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ACCOUNTING FOR COMMON STOCKHOLDERS
AN ECLECTIC DECISION-MAKING
AND
MOTIVATIONAL FOUNDATION

Nicholas J. Gonedes

Studies in Accounting No. 4

Bureau of Business Research
Graduate School of Business
The University of Texas at Austin

ACCOUNTING FOR COMMON STOCKHOLDERS

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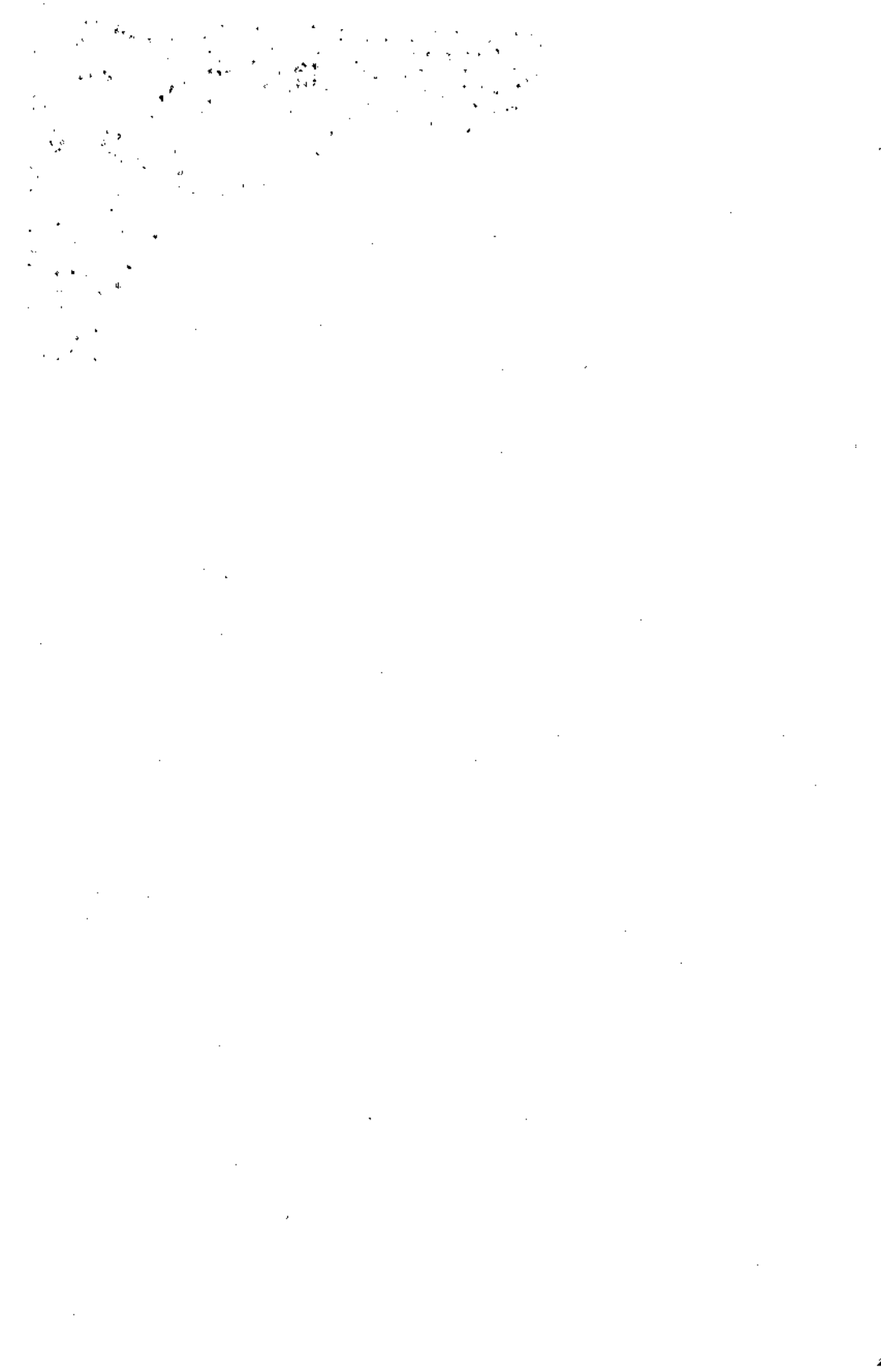
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PUBLISHER'S FOREWORD

Accepting the prevalent conception of accounting as an informative service activity, Dr. Nicholas J. Gonedes, of the Graduate School of Business at the University of Chicago, has examined the accounting process as a constellation of activities for the facilitation of human action, a purpose which requires a theoretical foundation relevant to the domain of accountancy.

In formulating such a theory the author constructed from field and gestalt psychology a general behavioral model of one class of persons served by accountants—holders of common stock. This model of human behavior suggests that human action occurs when disequilibrium exists in an individual's lifespace—when each force acting upon a person is not offset by another force, or when a net force is affecting the individual.

Pursuing a partial-equilibrium analysis, Dr. Gonedes focused attention on the wealth sector of the investor and his four subsystems: inner-personal (motives with respect to wealth sector), perceptual (securing of environmental data), cognitive (knowledge of past, present, and future), and executive (maintenance of equilibrium within lifespace).

The author's analysis indicates that the accounting process should facilitate the investor's movement from initial wealth position to optimal wealth positions, serving as a means of wealth optimization by fulfilling the role of an effective informational intermediary. The information submitted in accounting reports should include data relative to the present wealth position of a firm, wealth change experienced by a firm, temporal perspective of the firm's present lifespace, and the environmental component of the firm's lifespace.

The model of common-stockholder behavior presented by Dr. Gonedes can yield fruitful general implications for the process of accounting for common stockholders, thus making a valuable contribution to scholarship in accounting.

Accounting for Common Stockholders: An Eclectic Decision-Making and Motivational Foundation is No. 4 in the series of Studies in Accounting published by the Bureau of Business Research.

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Director

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A special note of extreme gratitude is due to Professor Charles H. Griffin for the unceasing encouragement and intellectual stimulation that he provided. *Rara avis.*

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N. J. G.

**ACCOUNTING
FOR
COMMON STOCKHOLDERS**

1. INTRODUCTORY COMMENTS

On Accounting

If one engages in a perusal of the literature of accounting he will discover that many accountants consider accounting to be an informative service activity. This conception is implicit, for example, in the following statement of *accounting objectives*:¹

The objectives of accounting are to provide information for the following purposes:

1. Making decisions concerning the use of limited resources, including the identification of crucial decision areas.
2. Effectively directing and controlling an organization's human and material resources.
3. Maintaining and reporting on the custodianship of resources.
4. Facilitating social functions and controls.

The same conception is evident, similarly, in the following assertion with respect to *economic activity and the process of accounting*:

In virtually all the organized groups of which knowledge exists goods and services are produced by the interaction of human effort with other elements in the environment. Elements of the environment include natural resources as well as the brain and muscle of human beings, and also imply their combination in all conceivable stages.

. . . The necessity for decisions of various types [is] apparent. Decisions must be made as to the goods and services to be produced and the resources to be used in their production.

. . . Accounting clearly furnishes one type of quantitative data that can be used as a basis for making some of the choices that have to be made from among the alternatives available, and for checking and evaluating progress and results.²

¹American Accounting Association, *A Statement of Basic Accounting Theory*, p. 4.

²Maurice Moonitz, "The Basic Postulates of Accounting," *Accounting Research Study No. 1*, American Institute of Certified Public Accountants, p. 8.

A final manifestation of the conception of accounting as an informative service activity occurs in this typical commentary on the *general nature of accounting*:

Accounting is an informative activity; it provides information to assist those who have to make economic decisions. These decisions may be of various types. Decisions relating to investing; decisions relating to buying and selling commodities and services; decisions to produce, to pay, to bill, or to insure; and decisions relating to tax collections—all are likely to be easier to make if accounting reports are available.³

Each of the above quotations reflects an emphasis upon the provision of information to certain persons in order to facilitate particular genera of decision-making and behavioral activities, usually of an economic nature. In functional terms the above comments suggest that accounting is concerned with resource-allocation activities. According to this view the function of accounting is to generate information which will affect decision makers' cognizance of opportunities and constraints, and enable decision makers to evaluate alternative courses of action.⁴ Informational inputs are deemed prerequisites for optimal allocations of resources because such activities are dependent, in part, upon the scope of a decision maker's knowledge and beliefs.⁵

If one contemplates the theoretical foundation upon which accounting activities should be predicated, one will probably conclude that the theoretic structure underlying accountancy should include extensive, explicit, and continually re-examined propositions with respect to human behavior of an economic nature. One might contend that the methodology of accountancy should be partially derived from relevant propositions with respect to, for instance, the psychological aspects of human action, the psychological aspects of thinking and decision making, and the behavioral aspects of language and communication. Theoretical statements in regard to human behavior are relevant to the domain of accountancy, of course, because accountancy is concerned with activities which occur through the

³George J. Staubus, *A Theory of Accounting to Investors*, p. 11.

⁴An application of functionalism to the process of accounting is provided in William B. Barrett, "A Functional Approach to Accounting," *The Accounting Review* (January 1968), pp. 105-112.

⁵The importance of information in respect of economic activities is discussed in D. M. Lamberton, *The Theory of Profit*, and G. B. Richardson, *Information and Investment*.

performance of human beings; indeed, the activities and results of accounting are posited to be facilitative with respect to human behavior, usually in its economic aspects.

A search for the behavioral foundations of accountancy reveals a relative dearth of extensive and well-developed behavioral propositions which have been advanced within, or on behalf of, the accounting community. This relative paucity of treatises with respect to such considerations in the literature of accounting suggests that extensive research into the relevant aspects of human behavior has not been undertaken, or that most behavioral foundations of accounting are latent and derived from some sort of insight. Inadequate research seems the more justifiable explanation. Thus far the accounting community has devoted insufficient effort to the "manner in which accounting fits into the framework of individual and business behavior."⁶

Accounting is in need of a behavioral framework. If accounting is a constellation of activities whose purpose is the facilitation of certain kinds of human action, then a behavioral model which is relevant to accountancy must be viewed as a prerequisite to the formulation of procedural schema which are supposed to achieve specific objectives established for accountancy:

Every science, methodology, or other body of knowledge [should be] oriented to some conceptual structure—a pattern of ideas brought together to form a consistent whole or a frame of reference to which is related the operational content of that field. Without some such integrating structure, procedures are but senseless rituals without reason or substance; research is but fumbling in the dark; and the dissemination of knowledge is a cumbersome process, if indeed there is any "knowledge" to convey [emphasis added].⁷

If the accounting community is desirous of disencumbering human action by providing information, then it must understand human action. If the accounting community has a desire to develop procedures which are to be employed in order to serve human activities, then it must develop and

⁶Raymond J. Chambers, *The Resolution of Some Paradoxes in Accounting*, p. 4.

⁷William J. Vatter, *The Fund Theory of Accounting and Its Implications for Financial Reports*, p. 1.

adopt a model of human behavior.⁸ In the absence of an explicit and well-developed behavioral model, accounting can do no more than remain in the chrysalidal stage—a decidedly nonelysian posture.

On the Content of this Essay

The behavioral model to be developed in this essay, though relevant to accounting, will not encompass, explicitly, the activities of all actors served by accounting. Instead, the behavior of common stockholders will constitute the axial phenomenon of the propositions which are discussed.

An abstract, theoretical approach will be adopted in order to fulfill this purpose. The theoretic structure set forth is intended to be sufficiently general to serve in coping with some of the numerous problems of accounting *vis-à-vis* common stockholders. However, *it is not our objective to provide detailed solutions to the many specific and unique problems with which the accounting community is confronted in regard to accounting for common stockholders.* The theoretic edifice which will evolve herein is intended to be applicable to the *general* process of accounting for common stockholders; our method will consist in "the complete and separate study of general principles, with the rigid exclusion of all fluctuations, modifications, and accidents of all sorts due to the influence of factors less general than those under investigation at any particular stage of the inquiry."⁹ Consequently, our statements may not be applicable to particular situations, which are characterized by many unique and complex attributes. They will be applicable, instead, to situations *in general*, and typical of many theoretical systems which relate to reality.

It will be necessary to abstract from some factors which should properly be included in a treatise on common-stockholder behavior, *per se*, with no consideration, for example, of the influence of "technical analysis," that is, "chart theory," on the behavior of common stockholders. The spotlight of this inquiry will be directed toward the relationship between the common stockholder and the field of accountancy. Factors which may be related to common-stockholder behavior, but which are irrelevant to an

⁸Vahe Baladouni, "The Accounting Perspective Re-examined," *The Accounting Review* (April 1966), p. 218.

⁹Frank H. Knight, *Risk, Uncertainty, and Profit*, p. 9.

understanding of the process of accounting and common-stockholder behavior, will be impounded in a *ceteris paribus* assumption. In effect, this investigation considers only *selected* aspects of stockholder behavior—the aspects which we consider to be germane to accountancy.

This study is not particularly concerned with the specific aspects of *all* kinds of human behavior, but mainly with the general behavior of humans in their capacity of common stockholders. Since the accounting community does not purport to facilitate the behavior of humans in respect of *all* their roles, this limitation on the scope of the study does not appear to be unreasonable.

This inquiry devotes much attention to: (1) a general model of behavior which is derived, mainly, from the theoretical constructs of field psychology (called by some "field theoretic treatments of psychology") and gestalt psychology, (2) the psychological aspects of problem solving, that is, decision making, and (3) the psychological and philosophical aspects of expectations, uncertainty, and behavioral changes. We shall draw also upon concepts from the fields of language and communications theory.

The knowledge needed in the course of these investigations and theorizations will be extracted from such disciplines as psychology, philosophy, economics, semiosis, finance, and accounting. The boundaries of accounting—as it is usually delimited—will be *deliberately* transcended in order to comprehend the aspect of accounting under consideration, in order to formulate a theoretical *framework* for the process of accounting for common stockholders. "Accounting is not a basic discipline . . . it is derived in large part from other related areas or disciplines. Accordingly, it seems unlikely that basic concepts of accounting can ever be developed without taking into consideration developments in other fields."¹⁰ Accounting will be treated as a *part* of the process of human behavior, with an approach tending therefore to be "organismic." "Basic to any organismic approach are two closely related general assumptions . . . [the] *holistic* one, which maintains that any local organ or activity is dependent upon the context, field, or whole of which it is a constitutive part . . .

¹⁰Robert M. Trueblood, "Accounting Principles: The Board and Its Problems," in The Institute of Professional Accounting, Graduate School of Business, University of Chicago, *Empirical Research in Accounting: Selected Studies, 1966*, p. 189. ". . . every definite entity requires a systematic universe to supply its requisite status" (Alfred North Whitehead, *Process and Reality: An Essay in Cosmology*, p. 17).

[and] second . . . [the assumption of] *directiveness* . . . [which states] that the various organs or activities of an organism function in the realization of ends immanent in the activity of the organism as a whole."¹¹

Chapter 2 of this essay deals with selected *basic* behavioral concepts which are derived, mainly, from field and gestalt psychology. The content of Chapter 2 provides a major part of the *foundation* for the additional portions of this inquiry. Chapter 3 applies the basic behavioral concepts of Chapter 2 to the behavior of common stockholders and discusses the role of the accounting process within the model of common-stockholder behavior. Chapters 4 and 5 consider additional aspects of common-stockholder behavior and present several propositions with respect to the content of accounting messages which are prepared for common stockholders. A summary of the entire discussion appears in Chapter 6.

The definition of accounting employed in this study considers "accounting [to be] the process of identifying, measuring, and communicating economic information to permit informed judgments and decisions by users of the information."¹²

A discussion of the "proper," "true," or "best" definition of accounting is not needed here. The definition above can be accepted as a *stipulative* definition, since "A stipulative definition says, in effect, 'I shall use this word to mean so-and-so'."¹³

¹¹ Heinz Werner and Bernard Kaplan, *Symbol Formation*, p. 3.

¹² American Accounting Association, *Basic Accounting Theory*, p. 1.

¹³ John Hospers, *An Introduction to Philosophical Analysis*, p. 33.

2. BASIC BEHAVIORAL CONCEPTS: GENERAL

Preliminary Comments

Since many accountants believe that the purpose of accounting is the facilitation of certain kinds of human action, or certain forms of behavior which result from contemplation and decision, an understanding of the general nature of human action, of the significant and relevant variables which are of import to human action, is essential to achievement of this purpose. The behavioral model derived herein is largely based upon the theoretical constructs of field psychology and gestalt psychology; however, modifications have been introduced in several areas of importance.¹

Human action is, of course, purposive. It is effected in order to achieve some end which has value for the actor. The actor expects that the achievement of the end in view will place him in a situation which has the greatest perceived potential to satisfy him, relative to alternative ends. "Acting man [desires] to substitute a more satisfactory state of affairs for a less satisfactory. His mind imagines conditions which suit him better, and his action aims at bringing about this desired state. The incentive that impels a man to act is always some uneasiness."² The nature of the process by which a "felt uneasiness" appears and disappears, and the context within which the behavioral determinants repose are topics relevant to accounting as an informative service activity.

¹The major references employed with respect to field psychology and gestalt psychology include: George W. Hartmann, *Gestalt Psychology*; Robert W. Leeper, *Lewin's Topological and Vector Psychology*; K. B. Madsen, *Theories of Motivation*; Kurt Lewin, *Principles of Topological Psychology*; Dorwin Cartwright (ed.), *Field Theory in Social Science*; K. Koffka, *Principles of Gestalt Psychology*.

²Ludwig von Mises, *Human Action*, p. 13.

The Basic Behavioral Function

According to field theory all human behavior, or human action, is a function of an actor's lifespac (or *field*). An actor's lifespac is composed of the totality of phenomena which influence his behavior *at a certain moment*. The two basic elements of an actor's lifespac are the actor *and* the actor's psychological environment (defined below). Each of the latter elements is a constituent of the dynamic system of which behavior is a function. Neither element alone is sufficient; one must derive behavior from the entire psychological situation—the actor and the actor's psychological environment.

In symbolic form, we may state the following with respect to behavior:

$$B = f(\text{Lsp}) = f(A, E)$$

where

B = behavior, or human action

Lsp = the lifespac of the actor

A = the actor

E = the psychological environment of the actor

It is important to note that an actor's lifespac—the whole psychological situation which determines behavior—has a *temporal* perspective. "The totality of the individual's views of his psychological future and his psychological past existing at a given time can be called [the] time perspective."³ Especial importance must be attributed to the time perspective of an actor's lifespac because the time perspective is a characteristic of the actor's *present* lifespac. Consequently, the time perspective is a determinant of *present* human action.

The individual sees not only the present situation; he has certain expectations [and he has a memory].⁴

³Dorwin Cartwright (ed.), *Field Theory in Social Science*, p. 75.

⁴Cartwright, *Field Theory*, p. 53.

. . . the psychological past and the psychological future are simultaneous parts of the field [or lifespace] existing at a given time. . . . According to field theory, any type of behavior depends upon the total field, including the time perspective at that time. . . .⁵

The accentuation of a lifespace's time perspective is warranted by the nature of human action. It is well known that human action is in the temporal order.⁶ Human action has as its objective a change in a present state of affairs; hence, it is oriented toward the future through expectations—*expectations which exist in the present*. "Purposive action is . . . action that seems to be governed or directed in some degree by *prevision* of its effects, by *prevision of that which still lies in the future*, of events which have not yet happened, but which are likely to happen, and to the happening of which the action itself may contribute [emphasis added]."⁷ Indeed, human action must be oriented toward the future, since the past cannot be altered, and since the present becomes part of the past as each fraction of a second passes. Furthermore, expectations must exist in the present; if they did not, then they would be impertinent to present behavior. "Johnny Jones hesitates to pick up the neighbor's cat, not because of some future pain from being scratched, but because of his present expectation . . . that he will be scratched."⁸

Additionally, the inclusion of the psychological past (remembered past phenomena) in the present lifespace is warranted. The past in its relation to the present may influence human action, even though the content of human action is oriented toward the future. This relationship of the past to the present is represented by memory, or stored knowledge.⁹

It must be emphasized that the actual content of the past and the future, or, more precisely, the past and the future fields, do not determine behavior. In addition, past time perspectives and future time perspectives fulfill no determinative role with respect to present behavior. *Human action depends upon the present field, including its time perspective*, "but not, in addition, upon any past or future field and its time perspective."¹⁰ Past facts, *per se*, do not enter into our behavioral equation; future facts, *per se*, do not enter into our behavior equation.

⁵ *Ibid.*, p. 54.

⁶ von Mises, *Human Action*, p. 99.

⁷ McDougall, "Purposiveness, A Characteristic of Living Things," p. 163.

⁸ R. W. Leeper, *Lewin's Topological and Vector Psychology*, p. 96.

⁹ Edgar W. Vinacke, *The Psychology of Thinking*, p. 20.

¹⁰ Cartwright, *Field Theory*, p. 54.

The past enters as an argument in our behavioral function only to the extent that it bears a relationship to the present field of an actor and is expressed in terms of that field. Such a relationship may exist, for example, if the past influences an individual's powers of comprehension, attitudes, and goals in regard to presently perceived environmental and personal factors. The future enters into our behavioral function through expectations, which were accurately described as "[thoughts] taking place in the present but having a content labelled with future dates."¹¹ Expectations, which are inferred from presently perceived states of affairs, may induce human action if the future lifespace which is inferred from the present lifespace has a content which is less satisfactory than an alternative future lifespace, an alternative lifespace which has some likelihood of being effected as a result of the actor's reaction to the future before the future materializes.

It is of interest to note that one application¹² of functionalism to the process of accounting suggests that, in a general sense, the functions of accounting embrace the representation and clarification of the present states of certain affairs (such as the assets of a firm), and the provision of information which may be utilized in order to infer the future states of such affairs. If the accounting process fulfills its role effectively, then (according to this view) it will have facilitated optimal human action with respect to such states of affairs.

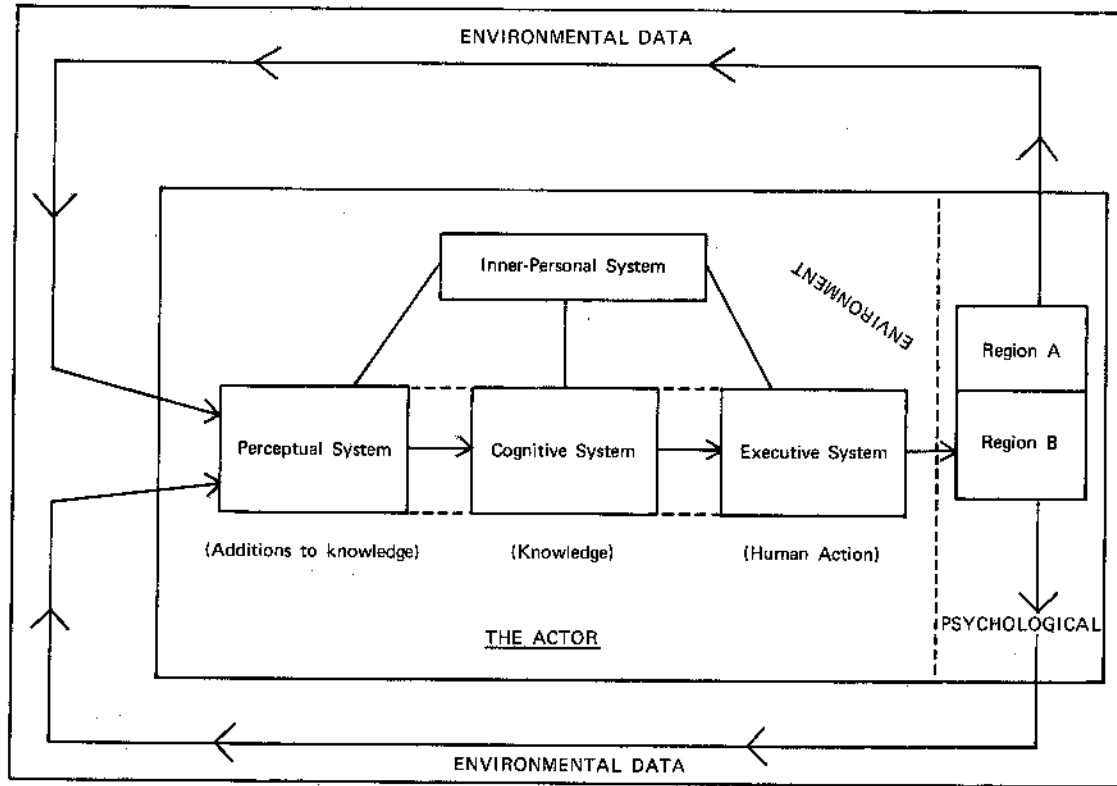
- On the assumptions that human behavior is functionally related to the present lifespace of an actor, including the time perspective of the present lifespace, and that the lifespace, or field, of an actor is composed of two basic elements—the actor and the actor's psychological environment—the major ingredients of each of these elements become worthy of consideration.

The accompanying diagrammatic depiction of the relationships among several conceptual entities to be analyzed may facilitate comprehension of the succeeding discussion (Figure 1). The entire diagram represents the *lifespace* of an actor. The diagram of the lifespace is divided into its two components, the *actor* and the actor's *psychological environment*. The major elements within the actor are the subsystems of the actor, which are

¹¹G. L. S. Shackle, *Decision, Order and Time in Human Affairs*, p. 14.

¹²William B. Barrett, "A Functional Approach to Accounting," *The Accounting Review* (January 1968), pp. 105-112.

Figure 1
AN ACTOR'S LIFESPAC



discussed below. The elements of the psychological environment are *regions*, also discussed below. The diagram is not intended to reveal the *nature* of the depicted entities; it is provided so that the reader may envisage the *structural relationships* among the entities.

The Actor (or Person)

The actor will be conceived of as a *system*¹³ which is located within the psychological environment. In an abstract sense one may conceive of a system as a purposeful means of accomplishing an objective.¹⁴ The four basic subsystems of the actor are the inner-personal system, the executive system, the perceptual system, and the cognitive system—not literal sections of an actor's body, but theoretical constructs, or labeled properties, to be utilized in the discussion of the actor.

The Inner-Personal System

The inner-personal system consists of the *dynamogenic variables* and the *directive variables*. "The dynamogenic variables are all variables whose function is exclusively sensitizing, activating, or energy actualizing . . . in other words: *all variables determining the energy characteristics* (intensity, persistence, etc.) *of the behavior*. The directive variables are all variables whose function is exclusively regulating, organizing, orienting, or direction determining . . . in other words: *all variables determining directional characteristics of the behavior*."¹⁵ The actor's attitudes, values, motives, goals, and needs, among other things, are attributed to the inner-personal system.

The variables of which the inner-personal system is composed need not be of equal potency. Certain attitudes and motives may have greater relative weight in comparison with other attitudes and motives; such variables may be said to have greater importance, or potency, in the

¹³The terms used are departures from the *terminology* of most field theorists in labeling the actor and the properties of the actor.

¹⁴Leonard J. Garrett and Milton Silver, *Production Management Analysis*, p. 680.

¹⁵K. B. Madsen, *Theories of Motivation*, p. 302.

determination of an actor's physical and mental behavior. The relative weights of some inner-personal variables may change, of course, over time. The relative weight of, say, a motive may change over a period of time. Additionally, the relative weight of a motive may depend upon the sector of a person's lifespace which is under examination at a particular moment in time. Yet each person will be characterized by certain motives which have no tendency to diminish in relative weight with respect to a particular sector of the lifespace or the entire lifespace; ". . . motives fluctuate and arrange themselves in various patterns at different times. [However], some of a person's motives are always operating, and his behavior is largely controlled by them."¹⁶ The intensity of such continually operative motives may vary.

The Executive System

The executive system is the system through which human action occurs; it is the system through which man attempts to relieve some felt uneasiness. "The executive [system] comprises . . . all the ways in which action can relieve stresses or contribute to such relief."¹⁷ One should be cognizant of the fact that physical action and action which terminates with consequences that are readily observable to an onlooker need not be the phenomena which serve to relieve stresses or tensions which are affecting the actor. Tensions may be relieved by thinking, for example:

. . . my wish to write a letter may be temporarily satisfied by writing the letter "in my head," i.e., in thought. True enough, as a rule this will not definitely assuage my desire, but it certainly is a process which to a certain degree lessens the existing tensions. Now in this action no actual movement need occur, or where it occurs, as the incipient vocalizations of internal speech, these movements *qua* movements do not relieve the stress in the way accommodation does, or taking off my overcoat when I feel too warm. It is the thought process itself that has the decisive function in our case. . . . Another example: I am faced with a scientific problem to solve. A stress exists, and again it [may be] relieved by mere thinking.¹⁸

¹⁶Edward J. Murray, *Motivation and Emotion*, p. 10.

¹⁷K. Koffka, *Principles of Gestalt Psychology*, p. 342.

¹⁸Koffka, *Gestalt Psychology*, p. 343.

The Perceptual System

The perceptual system of the actor is the medium through which the environment may affect the inner-personal system. The perceptual system is the system through which the stored knowledge of the actor may be affected by the environment.

The environment-actor relationship which occurs through the perceptual system is based, of course, upon the perceptions of the actor, the actor's *interpretations* of reality.¹⁹ Such interpretations are not necessarily "true" and unequivocal representations of reality; the input received by the actor through the perceptual system need not be the *data* of the environment. Instead, such input is in the form of *sense-data*. The latter are objects or attributes of reality as conditioned or affected by the perceptual system of an actor.²⁰ Sense-data are personalistic; they are a function of an interaction between reality and an actor. Accordingly, they may correspond neither to the object or attribute of reality which is the "cause" of the sense-data, nor to the sense-data of other actors whose perceptual systems are activated by the same object or attribute of reality.

The environmental factors which an actor may attempt to change, and the environmental factors which may influence the actor, are the factors as perceived by the actor—not an onlooker who is observing the actor and the actor's environment. "The things seen by two different people are often closely similar, so similar that the same words can be used to denote them. . . . But in spite of this similarity, it would seem that some difference always arises from [differences in regard to the individual]. Thus each person so far as his sense-data are concerned lives in a private world [emphasis removed]."²¹

Apparently, the environment relevant to our behavioral model is the *psychological environment* (the "private world") of the actor—the environment as seen by the actor. "It can hardly be overemphasized that the perceptual field [what one perceives at any given moment] is *reality* for

¹⁹The term "reality" is used in an ultimate, or noumenal, sense.

²⁰Discussions of sense-data and the problems associated with perception may be found in R. J. Hirst, *The Problems of Perception*; A. J. Ayer, *The Foundations of Empirical Knowledge*; and Robert J. Swartz (ed.), *Perceiving, Sensing, and Knowing*.

²¹Bertrand Russell, "The Relation of Sense-Data to Physics," in A. Danto and S. Morgenbesser (eds.), *Philosophy of Science*, p. 43.

the individual and that it is this to which he responds."²² The changes wrought by an actor's behavior are of relevance for the actor to the extent that they are perceived changes. Furthermore, the detrimental or beneficial aspects of human action which are of consequence to the actor are those perceived by the actor, not an outsider. Finally, the rationality of an action must be determined by the actor's perceptual system and the actor's inner-personal system.

The Cognitive System

The cognitive system of the actor contains the actor's knowledge in respect of the past, the present, and the future. The actor's information pertaining to his lifespace and its associated time perspective is stored in the actor's cognitive system. The importance of the cognitive system to human action is clearly indicated in the following excerpt from a discussion on problem solving, or conceptual human action, one form of human action which transpires on the conceptual plane of the lifespace.²³

One knows that it is possible to solve the problem but one cannot see any approach to the solution. We can say about the situation only that there is within the lifespace a [goal] G which is separated from the person P and which corresponds to the solution of the problem. . . . But in this case the intervening [course of action] U between P and G . . . is . . . a [course of action] whose quality cannot be determined sufficiently and which therefore cannot be [executed].

. . . the principal difficulty lies in the fact that one does not know whether any given [conceptual] movement brings him closer to his goal or takes him farther from it. A characteristic property of [conceptual] barriers of this type is that they depend directly on one's knowledge or rather of one's ignorance of the situation.

. . . one can say that the difficulty in these cases consists in the fact that the field is unstructured with reference to cognition.²⁴

The above excerpt reveals the distinctive importance of the expectational component of the cognitive system. The formulated expectations of

²²James C. Coleman, *Personality Dynamics and Effective Behavior*, p. 189.

²³A more lucid explanation of conceptual human action will be provided below.

²⁴Kurt Lewin, *Principles of Topological Psychology*, pp. 131-133.

the actor—that probabilistic knowledge with a future content which is inferred from the present—determine the course of action which will be adopted and, to some extent, the effectiveness of human action. The expectations of the actor serve as a foundation for the determination of the results, such as solutions to problems, which will probably eventuate if a particular course of action is consummated. Expectations reflect the anticipated termini of particular environmental transformations. Accordingly, the actor's expectations and the actor's awareness of possible transformations are of considerable importance to effective human action. Indeed, the usefulness of an actor's total cognitive system is solely dependent upon its instrumentality in attaining or avoiding future states.²⁵

Furthermore, the actor's knowledge of the past (the actor's memory) is of relevance to an actor's present behavior to the extent that it facilitates comprehension of the present, contributes to one's awareness of alternative courses of action, and aids in the formulation of expectations.

Cognizance of the interdependence of the actor's subsystems should precede any discussion of the nature of his psychological environment.²⁶ For example, the attitudes of the actor may affect the operations of the actor's perceptual system: "... having an attitude means that the individual is no longer neutral toward the referents of an attitude. . . . Once a class of [referents] is thus charged with favorable or unfavorable value for the individual, he sees things related to them in a *selective* way."²⁷ In addition, the motives of an actor may establish the kinds of environmental data which the actor prefers to obtain through his perceptual system, and they may determine the expectations which must be stored in the actor's cognitive system in order to facilitate human action which will satisfy the actor's motives.

The Psychological Environment

The psychological environment of an actor is composed of all possible perceived states of being "in which, toward which, and away from

²⁵ C. I. Lewis, *An Analysis of Knowledge and Valuation*, p. 4.

²⁶ Cartwright, *Field Theory*, pp. 116-129, 305-313.

²⁷ Carolyn Sherif, *et al.*, *Attitude and Attitude Change*, p. 5.

which the actor can perform locomotion."²⁸ Such states of being may consist of activities, relationships with persons, relationships with property, or relationships with goals. Such states of being can be conceived of as *regions* within the actor's psychological environment.

Some Regions (or States of Being) of General Significance

Locomotion. In the vernacular of field theory locomotion is defined as a change of position, or a movement toward or away from a region. In more general terms locomotion can be defined as a change of position which is effected by human action or a change in the psychological environment. Locomotion may be "conceptual" or "real." Conceptual locomotion refers to positional changes which are contemplated, planned, or otherwise confined to the cognitive system of the actor. Such genera of locomotion eventuate on the conceptual plane of the lifespace. Examples of conceptual locomotion include problem solving, daydreaming, and planning. Real locomotion refers to changes of position which are not of a conceptual nature. Examples of real locomotion include the effectuation of a developed plan, the lifting of an object, and the consummation of a business transaction. Of course, most forms of human action are combinations of conceptual locomotion and real locomotion; however, the distinction between real and conceptual locomotion is useful.

Position. The position of an actor refers to the region (or regions) in which the actor is currently located. The position of an actor may be on the conceptual plane of the psychological environment or on the real plane of the psychological environment. For example, if an actor currently possesses the financial asset, C, then we may say that ownership of C is his real position. If the actor imagines ownership of C, then we may say that ownership of C is his conceptual position.

We may note that the *perceived* position of an actor is influenced by the contents of the actor's perceptual and cognitive systems, since the latter systems affect the beliefs and expectations of an actor with respect to the actor's psychological environment. *Since the contents of the perceptual and cognitive systems consist of information, it does not appear unreasonable to state that information which is generated by the accounting process may affect an actor's perceptions of certain states of*

²⁸Lewin, *Topological Psychology*, p. 167.

affairs (such as those of an economic nature) and, consequently, affect certain kinds of human action.

Regions (or States of Being) Most Significant to Accountancy

The regions of an actor's environment of most interest in the building of a theoretic structure for accountancy are objective regions, media regions, and barrier regions.

Objective regions. Objective regions are sectors of the psychological environment which are characterized by valences, which may be positive or negative. If the valence of an objective region is positive, then the region exerts an attractive force on the actor. Such a region is one in regard to which the actor exhibits a preference. An objective region which is characterized by a negative valence is one which emits repulsive forces *vis-à-vis* the actor; one may posit that the actor maintains an aversion for such a region.

The relationship which obtains between valences and forces may be symbolically stated in the following manner:²⁹

$$\begin{aligned} \text{If } V_a(\text{OR}) > 0, \text{ then } |f_{A, \text{OR}}| > 0 \\ \text{If } V_a(\text{OR}) < 0, \text{ then } |f_{A, -\text{OR}}| > 0 \end{aligned}$$

where

$V_a(\text{OR})$ = The valence of an objective region.

$|f_{A, \text{OR}}|$ = The attractive force emitted by the objective region, OR, and acting upon the actor, A.

$|f_{A, -\text{OR}}|$ = The repulsive force emitted by the objective region, OR, and acting upon the actor, A.

The valence of a region is ultimately determined by the motives of the actor and the nature of the region.³⁰ The motives of the actor give impetus to the arousal of "tensions" which serve within the individual as

²⁹Madsen, *Theories of Motivation*, p. 128.

³⁰Edward J. Murray, *Motivation and Emotion*, p. 11.

the functional bases for valences. A motive "is an internal factor that arouses, directs, and integrates a person's behavior. It is not observed directly but inferred from his behavior or simply assumed to exist in order to explain his behavior. [Motives are] distinguished from other factors that also influence behavior, such as the past experience of the person, his physical capabilities, and the environmental situation in which he finds himself, although these other factors may influence [his motives]." ³¹ The constitutive aspects of the objective region are important in the creation of valences, since they determine whether a movement toward or away from the region will satisfy the motives of the actor. The "tensions" which act upon the individual may be conceived to be phenomena which support tendencies to change position within the psychological environment.

The relationship with respect to tensions, valences, and objective regions may be symbolically depicted as follows: ³²

$$V_a (OR) = F(t, OR)$$

where

$V_a (OR)$ = the valence of the objective region

t = tension

OR = the objective region

To the statement that the force which is operative between an objective region and an actor is affected by the valence of the objective region must be added the additional statement that the construct *force* is functionally related to the "distance" between the actor and the objective region, as well. ³³ The distance which exists between an actor and an objective region may be of a physical nature or a conceptual nature. A conceptual distance may be caused by the following factors: a lack of knowledge in regard to the course of action which must be adopted in order to move toward an objective region; inadequate skills; or a paucity of knowledge with respect to the aggregation of results which will ensue upon the attainment of a region.

³¹ Murray, *Motivation and Emotion*, p. 7.

³² Madsen, *Theories of Motivation*, p. 129.

³³ Frank A. Geldard, *Fundamentals of Psychology*, pp. 167 ff.; Madsen, *Theories of Motivation*, p. 129.

The accounting process is usually conceived to be a process that is supposed to emit messages which will affect a decision maker's cognizance of opportunities and constraints, and will enable a decision maker to evaluate alternative courses of action. In the context of the preceding comments it seems reasonable to suggest that one of the objectives of accounting should be a reduction of the conceptual distance that exists between a user of accounting messages and some of the user's objective regions. Some additional requisite concepts will further clarify this line of thought.

The inclusion of distance as a determinant of force allows us to construct the following functional relationship:³⁴

$$|f_{A,OR}| = F \left(\frac{1}{e_{A,OR}}, V_a(OR) \right)$$

where

$|f_{A,OR}|$ = the force emitted by an objective region, OR, and acting upon the actor, A.

$e_{A,OR}$ = the distance between the actor, A, and the objective region, OR.

$V_a(OR)$ = the valence of the objective region, OR.

The above formulation reveals an inverse relationship between the force of an objective region and the distance factor. This inverse relationship assumes, of course, that the actor's motives and goals remain unaltered.

The resultant behavior of an actor depends upon the status of the set of forces which is acting upon him. If the totality of forces which are operative is associated with a *net* force of zero, then the actor's lifespace is in a state of equilibrium—no tendency to change exists. A state of equilibrium, however, is not a situation in which there is an *absence* of tensions or forces. Instead, it is a situation in which each positive force is offset by an equipollent negative force; the *net* force within the lifespace is zero. Offsetting forces may, for example, be related to conflicting goals which are of equal potency. Again, if a particular state of being emits a repulsive force and an attractive force which are of equivalent potency,

³⁴Madsen, *Theories of Motivation*, p. 129.

then the lifespace is in equilibrium with respect to that particular region in isolation. Obviously a state of disequilibrium refers to a context within which a net force other than zero exists.

A net force may be removed upon the attainment of an original goal or a substitute goal (one which fulfills the role of an original goal). Additionally, equilibrium may be restored if the actor's motives and goals change in a manner such that all forces for change are removed. For example, if an actor continually fails to achieve a specific objective, and if he subsequently decides not to pursue that objective, then (*ceteris paribus*) he has restored equilibrium through an alteration of objectives.

Media regions and boundary regions. Media regions are regions through which an actor may pass in order to move toward, or away from, an objective region. Such regions may represent activities or relationships which may be employed by an actor in order to achieve a new position. We may attribute valences to such regions, as we did in the case of objective regions; however, the valences associated with such activities are derived from objective regions and the instrumentality of media regions, that is, the degree to which the media regions may serve as *means* of achieving a position in objective regions (ends). "Means are valued derivatively according to their serviceableness in contributing to the attainment of ultimate ends. They are important for man only as far as they make it possible for him to attain some ends."³⁵ Of interest and importance is the fact that media regions are not necessarily regions through which unfettered locomotions occur; "one must realize that [such] regions may offer all possible degrees of resistance. There are regions which can be crossed but which still act as obstacles to movement. For bodily locomotion, for instance, a thick underbrush is a medium which offers definite 'friction.' This friction can increase until it is impossible to advance further."³⁶

It is apparent by now that the *relationship* which obtains between a user of accounting services and the process of accounting may be conceived to be a *media region* within the lifespace of the user; that is, a region into which an individual should enter in order to facilitate particular actions—in order to ease the process of moving from an initial region to a certain kind of objective region. Classifying the accounting process as a media region is

³⁵ von Mises, *Human Action*, p. 96.

³⁶ Lewin, *Topological Psychology*, p. 117.

consistent with the belief that the accounting process is an informative *service* activity, a point to be developed later.

Media regions are members of the set of regions which are classified as *boundary regions* (or boundary zones). "We call a boundary [region] between two regions (*m* and *n*) that region . . . which is foreign to *m* and *n* and which has to be crossed by a locomotion from one of them to the other . . ."37 As was suggested above, a boundary region may be one through which free and unrestricted movement is possible, or it may be one which evidences some resistance to locomotion. If resistance to locomotion (positional changes) is an attribute of the boundary region, then it performs the role of a *barrier* to locomotion. A barrier may, of course, be ultimately passable or impassable. The resistance to locomotion (conceptual locomotion or real locomotion) which is associated with a boundary region is a function of the region itself, the direction of locomotion desired by the actor, the perceptual system of the actor, and the cognitive system of the actor (the actor's knowledge with respect to the past, the present, and the future).

Restructuring of the Lifespace

It was previously indicated that locomotion consists of a change in the position of the actor relative to all regions in the psychological environment. Locomotion may involve, for example, a modification of an actor's financial position (real locomotion) or a change in the actor's plans with respect to his financial resources (conceptual locomotion). Such changes may be effected by human action, holding the content of the psychological environment constant. Additionally, such changes of relative position may be brought into existence through a restructuring of the psychological environment which is *not* accompanied by human action. A restructuring of the environment refers to changes in the *relative* positions of the actor and the environmental regions (the possible states of being) which are effectuated by changes in the psychological environment itself. "Some of these cases are very simple. A man may have been swept along by external social changes. The social position of a person *P* may change

³⁷ *Ibid.*, p. 121.

greatly as a result of gain or loss in the influence of his family or of the business concern with which he is identified. . . . A change of a person *P* in his environment *E* often appears as active locomotion of *P* when in reality this change is not a result of a movement of *P* in relation to his immediate social environment, the group *G*. In reality it may have been brought about by a movement of the group in relation to the whole [environment]."³⁸

Each kind of locomotion represents a *restructuring of the lifespace*, a change of the relative positions of the actor and the environmental regions. The positional changes which are, *or may be*, associated with human action may be classified as controllable changes; they are changes which are largely subject to the control and influence of an actor. Uncontrollable changes are those over which the actor has little, if any, control and influence. The latter classifications of change, of course, are extreme categories. It is possible for a particular change to consist of uncontrollable and controllable elements; the categories of changes discussed are not mutually exclusive. It will presently become apparent that a restructuring of the psychological environment (an uncontrollable change) may provide a basis for human action if such a change causes disequilibrium within an actor's lifespace.

Interdependencies

The regions which were discussed above should not be regarded as independent islands within the actor's psychological environment.³⁹ Likewise, one should not imagine that the actor is an isolated and independent system within the lifespace. A change in one or more regions of the environment and a change in the relative positions of the regions may influence the state of the actor and the perceived states of other regions.⁴⁰ Additionally, a change in one or more of the subsystems⁴¹ of which the

³⁸Lewin, *Topological Psychology*, p. 113.

³⁹Cartwright, *Field Theory*, pp. 116-129, 305-313.

⁴⁰The degree of influence of one region, or system, upon another is classified as "communication" in most works on field psychology. We shall use the term "interdependence," rather than employ a term which is commonly used as a label for a different concept.

⁴¹The inner-personal system, the perceptual system, the executive system, and the cognitive system.

actor is composed may affect another subsystem of the actor, the perceived states and positions of regions within the environment, or all of the latter. The two elements of the lifespace (the actor and the psychological environment) to some extent are interdependent; a change in one element may induce a change in the other element. Moreover, the elements of the two constituents of the lifespace are to some extent interdependent.

The component parts of the lifespace are treated as interdependent because a change in one part may give rise to forces which induce additional changes. Such an additional change, for example, may take the form of human action which has as its objective the reversal of the initial change. In more general terms, we may assert that any change in the lifespace—including its associated time perspective—has the potential to produce a state of disequilibrium. The net forces which are attendant to the state of disequilibrium will induce changes which will tend to restore equilibrium, other things held constant. The new state of equilibrium may, or it may not, differ in substance from the initial equilibrium state.

Not *all* changes need lead to disequilibrium. Whether disequilibrium will arise will depend upon the degree of interdependence, or the fluidity,⁴² of the lifespace. If small or trivial changes within the lifespace tend to cause disequilibrium, then we may state that the lifespace is especially fluid. If each and every change in the lifespace does *not* give rise to a state of disequilibrium, then we may say that there exists less fluidity, or a degree of *inertia*.

Because of insufficient fluidity, or because of a *recognition lag*, disequilibrium may not be the *immediate* consequence of a change. A recognition lag is present when a period of time elapses between the commencement of a change and the actor's awareness of the change itself, or the significance of the change.

Lags may accompany also the process of restoring equilibrium. There may be an *administrative lag* and an *impact lag*. An administrative lag refers to the period of time which elapses between the actor's awareness of a change and the formulation of an action scheme which will be utilized in order to restore equilibrium. The impact lag refers to the temporal distance between the initiation of human action and the intended result of human action.

⁴²Lewin, *Topological Psychology*, p. 159.

Inertia and the recognition lag will be reconsidered later with indication that the existence of inertia is related to uncertainty and expectations, among other things. Until the discussion of inertia is resumed lifespaces will be considered entirely fluid.

An Illustration of Human Action

The simplified illustration of human action presented here will deal with an instance of an investor's behavior with respect to the risks and yields associated with an aggregation of investable wealth, ignoring all other aspects of the investor's lifespan. This illustration is based upon the supposition that the investor desires to maximize the expected yield, or rate of return, on his investable wealth, subject to an attitude of risk aversion. The illustration is further simplified by the assumption that only two forms of financial assets exist: money and homogeneous common stocks. A final assumption is that the investor's financial decisions apply to a fixed period of time, which extends from the present to a specified future date.

It is probable that the investor will desire to remove from his immediately investable wealth a certain quantum of cash in order to meet transactions requirements. The amount of wealth which is thus segregated will be employed in order to synchronize inflows of wealth and expenditures of wealth which are anticipated by the investor with respect to his planning horizon. The transactions balance established by the investor need not be held in the form of cash. The asset components of the investor's transactions balance will be determined by the inner-personal system of the investor, the investor's cognitive system, the investor's perceptual system, and the executive system of the investor. The latter systems—operating conjointly—will effect a comparison between the returns and the risks associated with each particular asset which may be acquired presently, and subsequently converted into money in order to meet the investor's transactions requirements. The costs associated with the acquisition of common stocks relative to the yield which is anticipated by the actor's cognitive system may induce the investor to hold his transactions balance in the form of money. In addition, the elements of the investor's inner-personal system (for example, attitudes, motives) may be such that the investor desires the money-value certainty and the security of money

for purposes of his transactions balance, given the anticipated reward on common stocks.⁴³ It is assumed that the investor in this situation does desire to hold his transactions balance in the form of money, and that he possesses sufficient money for his transactions balance. The investor must now direct his attention to the remainder of his wealth.

The expected yield and risk on which the investor allocates his wealth is determined with an especially familiar asset by the investor's cognitive system, the system which contains the investor's knowledge with respect to the past, present, and future. If the investor were not especially familiar with the alternative assets which are available for investment, then the investor's perceptual and executive systems also would be utilized. However, since the investor is living in a "two-asset" world, it is reasonable to assume that he is especially well-acquainted with each available asset: money and homogeneous common stocks.

The expected yield associated with common stocks is determined by the subjective probability distribution which the investor establishes for all perceived possible returns, R_i . The expected yield may be expressed as follows:

$$\mu_R = \sum_{i=1}^N R_i P(R_i)$$

where

- μ_R = the expected return on common stocks.
- R_i = the i -th perceived possible return.
- $P(R_i)$ = the subjective probability of R_i .

The risk which is attributed to common stocks is a function of the degree of dispersion which is evidenced by the probability distribution of possible returns. In order to quantify risk the investor utilizes the standard deviation of R_i which is expressed in the following manner:⁴⁴

⁴³The Keynesian "speculative" and "precautionary" motives may be among those elements of the inner-personal system which affect asset-choice behavior.

⁴⁴The reader should note that the standard deviation of a probability distribution is one of several means available for the quantification of risk.

$$\sigma_g = \sum [R_i - \mu_R]^2 [P(R_i)]$$

where

- σ_g = the standard deviation of R_i .
- R_i = the perceived possible i -th return on common stocks.
- μ_R = the expected return.
- $P(R_i)$ = the subjective probability of R_i .

The expected return and risk on the total investable assets of the investor—the investor's portfolio—is determined by the proportion of the portfolio which is invested in common stocks, S , and the proportion which is invested in money, M . We shall assume that money has a certain real return of zero;⁴⁵ hence, we shall concentrate on S . The expected return on a portfolio, $E(R)$, is indicated below:

$$E(R) = S \cdot \mu_R, 0 \leq S \leq 1$$

The risk of a portfolio is equal to the following:

$$\sigma_R = S \cdot \sigma_g$$

The investor may easily increase the expected yield on his portfolio by increasing S . However, if S is increased, then the riskiness of the portfolio increases.

On the assumption that the investor maintains a desire for yield and an aversion toward risk, and with the constitution of the investor's inner-personal system, the valence of risk, $V_a(\sigma_g)$, is negative. The valence of expected return, $V_a(\mu_R)$, is positive. If the investor incurs any degree of risk, then a force, $|f_{I,\mu_R}|$, will act upon the investor, a force which—if not offset—will tend to cause the investor to locomote away from risk. The investor will attempt to reduce $\sigma_R = S \cdot \sigma_g$ by *reducing* S . Since the valence of yield is positive, the force $|f_{I,\mu_R}|$ —if not offset—will give impetus to a locomotion such that S is *increased*. Under either condition a

⁴⁵Alternatively, the reader may assume that $E(R)$ is the differential return on common stocks, and that σ_R is the differential risk on common stocks. If such an assumption is made, then the covariance of the two assets would have to be incorporated into the measure of risk.

net force greater than zero will obtain; the investor's lifespace will be in a state of disequilibrium.

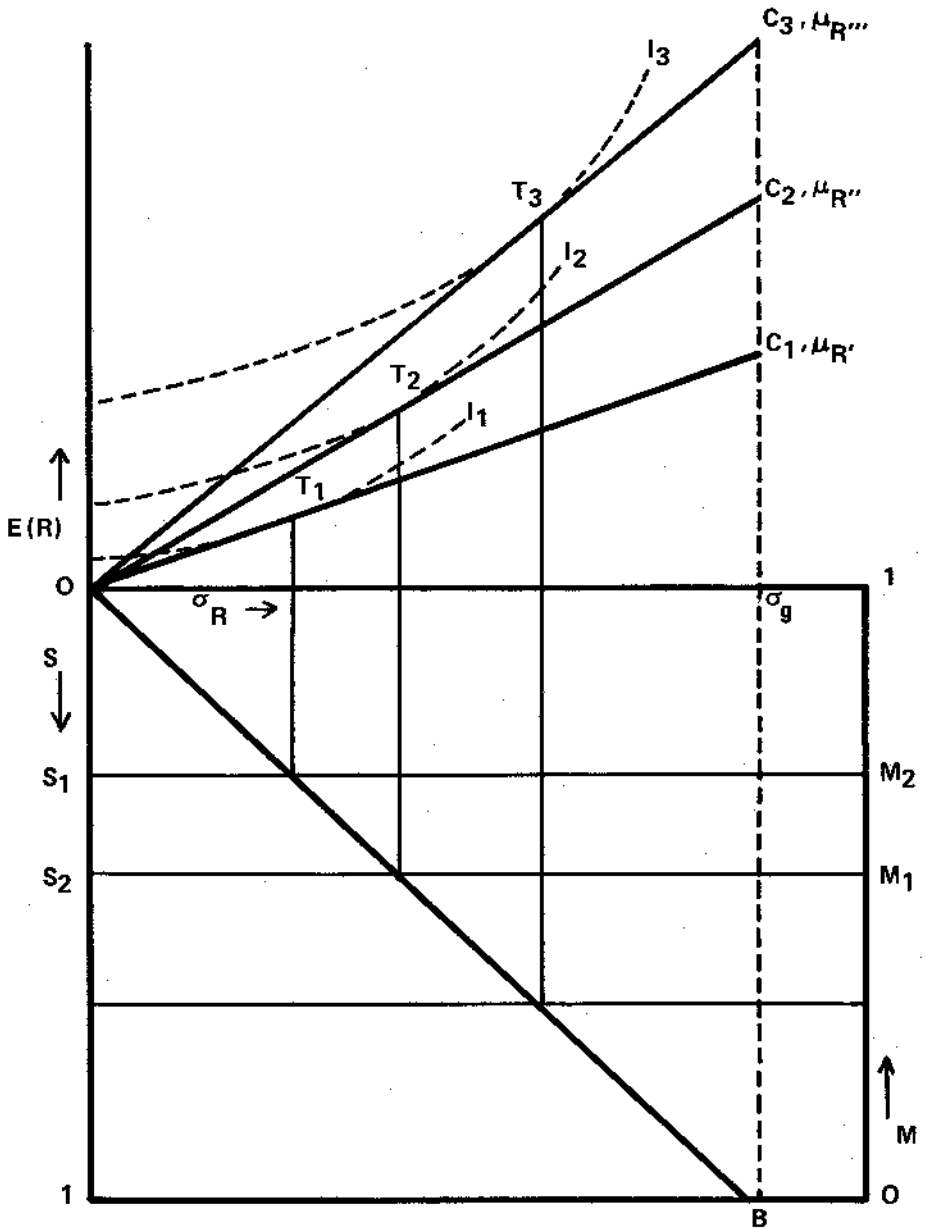
In order to maintain equilibrium within his lifespace, the investor must secure a combination of μ_R and σ_g such that $|f_{I, \mu_R}| = |f_{I, \sigma_g}|$. The investor must move to a region—a state of affairs—in which the repulsive risk-force is offset by the attractive yield-force. Such a region will equilibrate the forces acting upon the investor, and such a region will satisfy the investor's motives with respect to the maximization of yield (subject to an attitude of risk aversion). The alternatives from which the investor may choose, and the investor's positions of equilibrium, are illustrated graphically in the accompanying figure (Figure 2).⁴⁶

In the upper quadrant of the graph is pictured the investor's equilibrium (or indifference) curves (I) and the opportunity loci which confront the investor (OC). Each equilibrium curve is composed of combinations of risk and expected yield which are equivalent in terms of motive satisfaction. Also, each position on a given equilibrium curve is such that the investor's lifespace would be in equilibrium at such a position. The level of satisfaction which prevails for the investor increases as the investor moves to a higher equilibrium curve. Thus, I_2 is preferred to I_1 and I_3 is preferred to I_2 . The shapes of the equilibrium curves are determined by the investor's inner-personal system, which contains the investor's preferences, attitudes, motives, etc. The equilibrium curves of the investor in the illustration are positively sloped; they indicate an attitude of risk aversion. The investor will not locomote toward a position of risk unless the attractive force of yield is of greater strength than the repulsive force of risk. The investor desires to maximize the expected yield on his wealth, but his desire is constrained by the negative valence of risk.

The opportunity loci are represented by the OC lines, which reveal the terms of trade available to the investor with respect to risk and yield. The slope of each line is equal to the ratio of the expected rate of return on common stocks (μ_R) to the standard deviation of expected returns (σ_g). Given the standard deviation of possible returns, each higher expected yield on common stocks is associated with a higher opportunity locus. Thus, OC_1

⁴⁶The graph used in this illustration is adapted from James Tobin, "Liquidity Preference as Behavior Toward Risk," *Review of Economic Studies* (February 1958), pp. 65-86, reprinted in M. G. Mueller, *Readings in Macroeconomics*, pp. 173-191. References are to the latter.

Figure 2
 GRAPHICAL DEVICE FOR PORTFOLIO SELECTION



is the opportunity locus when the expected return equals μ_R' and risk equals σ_g ; OC_2 is the opportunity locus when the expected equals μ_R'' and risk equals σ_g , $\mu_R'' > \mu_R'$.

In the lower quadrant of Figure 2 is presented the relationship between the risk on the investor's portfolio and the proportion of the portfolio which is committed to common stock. Given the level of risk determined by the investor, σ_g , the risk on the investor's total portfolio equals $\sigma_R = S \cdot \sigma_g$. The positive relationship between σ_R and S is represented by a line such as OB . Each OB line is based upon a different level of risk, the slope of each OB line equaling $\frac{\sigma_R}{S}$.

If the expected return on common stocks is μ_R' , and if the risk associated with common stocks is σ_g , then the equilibrium position for the investor is T_1 on equilibrium curve I_1 . This position is the most satisfactory position for the investor, given the components of the investor's inner-personal system (as represented by the equilibrium curves) and the existing opportunities (which are revealed by the opportunity locus OC_1). If the investor were at a position to the left of T_1 on the locus OC_1 , then the disequilibrium of his lifespaces will be of a nature such that he would move toward T_1 , which is on an equilibrium curve higher than any curve which passes through points on OC_1 to the left of T_1 . At any point to the left of T_1 the attractive yield-force which affects the investor will overwhelm the repulsive risk-force, thus, the investor will move toward the higher yield-risk position which is the referent of T_1 . One may employ similar reasoning with respect to positions on OC_1 to the right of T_1 . In situations of the latter type, however, the repulsive risk-force will have a strength which is greater than the attractive yield-force. Consequently, the investor will locomote along OC_1 , toward less risk and less yield from any state of affairs depicted by points to the right of T_1 on the locus OC_1 .

In general, the only position at which no tendency to locomote will exist is one at which no net force exists within the investor's lifespaces. At such a position each force will be offset by an equivalent force. In the illustration the equilibrium position for the investor is T_1 , given an expected yield of μ_R' and σ_g . Position T_1 is the objective region toward which the investor will locomote from any region, or position, other than T_1 . It is the position at which $|f_{I, \mu_R}| = |f_{I, \sigma_g}|$. The investor's portfolio at T_1 will consist of common stocks in the proportion of S_1 , and money in the proportion of M_2 , $S_1 + M_2 = 1$.

A restructuring of an actor's psychological environment, which may occur in the absence of any perceptible human locomotion (real or conceptual), entails changes in the relative positions of the individual and the environmental regions of which the individual's lifespaces is composed. An uncontrollable restructuring of the lifespaces, one over which the actor has little control or influence, can be illustrated through the assumption that some random economic disturbance alters the perceived yield on common stocks, that such a disturbance changes the expected yield from μ_R' to μ_R'' . No alterations are effected in regard to the perceived risk of common stocks; that is, the standard deviation associated with μ_R'' is equal to the standard deviation related to μ_R' , viz., σ_g .

The opportunity locus with which the investor must contend is now OC_2 . The investor's current position is T_1 . On the basis of the new opportunity locus and the field of equilibrium curves presented, one can discern that the new equilibrium position for the investor is T_2 , the point of tangency between OC_2 and I_2 . The random disturbance changed the position of the investor relative to the environmental regions of risk and yield. The reward for risk bearing has increased. The attractive yield-force is no longer fully offset by the repulsive risk-force. The random disturbance increased the attractive yield-force *relative* to the repulsive risk-force; in symbolic terms: $|f_{I,\mu_R}| > |f_{I,\sigma_g}|$. The investor will be induced to locomote away from T_1 toward T_2 . Each movement from T_1 toward T_2 will reduce the severity of the disequilibrium which obtains within the investor's lifespaces. The condition of disequilibrium will be completely eradicated when the investor attains the position, or region, T_2 . At T_2 , $|f_{I,\mu_R}| = |f_{I,\sigma_g}|$, hence, equilibrium reigns. The investor's region, or state of affairs, is now S_2 and M_1 . $S_2 + M_1 = 1$.

Without analyses of additional changes within the lifespaces of the investor it can be discerned that human action may be the consequence of myriad changes, be they of a purely conceptual or a nonconceptual substance. All such changes have the potential for bringing into existence a disequilibrating restructuring of an individual's lifespaces and the human action which has as its objective a restoration of equilibrium.

A Final Note

In the section the important determinants of human action have been discussed, in especially general terms, and several behavioral concepts have

been applied to specific instances of common stockholder behavior. The concepts developed in this section will be used to develop a more specific model of common-stockholder behavior. This model will include a commentary on stockholders' motives, which are partial determinants of the valences attributable to the possible states of being (regions) within the common stockholders' lifespaces. Attention will be devoted, also, to equilibrating and disequilibrating changes. The major purpose in the development of such a model will be to derive, from the model, implications with respect to accounting for common stockholders.

Additionally, another task relevant to the process of accounting for common stockholders will be performed. Since accounting is supposed to facilitate decision making (problem solving), some important psychological aspects of the decision-making process of an individual should be investigated if implications for accounting are to be derived from this behavioral inquiry. The discussion will not be directly applicable to group decision making, but to an *individual* stockholder's decision-making process.

The model to be presented will not be *the* model of common-stockholder behavior, since a different approach may support alternative, or additional, implications in respect of accounting for common stockholders. It will be, rather, a model of common-stockholder behavior predicated upon the concepts of *field* and *gestalt* psychology which were discussed in this section.

3. THE COMMON STOCKHOLDER: BASIC BEHAVIORAL CONCEPTS

Preliminary Comments

The construction of a behavioral model of common stockholders does not require consideration of all the activities and behavioral determinants of this subset of human beings. It requires only partial-equilibrium analysis, in which the object of attention is the sector of the investor's lifespace which influences his behavior in his role of common stockholder,¹ those aspects of common-stockholder behavior which are deemed to be germane to accountancy. This approach does not invalidate the statements presented in the previous chapter, does not deny that the total lifespace of the common stockholder is the variable upon which the common stockholder's overall behavior is predicated. However, since the behavior and accounting needs of common stockholders *qua* common stockholders are of chief interest in this study, we shall impound sectors of the lifespace which are not relevant to our interests, such as a common stockholder's possible roles of father, business executive, and consumer, in a *ceteris paribus* assumption.

A controlling motive of common stockholders and the operational significance of the subsystems² of the investor constitute important topics of this section. The motives of an individual bear heavily on the informational needs, and thus the accounting needs, of an individual. Consequently, a discussion of common-stockholder motives is warranted. The motives which are discussed may be, and probably are, applicable to

¹The terms "investor" and "common stockholder" will be used interchangeably throughout this inquiry.

²The inner-personal system, the perceptual system, the cognitive system, and the executive system.

other categories of human actors as well, though they are applied here to common stockholders.

The commentary on the operational significance of the subsystems of the common stockholder developed in this chapter should not be accepted as final. Of necessity it will be incomplete at this point, since several of the succeeding chapters of this inquiry, building upon the material presented in this chapter, will focus upon specific attributes of the investor's subsystems.

Common Stockholder Motivation

Since motives are those components of an individual's inner-personal system which arouse, integrate, and direct human action,³ they control an individual's expenditures of mental and physical energy. In general, the strength of many motives varies with respect to time and situation; some motives, however, tend to fulfill dominant and ruling roles with respect to specific sectors of an individual's lifespace. Such dominant and ruling motives will reign supreme in the choice behavior and locomotions of actors in regard to certain lifespace sectors. Additionally, such motives will be influential in determining the kinds of environmental data which the perceptual system of an actor is geared to secure during the process of maintaining or restoring lifespace equilibrium. If a particular motive is dominant in respect of an individual's behavior, then that motive will assume especial significance in colligating the aspects of environmental data which will be drawn into the subsystems of the individual in order to accomplish the ends or goals sanctioned by the individual's motivations.

Since a dominant motive determines some of the kinds of data which will be sought by common stockholders' perceptual systems, a discussion of common stockholders' dominant motives is relevant to the process of accounting for common stockholders. Such a discussion may assist in the determination of whether contemporary accounting messages contain the kinds of data of which common stockholders are desirous.

The hypothesis of this inquiry is that the controlling motive of stockholders *qua* stockholders is wealth accumulation, wealth being defined to mean an accumulation of generalized purchasing power, or command

³Edward J. Murray, *Motivation and Emotion*, p. 8.

over economic resources.⁴ Recent publications have suggested that the wealth motive (or the profit motive) is less potent than some economists have been wont to assume. It is often suggested that the wealth motive has diminished in potency, that the "economic man," which serves as a focal point for much of the economic theory, is a fiction, or that a "twilight" of the profit motive has occurred.⁵ One frequently reads about the substitution of societal and psychological goals for wealth-related goals. Goals which are often alleged to be of greater significance than the wealth motive include status desires, cultural desires, power, prestige, and emulation.

Although multiple goals may affect an individual's actions with respect to *all* sectors of his lifespace, it is believed that the wealth motive has not waned in importance relative to the constellation of motives which may direct a person's actions. More importantly, the wealth motive is probably dominant in regard to the wealth activities of common stockholders.

Historical treatises, examinations of work behavior, and investigations of saving (or asset-accumulation) behavior suggest that the wealth motive plays a powerful role with respect to human behavior. To be sure, the accumulation of wealth may not be an end in itself. Wealth may serve as an index of success and creativity for some individuals. Wealth may be desired for the security and economic advantages which it may provide.⁶ Wealth may be desired also in order to accomplish the consumption goals, sociological goals, and political goals of an individual. Notwithstanding the specific goals held by an individual, the potency of the wealth *motive* (the internal force which establishes a goal) cannot be contradicted. Wealth is a sought-after factor in order to provide the seeker with the means by which he may attempt to achieve a multitude of goals, goals which are of a variegated nature.

The basic comments of this writer are supported by the statements of individuals who have studied and reflected upon human behavior. For example, Robert L. Heilbroner, economist, arrives at the conclusion that "the quest for wealth will undoubtedly continue to exert its power [on human behavior]."⁷

⁴One should recognize that alternative definitions of wealth do exist.

⁵See, for example, R. W. Wright, *Investment Decision in Industry*, and T. Levitt, *The Twilight of the Profit Motive*.

⁶Gardner Ackley, *Macroeconomic Theory*, p. 272; see also George Katona, *Psychological Analysis of Business Behavior*, pp. 91-95.

⁷Robert L. Heilbroner, *The Quest for Wealth*, p. 251.

The conclusion of C. H. Darhof, professor of public affairs, lends additional credence to the argument presented herein with respect to the wealth motive:

. . . pecuniary considerations are central . . . considerations of income, wealth, and property penetrate everywhere and permeate everything else. Control over [economic] resources has become the means to status, and the symbols of status are appropriately economic in character.⁸

Supplementary reflections on the wealth motive are provided by Ralph Linton, professor of anthropology (the reader should note the multiple *goals* which serve to intensify the wealth *motive*):

Like ownership, the accumulation of [wealth] is a universal phenomenon.

The main motives for wealth accumulation at the primitive level appear to be the desire for prestige and the desire for power.

The desire for power as a motive for wealth accumulation is probably as old as the concept of property.⁹

A considerable part of the modern industrial population passes its life as transients with both the freedom for individual activity and the psychological insecurity that it entails. Under these circumstances, it is inevitable that [those] thematic values which can be most readily associated with individuals, such as power and prestige, should come to take precedence over all others. Similarly, the symbols of prestige tend to reduce themselves to objects whose connection with wealth is immediately obvious.¹⁰

An interpretation of the philosophical viewpoint of *income*, which is nothing other than *the change in one's wealth which occurs during a temporally delimited interval*, provides a final note of support:

Although philosophers have treated income in a rather broad manner, we can note certain generalizations and suggest that, in a philosophical sense, income [i.e., a wealth change] appears to perform the following functions:

- (1) It is a means to gratify man's physiological requirement . . . and enables man to consider both present and anticipated future needs.
- (2) It is a means to satisfy the need for self-expression in the form of

⁸C. H. Darhof, "Economic Values in Cultural Perspective," Dudley Ward (ed.), *Goals of Economic Life*, p. 110.

⁹Ralph Linton, "An Anthropological View of Economics," Dudley Ward (ed.), *Goals of Economic Life*, pp. 319-320.

¹⁰*Ibid.*, p. 333.

noneconomic interests.

(3) It is a means to satisfy the need for social recognition.¹¹

Additional quotations, which merely fail to contradict the central theme of the above citations, are unnecessary.¹² It appears reasonable to accept the argument which asserts that the wealth motive is a forceful instigator of human action in general and that the wealth motive is the major instigator of human pursuits which are of an economic nature. The possibility that the wealth motive may be related, and probably is, to numerous specific ends, economic and noneconomic, should be re-emphasized. Thus, if one were to take a global view of a common stockholder's lifespace one might prefer to state that the wealth motive is a surrogate of other behavioral forces rather than a principal behavioral force. This distinction is not relevant to our partial-equilibrium analysis of the behavior of common stockholders *qua* common stockholders. One need only be acutely aware of the fact that the intense potency of the wealth motive in regard to economic pursuits has not been disproven. Given the absence of conclusive and definitive refutations of the wealth-motive hypothesis, one can accept the latter as a central explanatory variable with respect to the behavior of common stockholders *qua* common stockholders.

One implication of the contention that the wealth motive dominates the behavior of common stockholders is that accounting messages prepared for common stockholders should contain statements in respect of wealth. If dominant motives determine the kinds of information desired by an actor, and if the wealth motive is the dominant motive of common stockholders *qua* common stockholders, then an information-generating process which seeks to facilitate common-stockholder behavior should generate information in regard to wealth. This implication will possess greater significance in relation to the operational significance of the common stockholder's

¹¹Norton M. Bedford, *Income Determination Theory*, pp. 14-15.

¹²Other sources which imply that the wealth motive is a powerful behavioral determinant include J. N. Morgan, "Analysis of Residuals from Normal Regressions," Lawrence Klein, *et al.* (eds.), *Contributions of Survey Methods to Economics*, p. 185; J. N. Morgan, "The Motivation of Savers," Walter Heller (ed.), *Savings in the Modern Economy*, pp. 213-217; Alexis de Tocqueville, *Democracy in America*, Vol. II, p. 248; Karl Polanyi, *The Great Transformation*, p. 46; Melville J. Herskovits, *Economic Anthropology*, p. 496; Lauterbach, *Men, Motives, and Money: Psychological Frontiers of Economics*, p. 55; Eric D. Bovet, *The Dynamics of Business Motivation*, p. 16; Zenas C. Dickerson, *Economic Motives*.

subsystems, the problem-solving process, and the nature of concepts, all to be analyzed later. Discussion of the latter phenomena will provide greater support for the proposition that accounting messages which are prepared for common stockholders should consist of statements in respect of wealth. This discussion will permit also the derivation of implications relating to several categories of wealth statements which will facilitate common-stockholder behavior.

No assertion has been made that common stockholders desire to *maximize* wealth. As will be indicated subsequently in relation to information and uncertainty, such an objective is not practicable. The content of common stockholders' cognitive systems is not of a nature such that wealth maximization may be pursued. A common stockholder's knowledge of feasible alternative courses of action which are consistent with the wealth motive is limited. Additionally, a common stockholder's knowledge of the future is inadequate for wealth maximization, in a strict sense. Furthermore, the many forces operative throughout a common stockholder's *total* lifespan may impel the investor to adopt a course of action which is inconsistent with wealth maximization; such restraining forces may be sociological, psychological, temporal, or political in nature.

By definition, the wealth motive will induce the investor to locomote from a lower level of wealth to a higher level of wealth; such a course of action is consistent with lifespan equilibrium. The existence of the wealth motive, *per se*, does not provide a foundation which supports the generalization that common stockholders will *maximize* their wealth, in a strict sense. Cognitive limitations render such an objective impracticable, as will be indicated subsequently. The additional considerations mentioned above also may tend to prevent such a pursuit. A more general behavioral description with respect to the actions of common stockholders, namely, that of *wealth optimization* is more nearly accurate; the common stockholder will strive to achieve the highest perceived wealth position which is consistent with lifespan equilibrium. The latter generalization appears to be credible. The existence of the wealth motive implies that a common stockholder will opt for a higher rather than a lower level of wealth. The investor's lifespan will be in a disequilibrium state until he takes action which—according to the stockholder's expectations—will terminate with the higher level of wealth. Such a position is the *highest perceived wealth position* which is consistent with lifespan equilibrium, that is, it is the optimal, or equilibrium, wealth position.

The common stockholder will not necessarily remain, however, at a particular wealth position in perpetuity. The existence of new opportunities, expectational changes, and uncontrollable restructurizations of the stockholder's lifespaces (among other things) may produce new optimal wealth positions to which the investor will locomote in order to restore equilibrium.

The stockholder's attitudes with respect to risk are important factors in the process of selecting an optimal wealth position. Until the riskiness of alternative wealth positions and the investor's risk preferences have been considered¹³ it will be assumed that the investor formulates single-valued expectations, and that the investor's single-valued expectations are held with certainty.

The particular sector of the stockholder's lifespaces to which the partial-equilibrium approach applies is the *wealth sector*: those regions (states of affairs) which have a bearing on the investor's real command over economic resources, or his stock of purchasing power. This is the sector which is related to the stock of assets possessed by the common stockholder, in a theoretical-construct sense. Such possessions provide command over economic resources to the extent that they may be converted into alternative assets. The conversion may be direct (for example, a conversion of money into an alternative asset); or the conversion may be indirect, as in the case when an asset is first converted into a medium of exchange and then into an alternative asset. In order to ascertain the magnitude of one's command over economic resources, one must assign to each asset some common measure which reveals the degree to which each asset may be converted into alternative economic resources. The common measure which is used is the medium of exchange, which for the United States is the dollar. The command over economic resources which is provided by each asset is equivalent to the quantum of the medium of exchange which may be received for each asset. The resultant aggregate monetary expression represents the total wealth possessed by the individual—the individual's command over economic resources, or the generalized purchasing power of the individual.

Since we are interested in the common stockholder's behavior with respect to common stocks, we shall classify all assets of the wealth sector into two categories: common stocks and other assets, such as money,

¹³See Chapter 5.

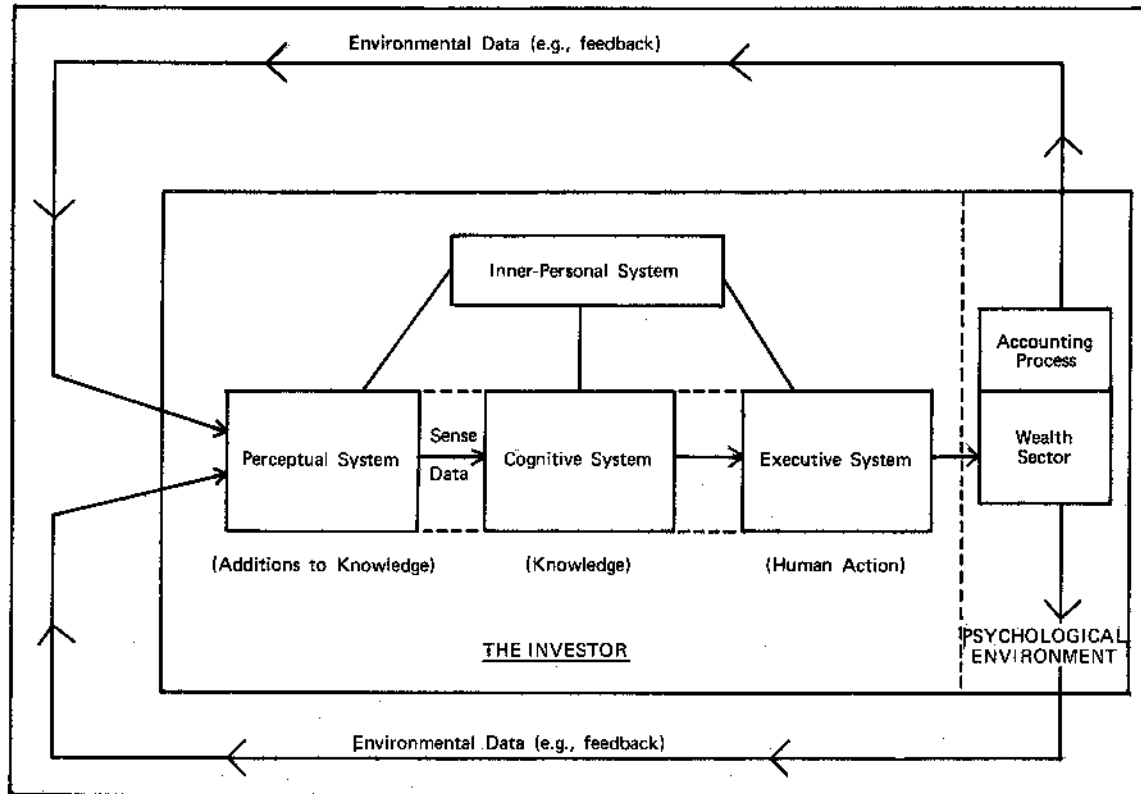
bonds, and durable goods. The wealth sector will be treated as an investment whole, with no concern with specific common stocks, or specific "other assets." The focus of interest is the wealth-optimization behavior of the common stockholder with respect to his aggregate portfolio of wealth.

The common stockholder's attempt to locomote to the highest wealth position which is consistent with lifespace equilibrium implies that the investor will seek to arrange his portfolio in a manner such that the resultant portfolio will be associated with the highest *rate* of expected wealth change which is consistent with lifespace equilibrium. To be sure, the stockholder's expectations may not be fulfilled; hence, the *achieved* rate of wealth change may not be equal to the *expected* rate of wealth change. It should be recalled, however, that *expected* rates of wealth change affect present behavior. Achieved rates of wealth change may influence the formulation of expected rates of wealth change, but achieved rates of change, *per se*, are inconsequential in respect of *present* behavior. The investor's present wealth position—the investor's present position within his psychological environment—and the investor's present temporal perspective are the determinants of present behavior.

The Subsystems of the Investor

If the investor attempts to achieve the highest rate of wealth change which is consistent with lifespace equilibrium, the functions which are performed by the actor's subsystems with respect to the wealth-motivated behavior of the investor and the investor's wealth sector should be understood. The accompanying diagrammatic representation of the investor's subsystems (Figure 3) may ease the reader's comprehension of the following commentary. The diagram shows those portions of the investor's lifespace which are relevant to this discussion, namely, the subsystems of the investor and the wealth sector of the psychological environment. The wealth sector of the psychological environment consists of the present wealth position of the investor, alternative wealth positions toward which and away from which the investor may locomote, and all other phenomena which are relevant to the investor's wealth-motivated activities (for example, macroeconomic events and microeconomic events).

Figure 3
THE INVESTOR'S LIFESPACE



Important in these considerations are the assumption that the investor's expectations are held with certainty and the fact that the wealth-value of a common stock is equal to a fraction of the wealth-value of a firm, the fraction being equal to the common stock's proportionate ownership in the firm.

Inner-Personal System

The inner-personal system of the investor fixes the motives of the investor with respect to the wealth sector of the investor's lifespace. The investor's motive, *wealth optimization*, will direct the investor's conceptual and real locomotions; the motive of the investor also establishes the attributes of reality which are of importance to the investor in his wealth-management activities.

Perceptual System

The perceptual system of the actor is the medium through which environmental data are secured by the investor. Since the environmental data are transformed into sense-data during their passage through the perceptual system of the investor, sense-data are environmental data conditioned by the mentality and singularities of the investor. They are interpretations of reality (in its noumenal sense) rather than reality itself; they are beliefs about the attributes of reality which derive from the interaction of the investor's perceptual system with reality.¹⁴ The perceptual system is utilized by the investor in order to effect an awareness of opportunities which may lead to an enhancement of the investor's wealth position. The perceptual system is employed also in order to gather environmental data which are needed for the purpose of controlling the investor's wealth-management activities.

The process of garnering environmental data which relate to new opportunities is part of the investor's purposive search activities. The investor's wealth-management activities are controlled by a desire to

¹⁴A. M. Quinton, "The Problem of Perception," Robert J. Swartz (ed.), *Perceiving, Sensing and Knowing*, p. 497.

experience the greatest rate of wealth accumulation which is consistent with lifespace equilibrium. Accordingly, the investor's perceptual system will be sensitive to environmental data which reveal the existence of wealth positions within the investor's lifespace which, in an *ex ante* sense, are preferred relative to the investor's present wealth position. The investor will be sensitive to, say, those macroeconomic data and microeconomic data which suggest that during the investor's temporal planning horizon events will occur which cause a particular alternative present wealth position to be superior to the investor's actual present wealth position. For example, if the inferences formulated about a firm's future economic activities indicate that the investor's expected rate of wealth change will be greater with commitment of his wealth to the common stock of the firm under review than that which is expected on the investor's present portfolio, and if such a reallocation of wealth is consistent with lifespace equilibrium, then the investor's present wealth position will be a disequilibrium posture. A net force will obtain within the lifespace of the investor until the investor locomotes to a wealth position which is represented by a commitment of wealth to the common stock of the firm under review. This new wealth position is an objective region with the attribute of a positive valence, and as such an objective region exerts an attractive force on an individual.

The investor's decision to commit, or not to commit, wealth to the operations of an economic entity depend, of course, upon the present wealth position of the firm and the anticipated wealth position of the firm. The wealth changes experienced by the investor's wealth position will be a direct reflection of the changes which occur in the firm's wealth position. The investor's inferences with respect to the future wealth position of a firm will be predicated upon environmental data which refer to the firm's present wealth position. The present wealth position of the firm is characterized by the firm's present command over economic resources and the firm's temporal perspective. In order to comprehend the wealth-generating activities of the firm and the wealth position of the firm, the investor must also consider data which relate to the firm's environmental circumstances, or states of affairs.

A structural framework for discussion of the kinds of information which will be sought by investors can be built upon the postulate that common stockholders' investigative activities, with respect to firms, progress *as if* they may be described in accordance with the concepts of field psychology. This postulate implies that investors, in general, will

desire to examine the "lifespaces" of firms (including their associated time perspectives) in order to explain and predict the operations (or "behavior") of firms—just as we might examine an investor's lifespace (including its time perspective) in order to explain and predict the investor's behavior. The concern here is with the implications of the postulate, not with the verity or falsity of the postulate, *per se*.¹⁵

The temporal perspective (which includes, for example, memory, expectations) is included in the term "lifespace," the label for a melange of determinants which has as its referent the totality of present facts determining behavior, because the temporal perspective is a part of the *present*; hence, it influences present behavior or operations.¹⁶ The aspects of the firm's common stock are the factors which are of consequence to the common stockholder's wealth-management activities. Accordingly, the investor's perceptual system will seek data in regard to such factors.

The perceptual system will be operated also in order to gather data for purposes of control. The control aspects of the investor's wealth-management activities refer to the process by which the investor seeks to obtain conformity to his planned experiences, or planned locomotions. The investor will find it necessary to secure data which indicate to him the distance which obtains between his desired wealth position and his present wealth position. The investor will need also to secure data which reveal the degree to which the expected rate of wealth change which has guided his behavior is apt to be achieved. Such control data will have as their referents the consequences of the investor's wealth-management activities; they will be used as a means of guiding the investor's wealth-management behavior. Obviously the control data are subsumed in the familiar term "feedback." "In order for [behavior] to be facilitated or inhibited [it has] to be reinforced positively or negatively. . . . There must be, that is to say, feedback of some sort, an experienced effect or consequence."¹⁷

The Cognitive System

The cognitive system of the investor is that system which embodies the investor's knowledge of the past, the present, and the future.

¹⁵John Dewey, *Logic: The Theory of Inquiry*, p. 142; Morris R. Cohen and Ernest Nagel, *An Introduction to Logic and Scientific Method*, p. 10.

¹⁶See Chapter 2.

¹⁷O. H. Mowrer, *Learning Theory and the Symbolic Processes*, p. 266.

Present knowledge will be used by the investor in the process of prehending his present wealth position. Past knowledge also may be utilized by the investor to the extent that it facilitates his present locomotions—real locomotions and conceptual locomotions. Past knowledge, of course, must be relevant to the present real (and conceptual) wealth position of the investor. Past knowledge, furthermore, must be expressed in terms of the present, since investor behavior is a function of the investor's *present* lifespaces, including its time perspective.

The past knowledge of the investor and the present knowledge of the investor will be utilized in order to formulate expectations and examine previously formulated expectations. The investor's expectations and the investor's present wealth position will determine his wealth-management behavior. If the investor's expectations indicate that his present wealth position is not optimal, then the wealth sector of the investor's lifespaces will be in a state of disequilibrium. A net force will induce the investor to locomote toward the wealth position which is deemed to be optimal. If the investor's expectations indicate that his present wealth position is optimal relative to all *perceived* alternative wealth positions, then no disequilibrating forces will be extant—the investor will not alter the magnitude or the components of his investable wealth.

Once again the crucial role fulfilled by the expectation component of the investor's present temporal perspective is apparent. Present knowledge, *per se*, does not induce investor action. Past knowledge, *per se*, does not provoke investor action. Future knowledge—or expectations—has the potential capacity of giving impetus to investor action when such future knowledge is related to the present wealth position of the investor.

Whether . . . action is performed or not, will depend upon evaluations made; will be determined by reference to anticipated possible experience as something to be desired or something to be avoided. Action attempts to control future experience, so far as may be, in our own interest. It has its *terminus a quo* in the situation which is given; its *terminus ad quem* in some experience to which a positive value (or comparative value in relation to alternatives) is assigned. The principal function of . . . knowledge is that of an instrument enabling transition from the one to the other; from the actual present to a future which is desired and which the present is believed to signalize as possible.¹⁸

¹⁸C. I. Lewis, *An Analysis of Knowledge and Valuation*, p. 4.

Past knowledge and present knowledge contained within the investor's cognitive system—or available to the investor's cognitive system—are instrumental with respect to the wealth-optimization behavior of the investor to the extent that they may be used as bases upon which inferences about future states of affairs may be predicated. Since it seems not unreasonable to conceive of the contents of accounting messages as forms of knowledge which may be available to the cognitive systems of investors, the value of accounting messages will be partially determined by their instrumentality to the process of formulating inferences about the future states of affairs with respect to firms.

The Executive System

The executive system is the mechanism through which the investor attempts to maintain and restore equilibrium with respect to the wealth sector of his lifespace. It is the mechanism through which the investor strives for the perceived optimal wealth position. The executive system performs the functions of compiling locomotive strategies for wealth optimization and formulating expectations which guide investor actions. For example, if the expectations held by the investor in conjunction with the investor's present wealth position initiate a disequilibrating force, then the executive system will be employed to develop a path of locomotion, or action-strategy, which will tend to restore equilibrium. The executive system indicates and effects the transformations (real and conceptual) which are requisite for wealth optimization. The inputs to the executive system—the "material" with which it works—consists of the output of the perceptual system, the contents of the cognitive system, and the elements of the inner-personal system.

Interdependence of Subsystems

The relationship which appears to be extant among the motives of human beings, the actions of human beings, and the informational desires of human beings is one indicant of the *interdependence* which characterizes the operations of an actor's subsystems. With respect to common stockholders the interdependence of the subsystems implies that the

systems function conjointly in order to achieve wealth optimization. The data-accumulation activities of an investor's perceptual system are guided by the wealth motive of the inner-personal system and the needs of the executive system. The inputs to an investor's executive system are composed of the sense-data produced by the perceptual system, and the contents of the cognitive system. The output of the executive system (human action) is guided by the motive of the investor—which is wealth optimization according to the views advanced in previous discussion. If the implications of this analysis are veridical, then all subsystems are operative in the process of wealth optimization.

The Role of the Accounting Process

The reader may be wondering about the role of the accounting process in the wealth-sector activities of the investor. At the inception of this inquiry, it was indicated that the accounting process is supposed to provide information to the users of accounting services in order to facilitate human action. On the basis of the theories that the subsystem of the investor which collects information¹⁹ is the perceptual system, and that the operations of the perceptual system are guided by the wealth motive and the needs of the executive system, the assumption of this paper is that the accounting process is an intermediary which is situated between economic entities²⁰ and the perceptual systems of investors. It is known that most common stockholders may not secure directly all the information needed in order to control their wealth-optimization activities and perceive the existence of opportunities which may be seized upon in order to pursue wealth optimization. Without such information, wealth optimization is likely to be inefficient and ineffective. Unstructured boundary regions²¹ may restrict the purposive activities of investors. The investor may be partially or wholly ignorant of new opportunities for wealth optimization, and the investor may have inadequate knowledge with which to control his wealth-management operations.

¹⁹Subsequently a distinction will be made between "data" and "information." For the time being we use the terms interchangeably.

²⁰The economic entities may be, say, industrial corporations or financial corporations.

²¹See Chapter 2.

Ideally, the accounting process should fulfill a role supplementary to that of the investor's perceptual system. It should link the perceptual system of the investor to the economic attributes of firms. The accounting process should serve as an informational intermediary which directs a flow of information from economic entities to the perceptual systems of investors. Put figuratively, the accounting process should function as an extension of the investor's perceptual system. Such an extension should function in accordance with the objectives and standards which direct the operations of an investor's perceptual system.

The reason for which the accounting process was classified as a media region²² may now be clear. Media regions are regions of an individual's lifespaces through which the individual may pass in order to move toward, or away from, an objective region. Media regions may embrace activities or relationships of which an individual may avail himself in order to achieve a particular objective. If the reader accepts this classification of the accounting process, then he may agree that the relationship (state of being or region) which prevails between an investor and the accounting process should be one which facilitates the investor's conceptual and real locomotions from initial wealth positions to optimal wealth positions. The accounting process should serve as a means which may be put to use in order to pursue wealth optimization.

The role of informational intermediary may be fulfilled by engaging in communicative acts; that is, by utilizing concepts, signs, and messages (for example, annual reports) in order to transfer knowledge to common stockholders in respect of microeconomic entities. The importance of communicative acts to the process of accounting was suggested in a recent inquiry into the nature of accounting:

... the significance of communication as a distinct phase of accounting endeavour warrants its consideration as a separate operational problem. So much of accounting activity is oriented, directly or indirectly, toward the communication of information that it is scarcely an exaggeration to say that the problem of communication is the axial problem in accounting.

The reporting function is obviously and directly one of communicating information by or on behalf of one party or body to another.²³

²² See Chapter 2.

²³ Louis Goldberg, *An Inquiry into the Nature of Accounting*, p. 348; see also, Norton M. Bedford and Vahe Baladouni, "A Communication Theory Approach to Accountancy," *The Accounting Review* (October 1962), pp. 650-659.

A discussion of several significant and basic aspects of communicative acts may provide some insights into the nature of processes which involve communicative acts, and the problems with which such processes must contend. First will come a commentary on concepts and signs, since the latter phenomena provide a foundation for an act of communication. This discussion of concepts, signs, and communication will be applicable to the process of accounting, as well as other processes which are characterized by the utilization of languages and the generation of messages.

Comments on Concepts and Signs

In order to cope with the amorphous mass of data yielded by a kaleidoscopic environment, an individual invents and utilizes concepts. Concepts are categorizations of the attributes of the universe which surrounds us.²⁴ The process of concept formation is not arbitrary; rather, it is a means by which one organizes one's observations and experiences in order to render less difficult the pursuit of particular goals. The purposes for which we establish and use a concept depend upon our motives and interests. In one situation and for one datum of the environment, we may utilize concept X, a categorization of the attributes of the datum which are relevant to our behavior. In another situation, and for the same datum of the environment, we may use concept Y, which is a categorization of different attributes which will be utilized in order to accomplish a different objective. A common stockholder's utilization of the concept of "wealth" is one example of the relationship which obtains between motives and concept utilization.

Through the use of concepts an individual gains an ability to erect mentally a model of his environment which provides a foundation for comprehending the aspects of the environment deemed to be potentially serviceable in the realization of specified ends. In addition to providing a basis for environmental comprehension, concepts serve as a means of mentally manipulating the environment.²⁵ When an individual is engaged in the problem-solving process he does not always find it feasible or necessary

²⁴James S. Duesenberry, *Income, Saving, and the Theory of Consumer Behavior*, p. 6.

²⁵J. B. Carroll, *Language and Thought*, p. 79.

to physically manipulate his environment. Instead, he manipulates and integrates concepts in an attempt to reduce the differential between his initial state and his ultimate goal. The resultant conceptual constructions permit him to consider the perceived outcomes which may be associated with the consummation of specified human actions. The ability to manipulate concepts and to cogitate the implications of manipulated concepts is a means of experimenting with environmental phenomena. Such experimentation may enable the individual to efficaciously control his future experiences.

Not all concepts denote observable and physical data of the universe.²⁶ Some concepts refer to assumed properties, others to inferred properties of environmental data—properties which are considered to be instrumental to our activities. All concepts are equivalent, however, in that they are “internal representations of a certain class of *experiences*, these experiences being either the direct response to aspects of the external environment, or responses to other experiences.”²⁷ In addition, all concepts are useful in the process of asserting instances and noninstances of the elements which are denoted by a concept.

The availability of concepts is necessary, but not sufficient, to permit problem solving and comprehension of one’s environment. In order to manipulate and use concepts—which is the essence of thinking and, thus, problem solving²⁸—we must have signs:

Concept formation [and use] is the result of a complex activity in which all the basic intellectual functions take part. The process cannot be reduced to association, . . . imagery, inferences, or determining tendencies. They are all indispensable, but they are insufficient without the use of [a] sign or word as the means by which we direct our mental operations, control their course, and channel them toward the solution of the problem confronting us.²⁹

Signs are means of symbolizing concepts, that is, concepts are the referents of signs. One of the purposes of a sign is to serve as a “tool of thought.” The usefulness of signs as tools of thought is twofold:

²⁶ Duesenberry, *Income, Saving, and the Theory of Consumer Behavior*, p. 7.

²⁷ Carroll, *Language and Thought*, p. 81.

²⁸ *Ibid.*, p. 79.

²⁹ L. S. Vygotsky, *Thought and Language*, p. 58.

(1) They provide at least some of the internal stimuli and stimulus producing responses that carry forward the sequences of events from the external stimuli initiating the [thinking] process to the . . . responses terminating it. And,

(2) They represent organizations of internal processes . . . that are potentially critical in determining whether a given sequence of thought will eventuate in successful . . . response.³⁰

The role of signs may be related to the problem-solving process, to be discussed in Chapter 4. The problem-solving process involves the construction of a series of symbolic responses which yields a behavioral strategy for the problem solver. The individual's initial position (the problem) is one of disequilibrium; he attempts to effect a transformation which will lead him from the problem to a solution, and thus to equilibrium. The portfolio adjustments which are effected by common stockholders are examples of such transformations. In order to effect such transformations an individual must reduce the differential which obtains between the problem and the solution. The individual's consideration of alternative courses of action involves the use of signs—signs whose referents are of import in the given situation. According to this analysis the wealth-optimization activities of common stockholders require the employment of signs which refer to wealth.

Signs will be used in the construction of "solution chains" which have as their starting point the initial situation. Additionally, the solution chains will consist of intermediate steps which represent manipulations of the environment. The manipulations, of course, are not literal, but mental, manipulations of signs which *signify* aspects of the environment and relationships among environmental properties. The termini of the solution chains are outcomes which are suggested by the mental manipulations and signified by signs. If the indicated outcome of a particular solution chain is desirable, given the problem at hand, then the problem solver will attempt to implement the manipulations which form the content of the chosen solution chain.

The signs which are generated by the accounting process may be serviceable in the construction of "solution chains" by common stockholders. This discussion suggests that the serviceability of accounting signs

³⁰Carroll, *Language and Thought*, p. 111.

will vary directly with the extent to which accounting signs have referents which are relevant to the wealth-optimization activities of common stockholders.

In general, one may say that signs are employed in the problem-solving process in order to represent actions which have the potential for changing one situation into another. Signs are utilized in order to control and direct one's thinking, and in order to evaluate behavioral strategies.³¹ The solution chains which are constructed with signs are *operators*, or processes, which transform initial situations into terminal states. The process of manipulating sign-models of the environment is an example of human locomotion on the conceptual plane of an individual's lifespac. Additional attention will be devoted to the problem-solving process in Chapter 4.

Comments on Communication

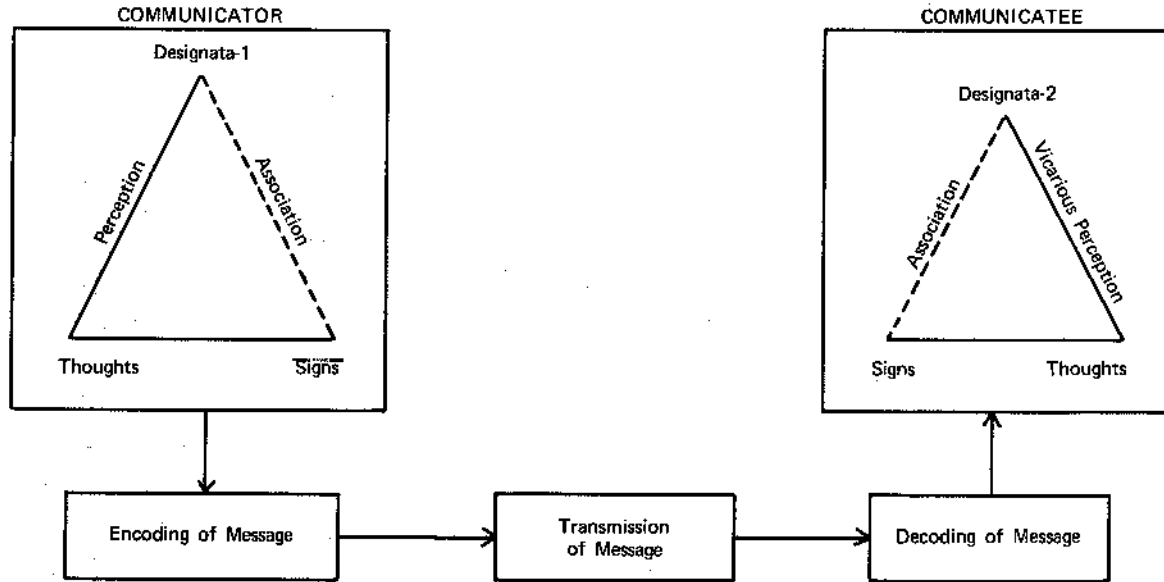
In addition to the direction and control of thought, signs are used for communication. The transmission of signs by the accounting process represents a specific use of signs for the purpose of communication. Through the transmission of signs one may be able to establish a "commonage of signification"³²—that is, one may be able to convey his observations and experiences to another individual by transmitting signs. The referents of the transmitted signs are the concepts which one uses in the process of organizing the particular class of experiences of which he desires another individual to be aware. If the communicative process is effective, the communicatee will share his experiences. If a communicative act is to be effective, of course, the receiver of a message must associate the received signs with the referents, or designata, which the communicator associates with the transmitted signs.

The process of communication may be diagrammatically represented as in Figure 4, where we have depicted several aspects of the sending and receiving of messages, or *purposefully related signs*. The term "designata" refers to the attributes of the environment (relationships, objects, instances)

³¹Maynard W. Shelley II and G. L. Bryan, "Judgments and the Language of Decisions," Shelley II and Bryan (eds.), *Human Judgments and Optimality*, p. 5.

³²Charles Morris, *Signs, Language, and Behavior*, p. 118.

Figure 4
THE PROCESS OF COMMUNICATION



Adapted from Colin Cherry, On Human Communication (The Massachusetts Institute of Technology Press, 1966), p. 113, and C. K. Ogden and I. A. Richards, The Meaning of Meaning (International Library of Psychology, Philosophy, and Scientific Method, 1946), p. 11.

which are referred to when a sign is used; they are the attributes of the environment which the user of a sign thinks about when he employs a particular sign. Whenever an individual thinks, he utilizes concepts and signs. The communicator's thoughts will be based upon the inputs and outputs of his perceptual system. In order to establish a commonage of experience with a communicatee, the communicator will formulate a message which is composed of the signs which he associates with the perceived designata. Upon receiving the transmitted message, the communicatee will think about the designata with which *he* associates the transmitted signs. The thoughts of the communicatee may be influenced by the received signs and the context of the signs,³³ which includes the present environment of the communicatee and the implications of the message as a whole. For example, the thoughts of a common stockholder who utilizes a report which was generated by the accounting process may be affected by the implications of the individual elements of the accounting report and the implications of the accounting report in its entirety.

The communicator hopes that the designata to which his signs refer will be the designata which the receiver of the signs thinks about when he interprets, or decodes, the transmitted message. In other words, the communicator in Figure 4 is desirous of having "designata-1" equal to "designata-2." In his attempts to fulfill his desire, the communicator is confronted by several significant problems: the operations of his perceptual system, the encoding of the content of the message, the transmission of the message, and the receiver's decoding of the message.

All of these problems, except the mechanical problem of transmitting messages, will be discussed. Transmission of messages, related to the means by which a message is delivered to a communicatee, or the communicative medium which is employed (for example, accounting reports), is not so important for the process of accounting as is the transmission of *information*, which is discussed below.

The Problem of Perception and Verifiability

A communicator desires to establish a commonage of experience with a communicatee. If the communicator's message is to be accurate with

³³Colin Cherry, *On Human Communication*, p. 10.

respect to the alleged experiences, then the communicator's perceptions must be coincident with reality (the experienced objects, relationship, etc.). Such a coincidence is not a likely circumstance. The earlier discussion of the investor's perceptual system³⁴ argued that the relationship which obtains between individuals and their environment is based upon *sense-data*, not the data of the environment. It will be recalled that sense-data are *interpretations* of environmental data. If the perceptions of the communicator with respect to properties and occurrences of the environment do not correspond perfectly with environmental data, then some degree of inaccuracy will inhere in his thoughts and messages.

The problem of perception is not completely avoidable; however, it may be possible to mitigate it by increasing the number of percipients who are involved in the formulation of a particular message. This possibility should be considered with specific reference to the process of accounting for common stockholders.

The problem of perceptual accuracy may be mitigated by increasing the number of percipients who are involved in the formulation of a particular message. The purpose of increasing the number of percipients is to subject the content of messages to the test of interpersonal agreement: "Where many persons reach agreement as to observations and conclusions, the descriptions of nature are more likely to be free from the biases of particular individuals. They form the body of knowledge that is taken to be 'true'."³⁵ If a conclusion is characterized by "interpersonal agreement," then it possesses the attribute of verifiability, which may be defined as follows:

Verifiability is that attribute of information which allows qualified individuals working independently of one another to develop essentially similar measures or conclusions from an examination of the same evidence, data, or records. This standard does not always require identical results. It may, in some instances, allow variations within known limits.³⁶

The importance of verifiability may be easily discerned. The messages which emanate from the accounting process may affect the behavior and

³⁴See Chapter 2.

³⁵J. P. Guilford, *Psychometric Methods*, p. 1.

³⁶American Accounting Association, *A Statement of Basic Accounting Theory*, p. 10.

decisions of common stockholders. Yet stockholders are in no position to ascertain the empirical bases or reliability of accounting messages. The common stockholders cannot determine whether the measured data are reliable designators of, say, a firm's wealth changes, or figments of management's imagination. Accordingly the verifiability of accounting data must be determined within the accounting process on behalf of common stockholders.

Of moment is the fact that "verifiable data" are not "true data" or "certain data." One can only attain probabilistic data with respect to reality. One cannot achieve absolute certainty: ". . . there is in any utterable proposition only an approximation to absolute certainty. Absolute certainty is a limit which we shall never reach."³⁷ Thus, statements issued by an accounting process will be probabilistic representations, not deterministic representations.

Adherence to the criterion of verifiability will not solve completely the problem of perception. It is our belief, however, that the problem of perception may be mitigated by invoking the verifiability criterion.

Encoding

Transforming thoughts into signs, or encoding thoughts, is another problem faced by communicators. This problem involves the signs, or the expression system, used by the communicator and the content, or designata, of the signs:

The signs constitute what may be called the *expression* system of the language. They have a referential function in the sense that signs show . . . correspondences or relationships to states of affairs other than themselves—states of affairs either in objective reality, in the psychological state of the speaker, or in the message in which they appear. The set of correspondences between the signs of a language and such states of affairs may be called the content system of the language or simply, the meaning system of the language.³⁸

The designata about which the communicator thinks are the *intended* referents of the signs which he chooses. His choice of signs is based upon

³⁷ Hans Reichenbach, *Experience and Prediction*, p. 187.

³⁸ Carroll, *Language and Thought*, p. 6.

his society, or a segment of his society. As an illustration, an accountant may utilize signs whose referents are established by the conventions or dicta of his profession. If the signs employed by a communicator are to evoke in the communicatee those thoughts which form the basis of the communicator's message, then the signs utilized must have the same referents for the communicatee. If the signs do not have the same referents for the communicatee, then the intended meaning of the transmitted message will differ from its ultimate meaning for the communicatee.³⁹ Thus, for example, if a common stockholder assumes that accounting signs refer to wealth, and if accounting signs do *not* refer to wealth, then the common stockholder will not be cognizant of the *intended* meaning of accounting signs, and his wealth-optimization activities may be hindered—rather than facilitated—if the accounting signs are employed in the investor's wealth optimization.

The problem of choosing signs which have equivalent meanings for communicatees and communicators is of especial significance to specialized disciplines, such as accounting, which devote their efforts to particular aspects of the universe. In order to perform their roles effectively they tend to find it increasingly necessary to develop technical signs and concepts which facilitate their tasks. It has been noted that the development of the sciences has been associated with such a process: "In the initial stages of scientific inquiry, descriptions as well as generalizations are stated in the vocabulary of everyday language. The growth of a scientific discipline, however, always brings with it the development of a system of specialized, more or less abstract, concepts and corresponding technical terminology."⁴⁰ Several examples of technical concepts from the realm of accountancy are: asset, current liability, going concern, materiality, and entity. To the extent that this process permits a more refined organization of environmental data and increased comprehension of one's environment, it should be favored. Yet it is manifest that this same process presents major problems with respect to communication between members and nonmembers of disciplines. For example, if the messages of the accounting process are to facilitate the behavior of common stockholders, then the

³⁹Colin Cherry, *On Human Communication*, p. 69; George H. Mead, *Mind, Self and Society*, p. 54.

⁴⁰Carl G. Hempel, "Fundamentals of Concept Formation in Empirical Science," *International Encyclopedia of Unified Science*, Vol. II, No. 7, p. 1.

concepts and signs incorporated in accounting messages should not be unimportant, and incomprehensible to common stockholders. The perspectival standpoint of the *users* of accounting messages must be adopted when signs and concepts for accounting reports are chosen. As an illustration, the importance of wealth to the wealth-sector activities of common stockholders implies that the concept of wealth should be incorporated into accounting messages which are prepared for common stockholders.

Decoding

The final problem of communication to be considered is the decoding process—the interpretation of a message by a communicatee. Decidedly, the communicatee's interpretations of the signs utilized in a message will not be the intended interpretations if the meanings which he associates with the signs are not the meanings which the communicator associates with the signs. Since this problem was discussed above in regard to encoding, it requires no additional consideration here. The communicatee's interpretations of signs do not constitute, however, the sole problem of message interpretation. The recipient of a message should understand the message as a *whole*, and the implications and significance of a message so that any needed human action will be provoked. Accordingly, a message should emphasize the items which are of greatest import in regard to the underlying designata and the user's purposes in availing himself of the message. This aspect of communication has been recognized by accountants, for example, in the stipulation of the characteristics which are essential for effective *performance reports* intended for managerial use:

Performance reports should be *integrated* in such a way that it is possible to trace favorable or unfavorable performance to the original source. The performance report system also must be designed so that management can readily observe the salient facts in each report . . . and all performance reports should be designed to implement the [management by] exception principle—that is, so that the *exception* or the *unusual* stands out.⁴¹

The enhancement of the contribution which is made by the accounting process to an investor's wealth-optimization activities through the prepara-

⁴¹ Glenn A. Welsch, *Budgeting, Profit Planning and Control*, pp. 362-363.

tion of performance-type reports for common stockholders will be indicated in a subsequent chapter.

Comments on Information

If the accounting process is to facilitate the wealth-optimization process then it must generate *information* for investors, and not merely messages. *Messages* are purposefully arranged signs, but *information* is something more than an aggregation of signs. A message has the attributes of information if it affects a communicatee's state of uncertainty, or ignorance, with respect to the designata of the message.⁴² When an individual's perceived environment is characterized by uncertainty a particular message has some information content if it affects the communicatee's evaluation of the likelihood of an event's occurrence or of an object's existence. It seems plausible also that the information content of a message will vary directly with the change in a communicatee's likelihood evaluation with respect to the designata of a message. The relationship between information content and likelihood evaluations, or probability estimates, may be exemplified as follows:

Suppose that it is known that some event E will occur with probability X, $0 < X < 1$. Suppose at some later stage you receive a definite and reliable message which states that E has indeed occurred. When $X = .99$ you will not be surprised at all, for it was practically sure that E would take place. In other words, the message has very little "information content" when X is close to 1. The situation changes in this respect when X takes smaller and smaller values.⁴³

The above concepts may be applied to messages which are not completely *definite* and *reliable* through employment of the following formulation:⁴⁴

Information content of a given message	$\frac{\text{Pr (ex post)} - \text{Pr (ex ante)}}{\text{Pr (ex ante)}}$
---	---

⁴²Wendell R. Garner, *Uncertainty and Structure as Psychological Concepts*, p. 3.

⁴³Henri Theil, *Economics and Information Theory*, p. 3.

⁴⁴A mathematical and axiomatic derivation of a similar formulation appears in Theil, Chapter 1.

Pr (ex post)	probability associated with the event after the message is received.
Pr (ex ante)	probability associated with the event before the message is received.

The above formulation is employed in accordance with the postulation that the information content of a message varies directly with the change in an ex ante probability estimate. Thus, an accounting message which does not affect the probability estimates of common stockholders with respect to the future experiences of their wealth sectors has no informational content, according to the above analysis.

The Important Signs of Accounting

The signs which are of significant import to accounting are numbers. They are utilized in order to perform the measurement, or quantification, function of accounting, which is "the process of assigning numerical magnitudes to represent the quantitative content of a stipulated property or properties [possessed] by an object or phenomenon."⁴⁵ Unlike signs which may be used in order to declare an instance or noninstance of a phenomenon, quantification permits one to declare the *degree* to which particular phenomena are existent. Manifestly, such a sign system has the potential for being especially instrumental in the facilitation of the wealth-optimization process. An investor probably desires to be cognizant of the magnitude of wealth and wealth changes associated with a given investment experience, not merely the existence or nonexistence of wealth.⁴⁶ In addition, it is probable that an investor desires descriptions which are more specific than "more wealth" and "less wealth" in his comparative evaluations of investment alternatives.⁴⁷ The accounting process can satisfy some of the investor's desires, within the restrictions imposed upon it by the realities of the universe.

⁴⁵Ronald S. Lim, "The Mathematical Propriety of Accounting Measurements and Calculations," *The Accounting Review* (October 1966), p. 643.

⁴⁶Morris R. Cohen and Ernest Nagel, *An Introduction to Logic and Scientific Method*, p. 289.

⁴⁷Carl G. Hempel, "Fundamentals of Concept Formation in Empirical Science," p. 57.

A Final Note

According to the foregoing analysis the accounting process should function as a media region within the lifespaces of individuals; the relationship which is extant between the accounting process and a common stockholder should be one which facilitates the wealth-sector pursuits of common stockholders. This chapter indicated that the accounting process may fulfill its function by engaging in communicative acts. It presented also several basic concepts which are related to communicative acts, and several problems which appear to be associated with communicative acts.

By engaging in communication the accounting process may fulfill a role which is supplementary to that of an investor's perceptual system. It may be able to increase the inputs and outputs of an investor's perceptual system and, hence, the content of his cognitive system are utilized by the executive system in the process of wealth optimization, according to the model developed in this chapter. In accordance with the assumption relative to the function of the accounting process, the output of the accounting process should be instrumental to the operation of an investor's executive system. Attention to the major operation of a common stockholder's executive system, namely, "problem solving" or "decision making," will provide some additional implications for accounting. This activity will be considered in the next chapter.

4. THE COMMON STOCKHOLDER: PROBLEM-SOLVING PROCESS, SINGLE-VALUED EXPECTATIONS HELD WITH CERTAINTY

Preliminary Comments

The common stockholder will have to cope with myriad problems in the process of wealth optimization. He will find it necessary to engage in investigative and evaluative operations with respect to new opportunities. In addition, he must continually control the transitions of his portfolio of wealth. The problems which confront the investor represent instances of lifespace disequilibrium. They are instances in which the investor is induced to take action—conceptual or real action—in order to eliminate the disequilibrating forces which are operative. The subsystem of the investor which is utilized in order to restore (and maintain) equilibrium is the executive system. The executive system compiles behavioral strategies and formulates expectations which are used in the process of wealth optimization; it is the system through which the common stockholder attempts to control his future experiences. We believe that the serviceability of accounting information is a function of the extent to which accounting information facilitates the equilibrating compilation and formulation activities of an investor's executive system. This belief is predicated upon the classification of the accounting process as a media region within the lifespace of an investor.¹

Aside from physical movements, the major process which the executive system administers in order to maintain or restore equilibrium is that of directed thinking, or problem solving.² "Directed thinking is [a process of mental symbolic responses] whose function is to convey us to a solution

¹See Chapter 3.

²As in much of the literature of psychology, the terms "directed thinking," "problem solving," and "decision making" will be used interchangeably.

of the problem with which we are faced."³ The directed thinking operations of the executive system, not any physical actions administered by it, are of chief interest in this aspect of the inquiry.

The operations of the executive system with respect to the investor's wealth position are guided by the investor's motive of wealth optimization—which is established in the inner-personal system.⁴ The investor's motive determines what phenomena may be associated with disequilibrating forces; hence, the investor's motive establishes the referents of the executive system's operations. The investor's motive of wealth optimization establishes the objective(s) for which the executive system must strive in order to restore and maintain equilibrium. Additionally, the motive of the investor determines the kinds of data which the executive system will require from the investor's perceptual system and cognitive system. This relationship between the inner-personal system and the executive system is an example of the interdependence which obtains with respect to the four subsystems of the actor.

The remainder of this chapter will be devoted to a brief general explanation of the directed-thinking process, and to an illustration of the directed-thinking process which is related to a simplified instance of investor behavior. The investor's formulation of single-valued expectations, and his holding of these single-valued expectations with certainty, will be a continuing assumption.

The Problem-Solving Process—A General Explanation

In general the directed-thinking process involves the construction of a series of symbolic responses which yield a behavioral strategy that is intended to lead an individual from a state of disequilibrium to a position of equilibrium. A description of this process, provided by Herbert A. Simon, is reproduced below:

The processes of problem solving are the familiar processes of noticing, searching, modifying the search direction on the basis of clues. The same elementary symbol-

³D. E. Berlyne, *Structure and Direction in Thinking*, p. 19.

⁴George Humphrey, *Directed Thinking*, p. 12. See Chapter 3 for a discussion of the wealth motive of common stockholders and the relationship between the wealth motive and the operations of the investor's subsystems.

manipulating processes that participate in these functions are also sufficient for such problem-solving techniques as abstracting and using imagery.⁵

Problem solving proceeds by erecting goals, detecting differences between present situation and goal, finding in memory or by search tools or processes that are relevant to reducing differences of these particular kinds, and applying these tools or processes. Each problem generates subproblems until we find a subproblem we can solve—for which we already have a program stored in memory. We proceed until by successive solution of such subproblems, we eventually achieve our overall goal—or give up.⁶

The problem-solving process may be structured in the following manner:⁷

1. *Transform goals*: Change *a* into *b*.
2. *Reduce difference goals*: Eliminate or reduce the difference between *a* and *b*.
3. *Apply operator goals*: Apply the program (or operator method) *Q* to the situation *a*.

In the above schema, *a* represents the initial situation; *b* represents the desired situation, or goal. *Q* represents the tools, processes, or methods which will be utilized in order to transform *a* into *b*. The dynamics of this process may be explained in the following manner:

A method, for example, for changing *a* into *b* is to find a difference, *d*, between them and formulate the Reduce Difference goal of eliminating this difference. A method for reducing a difference between *a* and *b* is to find an operator that is relevant for removing differences of the kind in question, and to apply that operator. A method for applying an operator is to compare the actual situation with the situation that would make it possible to apply the operator, and to formulate the goal of changing the actual situation into the required situation.⁸

A more concrete exemplification of the problem-solving process, as characterized above, follows:

⁵Herbert A. Simon, *The Shape of Automation*, p. 82.

⁶*Ibid.*, pp. 83-84. Additional, and corroborative, descriptions are provided in: Berlyne, *Structure and Direction in Thinking*; Edgar Vinache, *The Psychology of Thinking*; Karl Duncker, "On Problem Solving," *Psychological Monographs*, Vol. 58, No. 5, Whole No. 270; D. M. Johnson, *The Psychology of Thought and Judgment*; John W. Yolton, *Thinking and Perceiving*; Jerome S. Bruner, et al., *A Study of Thinking*; and Robert G. Colodny, *Mind and Cosmos*.

⁷Simon, *The Shape of Automation*, p. 84.

⁸*Ibid.*, p. 84.

Suppose that we are camping in the woods and decide that we need a table. How do we solve the problem of providing ourselves with one: We state the problem: we *need* a flat horizontal wooden surface; we *have* all sorts of trees around us and some tools. We ask: What is the *difference* between what we need and what we have: Trees are large, vertical cylinders of wood attached to the ground; a table top is a smaller, horizontal movable slab of wood. Hence, there are differences in detachability, size, flatness, and so on between what we have and what we need. We ask: What tools do we have to *reduce* these differences—for example, to detach the tree from its roots? We have axes. So we apply an ax to a tree and we have solved the first subproblem—to change an object rooted in the soil into an object detached from the soil.⁹

The Problem-Solving Process—An Illustration

The goal of the investor with respect to the evaluation of a common stock is the formulation of an expectation of the rate of wealth change which will be experienced by the firm and the firm's common stock, according to the behavioral model herein developed. The investor's initial conceptual position is one of "no expectation." A net force which provokes disequilibrium in the wealth sector of the investor will be extant. The executive system of the investor will strive toward the restoration of equilibrium by engaging in operations which will move the investor from his conceptual position of "no expectation" to his objective conceptual position of "expectation." The tasks of the executive system will embrace the accumulation of data, the manipulation and integration of the accumulated data, and the formulation of inferences about the firm's future rate of wealth change, the investor's investigative activities proceeding *as if* they may be described in accordance with the concepts of field psychology.¹⁰

In order to gather data which are relevant to the investor's objective, the executive system will communicate with the cognitive system and the perceptual system. The executive system will instruct the perceptual and cognitive systems to submit to it data which relate to the *lifespace* of the firm—that totality of factors which determines the operations (or "behavior") of the firm. The lifespace of the firm is composed of the firm, the wealth position of the firm, the environment of the firm, and the firm's

⁹*Ibid.*, p. 83.

¹⁰See Chapter 3.

temporal perspective. The lifespan of a firm is analogous to the lifespan of a human; the lifespan of a human is composed of the actor, the actor's psychological environment, and the temporal perspective of the actor.¹¹

The firm may be conceived of as a system—a purposeful means of accomplishing something. This system is concerned with the rationalization of "labor, capital, and material inputs into outputs which will satisfy current market conditions with respect to both its level of output and rate of economic growth."¹²

One might categorize the attributes of the firm into the same subsystems which were used to denote the various properties of a human being, namely, a perceptual system, a cognitive system, an inner-personal system, and an executive system. The perceptual and cognitive systems are concerned with the collection and storage of knowledge. The inner-personal system establishes the goals and preferences of the firm. The executive system compiles the operational strategies through which the firm attempts to control and direct its future experiences. The subsystems of the firm, of course, are interdependent. The goals of the firm affect the operations of the executive system, just as human action is affected by a human's goals. The operations of the executive system influence the activities and output of the perceptual and cognitive systems, and the output of the perceptual and cognitive systems is a partial determinant of the executive system's effectiveness and efficiency.

The environment of the firm consists of the controllable and uncontrollable variables which have a bearing on the firm's activities and accomplishments. The environment may constrain the firm's activities, and the environment may provide opportunities of which the firm may avail itself. Additionally, the environmental variables may thwart the operations of the firm in a manner such that the objectives of the firm become unattainable, or attainable with great difficulty. Finally, the environment of the firm indicates the position of the firm relative to those systems and constraints which influence the operations and achievements of the firm. Such systems and constraints include competing firms and macroeconomic phenomena.

¹¹These concepts of *field* and *gestalt* psychology were discussed in Chapter 2.

¹²Joseph S. Moag, *et al.*, "Defining the Finance Function: A Model Systems Approach," *Journal of Finance* (December 1967), p. 544.

The present wealth position of the firm, defined simply, is the firm's command over economic resources, or the firm's generalized purchasing power, according to the definition of wealth utilized in this inquiry. The wealth position of the firm is equal to the value of the economic resources which would be yielded by an interested purchaser (or purchasers) in exchange for the firm. Such value would be expressed in terms of the generally acceptable medium of exchange. The investor who is interested in the common stock of a firm must consider, of course, the nonownership claims on the firm's wealth (for example, debtor claims). The remaining wealth determines the value of the ownership interests.

The wealth position of the firm must be related to the firm's environment. To ignore the firm's environment is to ignore the setting which supplies the firm with opportunities and constraints in regard to the generation of wealth. Hence, to ignore the environment of the firm is tantamount to ignoring potential wealth-enhancement factors and potential wealth-diminution factors—some of which are controllable by the firm and some of which are uncontrollable. The activities and performance of the firm are functionally related to the firm *and* its environment, just as the behavior of a human being is a function of the human being and his environment. It is not probable that one will be able to explain and predict the wealth experiences of a firm or an individual person if one ignores environmental variables and parameters. This argument is strengthened by the fact that the firms are managed and staffed by human beings.

The temporal perspective of the firm is another component of the set of influences which must be considered in order to comprehend, explain, and predict the wealth transitions of the firm. The temporal perspective of the firm embodies the past experiences of the firm and the firm's *presently* expected future experiences. The past experience of the firm—if expressed in terms of its present lifespan—provides indicants of the degree to which wealth generation has occurred. The past experiences of the firm (as revealed by economic data, for example) may be utilized also in the process of formulating hypotheses about the events which led to the present wealth position of the firm. The past experiences of the firm are ingredients of the conglomeration of factors which may be serviceable in analyzing the present position of the firm and inferring the future wealth transitions of the firm. The past experiences of the firm are probably not susceptible to understanding if they are abstracted from the past environment of the firm. The past controllable and uncontrollable environmental

events and forces bounded the past experiences of the firm. In order to comprehend and utilize the firm's past experiences one probably must be cognizant of the firm's past controllable and uncontrollable environmental events.

The present expectations of the firm loom large in the function which explains the present operations of the firm. Transformational activities (the conversion of inputs into outputs) are effected by a firm in the present in order to change its state of being. Since changes cannot occur in the past, and since the present becomes part of the past with the passage of each minute temporal unit, the present activities of the firm are (of necessity) guided by present expectations—previsions of future states of affairs and changes related thereto. Manifestly, if an individual is to understand the present operations and position of a firm, then that individual must possess cognition of the firm's *present* expectations.

The *content* of the firm's future cannot be made available to the investor's perceptual system. The present *expectations* which guide the firm's *present* operations are subject to apprehension and should be made available to the investor's perceptual system. The present expectations, which affect the firm's actions and reactions, will be employed by the investor in order to develop inferences about the *content* of the firm's future states and transitions.

The information which is needed by an investor, according to the postulate in regard to the investigative activities of an investor, comprises information in regard to the lifespan of the firm, including its time perspective.

The data discussed above, if secured, will be submitted to the executive system of the investor by his perceptual and cognitive systems. When these data are submitted to the executive system the investor will have reduced the differential which prevailed between his initial disequilibrium state of "no expectation" and his objective position of "expectation." The executive system will now attempt to further reduce the differential by manipulating and integrating the accumulated data so that inferences about the firm's future may be compiled. In the manipulation-integration process the executive system may use, for example, the analytical tools of finance, economics, and accounting. Such tools may be of a quantitative or qualitative nature. They may include, say, ratio analyses, profitability analyses, calculations of market-share, and examinations of cyclical stability. The manipulation and integration processes will

have as their subject the firm under review in the context of the firm's economic environment.

The differential between the investor's initial state and his goal will be eliminated when the executive system formulates expectations with respect to the firm's rate of wealth change. When the differential is eliminated the investor will be in a state of equilibrium (*ceteris paribus*). He will have attained his goal of "expectation."

We should add that the expectations developed by the investor need not be identical with the present expectations of the firm. The present expectations of the firm are *used* by the investor, in conjunction with additional data, in the task of developing anticipations.

The anticipations yielded by the executive system may then be used, of course, in the process of wealth optimization. For example, if the expected rate of wealth change on the common stock of the firm examined exceeds the expected rate of wealth change on all other common stocks of whose existence the investor is aware, then the investor will be confronted by the additional problem of adjusting his portfolio in order to optimize his wealth position, on the assumption that an investment in the previously investigated common stock is consistent with lifespan equilibrium.

Now the investor's situation will be one of disequilibrium until he has altered the components of his investable wealth. Since the investor's expectations, assumedly, are held with certainty, it can be further assumed that all of the investor's portfolio will be committed to the common stock previously investigated. With the letter K denoting this security and the letter W denoting the investor's total wealth, the situation of a commitment of the investor's total wealth to the security would be represented by the equation $K=W$. The investor currently holds no K in his portfolio; his current position is denoted $K=0$. The investor's problem may be structured as follows:

Transform goal: Change $K=0$ to $K=W$.

Reduce Difference goal: Eliminate the difference, D . $D=[K=W] - [K=0]$.

Apply Operator goal: Apply a method of transformation to the situation $K=0$.

In order to eliminate the disequilibrating difference, and thus restore equilibrium to his wealth sector, the executive system will liquidate the

investor's current portfolio components and purchase the desired common stock until $K=W$ is achieved. The investor's wealth sector will be in equilibrium when D is eliminated (*ceteris paribus*).

The structure of the problem-solving process as presented herein applies as well to the control activities of the wealth-management process. This aspect of investor behavior will be discussed in the next chapter, where uncertain expectations will be introduced into the behavioral model.

A Note on Concepts

It was suggested that the problem-solving process involves data accumulation, and, by implication, data rejection. In the choosing and rejection of data the investor must employ selection criteria. He must ascertain the features of the environment in which he is interested and accumulate information from the universe in accordance with his interests. In effect, the investor must categorize elements of the perceived environment on the basis of selected attributes: ". . . categories are constructed by the act of specifying the intrinsic attribute properties required by members of a class."¹³

The investor's motive of wealth optimization will probably induce him to categorize elements of his environment on the basis of their wealth attributes. When the investor is confronted by a state of disequilibrium in his wealth sector he will compare his disequilibrium situation with an equilibrium situation in terms of wealth. He will examine the given state and the objective state in terms of wealth so that he will gain knowledge of the transformation which must ensue in order to restore equilibrium.

The concept, or category, of wealth is an *invented* category which is constructed in order to achieve the objective of wealth optimization. "Wealth" is not an existent which is directly yielded by the universe. The concept is invented and the universe is perceived in terms of the properties denoted by the concept:

The categories in terms of which we group the [phenomena] of the world around us are constructions or inventions . . . [all categories] are inventions and not "discoveries." They do not "exist" in the environment. The [phenomena] of the environ-

¹³ Jerome S. Bruner, *et al.*, *A Study of Thinking*, p. 5.

ment provide the cues or features on which our groupings may be based, but they provide cues for many groupings . . . we select and utilize certain cues rather than others.¹⁴

. . . *Cues will be used [and chosen] in a fashion commensurate with the objectives governing a category situation* [italics added].¹⁵

Once again the intimate relationship which obtains between the motives of the investor and the investor's perceptual requisites and techniques becomes apparent. The analysis implies that the information generated by the accounting process for common stockholders will be instrumental in the wealth-optimization process of common stockholders if the conceptual foundation which underlies accounting messages is in accordance with the major concept used by an investor in order to guide his wealth-sector activities. The remaining discussion of this chapter will focus upon this implication.

Conceptual Foundation of Accounting Messages

The accounting process should function as an *informational* intermediary, providing information to investors in order to facilitate their wealth-sector activities. It should operate in a manner such that it increases the magnitude of data which are available to the investor's perceptual system. Such data should facilitate the wealth-optimization activities of investors. The latter activities include, for example, the search activities of common stockholders *qua* common stockholders. The search activities refer to investors' attempts to ascertain the existence of opportunities which may be seized upon by the investor.

The role of informational intermediary involves communicative acts. The accounting process should attempt to establish a commonage of experience with investors by transmitting messages which are related to the position and the operations of economic entities. Messages are founded upon concepts,¹⁶ which are utilized in order to organize and integrate environmental phenomena. The ultimate objective of concept formation

¹⁴ *Ibid.*, p. 232.

¹⁵ *Ibid.*, p. 239.

¹⁶ See Chapter 3.

and concept utilization is the realization of particular goals. A direct relationship seems to exist between an individual's motives and the concepts utilized by an individual. If accounting is to function as an *informational* intermediary, then the conceptual foundation of accounting messages should be related to the goals of investors with respect to their wealth sectors. If such a foundation is adopted, then accounting messages will have the potential for affecting common stockholders' states of uncertainty and ignorance with respect to their wealth-sector activities, that is, accounting messages will have potential informational content.

In order to supply such information accounting messages should have a conceptual foundation that relates to the aspect of the environment which is of greatest relevance to common stockholders *qua* common stockholders. The basic concept adopted by accounting should be the basic concept employed by the common stockholder in an effort to organize and comprehend the data of his wealth sector. This concept is determined by the investor's controlling motive.

According to the foregoing analysis the controlling motive of the common stockholder in respect of his wealth-sector activities is the wealth motive. More specifically, the common stockholder will seek the highest rate of wealth change which is consistent with lifespace equilibrium, namely, the *optimal* wealth position. The wealth motive, according to the analysis, reigns supreme in the operations of the investor's subsystems. The executive system of the investor strives to restore and maintain equilibrium within the investor's lifespace by compiling behavioral strategies (real and conceptual) which are in accordance with the objective of wealth optimization. The outputs of the perceptual and cognitive systems which are demanded by the executive system consist of sense-data in regard to which the axial concept is wealth. The concept used by the investor's perceptual system in order to select and organize environmental data is the wealth concept.

If the accounting process is to be successful in its role as an informational intermediary, then it should function as an extension of an investor's perceptual system. Accordingly, it should generate messages which are founded upon the concept that investors employ in order to categorize environmental data which bear upon investors' wealth sectors. It should transmit messages which have as their conceptual foundation the concept used by investors in the guidance of their behavior. This concept, assumedly, is the concept of wealth.

Changes in wealth have the potential capacity to spawn lifespace disequilibrium for an investor. Such changes may exert their influence by altering an investor's provisions of future experiences. Opportunities for wealth generation are potentially attractive to investors because they constitute the vehicles with which wealth optimization is pursued. Consequently, accounting messages will have information content if they are founded upon the concept of wealth.

The motive for wealth may be associated with numerous goals, for example, social goals, political goals, and psychological goals. Moreover, the wealth motive may dominate such goals.¹⁷ These interrelationships should be of no concern to an informational intermediary making use of the wealth concept, which is a means of categorizing environmental data and which does not dictate the uses of wealth. Neither does it dictate the constellation of goals to which the wealth motive may be related.

The Firm

Since an investor will desire to have information with respect to the wealth position of a firm, that is, the wealth which has been generated by a firm's activities as of some point in time, this kind of information should be presented in the firm's "position statement," or "balance sheet."

In order to provide indicants of the forms of wealth possessed by a firm, and partial indicants of the business and financial uncertainty¹⁸ to which a firm may be exposed, the position statement should reveal the wealth value of each asset classification and the wealth value of claims against a firm's wealth (for example, debtor claims). The wealth value of an item is equal to the aggregate command over economic resources associated with that item. In a money economy the wealth value of an item is measured in terms of the quantum of money which must be paid for an item, or which may be received for an item. Thus, the asset classifications should be valued at their market values; and the claims on the firm's wealth should be valued at their market values. This valuation method

¹⁷Ronald F. Dixon, "A Social Systems Approach to Marketing," *Southwestern Social Science Quarterly* (September 1967), p. 165.

¹⁸This is not a relaxation of the assumption that after the investor's expectations are formulated they are held with certainty.

recognizes the fact that the wealth value of any item is determined by the amount which another person would pay for the item.¹⁹

In extension of this line of argument, the wealth value of the firm is believed to be equal to the market value of the firm. The market value may be determined by aggregating the values of the firm's outstanding securities (owner and nonowner securities). One may protest that the value of a firm's securities as of a particular day does not represent the value of the firm because not all security holders may have engaged in security transactions during the given day. Such a position is untenable:

Many people have stated that if a stock sells at \$40 a share on a given day that this is not the "true" price because only a modest number of shares were traded—if a huge block were thrown on the market, the price would have fallen drastically. Indeed it might have, but if a huge block had been thrown on the market this would have meant that many holders now believed the stock was a poor investment at the price. In effect a large decrease in demand has been assumed.²⁰

The process of valuing asset classifications in terms of market values may create, of course, some difficulties. Market values may not be readily available in regard to the assets possessed by a firm. One can only propose that appraisal estimates be employed in such situations, as approximations of market values (that is, wealth values). If no wealth value can be determined with respect to an asset, or asset classification, then it should be reported at zero wealth value. The absence of a wealth value for a given asset implies that no individual is willing to substitute the particular asset for his wealth. In such a situation the *given asset* does not have the attribute of command over economic resources. Its presence in the mélange of a firm's assets, however, may add wealth value to the *firm*. If the latter situation prevails, then the wealth value of the firm which is associated with the particular asset will be incorporated in the market value of the firm as a whole. This situation reflects the fact that the value of a firm need not equal the sum of the values of its assets.

The stockholder, seeking information which relates to the wealth changes experienced by a firm during a specified interval of time, should find reflected in the firm's "income statement," or "wealth-changes statement," the wealth changes experienced by a firm.

¹⁹Edward J. Burke, "Objectivity and Accounting," *The Accounting Review* (October 1964), p. 847.

²⁰George J. Stigler, *The Theory of Price*, p. 97.

The income concept suggested above demands that *all* wealth changes be reflected in a message which purports to present the periodic income of a firm. The wealth changes associated with the firm's input-output transformations should be reflected in its income statement; the wealth changes attributable to the holding of assets whose market values have changed also should be reflected in the firm's income statement. Additionally, changes in the wealth value of the firm as a whole should be reported in the firm's income statement. This income concept does not require that a transaction occur in order to provide a basis for the recognition of income; instead, it emphasizes the occurrence of a wealth change (that is, a *change* in market value) rather than the *conversion* of a wealth change.

The total wealth change experienced by a firm should be disaggregated, of course, into its component wealth increases and decreases in order to permit comprehension of a firm's transformational activities and an evaluation of the business and financial uncertainty²¹ associated with a firm. The resultant wealth change of a particular time interval is probably too heterogeneous for an adequate revelation of the transformations consummated by a firm: "The real things, in economics as in any other [aspect of life], are the individual components of the aggregates. . . . If our aggregate . . . is composed of very heterogeneous individuals it will not be meaningful."²²

The above propositions are in conflict with the argument which asserts that the wealth value of a firm is equal to the discounted value of a firm's anticipated cash inflows, as estimated by the management of a firm. Such a discounted value would be determined on the basis of a firm's cost of capital, which incorporates a risk factor,²³ as well as managerial expectations. A quantity calculated by such a method does *not* represent the wealth value of a firm if it is not equal to the market value of the firm. The market value of a firm represents the firm's command over

²¹Business uncertainty refers to the quality of a firm's operating income; financial uncertainty refers to the quality of the firm's net income (net operating income less interest payments); see Ezra Solomon, *The Theory of Financial Management*, pp. 70-71.

²²Kenneth E. Boulding, *A Reconstruction of Economics*, p. 175.

²³Alternatively, management may utilize certainty equivalents (as substitutes for the estimated cash inflows) and a "risk-free" discount rate. This argument applies, with equal weight, to either approach; see Alexander A. Robichek and Stewart C. Myers, *Optimal Financing Decisions*, Ch. 5.

economic resources; it is predicated upon the market's expectations and the market's risk preferences.²⁴ Hence, our proposition provides for the utilization of the discounted value established by the *market*. The discounted value determined by management represents the wealth magnitude which (in the opinion of management) *should be* associated with the firm, given management's expectations. Indication that the discounted value calculated by management should be incorporated in accounting messages, but for a wholly different purpose from that of establishing the wealth value of a firm, will come at a later point in this inquiry.

Revelation of Temporal Perspective

Restrospective information. This analysis argues that the temporal perspective of a firm is a constituent of the firm's lifespace. It suggests also that a common stockholder will be desirous of considering the temporal perspective of a firm in his attempt to explain and predict the wealth transitions of a firm. It was indicated that the temporal perspective of a firm's present lifespace embraces the firm's past experiences and the firm's present expectations (both expressed in terms of the present).

The past experiences of a firm may be presented in retrospective financial reports. Unlike contemporary accounting doctrines, this analysis requires that past experiences be expressed in terms of the present. This implies that the signs which are utilized in order to express past wealth experiences be adjusted to present conditions. More precisely, the monetary unit which signifies past wealth experiences must be adjusted for any changes in its wealth dimensions, namely, changes in the general price level.²⁵ The argument in favor of general price-level adjustments is in accordance with the definition of wealth *and* the need to express past experiences in terms of the present. Such adjustments must be effected in order to incorporate past experiences into an analysis of the firm's *present*

²⁴G. Edward Philips, "The Revolution in Accounting Theory," *The Accounting Review* (October 1963), p. 701; R. J. Chambers, *Accounting, Evaluation, and Economic Behavior*, p. 92.

²⁵R. J. Chambers, "Measurement in Accounting," *Journal of Accounting Research* (Spring 1965), p. 50.

lifespace, which provides the foundation for inferences regarding future experiences.²⁶

Present expectations. This analysis supports the presentation of a firm's expectations in accounting messages. The expectations of a firm, which are elements of its present *lifespace*, guide the firm's present activities. Such activities are conducted in order to control future experiences and they are guided by present provisions of the future. If an investor is toprehend the present operations and position of a firm, and if an investor is to predict the future experiences of a firm, then he must be cognizant of the expected wealth changes and wealth stocks which are guiding a firm's decisions.²⁷

An essential point must be clear. An *expectation* exists in the present; the *content* of an expectation exists in the future. Expectations, not the content of expectations, should be reported.

Since "Measurement is the process of assigning numerical magnitudes to represent the qualitative content of a stipulated property or properties [possessed] by an object or phenomenon,"²⁸ and since the phenomenon being considered is an expectation, the property which should be quantified is the wealth dimension of the expectation. Thus, if a firm *expects* to possess ten million dollars of wealth one year hence, then "ten million dollars" is the property of the expectation which should be reported in accounting messages. The *actuality* of "ten million dollars" is *not* being measured; it cannot be measured, because it does *not* exist at the present time. The *expectation* of "ten million dollars" is being measured; it is susceptible to measurement because it exists in the *present*; it is a constituent of the firm's present *lifespace*.

One may object to this proposition, of course, for several reasons. One may assert that the reporting of expectations may benefit a firm's

²⁶ Measuring the concept of "general price level changes" is characterized, of course, by several measurement problems; see W. H. Hannum and W. Wasserman, "General Adjustments and Price Level Measurement," *The Accounting Review* (April 1968), pp. 295-302.

²⁷ Nicholas Dopuch, "Metaphysics of Pragmatism and Accountancy," *The Accounting Review* (April 1962), p. 261. See also the following article (which appeared after the completion of this inquiry): W. W. Cooper, et al., "Budgetary Disclosure and Other Suggestions for Improving Accounting Reports," *The Accounting Review* (October 1968), pp. 640-648.

²⁸ Ronald S. Lim, "The Mathematical Propriety of Accounting Measurements and Calculations," *The Accounting Review* (October 1966), p. 643.

competitors. We disagree. It seems desirable that measured present expectations be incorporated into accounting messages, but without explanation as to the methods by which management intends to achieve its expectations. In effect, management would be reporting the *expected results* of planned strategies.

One might protest that expectations data are not available for inclusion in accounting messages. As the following statements indicate, such a protestation is largely untenable:

Within enterprises, data on expected income are already used extensively in the form of budget data. Budgets have demonstrated their usefulness to modern management, and have become a virtual necessity in most large enterprises . . . since data on expected income are basic financial factors in many decisions, they should be reported to all parties interested in enterprise operations, and should not be available only to management.²⁹

Additionally:

. . . for many years more informed managements have utilized a procedure that has been appropriately called "reprojection," whereby from month to month or quarter to quarter there is a reprojection of the incomes, revenues, profits and related returns for the remainder of the year which is added to the actual results to date. In this manner, these managements have been able to develop for their own use a fairly dependable projection of how they will come out at year end, notwithstanding newspaper releases that may have come from those same managements.³⁰

The definitions of, say, income, employed by the commentators cited above may not be in agreement with the definition used in this analysis. The cited statements do indicate, however, that expectational data are available in regard to many enterprises; expectational data which incorporate the concept of wealth should present problems of no greater severity than those presented by retrospective and contemporary data founded upon the wealth concept.

The quoted statements suggest that the "better managements" utilize expectations data extensively. If such an assertion is not an illusion, then

²⁹Rudy Schattke, "Expected Income—A Reporting Challenge," *The Accounting Review* (October 1962), p. 672.

³⁰Glenn A. Welsch, "Discussion, The Predictive Power of First Quarter Earnings Reports: A Replication," *Empirical Research in Accounting: Selected Studies, 1966*, pp. 40-41.

the revelation of expectational data may serve a purpose in addition to facilitating comprehension of present firm activities. The existence of expectational data and the comprehensiveness of such data may serve as one indicant of managerial quality. Since the management of a firm influences the firm's wealth experiences, common stockholders should have such reflections of managerial quality for the purpose of guiding their wealth-sector activities.

The possession of expectations data enables the common stockholder also to evaluate the effectiveness of managerial efforts. A comparison of expectations with achievements indicates the degree to which managerial strategies have resulted in the conformity of results and expectations. If the discrepancies between expectations and actualities are not insignificant, then there will be some inducement for management to provide the perceived reasons for such variations. Such comparisons will also facilitate the common stockholder's wealth-sector control activities to the extent that they increase the stockholder's cognizance of microeconomic efficiency and effectiveness.³¹ The investor's control activities relate to the investor's attempts to obtain conformity with the objectives which he has established for the wealth sector of his lifespan.³²

A recent argument advanced in opposition to the transmission of expectational data by the accounting process is that of "informational neutrality," which refers to the "independence of information with respect to any specific action."³³ The neutrality argument proceeds as follows: ". . . the results of [retrospective and contemporary] calculations can be neutral with respect to future actions, whereas every calculation about the future is linked in some way to the actor's personal fancies and preferences."³⁴

³¹Myron Gordon, "Postulates, Principles, and Research in Accounting," *The Accounting Review* (April 1964), p. 257.

³²The investor's control activities will be discussed at greater length in the next chapter.

³³R. J. Chambers, "Why Bother with Postulates," *Journal of Accounting Research* (Spring 1963), reprinted in Paul Garner and K. B. Berg, *Readings in Accounting Theory*, p. 13; see also R. J. Chambers, *Accounting, Evaluation, and Economic Behavior*, Chs. 4 and 7.

³⁴R. J. Chambers, "Measurement in Accounting," *Journal of Accounting Research* (Spring 1965), p. 40.

The implication of the neutrality argument is that the transmission of expectational messages by the accounting process imposes wants, goals, and behavioral strategies upon the recipients of such messages. In effect, it suggests that the accounting process thrusts decision variables upon message recipients, rather than inputs to the actors' decision-making processes. This argument seems inapplicable to the reporting of expectational data to common stockholders *qua* common stockholders. The expectational data formulated by management are not decision variables for common stockholders; they are parameters upon which the common stockholders' courses of action are predicated. They do not impose goals and behavioral strategies upon common stockholders; instead, they are used by common stockholders in order to compile behavioral strategies which are coincident with their goals. Given the separation of ownership and control which characterizes most corporations listed on stock exchanges,³⁵ the common stockholder has little, if any, influence over the wealth activities and policies of a firm; he controls only his portfolio. Accordingly, the common stockholder must accept managerial expectations and policies as uncontrollable environmental data which may be used in the process of formulating his own courses of action.

Environmental Data

The industrial environment of a firm is an additional component of a firm's lifespac. According to this analysis, it will be a subject of an investor's investigative activities. The industrial environment of a firm provides opportunities for wealth generation and it also constrains wealth generation. Additionally, the industrial environment within which an entity operates is a basis upon which a firm's position relative to competing firms and industry forces may be determined. If a common stockholder is to explain and predict the operations of a firm, then he must have information with respect to the environment of a firm. Just as the environment of an individual must be considered in explaining and predicting the

³⁵Discussions of the separation of corporate ownership from corporate control appear in Dwight R. Ladd, *Contemporary Corporate Accounting and the Public*; Robert A. Gordon, *Business Leadership in the Large Corporation*; Richard Eells and Clarence Walton, *Conceptual Foundations of Business*; and Edward S. Mason (ed.), *The Corporation in Modern Society*.

individual's behavior, so the environment of a firm must be considered in explaining and predicting its operations.

The environmental data relevant to a firm's operations should be transmitted to common stockholders through the accounting process. Accounting messages should facilitate comprehension of a firm's position and its accomplishments, and, thus, disencumber investor behavior. The firm's wealth position and accomplishments, when presented out of context, are not likely to permit evaluations of a firm's effectiveness and its capacity to achieve expected results. Such a presentation, *sans* environmental data, does not reflect the industrial forces which impinge upon a firm's wealth experiences and define a firm's accomplishments. These are as much determinants of a firm's wealth experiences as are the firm's input-output transformations. Accordingly, they should be incorporated in accounting messages which purport to present the proximate "causes" of a firm's transitions.

In accordance with the preceding argument in regard to the temporal perspective of a firm, environmental data must be presented with respect to the past experiences of a firm and its present expectations.

Needless to say, implementing the above proposition presents major problems. Some source of industry information must be accessible to the accounting process of a particular firm. A central informational intermediary should be interposed between the accounting processes of individual firms and their respective industries. Such a central organization would fulfill the role of a repository of information relating to all firms, or divisions of firms, which operate within a particular industry. After each firm prepares its microeconomic accounting report, it would transmit the data contained in its report to the central organization; then, after the central organization aggregates all of the data received, it would make it available to its member firms for inclusion in their reports to common stockholders.

The above proposition is, indubitably, undeveloped. It takes no account of the costs of such an organization relative to the benefits of such an organization. It does not consider the many technical problems of establishing and operating such an informational repository. This analysis provides for a common conceptual foundation of accounting messages, but it does not lend itself to a determination of uniform account classification which would be needed for each industry. These are problems for future

research. We are able to find *theoretical justification* for such an organization on the basis of the *behavioral* model developed herein.

Verifiability

The problem of perception which is associated with communicative acts was discussed in Chapter 3. It was indicated that the correspondence of a communicator's perceptions, with respect to the properties and occurrences of the environment, will affect the accuracy which inheres in his thoughts and—as a consequence—in his messages. It was stated, also, that it may be possible to mitigate the problem of perceptual accuracy by adhering to the criterion of *verifiability*, that is, by subjecting the contents of accounting messages to the test of interpersonal agreement. Finally, it was indicated that the statements generated by the accounting process will have a probabilistic content.

It is of interest, parenthetically, that the probabilistic attribute characterizes accounting messages which are founded upon the "wealth concept," supported in this analysis, and messages founded upon the contemporary accounting doctrine of "original cost," notwithstanding appearances to the contrary.³⁶

The test of verifiability may be applied to the various forms of information which, according to this inquiry, should be generated by the accounting process. The estimations of the wealth value associated with, say, an asset can be exposed to the test of interpersonal agreement before accounting reports are issued. If sufficient interpersonal agreement exists, then the asset should be valued at some measure of central tendency with respect to the estimated values. Some measure of dispersion regarding the asset's value should be reported, also, in order to reveal clearly the probabilistic nature of accounting data. A similar procedure may be employed in respect of the verification of measurements of present managerial expectations. The existence of managerial expectations might be verified by inferences which are predicated upon the records, statements, and activities of the firm. Examples of records which may be used include the forecasts and comprehensive budget data employed by management.

³⁶ Robert M. Trueblood, "Accounting Principles: The Board and Its Problems," *Empirical Research Accounting: Selected Studies*, 1966, p. 185.

Examples of activities which may lend credence to the records and statements include activities which are preparatory to the raising of capital, capital expenditures, and the preparation of production facilities. In general, the verification of the existence of present managerial expectations involves the use of audit evidence, which "includes all influences on the mind of an auditor which affect his judgment about the truthfulness of the financial statement propositions submitted to him for review."³⁷ The degree of interpersonal agreement evidenced by those who investigate the existence of management's present expectations determines the verifiability of present expectational data. The accounting process should merely *report management's* present expectations. It should not assess the soundness of the expectations. The accounting process should also indicate with utmost clarity that it is transmitting *management's* present expectations.

A Final Note

The above discussion is concerned with the conceptual foundation which, in our judgment, will increase the instrumentality of accounting messages with respect to the wealth-optimization activities of investors. It indicates also the various aspects of a firm's lifespan which should be subjects of accounting messages. Finally, it shows that the criterion of verifiability may be applied to accounting messages which are founded upon the concept of wealth and which deal with the constituents of a firm's lifespan.

The next chapter will focus the spotlight of inquiry on the control activities of a common stockholder. The content of the next chapter is an extension of the behavioral model previously constructed. It will indicate that the probable nature of an investor's control activities suggests opportunities for enhancing the instrumentality of accounting messages which are generated for common stockholders.

³⁷ R. K. Mautz and H. A. Sharaf, *The Philosophy of Auditing*, pp. 110, 192. See also Yuji Ijuri, "On Budgeting Principles and Budget-Auditing Standards," *The Accounting Review* (October 1968), pp. 662-667, which appeared after the completion of this inquiry.

5. THE COMMON STOCKHOLDER: INFORMATIONAL LIMITATIONS, UNCERTAINTY, AND CONTROL BEHAVIOR

Preliminary Comments

This study has suggested that with respect to the behavior of common stockholders *qua* common stockholders informational limitations and the existence of uncertainty render the goal of wealth maximization impracticable. The concluding chapter will consider the reasons for this suggestion.

It will present also the significant aspects of investor behavior in regard to controlling the wealth-optimization process. The discussion of an investor's control behavior will be predicated upon concepts developed in this chapter and upon concepts from field and gestalt psychology discussed in Chapter 2.

Finally, it will present some implications derived from this discussion for the process of accounting.

In this inquiry the term "uncertainty" refers to a course of action with two or more possible outcomes, some of which may be unknown. The terms "risk" and "uncertainty" will be used interchangeably, with no attempt at a distinction in meaning.¹

Optimization vs. Maximization

In order to achieve wealth maximization an investor would have to be cognizant of all possible courses of action which have the potential for

¹The attempts which have been made seem somewhat impracticable and not intellectually satisfying.

wealth generation. Additionally, the investor would have to know, with certainty, the consequences of each course of action. This state of affairs is manifestly unattainable. No individual's perceptual and cognitive systems have the capacity to secure and utilize data in regard to *all possible* common stocks in which investment positions may be established. The magnitude of such a task is too great and the cost of obtaining the requisite data would be prohibitive. Furthermore, no investor can know, with certainty, the outcomes of all courses of action. By definition, a universe characterized by risk does not permit such a feat. Maximization is thus impossible because of the limitations of human beings, which make it impossible and impracticable for an investor to achieve cognition with respect to all possible courses of action and the outcomes of all possible courses of action. The human mentality can cope with only a limited number of data-inputs at any one time,² and thus would be inadequate for the task of maximization, even if maximization were possible. Maximizing behavior is prevented by the cosmological features of the universe and the intellectual limitations which are imposed upon man.

Instead of evaluating all possible courses of action an investor will evaluate those courses of action of which he is aware and in the order in which they become subjects of his awareness. When the investor is confronted by the problem of formulating a new behavioral strategy he will evaluate alternatives in a sequential order on the basis of his limited information. When he discovers the alternative which is optimal—the alternative which restores equilibrium to his wealth sector—then the differential between his initial state of disequilibrium and his goal of equilibrium will be eliminated and the search activities of his executive system will terminate:

In the search for possible courses of action, alternatives will be tested sequentially. That is to say, there will be no attempt at the first round of search to exhaust "all possible alternatives." Instead as soon as a few possible alternatives are found, these will be evaluated. If one proves satisfactory, when tested against the problem criteria, it will be accepted as a solution to the problem, and search will terminate. If all the alternatives discovered on the previous round of search prove unsatisfactory, this will initiate a new burst of search activity.³

²Wendell Garner, *Uncertainty and Structure as Psychological Concepts*, pp. 98-137; Herbert A. Simon, *Models of Man*, p. 198; C. E. Lindbloom, "The Science of Muddling Through," W. J. Gore and J. W. Dyson (eds.), *The Making of Decisions*, p. 162.

³James G. March and Herbert A. Simon, *Organizations*, p. 180.

The goal for which the investor strives may be treated as a "target" rate of wealth change, or as a "level of aspiration."⁴ This goal is the rate of wealth change which is consistent with lifespace equilibrium. It is not the maximum rate of wealth change, but the rate of wealth change which satisfies, or equilibrates, the individual.

Nothing here implies that an investor will not prefer a higher rather than a lower rate of wealth change. When the investor discovers a course of action which is in accordance with his level of aspiration, then his executive system will not engage in an active search for additional alternative courses of action because of an absence of disequilibrium. To be sure, if more lucrative opportunities are available, then they may be grasped by the investor as a result of a shift in the investor's level of aspiration. Prior to the presentation of such an opportunity, however, the investor's lifespace would have been in a state of equilibrium (*ceteris paribus*).

The sequential decision-making process has received considerable support from psychologically oriented publications.⁵ An empirical study of investor behavior which was conducted by G. P. E. Clarkson lends additional credence to the argument that sequential decision-making techniques are employed by humans in the process of solving problems.⁶ Clarkson's study was concerned with a model of trust-investment procedures. The comments of Clarkson which are relevant here are reproduced below:

In the trust investment model the selection procedures are built around the mechanism of binary choice—that is, only one alternative is considered at any one point in time and the model discriminates between a set of alternatives by taking them one at a time. This mechanism allows the model to base its future action on the result of each binary choice. . . .⁷

⁴Samuel Messick and Arthur H. Brayfield, *Decision and Choice*, p. 113.

⁵For example see: Garner, *Uncertainty and Structure*; James C. Coleman, *Personality Dynamics and Effective Behavior*; Herbert A. Simon, *Models of Man*; Herbert A. Simon, "Thinking by Computers," in Robert G. Colodny (ed.), *Mind and Cosmos*, pp. 3-21; J. D. Frank, "Individual Differences in Certain Aspects of the Level of Aspiration," *American Journal of Psychology* (1935), Vol. XLV; Messick and Brayfield, *Decision and Choice*; D. M. Lambertson, *The Theory of Profit*.

⁶Geoffrey P. E. Clarkson, *Portfolio Selection: A Stimulation of Trust Investment*.

⁷*Ibid.*, p. 94.

In the trust investment model, choices between securities are made by passing companies, one at a time, through a set of tests, or Discrimination Net. This sequential decision process has two important behavioral implications: (1) it makes the order in which the companies are processed very important—that is, companies high on the list have a better chance of being accepted than those further down on the list, and (2) it implies that investors make choices by considering alternatives individually, and that they accept the first one that passes the specified series tests. A maximizing hypothesis implies that an investor examines all available alternatives before making his selection.⁸

One should not accept Clarkson's empirical investigation as *proof* of the sequential decision-making hypothesis; the investigation merely failed to disprove the stated hypothesis. As was indicated by Clarkson: "Although it is not possible to state that the sequential decision making hypothesis is in fact confirmed, there is a considerable amount of support for this notion in studies on human learning and problem solving."⁹

Rejection of the theory of maximizing behavior seems justified. The magnitude of information which an individual can accommodate is probably too limited for maximizing behavior. Furthermore, the evaluation of all possible courses of action is not feasible. In addition, the existence of uncertainty, by definition, prevents an individual from envisaging with certainty the ultimate consequences of his actions. For these reasons the criterion of wealth optimization, according to which the investor chooses the rate of wealth change which is consistent with lifespace equilibrium, seemed the better choice. When an investor discovers an equilibrating investment position, then his executive system will not actively seek changes.

One should realize, of course, that an investor's level of aspiration (or "target goal") may rise and fall. Changes in an investor's level of aspiration may be associated with macroeconomic changes, or the experiences of the stock market as a whole. Additionally, conditions in the nonwealth sectors of an investor's lifespace (for example, the social sector, the political sector) may affect an investor's level of aspiration in regard to the experiences of his wealth sector.¹⁰ Thus, disequilibrium may present itself in an investor's wealth sector as a consequence either of a failure to meet established goals, or of changes in the investor's goals.

⁸*Ibid.*, p. 95.

⁹*Ibid.*, p. 96.

¹⁰Kenneth E. Boulding, *A Reconstruction of Economics*, p. 4.

Control Aspects of Wealth Optimization

Given the restrictions imposed by nature on man's mental powers, the existence of uncertainty, and the impracticality of accumulating *all* available information, an investor will tend to concentrate on selected major features of an investment opportunity. The investor will tend to employ categorization and summarization techniques which emphasize the main features of a course of action and abstract from obfuscating details and complexities.

Acting man is confronted with a wide and varied environment. Its incidents are so numerous and heterogeneous that the mind is unable to comprehend all as individuals at one time. The mind is also unable to hold them all simultaneously, as individuals, for the purpose of making comparisons of them or judgments with respect to them. In seeking to reduce the diversity of things experienced or observed to manageable order, men resort to *classification*, and to the formation of *general ideas* about groups of things [underlining added].¹¹

Since the invented category (or concept) of wealth will be employed by an investor in order to simplify the kaleidoscopic nature of his environment *and* in order to achieve wealth optimization (see Chapter 4), it is reasonable to suppose that the investor will try to simplify his problems further by applying representative descriptive techniques to the aspects of an opportunity which are most significant in the process of wealth optimization. The investor will seek descriptive proxies for the desirable and undesirable characteristics of an opportunity. Such proxies may then be utilized as the defining parameters of a course of action in the compilation of behavioral strategies; they may be used by an investor in order to create a simplified model for a problematic situation.¹²

The remainder of this chapter will be based on the assumption that an investor's behavior is guided by two such defining parameters: (1) the mathematical expectation of the subjective probability distribution of perceived possible rates of wealth change on an investor's portfolio, and (2) the standard deviation of the aforementioned probability distribution. The discussion will assume that the calculated expected rate of wealth change

¹¹R. J. Chambers, "Measurement in Accounting," *Journal of Accounting Research* (Spring 1965), p. 34; March and Simon, *Organizations*, p. 34.

¹²C. F. Carter, "Review of M. J. Bowman (ed.), *Expectations, Uncertainty, and Business Behavior*," *Kyklos*, XII (1959, Fasc. 1), pp. 83-84.

defines the anticipated profitability of a portfolio, and that the standard deviation quantifies the uncertainty, or risk, associated with a portfolio. A further assumption is that an investor is guided by anticipations with respect to his total portfolio, rather than anticipations in regard to each component of the portfolio.¹³

The expected rate of wealth change on the investor's portfolio is as follows:

$$E(R) = \sum_{i=1}^N \mu_i X_i$$

where:

$E(R)$ = Expected rate of wealth change on a portfolio.

μ_i = The expected rate of wealth change on the i -th asset.

X_i = The proportion of the portfolio allocated to the i -th asset, N
 $\sum_{i=1}^N X_i = 1.$

The standard deviation of the expected rate of wealth change is equal to the square root of the variance of the expected rate of wealth change, where the variance equals the weighted sum of the variances of the portfolio components plus the covariances of the asset components.¹⁴ Thus:

$$\sigma = \sqrt{V}$$

$$V = \sum_{i=1}^N \sum_{j=1}^N X_i X_j \sigma_{ij}^2$$

where

σ = The standard deviation of the expected rate of wealth change on the portfolio.

¹³Harry M. Markowitz, *Portfolio Selection*.

¹⁴As an example, the variance for a two-security portfolio is as follows: $V = X_1^2 \sigma_{11}^2 + X_2^2 \sigma_{22}^2 + 2X_1 X_2 \sigma_{12}^2$, where σ_{11}^2 is the variance for first security and σ_{12}^2 is the covariance for the first and second securities. For a more detailed description of variances and covariances see Harry M. Markowitz, *Portfolio Selections*, Ch. 4.

- V = The variance of the expected rate of wealth change on the portfolio.
- $X_i X_j$ = The proportions of the portfolio invested in the i -th and j -th security.
- σ_{ij}^2 = The variance or covariance of the i -th and j -th portfolio components.

It may be noted that the covariance indicates the degree to which the expected rates of wealth change on two securities tend to vary directly or inversely. The covariance may assume a value which is greater than, less than, or equal to zero. If the yields on two securities vary together in perfect unison, then the covariance will be positive. If the yields vary inversely, then the covariance will be negative. If the yields vary independently of each other, then the covariance equals zero. It is obvious that the degree to which the securities of a portfolio vary together influences the variance of the *total* portfolio; hence, we include the covariances of securities in our calculation of the standard deviation of the total portfolio.

The assumptions with respect to the descriptive statistics, or defining parameters, which are employed by an investor were made in order to provide focal points for the remaining discussion. *The choice of defining parameters is not crucial to the concepts described here.* Several descriptive statistics may be used in order to represent profitability and risk. For example, one might represent profitability by the greatest perceived possible rate of wealth change, or the mode of the probability distribution of perceived possible rates of wealth change. Alternative measures of risk include the maximum perceived possible loss, or the simivariance of the probability distribution of perceived possible rates of wealth change.¹⁵ The following discussion requires only that an investor have a reasonably definite anticipation in regard to the consequences of a course of action (however much the anticipation may be simplified), and that the investor be cognizant of uncertainty—which implies that some deviations from his anticipations during his investment horizon are expected.

¹⁵A more complete list of alternative measures of risk and profitability are presented in H. Markowitz, *Portfolio Selection*, Chs. 3, 5. Alternative guides for decision making appear also in Ira Horowitz, *An Introduction to Quantitative Business Analysis*, Ch. 5, and William J. Baumol, *Economic Theory and Operations Analysis*, Ch. 24.

Basic Aspects of Control

The control activities of the investor are concerned with obtaining conformity to established plans or goals. Since the investor's environment is characterized by uncertainty, the actual experiences of the investor will not necessarily be identical with the investor's expectations. The investor's desire to avoid disequilibrium will cause him to respond to changes which indicate that human action is requisite to the avoidance of undesired future experiences. Thus if the investor's expectations and goals call for a future rate of wealth change equal to $E(R)$ over the investor's planning horizon and if $E(R)$ is not being met currently, then the investor will activate his executive system so that it will compile a behavioral strategy which is designed to alter the investor's portfolio position so that equilibrium will be restored. The adjustment process may involve, for example, a liquidation of some or all of the components of the investor's portfolio and the substitution of other investments for the liquidated holdings; or the adjustment process may involve a shift in the investor's target rate of return.

It should be noted that disequilibrium is not caused by the *actual* experiences of the investor, *per se*. The fact that an achieved rate of return falls short of a target rate of return is not sufficient to cause disequilibrium. *The actual events must cause the investor's expectations to change with respect to his present position.* The investor's expectations must change in a manner such that the investor will conclude that his target rate of return will not be realized unless some adjustments are made, that is, unless human action ensues. The investor cannot control what he *has* achieved; that is literally impossible. The investor acts in order to control his future experiences. He infers his future experiences from information, such as accounting information, which bears upon his present position. In effect, the investor asks: "What will my future experiences be, given my present wealth position, my present psychological environment, my temporal perspective, and an absence of any action on my part?" If the investor anticipates undesirable future states of affairs in the absence of any adjustments in his present position (conceptual or real), then he will fall into a *present* state of disequilibrium. Subsequently, he will activate his executive system in order to remove the present state of disequilibrium caused by his expectations.

Upon activation the executive system will engage in the problem-solving process discussed above. The executive system will engage in search activities in order to develop an action strategy which will eliminate the differential between the investor's current state of disequilibrium and his objective state of equilibrium.

If the conceptual foundation of accounting messages is consistent with the conceptual framework utilized by investors in order to organize their wealth experiences, then accounting messages may facilitate an investor's search activities. The preceding chapter indicated that accounting messages which are founded upon the concept of wealth may fulfill such a facilitative role.

The differential-elimination process may involve stock liquidations, stock purchases, an alteration of the investor's level of aspiration, or a second revision of the investor's expectations. Such an additional change in the investor's expectations may be associated with the implications of new information received from the perceptual system during the operations of the executive system which were stimulated by the initial state of disequilibrium. If the accounting process fulfills the role of an informational intermediary which supplements the operations of an investor's perceptual system, then the new information secured by an investor's perceptual system may have been generated by the accounting process.

In general, then, it is seen that disequilibrium may be caused by *changes* which eventuate within the investor's lifespace. Disequilibrium may be removed by *changes* also within the investor's lifespace. The control activities of the investor appertain to the investor's responses to lifespace changes—responses which are intended to guide actual experiences in a manner such that they do not diverge from target goals (objective "states of affairs").

A Return to Inertia

The assertion that lifespace changes may cause *additional* changes within the lifespace of an investor presupposes a degree of interdependency among the regions of a psychological environment, the subsystems of an investor, and the regions and subsystems. The second chapter of this inquiry developed the idea that the components of an investor's lifespace are completely interdependent if *every* change in one component of the

lifespace gives rise to net forces which provoke additional changes within the investor's lifespace. If complete interdependency obtained within the lifespace of an investor, then *every* current actual experience which diverges from the investor's level of aspiration induces human action, that is, activities which deal with the contemplation and implementation of changes in behavioral strategies. Such a lifespace would be characterized by a total absence of inertia. Inertia probably does exist within the lifespace of investors. After a discussion of the concept of inertia several propositions which relate to the manner in which the accounting process may facilitate common-stockholder behavior manifesting inertia will be presented. The term "inertia" is used here in a neutral sense; it does not denote "good" or "bad" attributes in this inquiry.

The Existence of Inertia

The literature of field psychology suggests that some degree of inertia does exist within the lifespace of individuals. It suggests that, within certain limits, a change in a particular region of a lifespace will not effectuate lifespace disequilibrium by engendering a net force.

It should be clear from the outset that dependence or independence within a whole is a matter of degree. Parts within a whole are independent to some degree. In other words, part *a* will not be affected as long as the alteration of part *b* is within certain limits. However, if the change of *b* surpasses this limit, the state of *a* will be affected.

More formalistically one can proceed as follows: $S^1(a)$, $S^2(a)$ may indicate the state (quality) of a region (system) *a* at the time 1 and 2; $ch(a) = S^2(a) - S^1(a)$ may indicate the change in the state of *a*. It may be further assumed that the two regions show the same state at the beginning: $S^1(a) = S^1(b)$. The independence of a region *a* from a region *b* . . . may then be defined as the maximum change in *b* which would leave the state of *a* unchanged, or would change it less than a small amount *e*. . . . $indep. (a,b) = ch^{max}(b)$, which leads to $ch(a) < e$.¹⁶

The existence of a degree of inertia, or independence, within the lifespace of an individual suggests the following hypothesis: *some experienced variations from the profitability and risk parameters which guide an investor's decisions will not cause disequilibrium.* Such variations will not

¹⁶Dorwin Cartwright (ed.), *Field Theory in Social Science*, pp. 305-306.

alter the investor's expectations in regard to his ultimate future experiences; hence, they will not induce human action. The existence of inertia may be attributed to uncertainty, informational limitations, and the costs of frequent portfolio alterations.

Since the investor's wealth-optimization process is pursued within an uncertain environment, one would hypothesize that an investor expects to observe deviations from the parameters which he employs in order to define a particular investment position. "Variation is inherent in most aspects of the decision environment. A multitude of chance causes, few of which can be predicted with certainty, may produce a pattern of variation [with respect to the characteristics of interest]."¹⁷ This expectation of variation from the parameters of the investor's wealth sector will tend to cause inertia with respect to the investor's behavior.

In effect it can be hypothesized that an investor behaves as if he were guided by a tool which corresponds, in concept, to statistical quality-control techniques. The essence of statistical quality control is that variations from a defining parameter, within certain limits, are not deemed to indicate that a process is "out of control" (or not in accordance with the standards established by a decision maker).¹⁸ The variations which fall within certain limits are accepted as unexplainable chance occurrences inherent in the phenomena to which the control technique is applied. If variations fall above or below the established limits, then the investor will initiate search activities in order to comprehend the divergences and obtain conformity to the established standards, or in order to ascertain any changes in the defining parameters.

The consequences of inertia may be easily explained in terms of the parameters which an investor employs in order to optimize his wealth position. With the assumption that an investor employs the expected rate of wealth change on his total portfolio, $E(R)$, in order to represent the expected profitability of a wealth position over a particular investment horizon, and with the additional assumption that an investor employs the standard deviation, σ , of the expected rate of wealth change in order to represent uncertainty, or the dispersion of all perceived possible outcomes, it is plausible that the "control limits" which an investor employs form an interval which is functionally related to $E(R)$ and σ , such as $E(R) \pm B(\sigma)$,

¹⁷W. J. Fabrycky and Paul E. Torgersen, *Operations Economy*, p. 194.

¹⁸*Ibid.*, p. 194.

$B > 0$. A graphical illustration of the investor's control limits is presented on the following page. Experienced rates of wealth change, R , which diverge from $E(R)$, but which fall within the limits $E(R) \pm B(\sigma)$ will not provoke changes in the investor's wealth position due to investor action. Such variations will not cause the investor to expect undesirable future conditions in his wealth sector; hence, his present state will not be one of disequilibrium on account of the divergence.

If experienced rates of return are not within the interval $E(R) \pm B(\sigma)$, then the investor will believe that his wealth-optimization process is "out of control"; he will opine that his future experiences will be undesirable. The investor will activate his executive system in order to formulate an equilibrating behavioral strategy. The executive system will demand data from the perceptual and cognitive systems in order to develop such a strategy. If the data accumulated suggest that the parameters of the wealth sector are unchanged, and if the investor's level of aspiration, assumed to be equal to $E(R)$, is unchanged, then the executive system will tend to the task of searching for the wealth sector adjustments which will restore equilibrium, that is, the wealth-sector adjustments which will reduce the differential between the investor's present state of disequilibrium and his goal of equilibrium. This task relates to the problem-solving process discussed in a previous section. The adjustment problem may be structured as follows:

I. Given

Wealth-optimization process is out of control.

II. Problem

Transform goal: Change a into b , where a = the initial disequilibrium situation and b = an equilibrium situation.

Reduce difference goal: Eliminate or reduce the difference between a and b .

Apply operator goal: Apply a method of transformation to the initial situation, a .

The degree of disequilibrium which is associated with the investor's control problem may be represented as follows (see Figure 6):

Figure 5
INVESTOR'S "CONTROL CHART"

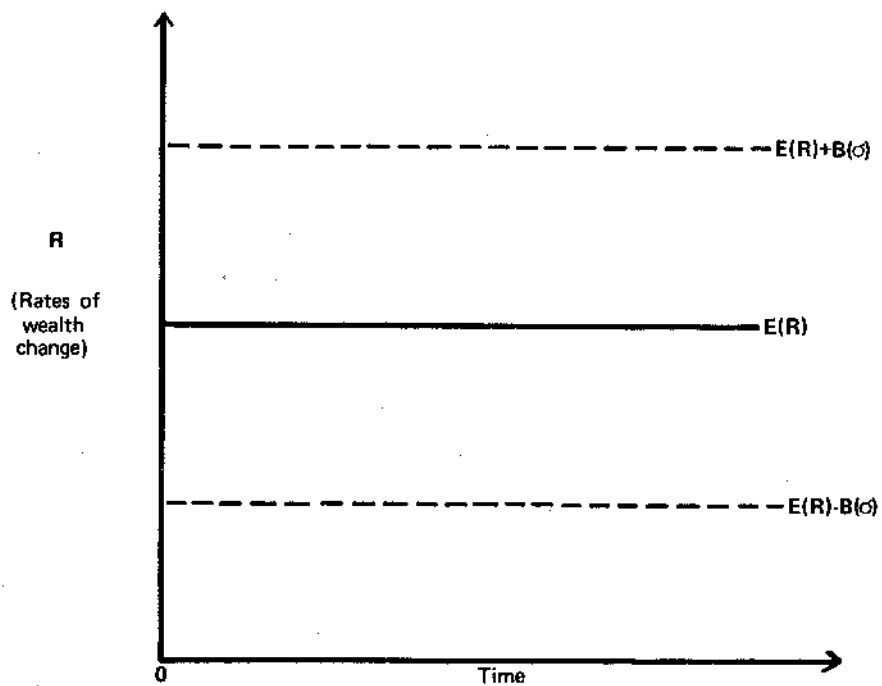
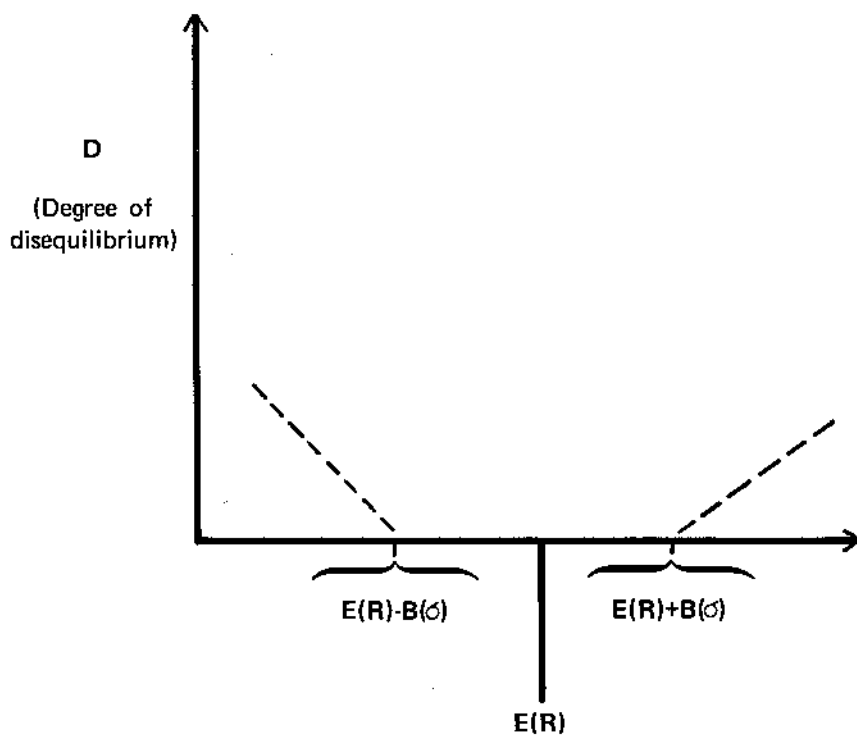


Figure 6
DEGREE OF DISEQUILIBRIUM RELATED TO
CURRENT R, GIVEN $E(R)$ AND σ



$$D = a[\max 0, \{R - (E(R) + B(\sigma))\}, \{(E(R) - B(\sigma)) - R\}]$$

$$D = |f_{I,OR}| \geq 0$$

$$|f_{I,OR}| = F e_{I,OR}^1, Va(OR)$$

where

D = degree of disequilibrium

a = a weighting factor

R = the achieved rate of return

E(R) = the investor's level of aspiration, and expectation prior to disequilibrating variation

E(R) ± B(σ) = the investor's control limits

|f_{I,OR}| > 0 = the net force which causes disequilibrium, D

f_{eI,OR} = the distance between the investor's current actual position and his desired position

Va (OR) = the valence of the investor's desired position

Disequilibrium exists when the difference between R and E(R) ± B(σ) is greater than zero, that is, when R is above or below the control limits, as is shown in Figure 6. Since the intensity of a disequilibrating force increases directly with the "distance" between the investor's actual region and his *objective region*,¹⁹ OR (which is the investor's target rate of wealth change in this illustration), we may expect the intensity of disequilibrium to increase directly with variations which are outside of the investor's control limits. Thus, we added the weighting factor, a, to the formula for D. Our formulation reveals a linear relationship between D and disequilibrating variations; however, the relationship need *not* be linear.

The process of reducing the differential between the investor's initial position and the equilibrium position will involve search activities which are devoted to strategy formulation. The activities may involve an examination of alternative common stocks; if they do, then the executive system will demand the kinds of information discussed in Chapter 4; the executive system will seek information, such as accounting information, with respect to firms and their respective lifespaces (including their temporal perspectives). In accordance with the sequential decision-making process, the

¹⁹See Chapter 2.

executive system will cease searching when it discovers an equilibrating alternative. It should be noted that disequilibrium may be caused by parameter deviations which evidence a persistent tendency to vary in one direction. Such a tendency would suggest that the observed deviations are not "inexplicable" or "random." Accordingly, a persistent tendency to vary in a given direction may alter expectations and provoke disequilibrium, even though no variations violated the "control limits" which the investor employs in order to guide his behavior. The investor's behavior will still evidence inertia, since no disequilibrating forces will be elicited until a persistent unidirectional variation is recognized. The *recognition lag* (discussed in Chapter 2) may delay a reaction to such variations, since it is the period of time which elapses between the commencement of a change and an individual's awareness of the change itself, or the significance of the change.

Additional Comments on Inertia

The existence of inertia implies that certain changes within the lifespace of an individual will not cause human action. Such changes will be accepted as unimportant or temporary changes. Comments of other investigators lend credence to the inertia hypothesis.

Although several of the comments which will be presented refer to "business units" rather than "common stockholders," the generalizations about the reactions of *human beings* to changes are of moment to this inquiry, not the organizational referents of the comments presented. Business organizations are operated by humans, not by bricks and mortar. Furthermore, common-stockholder behavior—which is usually subsumed in the term "household behavior"—is not, in essence, different from business behavior.²⁰

If human beings do exhibit inertia, then they will be behaving in accordance with certain rules and policies which are deemed useful, given the limitations on available information and given uncertainty. The use of "control limits" is an example of a rule which causes humans to be irresponsive to certain changes. One investigator has indicated that the use of rules and policies by humans is not atypical:

²⁰Robert Ferber, "Research on Household Behavior," *American Economic Review* (March 1962), p. 49.

Business units have developed an extensive body of practices and rules which are partially a reaction to the need of operating with insufficient information. Generally, these practices are criticized by economists as wasteful. But these criticisms of institutions created by firms, or rules adopted by firms, are based upon analyzing the consequences of these rules if they were adopted in an economy operating under certainty. If uncertainty is introduced . . . the characterization of inefficiency is not apparent.²¹

Another observation which implies that inertia is an aspect of general human behavior is provided by J. R. Hicks:

. . . when we remember that the expectations of entrepreneurs are in fact not precise expectations of particular prices, but partake more of the character of probability distributions, then it becomes evident that the realized prices can depart to some extent from those prices expected . . . without causing any acute sense of disequilibrium.²²

James Tobin implies that inertia exists because of the monetary, temporal, and human costs of portfolio adjustments:

. . . it is the costs of financial transactions that impart inertia to portfolio composition. Every reconsideration of the portfolio involves the investor in expenditure of time and effort as well as of money. The frequency with which it is worthwhile to review the portfolio will obviously vary with the investor and will depend on the size of his portfolio and on his situation with respect to cost of obtaining information and engaging in financial transactions.²³

Clarkson and Simon imply that investor behavior manifests inertial properties because of investor expectations:

In the course of his work, an investor forms definite concepts of what different industries are like and how they can be expected to perform. . . . These concepts change with time, but in order to alter them new information must appear that is sufficiently out of keeping with the current concept to force a reappraisal. Thus, small changes are unlikely to affect general concepts and what was a good buy yesterday will probably remain a good buy today and for some time to come.²⁴

²¹ Julius Margolis, "Sequential Decision Making in the Firm," *American Economic Review* (May 1960), p. 527. See also James G. March and Herbert A. Simon, *Organizations*, pp. 139-140.

²² J. R. Hicks, *Value and Capital*, p. 133.

²³ James Tobin, "Liquidity Preference as Behavior Towards Risk," *Review of Economic Studies* (February 1958), reprinted in M. G. Mueller, *Readings in Macroeconomics*, p. 175. Reference is to the latter source.

²⁴ Geoffrey P. E. Clarkson and Herbert A. Simon, "Simulation of Individual and Group Behavior," *American Economic Review* (December 1960), p. 929.

Additional support for the inertia hypothesis is provided by Boulding in his attempt to reconstruct and expand economic theory; it should be mentioned that Boulding's notion of a "maximand" corresponds to our notion of an "optimum wealth position":

In the theory of the firm, and even of the household as an economic unit, there is some reason to suppose that a significant maximand can be found—significant, that is, in the sense that divergences from the optimum position set in motion forces which will bring the organism back to it.

. . . It may be, however, that the maximum itself is not a "peak" but a broad plateau, where wide variations in the variables under the control of the organism can occur without diminishing the maximand. . . there is not a point of equilibrium but a wide *range* of neutral equilibrium, within which the equilibrium is quite indeterminate.²⁵

The theoretical and empirical results of Milton Friedman's efforts with respect to consumption behavior support this argument.²⁶ It is often asserted that measured consumption is a function of measured income. (The measured variables are current phenomena as measured by statisticians.) This assertion implies that changes in current consumption are associated with changes in current income. In this situation consumption represents the response of an individual to a change within his lifespac—a change in income. The relationship asserted above implies an absence of inertia because of the close association between current behavior, in the form of consumption behavior, and all current changes within a person's lifespac, in the form of income changes.

²⁵ Kenneth E. Boulding, *A Reconstruction of Economics*, p. 36.

²⁶ Milton Friedman, *A Theory of the Consumption Function*. See also: Robert Eisner, "The Permanent Income Hypothesis: A Comment," *American Economic Review* (December 1958), pp. 927-990; Robert W. Clower, "Permanent Income and Transitory Balances: Hahn's Paradox," *Oxford Economic Papers* (July 1963), pp. 177-190; Irwin Friend, *et al.*, "Consumption Patterns and Permanent Income," *American Economic Review* (May 1957), pp. 536-555; Irwin Friend, "Entrepreneurial Income, Saving, and Investment," *American Economic Review* (June 1957), pp. 269-301; M. J. Farrell, "The New Theories of the Consumption Function," *Economic Journal* (December 1959), reprinted in R. A. Gordon and L. R. Klein (eds.), *Readings in Business Cycles*, pp. 380-397. The latter article contains a useful list of works on consumption behavior. Some of the above works discuss theories which compete with Friedman's theory.

Friedman's theory divides measured income into two components: "permanent income" and "transitory income":

The permanent component is to be interpreted as reflecting the effect of those factors that the unit regards as determining its capital value or wealth: the nonhuman wealth it owns; the personal attributes of the earners in the unit, such as their training, ability, personality; the attributes of the economic activity of the earner, such as the occupation followed, the location of the economic activity, and so on. *It is analogous to the "expected" value of a probability distribution* [italics added].²⁷

The transitory component is to be interpreted as reflecting all "other" factors, factors that are likely to be treated by the unit affected as "accidental" or "chance" occurrences. . . . Some of the factors that give rise to transitory components . . . [include] illness, a bad guess when to buy or sell, and the like; and similarly, chance errors of measurement.²⁸

Friedman suggests that the *correlation* between current consumption and *permanent income* is closer than the *correlation* between current consumption and *measured income* (permanent income plus transitory income).²⁹ He suggests also that current consumption will be significantly correlated with the transitory component of income if the transitory component affects permanent income, that is, long-term expected income. Such a relationship between current consumption, permanent income, and transitory income is similar to the hypothesized relationship set up on this inquiry between the expected rate of wealth change, variations from the expected rate of wealth change, and investor responses to variations. The hypothesized concept of "expected rate of wealth change" corresponds to "permanent income." The variations about the expected rate of wealth change are analogous to the concept of "transitory income." In the investment-behavior situation the investor is induced to act if the variations alter his expectations; in the consumption situation, the consumer is

²⁷ Friedman, *A Theory of the Consumption Function*, p. 21.

²⁸ *Ibid.*, pp. 21-22.

²⁹ Friedman, *A Theory of the Consumption Function*, p. 32; see also pp. 26, 144.

As a theoretical construct permanent income is an *ex ante* magnitude. In order to conduct an empirical test of the permanent-income theory *ex post* magnitudes must be employed. Friedman *measures* the permanent-income *concept* by using a trend value of past income adjusted by a weighted average of adjusted deviations from past trend values. The weighting process employed by Friedman gives greater weight to recent experiences. See Friedman, *The Consumption Function*, pp. 142 ff.

induced to act (change his consumption behavior) if the transitory phenomena affect his expectations. In both situations human action is provoked in a systematic manner by expectational changes, not deviations from expectations. If the actual magnitudes are to stimulate human action *with consistency*, then they must consistently affect expectations.

Friedman's empirical investigations failed to disprove his hypothesis: "On our interpretation of the evidence, the transitory components of a consumer unit's income have no effect on his consumption except as they are translated into effects lasting beyond his horizon."³⁰

Friedman's theory and his empirical findings have not received universal acceptance; neither has any other theory of consumer behavior received universal acceptance: "Each [theory] is the subject of wide controversy, receiving support from some empirical studies but not from others."³¹ One's acceptance of any theory depends upon one's interpretation of relevant evidence (and one's *decision* to accept or not to accept).³²

Another empirical study which attributes inertial characteristics to behavior was conducted by Robert Eisner. The subject of Eisner's study was the investment demand of firms. The specific relationship tested by Eisner is subsumed in the concept of "the acceleration principle," which asserts that the investment demand of firms is functionally related to changes in current measured output of firms, among other things.³³ Eisner tested the hypothesis that a firm's investment demand is related to "permanent" changes in output. Eisner's concept of permanent changes in output corresponds to Friedman's concept of permanent income (see above):

With regard to the investment function, we shall now argue that investment is a stable function of "permanent" changes in output and that the enigmatic results of many past investigations have stemmed from attempts to estimate the unstable proxy relation including large elements of "transitory" changes in output.³⁴

³⁰Friedman, *The Consumption Function*, p. 221.

³¹Robert Ferber, "Research on Household Behavior," *American Economic Behavior* (March 1962), p. 20.

³²Karl R. Popper, *The Logic of Scientific Discovery*, pp. 108, 280.

³³The acceleration principle is discussed in most texts on macroeconomics and business cycles. For example, see: R. A. Gordon, *Business Fluctuations*, pp. 130-131; and M. L. Bailey, *National Income and the Price Level*, pp. 65-68.

³⁴Robert Eisner, "Investment: Fact and Fancy," *American Economic Review* (May 1963), p. 238.

Our "permanent acceleration hypothesis" implies that firms will invest to the extent that they believe increases in demand are permanent.³⁵

Eisner's empirical evidence does not disprove his hypothesis. The implications of his study with respect to the inertia hypothesis are identical to the implications of Friedman's study. Not all changes within the lifespace of an individual provoke human action; however, those changes which are *sufficiently at variance with expectations and which alter expectations do provoke human action.*

The final statement to be presented was put forth by M. J. Hamburger with respect to the responses of savers to interest-rate changes: ". . . there is the argument that the rates offered by savings institutions may not have a significant effect on consumer expenditures until they reach some critical level."³⁶

The "critical level" mentioned by Hamburger may be accepted as a construct which is equivalent to the control limits discussed above. When current changes violate the "control limits" behavioral responses may ensue.

The remainder of this section, will consider the venues which may be employed by the accounting process in order to disencumber the inertial behavior of common stockholders, treating the accounting process as a specific kind of media region within the lifespaces of investors, namely, an *informational* intermediary which should strive to facilitate the wealth optimization activities of investors. According to this analysis the effectiveness of the intermediation pursuits of the accounting process is a function of the extent to which accounting information is instrumental to the operations of an investor's executive system.

Accounting Messages and Variance Data

The preceding discussion of the inertial characteristics of common-stockholder behavior implies that certain variations of the wealth magnitudes associated with a particular firm have the potential capacity to

³⁵ *Ibid.*, p. 240.

³⁶ Michael J. Hamburger, "Interest Rates and the Demand for Consumer Durable Goods," *American Economic Review* (December 1967), p. 1149.

provoke human action. It indicates, too, that the inertial characteristics of investor behavior imply that variations within certain limits would not activate an investor's executive system. Such variations will be accepted as "random" or "inexplicable." Only those wealth changes which indicate that the wealth activities of an investor are "out of control" have the capacity to activate an investor's executive system. This inquiry has indicated that variations would be calculated in terms of actual experiences relative to an investor's portfolio goal, or level of aspiration. The employment of such a control technique is one method with which the investor copes with uncertainty and informational limitations.

On the assumption that an investor's control activities will progress as if they were guided by a control chart, such as the kind used for the purpose of statistical quality control, the accounting process ideally should generate messages which relate to the "control limits" of each investor. Such ideal reports would be prepared in accordance with the defining parameters used by each investor in the process of wealth optimization. Such ideal reports would also indicate which variations are in violation of the control limits established by each investor in order to cope with uncertainty and limited information.

Unfortunately such an ideal state of affairs seems unattainable. The accounting process does not have access to the level of aspiration and control limits of each investor; hence, it cannot present variance reports which are specially tailored to the control activities of each investor. The accounting process, however, can facilitate effectual investor control activities, and should do so, by presenting other forms of variance data.

Variance data revealing the degree to which the firm's expectations have been achieved should be presented.³⁷ Changes with respect to the firm's expectations should also be incorporated into accounting messages. In addition, the changes experienced by a firm from point in time to point in time should be clearly reflected in accounting messages. These suggestions mean, in effect, that accounting messages to common stockholders should fulfill a role which is analogous to that of the "performance reports" utilized by many managements for purposes of internal control. Such reports emphasize exceptional and unusual items; they are employed in order to give impetus to the investigation of conditions which warrant

³⁷Nicholas Dopuch, "Metaphysics of Pragmatism and Accounting," *The Accounting Review* (April 1962), p. 258.

alterations of plans or other forms of human action.³⁸ Performance-type reports should be submitted to common stockholders in order that their wealth-sector control activities will be facilitated. Reports of variance data would be useful in discerning trends, evaluating the effectiveness of management, and perceiving changes in managerial expectations (the mental phenomena which guide all managerial action).

The presentation of the discounted present value of a firm, as calculated by management, is another category of data which may contribute to effective investor behavior. The discounted present value of a firm which is presented by management would represent the wealth value which management believes *should be* associated with a firm, given the expectations of management. The degree to which the market value of a firm corresponds to such a discounted present value ("managerial wealth value") indicates to a given stockholder the extent to which managerial expectations and policies have been "justified by the market."³⁹ The conversion of "managerial wealth value" into market value is one criterion of success which may be utilized by a common stockholder in order to evaluate a firm, infer future wealth experiences, and control his wealth-optimization process. The deviation of market value from managerial wealth value is merely another indicant of a firm's performance.

Admittedly, the incorporation of variance data in accounting reports will not be perfectly suitable to the control activities of any particular common stockholder. They will emphasize, however, the dynamic aspects of firms which, because of the nature of the universe, must operate under conditions of uncertainty and constant change. They will spotlight unusual items which merit investigation. They may affect the investor's estimates of expected variations and, consequently, the control limits which he employs in his control activities. Most importantly, variance data should increase the *information content* of the accounting report as a whole, given the inertial attribute of human behavior.

The inclusion of variance data is closely related to the emphasis placed by one author upon the communciation of *ideas*, rather than mere signs and numbers:

³⁸ Glenn A. Welsch, *Budgeting, Profit Planning and Control*, p. 363; see also C. T. Horngren, *Cost Accounting: A Managerial Emphasis*, pp. 6-7, and A. Matz; et al., *Cost Accounting*, Ch. 22.

³⁹ Edgar O. Edwards and Philip W. Bell, *The Theory and Measurement of Business Income*, p. 48.

Unfortunately, communication in accounting too often consists of the transmission of signs and numbers rather than the underlying idea. . . . When accountants strive toward the communication of ideas, the stress is on media for transmission, on classification, and on arrangement of data so that the underlying "significant" ideas will stand out [emphasis added].⁴⁰

The offering of accounting reports which present variance data may contribute to an alleviation of the recognition-lag problem affecting any given investor's wealth-optimization process. If accounting reports reveal variations from expectations and changes which occur over time, then any unusual occurrences may be quite noticeable. A persistent unidirectional variation of a particular wealth magnitude is one example of such phenomena. Such variations, probably not "random," may provoke life-space disequilibrium.

A Final Note

This chapter has presented several aspects of human behavior which provide support for adoption of the wealth *optimization*—rather than the wealth *maximization*—objective. It has suggested that the intellectual limitations of man and the existence of uncertainty cause the goal of wealth maximization to be impracticable.

The discussion of this chapter focused also upon the control activities of common stockholders, suggesting that the inertial characteristics of human behavior will cause a common stockholder to behave *as if* he were guiding his wealth sector behavior with "control limits," such as those which are used for the purpose of statistical quality control, and that, accordingly, variations of wealth magnitudes which fall within an investor's "control limits" will not provoke life-space disequilibrium. Variations which violate the investor's control limits, and persistent unidirectional variations, may elicit disequilibrating forces and—consequently—give impetus to human action.

Finally, this discussion has proposed several venues of which the accounting process may avail itself in order to fulfill its facilitative role with respect to investors who manifest inertial behavior. The crux of these

⁴⁰Norton M. Bedford, *Income Determination Theory: An Accounting Framework*, p. 196.

propositions is that the accounting process should generate *variance* reports for common stockholders. The following kinds of variance data were suggested for such reports: (1) variance data which reveal the degree to which a firm's expectations have been realized, (2) changes in a firm's expectations, (3) changes in the wealth magnitudes of a firm with respect to time, and (4) variations in a management's discounted present value of a firm from the market value of a firm.

6. SUMMARY AND FINAL REMARKS

This inquiry began with a discussion of a prevalent conception of accounting, namely, that accounting is an informative service activity. This conception of the accounting process lays emphasis upon the provision of information in order to facilitate particular kinds of human action, usually human action of an economic nature.

The analysis argued that if the accounting process is considered to be a constellation of activities the purpose of which is the facilitation of human action, then the accounting process requires a theoretical foundation which relates to human behavior. Such a theoretical foundation seems relevant to the domain of accountancy because accountancy is concerned with activities which occur through the performance of human beings. Indeed, according to the view stated above, the activities and results of the accounting process are supposed to *facilitate* certain kinds of human behavior.

The next step was the construction of a general behavioral model of one class of actors served by the accounting process, namely, common stockholders. This model of common-stockholder behavior was derived mainly from some important concepts of field and gestalt psychology.

It was suggested that the behavior of an individual is a function of an individual's lifespace, including its time perspective (its memory and its expectations). The lifespace of an individual is composed of the totality of phenomena which influence human action; it consists of the individual and the individual's psychological environment.

Human action occurs when lifespace disequilibrium obtains. Lifespace disequilibrium exists when each force acting upon an individual is not fully offset by another force, that is, when a *net* force is affecting the individual. It was indicated that forces are functionally related to the valences of objective regions and the distances which exist between an individual and an objective region. Valences may be either positive or negative, depending upon whether the objective region (state of affairs) is desired, or not

desired, by the individual. If the valence of an objective region is positive, then it will be associated with an attractive force. If the valence of an objective region is negative, then it will be associated with a negative force. In general, the valence of a region is a function of an individual's motives and the constitutive aspects of the region.

This inquiry into the behavior of common stockholders proceeded along the lines of a partial-equilibrium analysis, focusing attention on the wealth sector (region) of the investor's lifespan. We argued that the common stockholder's activities with respect to his wealth sector will be controlled by a wealth motive. Wealth was defined to mean command over economic resources. In more specific terms, it was indicated that a common stockholder will be guided by the goal of wealth optimization, that is, the investor will seek to experience the highest rate of wealth change which is consistent with lifespan equilibrium. The investor's goal of wealth optimization controls the operations of the investor's subsystems.

According to this analysis, an investor is considered to have four subsystems: the inner-personal system, the perceptual system, the cognitive system, and the executive system. The inner-personal system of the investor establishes the motive of the investor with respect to the investor's wealth sector. This analysis suggests that the common stockholder's wealth motive gives rise to the goal of wealth optimization. The perceptual system of the investor is the medium through which environmental data are secured by the investor. It was indicated that environmental data are transformed into sense-data by the perceptual system. The cognitive system of the investor is that system which embodies the investor's knowledge of the past, the present, and the future. The executive system is the system through which the investor attempts to maintain equilibrium within his lifespan; this system compiles locomotive (behavioral) strategies and formulates expectations. The expectations of the investor—his previsions of future states of being—are components of the investor's *present* lifespan which play a crucial role in the behavioral model, since lifespan disequilibrium is directly related to changes in expectations.

The accounting process, according to this analysis, should fulfill the role of a *media region* within the lifespan of an individual. Media regions are regions within an individual's lifespan through which the individual may pass in order to move toward, or away from, an objective region. Media regions may consist of activities or relationships which may be used

by an individual in order to attain particular goals. The relationship which prevails between an investor and the accounting process should facilitate the investor's real and conceptual locomotions from initial wealth positions to optimal wealth positions. The accounting process should serve as a means which may be utilized by an investor in the process of wealth optimization. Ideally, the accounting process should fulfill a role which is supplementary to that of the investor's perceptual system. It should serve as a useful link between the perceptual system of an investor and the economic attributes of a firm. In other words, the accounting process should strive to fulfill the role of an effective informational intermediary.

This inquiry indicated that the accounting process may fulfill its function of informational intermediary by engaging in communicative acts. It analyzed several basic concepts with respect to communicative acts. It expounded also upon several problems which may be associated with communicative acts, such as the problem of perception, decoding, and encoding.

By engaging in communicative acts the accounting process may be successful as an "extension" of an investor's perceptual system. It may effect an increase in the inputs and outputs of an investor's perceptual system and thus effect an increase in the content of an investor's cognitive system. The contents of the cognitive system are utilized by a common stockholder's executive system. The executive system uses such phenomena in order to formulate expectations, compile behavioral strategies, and—ultimately—maintain lifespace equilibrium. In accordance with our statements in regard to the role of the accounting process, the output of the accounting process should be instrumental to the operations of an investor's executive system.

Through discussion of the major activity of an investor's executive system, namely, problem solving, the inquiry attempted to provide a qualitative framework with which one may evaluate the instrumentality of the messages generated by the accounting process. The discussion of the problem-solving process provided a foundation for the implication that the information generated by the accounting process for common stockholders will be serviceable in the wealth-optimization activities of common stockholders if the conceptual foundation of accounting messages is consistent with the major concept employed by an investor in order to guide his wealth-sector activities. According to this analysis, this concept is wealth, which is defined to mean command over economic resources.

After a discussion of the wealth motive of common stockholders and the nature of common stockholders' investigative activities, the inquiry developed the idea that the accounting process should generate information in regard to: (1) the present wealth position of a firm, (2) the wealth changes experienced by a firm, (3) the temporal perspective of the firm's present lifespace, and (4) the environmental component of the firm's lifespace. It was noted that information in regard to the temporal perspective of a firm's present lifespace includes retrospective information and anticipatory information. It was indicated also that each of the aforementioned kinds of information may be subjected to the test of verifiability by the accounting process in order to mitigate the problem of perceptual accuracy.

The last chapter of this inquiry considered wealth maximization, wealth optimization, and the wealth-sector control activities of common stockholders. The control activities of a common stockholder are concerned with obtaining conformity between actual wealth experiences and planned wealth experiences.

It was indicated that informational limitations, intellective limitations, and the uncertainty of the universe preclude investors from the pursuit of wealth *maximization*, but according to the behavioral model wealth *optimization*, as the objective of investors, guides them instead.

Our discussion of common stockholders' control behavior and the comments of other individuals in respect of human behavior suggested the existence of *inertial* investor behavior. The attribute of inertia will cause common stockholders to behave as if their actions were guided by "control limits." Variations of wealth parameters within an investor's control limits will not give rise to changes in expectations; hence, such variations will not be associated with lifespace disequilibrium. Parameter variations which violate an investor's control limits will tend to spawn changes in expectations and, consequently, to create lifespace disequilibrium.

The inquiry suggested that the accounting process would enhance the instrumentality of its messages to the pursuits of investors who evidence inertia by generating variance data. It was proposed that the following kinds of variance data be included in accounting messages: variance data which indicate (1) the extent to which a firm's expectations have been realized, (2) changes in a firm's expectations, (3) changes in the wealth attributes of a firm with respect to time, and (4) deviations of management's discounted present value of a firm from the market value of a firm.

This essay can be best terminated by reiteration of a comment which was made at an earlier juncture of the discussion. The inquiry has not presented *the* model of common stockholder behavior; its results are much more modest. It has presented rather *a* model of common stockholder behavior which can yield fruitful *general* implications for the process of accounting for common stockholders. To be sure, the construction of a behavioral model of common stockholders which transgresses different psychological and behavioral foundations may give birth to implications which complement the implications presented, or it may yield implications which are diametrically opposed to such implications. Such an occurrence should not cause a student of accountancy to experience any symptoms of intellectual trauma. As was suggested by one student of inquiry, we should expect such occurrences:

When knowledge is taken as a general abstract term related to inquiry in the abstract, it means "warranted assertibility." The use of a term that designates a potentiality rather than an actuality involves recognition that *all special conclusions of special inquiries are parts of an enterprise that is continually renewed, or is a going concern* [emphasis added].¹

¹John Dewey, *Logic: The Theory of Inquiry*, p. 99.

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