

A knowledge of the control concept;
A knowledge of the process required to control;
A knowledge of the characteristics of control systems;
A knowledge of the problems likely to occur when controlling and, therefore, a knowledge of what to guard against;
A number of control models, some of which are general and unifying enough to provide systematic control for the firm;
A framework of principles for effective and efficient control;
A set of control techniques.

Even though control theory has not achieved the level of sophistication of some other management functions, it has developed to a point that affords the executive ample opportunity to maintain the operations of his firm under check. Unquestionably, however, continued interest and research in this area are necessary to bring control theory to new levels of sophistication and, above all, pragmatism.

REFERENCES

1. Anthony, Robert N. "Planning and Control Systems: A Framework for Analysis," *Management Services,* Vol 1 (March-April, 1964), 18-24
2. Anthony, Robert N. *Planning and Control Systems Framework for Analysis* (Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1965).
3. Arrow, Kenneth J "Control in Large Organizations," *Management Science,* Vol. 10 (April, 1964), 397-408
4. Arrow, Kenneth J. "Research in Management Controls. A Critical Synthesis," in Charles Bonini, Robert K Jaedicke, and Harvey M Wagner (Eds), *Management Controls New Directions in Basic Research* (New York McGraw-Hill, 1964)
5. Asplund, Ingemar (Ed.). *Management Control A Survey of Production and Inventory Control Models in Theory and Practice* (Lund, Sweden Studentlitteratur, 1969)
6. Brech, E F L. *Management Its Nature and Significance,* 2nd ed. (London Pitman, 1948).
7. Brech, E F L *Organisation The Framework of Management,* 2nd ed. (London: Longmans, Green, 1965)
8. Church, A. Hamilton. *The Science and Practice of Management* (New York: Engineering Magazine Co , 1914) Originally serialized in six parts as "Practical Principles of Rational Management," *Engineering Magazine,* Vols 44-45 (January through July, 1913).
9. Church, A Hamilton, and Leon P Alford "The Principles of Management," *American Machinist,* Vol 36 (May 30, 1912), 857-861
10. Committee on Elimination of Waste in Industry of the Federated American Engineering Societies (Herbert C Hoover, chairman) *Waste in Industry* (New York McGraw-Hill, 1921).
11. Copley, Frank B *Frederick W Taylor: Father of Scientific Management,* 2 vols. (New York Harper, 1923).
12. Cornell, William B. *Industrial Organization and Management* (New York: Ronald, 1928).
13. Cornell, William B *Business Organization,* Vol. 3 of *Modern Business* (New York: Alexander Hamilton Institute, 1930)
14. Dauten, Paul M., Jr (Ed). *Current Issues and Emerging Concepts in Management,* Vol 1 (Boston Houghton-Mifflin, 1962).
15. Dauten, Paul M., Jr., Homer L. Gammill, and Stanley C. Robinson. "Our Concepts of Controlling Need Re-Thinking," *Journal of the Academy of Management,* Vol. 1 (December, 1958), 41-55
16. Davis, Ralph C. *The Principles of Factory Organization and Management* (New York: Harper, 1928).
17. Davis, Ralph C. "The Organic Functions of Management" (Unpublished paper, The Ohio State University, 1934)
18. Davis, Ralph C. *The Principles of Business Organization and Operation* (Columbus, Ohio: H L. Hedrick, 1934)
19. Davis, Ralph C *Industrial Organization and Management,* 2nd ed. (New York. Harper, 1940).
20. Davis, Ralph C. *Shop Management for the Shop Supervisor* (New York: Harper, 1941).
21. Davis, Ralph C *The Fundamentals of Top Management* (New York Harper, 1951)
22. Deming, Robert H *Characteristics of an Effective Management Control System in an Industrial Organization* (Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1968)
23. Dent, Arthur G. H "Budgetary Control Study," *Industry Illustrated* (London), Vol 2 (May, 1934), 28-30, 36.
24. Dent, Arthur G. H. *Management Planning and Control* (London Gee, Ltd , 1935)
25. Deverell, Cyril S. *Management Planning and Control* (London: Gee, Ltd., 1967)
26. Diemer, Hugo. *Industrial Organization and Management* (Chicago: La Salle Extension University, 1915)
27. Diemer, Hugo "The Principles Underlying Good Management," *Industrial Management,* Vol 67 (May, 1924), 280-83
28. Dimock, Marshall E *The Executive in Action* (New York Harper, 1945)

29 Donnelly, James H., Jr., James L. Gibson, and John M. Ivancevich. *Fundamentals of Management* (Austin, Texas: Business Publications, 1971).
30 Drucker, Peter F. *The Practice of Management* (New York: Harper, 1954).
31 Drucker, Peter F. "Controls, Control and Management," in Charles Bonini, Robert K. Jaedicke, and Harvey M. Wagner (Eds.), *Management Controls: New Directions in Basic Research* (New York: McGraw-Hill, 1964).
32. Dutton, Henry P. *Factory Management* (New York: Macmillan, 1924).
33. Dutton, Henry P. *Business Organization and Management* (Chicago: A. W. Shaw, 1925).
34. Dutton, Henry P. *The Control of Production*. Vol. 2 of *The Shaw Plant and Shop Management Library*, 6 vols. (Chicago: A. W. Shaw, 1927).
35. Dutton, Henry P. *Principles of Organization as Applied to Business* (New York: McGraw-Hill, 1931).
36. Emerson, Harrington. *The Twelve Principles of Efficiency* (New York: Engineering Magazine Co., 1912). Originally serialized in sixteen parts in *Engineering Magazine*, Vols. 39-41 (June 1910 through September 1911).
37. Fayol, Henri. *General and Industrial Management*, translated by Constance Storrs (London: Pitman, 1949).
38. Filipetti, George. *Industrial Management in Transition* (Homewood, Ill.: Irwin, 1946).
39. Franklin, Benjamin A. "Records As a Basis for Management," *Management Engineering*, Vol. 3 (September, 1922), 133-37.
40. Glover, John G. and Coleman L. Maze. *Managerial Control* (New York: Ronald, 1937).
41. Goetz, Billy E. *Management Planning and Control* (New York: McGraw-Hill, 1949).
42. Goodwin, E. Sidney L. "Control: A Brief Excursion on the Meaning of a Word," *Michigan Business Review*, Vol. 12 (January, 1960), 13-17, 28.
43. Hekimian, James S. *Management Control in Life Insurance Branch Offices*, with Appendix: Chei-Min Paik, "Management Controls in Branch Banks" (1963), 169-83 (Boston: Division of Research, Graduate School of Business Administration, Harvard University, 1965).
44. Holden, Paul E., Lounsbury S. Fish, and Hubert L. Smith. *Top-Management Organization and Control* (Stanford University, Cal.: Stanford University Press, 1941).
45. Hopf, Harry A. "New Perspectives in Management—Part IV: Management and the Optimum," *The Spectator Life Insurance in Action*, Vol. 151 (December, 1943), 4-7, 26-30.
46 Hopf, Harry A. "New Perspectives in Management—Part VII. Instruments Essential to Control," *The Spectator Life Insurance in Action*, Vol. 151 (March, 1944), 8-12, 45-49. Serialized in fifteen parts, Vols. 151-152 (September 1943 through August 1944 and November 1944 through February 1945).
47 Jerome, William T., III. *Executive Control—The Catalyst* (New York: Wiley, 1961).
48. Kast, Fremont E., and James E. Rosenzweig. *Organization and Management* (New York: McGraw-Hill, 1970).
49. Koontz, Harold D. "Management Control: A Preliminary Statement of Principles of Planning and Control," *Journal of the Academy of Management*, Vol. 1 (April, 1958), 45-60.
50. Koontz, Harold D. "Management Control: A Suggested Formulation of Principles," *California Management Review*, Vol. 1 (Winter, 1959), 47-55.
51. Koontz, Harold D., and Robert W. Bradspies. "Managing Through Feed Forward Control," *Business Horizons*, Vol. 15 (June, 1972), 25-36.
52. Koontz, Harold D., and Cyril J. O'Donnell. *Principles of Management: An Analysis of Managerial Functions*, 5th ed. (New York: McGraw-Hill, 1972).
53. Lamperti, Frank A., and John B. Thurston. *Internal Auditing for Management* (Englewood Cliffs, N.J.: Prentice-Hall, 1953).
54 Lawson, Francis M. *Industrial Control* (London: Pitman, 1920).
55 Lichtner, William O. *Planned Control in Manufacturing* (New York: Ronald, 1924).
56 Litterer, Joseph A. *The Analysis of Organizations* (New York: Wiley, 1965).
57. Luneski, Chris. "Some Aspects of the Meaning of Control," *Accounting Review*, Vol. 39 (July, 1964), 591-97.
58. McCaully, Harry J., Jr. *Management Controls for Foremen and Supervisors* (New York: Funk & Wagnalls, 1948).

59. Mockler, Robert J. "Developing the Science of Management Control," *Financial Executive,* Vol. 35 (December, 1967), 80-93
60. Mockler, Robert J. *The Management Control Process* (New York: Appleton-Century-Crofts, 1972)
61. Mundel, Marvin. *A Conceptual Framework for the Management Sciences* (New York: McGraw-Hill, 1967).
62. Muth, John F "A Review of Control Theory," in Manfred W Hopfe (Ed), *Proceedings of the Fourth Annual Meeting of the American Institute for Decision Sciences* (Atlanta, Ga.. AIDS, 1972)
63. Newman, William H. *Administrative Action* (New York: Prentice-Hall, 1951).
64. Person, Harlow S "The Origin and Nature of Scientific Management," in Harlow S. Person (Ed), *Scientific Management in American Industry* (New York· Harper, for the Taylor Society, 1929).
65. Rathe, Alex W "Management Controls in Business," in Donald G Malcolm and Alan J. Rowe (Eds.), *Management Control Systems* (New York Wiley, 1960).
66. Reeves, Tom K., and Joan Woodward "The Study of Managerial Control," in Joan Woodward (Ed), *Industrial Organization. Behaviour and Control* (London: Oxford University Press, 1970).
67. Rice, William B *Control Charts in Factory Management* (New York: Wiley, 1947).
68. Robinson, Webster R. *Fundamentals of Business Organization* (New York· McGraw-Hill, 1925)
69. Rose, Thomas G. *Higher Control* (London Pitman, 1934)
70. Rose, Thomas G. *Company Control* (London: Gee, Ltd , 1952)
71. Rose, Thomas G , and Donald Farr *Higher Management Control* (New York. McGraw-Hill, 1957)
72 Rowe, Alan J "A Research Approach in Management Controls," in Donald G Malcolm and Alan J Rowe (Eds), *Management Control Systems* (New York· Wiley, 1960).
73. Rowland, Floyd H. *Business Planning and Control* (New York Harper, 1947).
74. Schell, Erwin H. *The Technique of Executive Control,* 4th ed. (New York· McGraw-Hill, 1934)
75 Schreiber, Norman B *Philosophy of Organization* (Chicago: A. Kroch, 1942).
76. Sisk, Henry L. *Principles of Management. A Systems Approach to the Management Process* (Cincinnati: South-Western, 1969)
77 Somervell, Brehon B. "Organization Controls in Industry," *Organization Controls and Executive Compensation,* General Management Series No 142 (New York· American Management Association, 1948).
78. Sord, Burnard H., and Glenn A. Welsch *Managerial Planning and Control,* Research Monograph No. 27 (Austin, Texas Bureau of Business Research, University of Texas, 1964).
79. Stokes, Paul M *A Total Systems Approach to Management Control* (New York· American Management Association, 1968)
80. Strong, Earl P., and Robert D. Smith *Management Control Models* (New York: Holt, Rinehart and Winston, 1968)
81. Tannenbaum, Arnold S. *Control in Organizations* (New York· McGraw-Hill, 1968)
82 Taylor, Frederick W. "On the Art of Cutting Metals," Paper No. 1119, *Transactions* (American Society of Mechanical Engineers). Vol. 27 (1906), 31-350
83 Terry, George R *Principles of Management* (Homewood, Ill.. Irwin, 1953); 2nd ed., 1956; 3rd ed , 1960; 4th ed., 1964; 5th ed , 1968, 6th ed., 1972
84. Thurston, John B. "A New Concept of Managerial Control," *Company Development and Top Management Control,* General Management Series No. 134 (New York: American Management Association, 1945)
85. Thurston, John B. "The Control Unit Newest Techniques for Controlling Decentralized Operations," *Advanced Management Journal,* Vol 12 (June, 1947), 74-87
86 Thurston, John B , Carl Heyel (Ed), *Coordinating and Controlling Operations. Reading Course in Executive Technique,* Sec I, bk II., 41 vols (New York· Funk & Wagnalls, 1948)
87. Trundle, George T "Production Control," in William J. A. Donald (Ed.), *Handbook of Business Administration* (New York McGraw-Hill, for the American Management Association, 1931)

88 Trundle, George F *Managerial Control of Business* (New York Wiley, 1948).
89. Urwick, Lyndall F "Principles of Direction and Control," in John Lee (Ed), *Dictionary of Industrial Administration*, Vol 1 (London Pitman, 1928)
90. Urwick, Lyndall F *The Elements of Administration* (New York Harper, 1943).
91. Urwick, Lyndall F. "The Meaning of Control," *Michigan Business Review*, Vol 12 (November, 1960), 9-13
92. Villers, Raymond. *Research and Development: Planning and Control* (New York. Financial Executives Institute, 1964)
93. Wharton, Kenneth J *Administrative Control* (London Gee, Ltd , 1947)
94 Wharton, Kenneth J "Administrative Organization and Control," *The Accountant*, August 16, 1947, August 23, 1947, August 30, 1947 Serialized in three parts.
95. White, Percival *Business Management An Introduction to Business* (New York· Holt, 1926).
96. Williams, John H "Top Control," *Bulletin of the Taylor Society*, Vol 11 (October, 1926), 199-206
97 Williams, John H "General Administrative Control," in Harlow S. Person (Ed.), *Scientific Management in American Industry* (New York Harper, for the Taylor Society, 1929)