

DEVELOPING CONTROL CONCEPTS IN THE 20TH CENTURY

Lee D. Parker

ROUTLEDGE LIBRARY EDITIONS:
ACCOUNTING



ROUTLEDGE LIBRARY EDITIONS:
ACCOUNTING

Volume 54

DEVELOPING CONTROL CONCEPTS
IN THE 20TH CENTURY

This page intentionally left blank

DEVELOPING CONTROL CONCEPTS IN THE 20TH CENTURY

LEE D. PARKER

 **Routledge**
Taylor & Francis Group
LONDON AND NEW YORK

First published in 1986

This edition first published in 2014

by Routledge

2 Park Square, Milton Park, Abingdon, Oxon, OX14 4RN

and by Routledge

711 Third Avenue, New York, NY 10017

Routledge is an imprint of the Taylor & Francis Group, an informa business

© 1986 Lee David Parker

All rights reserved. No part of this book may be reprinted or reproduced or utilised in any form or by any electronic, mechanical, or other means, now known or hereafter invented, including photocopying and recording, or in any information storage or retrieval system, without permission in writing from the publishers.

Trademark notice: Product or corporate names may be trademarks or registered trademarks, and are used only for identification and explanation without intent to infringe.

British Library Cataloguing in Publication Data

A catalogue record for this book is available from the British Library

ISBN: 978-0-415-53081-1 (Set)

eISBN: 978-1-315-88628-2 (Set)

ISBN: 978-0-415-71803-5 (Volume 54)

eISBN: 978-1-315-87095-3 (Volume 54)

Publisher's Note

The publisher has gone to great lengths to ensure the quality of this book but points out that some imperfections in the original copies may be apparent.

Disclaimer

The publisher has made every effort to trace copyright holders and would welcome correspondence from those they have been unable to trace.

*DEVELOPING
CONTROL CONCEPTS
IN THE 20TH
CENTURY*

Lee D. Parker

Garland Publishing, Inc.
New York and London
1986

For a complete list of Garland's publications in accounting,
please see the final pages of this volume.

Copyright © 1986 by Lee David Parker

Library of Congress Cataloging-in-Publication Data

Parker, Lee David.

Developing control concepts in the 20th century.

(Accounting thought and practice through the years)

Bibliography: p.

1. Managerial accounting. 2. Industrial management.
3. Controllershship. 4. Management literature. I. Title.
- II. Series.

HF5635.P28 1986 658.1'51 86-15023

ISBN 0-8240-7854-3 (alk. paper)

Design by Bonnie Goldsmith

The volumes in this series are printed on acid-free, 250-year-life paper.

Printed in the United States of America

DEVELOPING CONTROL CONCEPTS IN THE 20TH CENTURY

by

Professor Lee D Parker

School of Social and Industrial Administration

Griffith University

Nathan, Brisbane, Queensland

Australia

To Susanne, Karen, Jay and Rhys
for always brightening the testing days

CONTENTS

	<u>Page</u>
SUMMARY	viii
ACKNOWLEDGEMENTS	ix
CHAPTER 1: INTRODUCTION	1
The Pattern of Analysis	2
Literature Selection and Classification	4
Modelling Methodology	7
Period Selection	9
Historical Methodology Employed	10
PART ONE	
MANAGEMENT AND ACCOUNTING APPROACHES TO CONTROL 1900-1959	13
CHAPTER 2: THE FORMATION OF THE CLASSICAL MANAGEMENT MODEL OF CONTROL	14
The Taylor Model of Control	15
Frederick Taylor's America	22
The Psychological Input	28
The Fayol Model of Control	34
France in the Time of Henri Fayol	41
A Personal Approach	47
The Scenario for a Classical Control Model	52
The Classical Management Model of Control	53
Consolidating the Classical Model	55

CHAPTER 3: FOUNDATIONS OF MANAGEMENT REVISION	65
Follett's Unique Contribution	65
The Emerging Structural Control Model	77
The Evolving Behavioural Model of Control	84
The Seeds of Change	92
 CHAPTER 4: THE ACCOUNTING MIRROR	 97
Adopting the Classical Model	98
The Roots of Determination	104
Recognising the Behavioural Dimension	112
Signs of a Defective Mirror	114
 PART TWO	
MANAGEMENT AND ACCOUNTING APPROACHES TO CONTROL: 1960-1979	117
 CHAPTER 5: MANAGEMENT MODELS: EXPLORING AND MATURING	 118
Follett: Belated Recognition	118
The Classical Control Model: Under Pressure	120
The Structural Control Model: Further Evolution	122
The Behavioural Control Model: New Dimensions	129
The Systems Control Model Appears	147
An Expanded View	169
 CHAPTER 6: PIECEMEAL PROGRESS IN ACCOUNTING	 175
The Persistent Classical Model	176
Elements of Structuralism	184
A Behavioural Model Emerges	185
A Partial Systems Model	198
Piecemeal Progress	204

PART THREE - COMPARATIVE ANALYSIS	208
CHAPTER 7: MANAGEMENT AND ACCOUNTING MODELS:	
A LIMITED CORRESPONDENCE	209
Management and Accounting Model Constituents: A Comparison	209
The Management Model Framework	217
Management and Accounting Frameworks: The Contrast	224
Models at the Close of the 1970s: A Question of Dominance	225
CHAPTER 8: THE TIMING OF MANAGEMENT AND ACCOUNTING MODEL DEVELOPMENT	228
Significant Accounting Time-Lags	229
Concurrent Classical Development	232
Differential Frequencies	233
In the Management Wake	235
The Accounting Lag: Contributing Factors	236
Material Timing Differences	261
CHAPTER 9: SUMMARY AND CONCLUSIONS	268
A Foundation for Control Modelling	269
The Evolution of Management Models	270
The Accounting Mirror: Derivative but Defective	271
Contributions to a Limited Correspondence	274
Contributions to the Time-Lag	275
Beyond Definition	277
APPENDICES: APPENDIX A - Control-Related Sections in 21	
Management Accounting Texts	280
BIBLIOGRAPHY	286

TABLES

	<u>Page</u>
1.1 Periods Covered by Bibliographic Indexes Referenced for this Study	7
5.1 Control Processes and Technology	162
5.2 Control in Mechanistic and Organic Organisations	163
7.1 Inter-Stream Comparison of Classical Control Model Components	210
7.2 Inter-Stream Comparison of Structural Control Model Components	212
7.3 Inter-Stream Comparison of Behavioural Control Model Components	214
7.4 Inter-Stream Comparison of Systems Control Model Components	216
8.1 Comparative Timing of Control-Related Publications by Model and Stream	229
8.2 The Accounting Model Time-Lag	231
8.3 Identity of Control-Related Chapters in Management Accounting Texts	236
8.4 Conceptual References to Control in a Sample of Management Accounting Texts	238
8.5 Conceptual References to Control in a Sample of Budgeting Texts	239
8.6 Space Allocated in Management Accounting Texts to Discussion of Control	241
8.7 Space Allocated in Budgeting Texts to Conceptual Discussion of Control	242
8.8 Frequency of Control-Related Articles Appearing in <u>Journal of Accounting Research</u>	243
8.9 Frequency of Control-Related Articles Appearing in <u>Management Accounting</u> (NAA - New York)	243
8.10 Classification of Main Articles by Major Subject in <u>Journal of Accounting Research</u>	245
8.11 Accounting Standards and Management Accounting Coverage	248

FIGURES

	<u>Page</u>
2.1 The Taylor Model of Control	21
2.2 The Fayol Model of Control	36
2.3 The Classical Management Model of Control	54
3.1 The Follett Behavioural Model of Control	71
3.2 The Follett Holistic Model of Control	72
3.3 The Developing Structural Model of Control	81
3.4 The Developing Behavioural Model of Control	89
5.1 The Revised Structural Model of Control	126
5.2 A Basic Version of Porter and Lawler's Expectancy Theory	141
5.3 The Advancing Behavioural Model of Control	144
5.4 The Management Control Cycle	151
5.5 A Modified Management Control Cycle	152
5.6 A Closed Control Loop	153
5.7 An Open Control Loop	153
5.8 The Systems Model of Control	165
6.1 A Behavioural Accounting Model of Control	198
6.2 A Systems-Based Accounting Model of Control	204
7.1 The Management Control Model Framework	218

SUMMARY

This text is a revised version of the author's PhD thesis. It presents a shortened version of the original study with significant reduction in explanatory footnotes, source referencing, control model diagrams, and text length. The original thesis (419 pp.) can be consulted in the Donald Cochrane Library at Monash University, Melbourne. The conceptual development of control in the literature of both the management and accounting disciplines is examined for the period 1900 to 1979 inclusive. In order to portray the development of control concepts over time, they are assembled into groups relating to the schools of thought from which they emanated and a model of control is constructed to represent each group of concepts and their hypothesised inter-relationships. An attempt is later made to construct a framework representing the control models and their interrelationships.

Having traced the development of control models in both management and accounting streams of literature, a comparative analysis of historical development in the two streams is undertaken. A management-model framework is constructed and compared with the lack of a justifiable accounting-model framework. The 80 year period of the study is then reviewed to assess whether any particular control model gained ascendancy in each stream of literature.

Comparisons of timing of model development between the two streams of literature reveal a pronounced lag of accounting development behind that of the management literature. This is argued in part to be a product of an accounting preoccupation with control tools, its neglect of conceptual aspects of control, an absence of management accounting-oriented professional or public body practice standards, and the recency of conceptual and theoretical research and teaching in academic accounting education. The time-lag, and the consistent emergence of accounting control concepts identical to their management predecessors, are proffered as evidence of the derivative nature of accounting models. Although apparently derived from management concepts and models, the accounting models for the most part appear only to offer an imperfect reflection of management models of control.

ACKNOWLEDGEMENTS

The number of people to whom I am indebted is too great to adequately recognise here. Patient supervisors of the original study at Monash University were Professor Graham Peirson (accounting) and Dr Michael Knowles (administrative studies), with important guidance also being provided by Dr Keith Trace (economic history). Ms Toni Borrett faithfully typed original drafts and manuscript.

In the production of this revised text, I wish to acknowledge the comments and encouragement of thesis examiners Professors Thomas Johnson (University of Washington) and Anthony Hopwood (London School of Economics). The editor of this series, Professor Richard Brief (New York University) has given invaluable advice on revision of the text, with further advice and encouragement being given by Professor Gary Previts (Case Western Reserve University) and Emeritus Professor Louis Goldberg (Melbourne University). I am also grateful for comments received from seminar participants at the Universities of Melbourne, New South Wales, Adelaide, Case Western Reserve, Ohio State and Leeds, at Mid-Atlantic and Ohio region AAA conferences, and at the 4th International Congress of Accounting Historians in Pisa. Ms Olwen Schubert of Griffith University efficiently typed and Ms Susanne Parker proof read the manuscript for this revised text.

Finally my deepest gratitude must be reserved for my own family who have always given me their unconditional support and encouragement.

This page intentionally left blank

CHAPTER 1

INTRODUCTION

Control has traditionally been a focus of attention for practitioners and researchers in the management and accounting disciplines. Together with planning it has often been treated as an indispensable requirement for effective organisational functioning. While the subject of control has consistently attracted interest and discussion over many years, its conceptual nature does not appear to have been particularly well understood. This general lack of understanding has been reflected in the apparent failure of many writers to appreciate the variety of control concepts which they utilise (possibly unconsciously) from time to time, the schools of thought from which such concepts emanated and the historical development of such concepts. All too often the conceptual nature of control has been accorded little more than a brief and trite definitional statement.

The basic theme which underpins this study is a concern to reach an understanding of the conceptual characteristics which have been attributed to the term 'control' as it has been used in the literature of the management and accounting disciplines in the 20th century.¹ Such an understanding would not only be valuable in itself but also would allow researchers to make a better judgment about the appropriateness of control strategies, measures and effects which they may seek to design or observe.

This text examines the progression of conceptual ideas concerning the nature of control² in both the management literature and the accounting literature during the 1900-1979 period. To that end concepts developed during this period have been studied with several purposes in view. Within each of the two streams of literature³ an attempt has been made to identify key concepts of control in the context of schools of thought from which they appear to have developed. The possible relationships between such concepts have been considered and models of control (COM)⁴ which embody them have then been constructed. Further, investigations have been conducted in order to suggest likely socio-

economic variables which may have created conditions conducive to the appearance of such models of control. Over time these models have been examined for significant changes in their conceptual content and structure.

The above historical analysis has been carried out in order to compare the paths of control concept development taken by each stream of literature with a view to determining whether they developed in isolation from each other, whether one stream predated another in timing of control model appearance, and whether either stream produced an array of various separate models and concepts or some framework of interconnected models. Where differences in control model development between the two streams of literature have become apparent, their intrinsic nature has been explored and identification of likely contributing factors has been attempted.

THE PATTERN OF ANALYSIS

The text is divided into three major parts. Part I is concerned with the conceptual development of control in the period 1900 to 1959. Similarly Part II is concerned with the conceptual development of control in the period 1960 to 1979. These include analyses of the progressive development of schools of thought and their control concepts in each literature stream. Control models are constructed as representations of groups of control concepts and elements of the socio-economic scenario underpinning their development are examined. Part III incorporates a detailed comparative analysis of the conceptual content of model development and its timing in both the control-related literature of management and accounting.

Part I begins with an analysis in Chapter 2 of the scientific management foundations of management thought on control. The control-related writings of Frederick Taylor and Henri Fayol are combined to form a classical management COM. Social, economic and personal factors which influenced the resulting model are considered and continued support for its component concepts in the management literature of the 1920s to the

1950s are reviewed. In Chapter 3 the significance of Mary Parker Follett's contribution to the management literature on control is assessed and two major new developments in conceptual management thought on control appearing before the 1960s are examined. On this basis a structural COM and a behavioural COM are both constructed and socio-economic factors which influenced these models are considered. Chapter 4 investigates the conceptual development of control in the accounting literature from 1900 to 1959. This results in the construction of the classical accounting COM. Factors which appear to have influenced its replication of the classical management COM are then discussed.

In Part II, Chapter 5 explores the further development of conceptual approaches to control in the management literature of the 1960s and 1970s. Critiques of the classical model are reviewed, revised models of structural and behavioural control are constructed, and the appearance of a systems COM is constructed. Once again socio-economic factors underpinning these observed conceptual developments during the 1960-1979 period are discussed. Chapter 6 examines further developments in the accounting literature's conceptual approach to control in the 1960s and 1970s. The persistence of the classical model is considered as well as the failure of any serious structural approach to appear. The emergence of a behavioural accounting approach to control is discussed and a representative COM is constructed. The beginnings of a systems approach to control is also reviewed and a partial COM constructed.

In Part III the foregoing parallel analyses are brought into sharper focus and the analysis of historical development is extended. In Chapter 7 a conceptual study of the overall correspondence between management and accounting models of control is undertaken. The conceptual components of the classical, structural, behavioural, and systems control models are compared between the two streams of literature. A framework of management models of control is constructed to reflect model interrelationships and this is contrasted with the lack of a justifiable accounting model framework. As at the close of the 1970s the 80 year period is reviewed to determine whether any particular control model or models dominated the literature of each stream. Chapter 8 contains an analysis of the relative timing of management and

accounting model development with respect to publication dates of the literature sample used as the basis for this study. The extent of any accounting time-lags behind management developments is investigated and their implications considered. Factors which may have contributed to accounting time-lags are explored and evidence relating to their possible influence is tested. The final arguments are concluded and summarised in Chapter 9.

LITERATURE SELECTION AND CLASSIFICATION

Published journal articles, papers, and books have been chosen as the best available evidence for the purposes of examining the conceptual development of control. Discussions of contributions to control concepts appearing in this study for the most part utilise primary sources of literature on control. In attempting to portray conceptual history as faithfully as possible the analysis reflects both normative and positive contributions to the literature on control. No attempt is made to discriminate between these two types of contribution since the focus of this study is upon the conceptual characteristics ascribed to control by management and accounting writers rather than whether the route they took was positive, normative or a mixture of the two.

The literature which forms the basis for this study has been published predominantly in the USA and the UK. The collection of the literature has been facilitated by the use of bibliographic indexes identifying control-related publications in the English language. Hence publications appearing in languages other than English have been excluded from the sample of literature collected. Furthermore no attempt is made to undertake any form of international comparisons between publication sources. Rather literature published in the USA and UK is treated in combination as representing the predominant source of management and accounting thought on control in the 20th century.⁵

This study has been confined to an examination of literature on control in the management and accounting fields of knowledge. Approaches to control which may have appeared in such fields as philosophy,

political science, economics, operations research or engineering fall outside its scope. The classification of publications as falling within either the literature of management or accounting proved at times to be a complex question. Some accounting journals contained papers by management writers on management aspects of control while some management publications contained accounting contributions, for instance, on budgetary control. Indeed in admittedly a minority of cases, a writer can be found to have written at different times on management aspects of control and then on accounting aspects of control. Accordingly the decision was made to classify publications as being in the management or accounting streams by reference to their content. Where the subject matter of a publication was considered to be predominantly management-oriented, referring for instance to management theories, planning and control strategies, management functions, organisation structure, employee characteristics etc, that publication was classified as being part of the management literature. Where the subject matter of a publication was considered to be predominantly accounting-oriented, referring for instance to cost control, budgeting, financial standards, management accounting, financial accounting controls etc., that publication was classified as being part of the accounting literature. While this method admitted to the classification a degree of subjectivity, it avoided the above-mentioned problem of journals and authors presenting both management and accounting discussions of control on some occasions. It also avoided the problems of authors of unidentified professional category as in Lewis, Parker and Sutcliffe [1984]. Accordingly some degree of subjectivity has been allowed in order to maintain the relevance of the classification for the purposes of this study.

The search for control literature in the management and accounting streams was predominantly conducted using the following bibliographic reference tools:

London Bibliography of the Social Sciences
Index of Economic Journals
Library of Congress Catalog - Books: Subjects
Business Periodicals Index

Public Affairs Information Service Index
The Subject Index to Periodicals
Social Sciences Citation Index
Commerce Clearing House Accounting Articles

The London Bibliography of the Social Sciences was searched up to 1950 utilising Volumes 1 to 9. The Index of Economic Journals of the American Economic Association was searched from its first year of coverage, 1886, to 1959 utilising Volumes I to V. The Library of Congress Catalog was searched from 1950-59 utilising 1950-54 Volumes 1-20 (A-2) and 1955-59 Volumes 1-22 (A-2). The Business Periodicals Index was searched from 1958-1979 utilising Volumes 1-22. The Accountants Index was searched from 1920 to 1979. The Public Affairs Information Service Index was searched from 1915 to 1979. The Subject Index to Periodicals was searched from 1915 to 1962. The Commerce Clearing House Accounting Articles Index was searched from 1963 to 1981. In addition, use was also made of the Social Sciences Citation Index, Monash University Library subject and author indexes and the Australian Society of Accountants Library indexes. The approximate periods referenced by the combination of these indexes are shown in Table 1.1.

The extent of periodic coverage by indexes shown in Table 1.1 allowed for relative equality of opportunity to identify control-related material in the literature of management and accounting throughout the 1900-1979 period. This resulted in the collection of a basic sample for analysis of 341 publications in total as shown in Table 8.1. The bibliography attached to this study references in excess of 500 publications in the course of investigating control-related material, underlying socio-economic factors, personal biographies etc.

Index	Pre- 1900	1900 -09	1910 -19	1920 -29	1930 -39	1940 -49	1950 -59	1960 -69	1970 -79
London Bibliography of Social Sciences	x	x	x	x	x	x			
Index of Economic Journals	x	x	x	x	x	x	x		
Library of Congress Catalog							x		
Business Periodicals Index								x	x
Accountants Index				x	x	x	x	x	x
Public Affairs Information Service			x	x	x	x	x	x	x
Subject Index to Periodicals			x	x	x	x	x	x	
Commerce Clearing House Accounting Articles Index								x	x
Number of Indexes Referenced Per Period	2	2	4	5	5	5	5	5	4

Table 1.1
Periods Covered by Bibliographic Indexes
Referenced for this Study

MODELLING METHODOLOGY

The control-related literature in the management and accounting disciplines have been examined in order to determine the major schools of thought represented. From writing influenced by each school of thought,⁶ control concepts which appeared to attract a reasonable level of support amongst writers have been identified. The analysis of each concept's

ascribed characteristics has been carried out to the degree required to justify its inclusion in a particular COM. Once a series of control concepts are identified as having emerged under the influence of a particular school of thought, a COM is constructed. This model represents the control concepts and the hypothesised relationships between them. In this way the study constructs models of control representative of conceptual developments between 1900 and 1979. In Chapter 7, management models of control⁷ are assembled into a framework that represents the control models and their interrelationships as suggested by the literature from which they were generated.

In order to identify control concepts and construct control models, a degree of generalisation in classifying authors' writings has been necessary. This is the almost inevitable consequence of a study which extracts the essence of a particular school of thought on control for the purpose of distilling concepts to which groups of writers have contributed. The objective of concept classification and model construction has thus on occasion required the bypassing of some nuances of a particular author's conceptual contribution.

In relation to text structure, it should be noted that each chapter and its component sections is focussed upon developing models of control and their constituent concepts. Accordingly, within major periods being studied, from time to time the discussion of constituent concepts or issues within a model may be ordered in a logical conceptual order or linkage which however, causes some publications to be referred to without regard to strict chronological sequence. This has been the almost inevitable results of gathering contributions to a particular concept or issue that have occurred over a relatively wide span of time. Some chronology at this 'micro' level has been sacrificed in order to preserve the logical order of treatment of issues and concepts within each model.

It must also be pointed out that the task of tracing the conceptual development of control in the literature of management and accounting has necessitated the repetition of certain models and their constituent concepts. This has been the unavoidable consequence of the accounting

literature being found to have largely duplicated conceptual developments in the management literature. The classical management model constructed in Chapter 2 is found to reappear in the accounting literature up to the end of the 1950s, so that the classical model is reconstructed from an accounting literature base in Chapter 4. Evidence of the classical model's reiteration in the accounting literature of the 1960s and 1970s is produced in Chapter 6 as an indicator of its continued predominance in accounting thought on control. The behavioural and systems control models constructed from the management literature analysed in Chapter 5, reappear (albeit with fewer constituent concepts) in the accounting literature analysed in Chapter 6. This apparent duplication becomes an important topic of discussion in Chapters 7, 8 and 9.

PERIOD SELECTION

The period selected for study in this thesis was the whole of the 20th century up to the close of the most recently concluded decade at the time of writing the text. This resulted in the period 1900-1979 inclusive being selected for study.

Chapters in Parts I and II of the thesis have been so grouped to cover the periods 1900-1959 and 1960-1979.⁸ The purpose of this form of presentation has been to portray the historical development of control-related literature in a more easily digestible form and to better facilitate the highlighting of major changes in direction occurring at various points of time in each stream of literature. The two periods were selected on the following basis. Preliminary scrutiny of the sample of literature collected revealed that both management and accounting publications on control had proliferated in volume after 1960, that the accounting literature appeared to have remained largely oriented towards classical management until the close of the 1950s, and that on a first inspection both streams of literature appeared to have spawned a greater variety of conceptual approaches to control in the years after 1960 than in the decades before. These two periods facilitated clarity of analysis

without biasing analytical results. As will become evident in Chapters 7 and 8, the comparative analysis of COM development focusses upon the periods relating to each model's own appearance and development, and transcends the artificiality of the preceding section structure.

HISTORICAL METHODOLOGY EMPLOYED

The historical methodology employed in this study has involved a number of constituent strategies. A chronological analysis of the management and accounting literatures on control has been undertaken, with models of control being constructed through cumulative analysis in which predecessors' work has been examined together with subsequent literature to determine whether the predecessors' work was built upon and advanced. In addition, attempts have been made to determine the role which particular individuals or schools of thought played in generating new or revised approaches to the conceptualisation of control. Comparative analysis has also been applied by the comparison of developmental paths taken by management and accounting streams of literature on control. By comparing the timing of development of models in each stream implications for the precedence of management models have been derived [Committee on Historiography, 1954; Clark, 1972].

An attempt has also been made to outline a scenario of factors which may plausibly have influenced the development of control models identified in this study. In attempting to gain a deeper understanding of the models outlined, the socio-economic context within which they were set has been examined as well as biographical details of major contributors in a limited number of cases. Biographical analysis, where relevant, has been undertaken to identify any personal characteristics or other personal factors which may have contributed to control models as well as to assist in estimating the real extent of a writer's influence upon a model relative to that of his or her socio-economic environment [Committee on Historiography, 1954; Clark, 1967].

A major thrust of the review of socio-economic factors at various points in the thesis and of the investigation of factors contributing to the accounting lag in Chapter 8, has been a concern to identify some of the variables which may have provided conditions conducive to the emergence of various models of control and to their relative timing. Thus an interrelated examination of model development trends and likely conditioning factors is presented in this thesis. Models will be viewed in general in the light of a multiplicity of potentially conditioning factors where the likelihood of their influence can be rationally and reasonably argued. Such arguments identify variables which may possibly provide developmental explanations for model appearance and timing while of necessity being couched in general terms. The results of such historical analysis must of necessity be tentative, approximate and less than certain. Problems of underlying assumptions, value judgments and the assigning of weights to factors reduce arguments to a balancing of probabilities [Committee on Historiography, 1954; Carr, 1964; Clark, 1967; Barzun and Graff, 1970; McClelland, 1975].

While evidence for a relationship between a set of socio-economic factors and the emergence of a COM may appear to be particularly strong, it cannot be assumed to be inevitable. When discussing potentially conditioning factors influencing model development, the term 'probably' must be used because it is not possible to assert that the factors identified constitute the complete population of factors which may have led to a model's emergence. While probability is not dealt with in a mathematical sense, it is pursued through a process of critical judgment [Carr, 1964; McClelland, 1975].

NOTES

1. To the close of the 1970s.
2. Observation of control practice lies outside the scope of this study except where such observations have been cited by writers whose work falls within the literature sample utilised for the purposes of this thesis.
3. Management and Accounting.
4. The acronym 'COM', representing 'control model', will be employed throughout this text.
5. A notable exception in this regard is the writing of Frenchman, Henri Fayol.
6. Consistent with the 'content' orientation of literature classification (into management and accounting streams) adopted in this thesis, some authors (admittedly a minority) have been recognised as contributing to control concepts characteristic of more than one school of thought.
7. Arguments are mounted as to the lack of justification for the construction of a similar accounting model framework.
8. Part I covers 1900-1959 inclusive. Part II covers 1960-1979 inclusive.

PART ONE

MANAGEMENT AND ACCOUNTING APPROACHES TO CONTROL: 1900 - 1959

CHAPTER 2

THE FORMATION OF THE CLASSICAL MANAGEMENT MODEL OF CONTROL

The foundation for the development of a management theory of control this century was laid by the scientific management school. Since this period was a watershed for the conceptual development of control in management and accounting literature, some appreciation of prevailing socio-economic conditions at the time will serve as a background scenario to the subsequent analysis of control concepts.

The number of scientific management writers who concerned themselves with the inherent nature of the concept which they were utilising was small indeed. While some such as Metcalfe¹, Taylor² [1916, 1947] and Fayol³ [1949] did pause to consider this question, others such as Gilbreth and Gantt [George, 1968] restricted their concerns more completely to time and motion study, remuneration plans, performance measures and so on. From among the scientific management advocates, it is Taylor and Fayol who must be credited as being the main sources of the school's specification of control [Urwick and Brech, 1951], whereas the control concepts used by their contemporaries were invariably dealt with by implication only. Indeed, Taylor and Fayol became the focal point and key catalysts in continued efforts to develop a scientific approach to organisational management, even well beyond their own lifetimes. They worked in different continents from opposite ends of the organisational hierarchy, and yet their ideas interlocked and formed a basis for management thought for decades to come.

This chapter identifies the control concepts to be found in each author's work and assembles them into a Taylor COM and a Fayol COM. The genesis and nature of these two models is then explored through a review of each author's personal background and his socio-economic environment. The observed similarities between Taylor and Fayol, their backgrounds, and their models of control, facilitate the combining of these two models to form a composite classical management COM. The component concepts of the classical model are identified and evidence of their reiteration over subsequent decades is then considered.

THE TAYLOR MODEL OF CONTROL

While Taylor did not devote a specific passage of writing to the nature of the control concepts which he embraced, their nature becomes evident from a study of his work and philosophy in general. His views on control were coloured by and oriented towards his desire to induce employees on the shop floor to work harder and more quickly [Taylor, 1916, 1947a].⁴

A Moral Foundation

Taylor's view of control was bedded in his moral stance. He called for a revolution in the mental attitude of management and workers where both parties ceased quarrelling over the division of productive gains and devoted themselves to increasing total productive gains. This mental revolution was to extend to employees' attitudes to work, to each other and to management [Taylor, 1947b]. Furthermore Taylor regarded workers as being naturally lazy and 'systematic soldiering' (deliberate slackness) on the job as a universal 'evil' being 'suffered' by both workers and employers. Thus he saw output restriction as a case of 'mere robbery'. The resolution of this evil lay in control and he sought to enshrine this moral conviction in principles which he saw as being as stable and permanent as religious principles [Taylor, 1947b; Haber, 1964].

Taylor's fight against moral evil in industry was in some respects a 'fight' in the true sense of the word. He admitted that his introduction of scientific management at both Bethlehem Steel Company and Midvale Steel Company had encountered worker resistance and had engendered considerable acrimony between himself and workers involved [Taylor, 1916, 1947b]. In his own words Taylor fought them and was branded a tyrant as a result.

Total Control of the Individual

Taylor sought complete control of every aspect of a worker's job, from method of execution to final results [Taylor, 1916, 1947b] through the adoption of his system of management in its entirety. Prescription and enforcement of working method and speed were its critical components and was levelled at the individual rather than at any group or category of employees. For instance:

"It is of the utmost importance in starting to make a change that the energies of the management should be centred upon one single workman"

[Taylor, 1947b:192]

The method of maintaining control over individual performance involved the giving of orders and expectation of worker obedience. As each man was converted to Taylor's system of working, another individual was to be selected for training and so on until the whole shop was converted to his minutely specified and total control. This was amply demonstrated by his often quoted example of the retraining of the Dutch worker, Schmidt, in pig iron handling [Taylor, 1916, 1947a]. The individual worker was subject to detailed control of his physical working actions, his pace of work, his rest periods and his output. No aspect of his working day fell outside the scope of Taylor's total control.

Control Enforcement by Legalised Controls

"It is only through *enforced* adoption of the best implements and working conditions, and *enforced* co-operation that this faster work can be assured. And the duty of enforcing the adoption of standards and of enforcing this co-operation rests with *management* alone."

(emphasis in original)

[Taylor, 1916:83]

On the basis of this type of statement it is arguable that Taylor advocated an autocratic⁵ concept of control that emphasised the need for direction and close supervision. Any reference to co-operation in reality implied a considerable degree of compulsion accompanied by close monitoring of means and results. Control through enforced worker co-operation was to be secured through the 'carrot' of differential piece rates and the ultimate 'stick' of dismissal. Indeed while the 'carrot' was limited essentially to an increase in pay, the potential 'sticks' were several [Taylor, 1916, 1947a], including fines, lowering wages, laying off, and dismissal. The extent of the severity of discipline built into Taylor's notion of control enforcement was a matter of some dispute at the time. Hoxie [1961:95]⁶ observed that organised labour had criticised the severity of Taylor-style discipline whereas Taylor had claimed his system of control to be democratic. While Taylor argued that scientific management was a substitute for close supervision and threats and punishments, Hoxie had found that supervision in these shops was more intensive, workers were constantly reminded of their degree of incurred demerit, and punitive disciplinary devices multiplied

Within Taylor's concept of control, what was the trigger mechanism for sanctions to be applied? The answer lay in another facet of his control concept. Sanctions were activated when 'controls' were breached. As primary scientific controls Taylor set standards for work pace and output. Further controls in the form of speed of work were written on job instruction cards for each worker, then shop reports, time cards, expense sheets, cost sheets, pay sheets, etc, proliferated [Taylor, 1916, 1947a].

Taylor's concentration upon the mechanistic approach to control became most clearly manifest in his preoccupation with the design of 'controls'⁷ as the best path to control. This approach was founded in his firm belief that methods of product engineering could be equally applied to man management. He did not consider the possible complications incurred by people being less behaviourally predictable than objects because he treated workers as completely rational beings who made simple calculations of costs and benefits of his system to them and

made their choices with no personal feelings about the system of control itself [Taylor, 1916, 1947a]. Thus for him, people could be expected to be just as rational and predictable in their activities as machines.

Taylor did not escape criticism of this mechanistic emphasis on controls (during or after his own lifetime). Hoxie [1916] severely criticised him for treating people as simply another factor of production like machinery and supplies and treating their control as a mere question of setting tasks and making rates. Later, writers such as Shields [1928] also recognised the argument that Taylor's procedure for instance, of time study, was scientifically, sociologically and psychologically unsound.⁸

The ultimate expression of Taylor's commitment to control enforcement through controls was his attempt to legalise through conversion of all traditional craft and factory knowledge into clearly defined laws, rules and principles [Taylor, 1916, 1947b]. When enshrined as laws, in Taylor's view, his controls then became uncontestable and unchanging. Thus for Taylor, control was to be enforced by sanctions that themselves were triggered by mechanistic and legalised controls.

Information-Based Control by Exception

Taylor's approach relied particularly upon the collection and recording of information about all factory workings, right down to the individual worker's knowledge of his craft and its associated skills including such quantitative information as working methods, timing of operations, pace of production etc [Taylor 1947a,b].

Information became both the source of Taylor's legalised controls and the means for comparing actual worker performance against those controls to determine whether 'carrot' or 'stick' sanctions should be triggered. Through the assignment of daily tasks to workers: