There is no satisfactory definition of the word "accounting." The most widely quoted definition appeared in *Accounting Terminology Bulletin No. 1* of the American Institute of Certified Public Accountants (AICPA)—(1941):

Accounting is the art of recording, classifying, and summarizing in a significant manner and in terms of money, transactions and events which are, in part at least, of a financial character, and interpreting the results thereof.

This appears to be a definition of accountancy, an *art,* rather than accounting, a *body of knowledge.* If the definition were clear, the objection would not count for much, as we could then define accounting as the product of accountancy. However, the AICPA definition has certain weaknesses, of which the most critical is the meaning of "financial." The word cannot mean "money" here or "capable of representation in money," because in both cases the previous phrase "in terms of money" would be clearly redundant. "Financial" is therefore an unstructured concept calling for definition.

Secondly, the words "in part at least" introduce an uncertainty which must affect our ability to identify those "transactions and events" which are proper subjects of accounting. Thirdly, the phrase "transactions and events" limits the scope of accounting by excluding, for example, the accrual of interest receivable, the write-off of a bad debt or the recording of depreciation expense, unless we use the circular reasoning that everything the accountant records, etc. represents a transaction or an event. More recently, the Netherlands Institute of Registered Accountants defined accounting as:

the systematic recording, processing and supplying of information for the management and operation of an entity and for the reports that have to be submitted thereon.

This definition is too wide because it would include the functions of newspapers, libraries, and centers of documentation as well as accounting.
itself. Indeed, one of the aims of the definition was to permit accounting to embrace nonmonetary items; unfortunately, which nonmonetary items cannot be determined. This same desire to extend the boundaries of accounting to include nonmonetary quantification is a feature of the American Accounting Association Committee Report, *A Statement of Basic Accounting Theory* (ASOBAT, 1966).

The Accounting Principles Board, in its Statement No. 4 (October, 1970) also attempted to define accounting with reference to the concept of information:

Accounting is a service activity. Its function is to provide quantitative information, primarily financial in nature, about economic entities that is intended to be useful in making economic decisions, in making reasoned choices among alternative courses of action. Accounting includes several branches, for example, financial accounting, managerial accounting, and government accounting.

This definition has been greeted as a significant step forward, but closer examination reveals that the improvement is more apparent than real. Reference to "economic decisions" does not help us to identify the quantitative information which is "intended to be useful," unless we adopt the quite untenable assumption that accountants produce data for input into the decision models used by economists. The obscurity of "in part at least, of a financial character" is carried forward intact in the phrase "primarily financial in nature." These important criticisms will be examined at length in Chapters 6 through 8.

The role and functions of accountants have expanded dramatically during the past hundred years, more rapidly since World War II, so that any definition based on the practice of accounting is liable to be out of date by the time it is published. But it is not necessary to define accounting closely. Fields of knowledge are simply groups of problems studied together because the same methodology is used for their solution; this is the case with medicine or architecture or the law. Accounting is the solution of problems using accounts; the definitions direct us to the types of problems amenable to this form of solution and to the methodology used by accountants. This chapter will review the scope of accounting at the present time to 1) identify the classes of problems accountants handle, 2) identify the need for a theoretical framework, and 3) discuss the nature of methodology in general. Chapters 2 through 4 will trace the history of accounting thought, with particular reference to the development of accounting principles in the United States. The remainder of the book will deal with the subject of accounting methodology.

**THE ROLE AND FUNCTIONS OF ACCOUNTANTS**

The role of today's accountants has not been clearly spelled out, and their position in society is ambiguous. On the one hand, they are associated with the business world and are identified as servants of the capitalist enterprise. This view directs attention to the accountant as keeper of the firm's records, preparer of financial state-

ments used for inviting capital contributions to the enterprise, for verifying credit-worthiness, and as a basis for assessing income taxation. This is obviously an incomplete image of the accountant, who performs many of the same functions in a communist economic as in a cap-

italistic one.

The accountant has another public role in which he or she is identified as a person of trust, a professional to whom society can give a variety of tasks knowing they will be performed in the public interest. This view directs attention to the accountant as auditor, as tax counsel, and as government employee in many capacities, such as civil servant, consultant to regulators, and advisor to administrations.

A third role of accountants is that of the technician, skilled in the techniques of business management and knowledgeable about the organization and operations of particular industries. In this capacity they function as a part of management in both the private and public sectors, and as outside consultants on such matters as administrative systems and procedures, cybernetics, short and long range planning, mathematical modeling, and many other techniques, in addition to the design, installation, and operation of accounting systems.

The Accountants' Handbook classifies accounting into the following fields:

1. **Financial reporting**—the preparation from raw data of financial statements, consisting of an income statement, a statement of financial position and a statement of changes in financial position. These may be used within an organization, by its managers, or by outside parties, such as stockholders, creditors, labor unions, income tax authorities, and regulatory agencies.

2. **Tax determination and planning**—the preparation of tax returns and reports in accordance with the laws and regulations governing such matters, for which purpose financial reports may serve as a point of departure. This field includes tax planning and representation of the taxpayer as counsel before the Internal Revenue Service and courts of law.

3. **Independent audits**—the examination of financial statements and other representations with the objective of expressing an opinion on their fairness.

4. **Data processing and information systems**—the design, installation, and administration of systems for generating, processing, storing, and retrieving data required for a variety of purposes.

5. **Cost and management accounting**—objective analyses of costs and performances and the quantitative preparation of managerial decisions.

6. **Internal auditing**—an independent appraisal performed inside an organization, on a continuous basis, to ascertain the extent of compliance with sound business practices and established systems and procedures.

7. **Budgeting**—accounting for the future, and the related function of budgetary control by comparing financial statements with budgets and investigating variances.
THE GROWTH OF ACCOUNTABILITY KNOWLEDGE

Figure 1-1, prepared by Dr. Leo Herbert, formerly of the U.S. General Accounting Office, shows graphically the exponential rate of increase of body of knowledge represented by accounting during the past two hundred years. Prior to 1750 there existed little literature on the subject, consisting mainly of translations and adaptations of the relevant portions of Luca Pacioli's Summa de Arithmetica, Geometria, Proportioni et Proportionalita (1494), the first book to describe double-entry bookkeeping. Accountants were virtually all private accountants, working for a bank, merchant, chartered company, or as government employees, and their functions and responsibilities were restricted to the duties assigned by the employer. Public accounting, or the practice of offering accounting services to the public against a fee, was unknown.

The principal factors listed in Figure 1-1 as responsible for the expansion of the accountant's functions, and thus, for the growth of this body of knowledge, were:

The Industrial Revolution One result of the transition from domestic production to factory production was the growth in the size of the firm and its capital requirements. To raise capital of the required magnitude, it was frequently necessary for the firm to incorporate; the number of registered corporations increased from a few hundreds to tens of thousands between 1800 and 1900. The need for meaningful accounts to be rendered by the promoters and managers to the stockholders greatly increased the responsibilities of accountants, and company legislation in Great Britain calling for these accounts to be audited created a need for public accountants. In the United States, where the greater part of industrial capital was provided by foreign financial institutions and domestic banks, audited financial statements resulted from their requirements.
A second aspect of the industrial revolution which had an impact on accounting was the lengthening of the production time period. This feature of industrialization called attention to accounting for overheads and the allocation of costs to cost centers as well as products. Industrialization also led to the development of standard costing and to the separation of cost accounting from financial accounting, which has been characteristic of accounting at least since the nineteenth century.

A third aspect was the successive waves of industrial bankruptcies which took place in Europe and the United States during the latter part of the nineteenth century. The growth of the industrial sector was accompanied by over-capacity and included many marginal firms which were unable to survive economic upheavals such as, for example, followed the American Civil War. The need for qualified persons to manage and liquidate insolvent businesses for the benefit of creditors placed additional burdens on private and public accountants. The need to establish forms of industrial cooperation, particularly to avoid the more lethal forms of price-cutting, led to the creation of national trade associations, and many of these developed uniform accounting systems which were published for the benefit of members.

The Railroad Companies The biggest single users of corporate capital during the nineteenth century were the railroads. These companies were illustrative of additional problems presented by the industrial revolution because they were highly capital-intensive, and their fixed assets had longer useful lives than customary. Many people in the industry believed that maintenance of the tracks and rolling stock would make railroad fixed assets virtually everlasting, and there was thus no need to charge depreciation in the income statement (then called the profit and loss account). Coupled with the overstatement of profits, many less excusable abuses occurred, such as paying dividends out of capital contributed for the operation and the creation of excess capacity, leading to business failures which caused investors and creditors substantial losses.

These problems directed attention to the critical necessity to distinguish capital from revenue, to the importance of the income statement, and to the need to calculate depreciation on a systematic basis. In many countries railroad finances became a matter of public concern, and legislation regulating their operations was enacted. In most countries the railroads have gradually been taken over by government and are now operated as state enterprises. In the United States, legislation regulating railroad accounts; regulation was later taken over by the Federal Interstate Commerce Commission, which issued a uniform classification of accounts in 1894. These developments were followed by regulation of other industries of public interest, such as public utilities, broadcasting, interstate gas pipelines and aviation. In each case, regulation included the requirement to use a uniform accounting system and reporting, and in each case the system was different. Thus, the case of the railroads provides an example not only of the growth of accountability knowledge but also of the emergence of acceptable alternatives in accounting, which is one of the reasons for a study of accounting theory.

The Rise Of The Accounting Profession The profession of public accountant gradually became organized in the English-speaking world during the nineteenth century. The Institute of Chartered Accountants in Scotland was the first such organization (founded 1854), followed by the Institute of Chartered Accountants in England and Wales (1850). The New York State Society of Certified Public Accountants was formed in 1896 and a national organization, the predecessor of the American Institute of Certified Public Accountants, in 1887.

These professional organizations laid down rules of conduct for their members and issued pronouncements on technical questions which added substantially to accountability knowledge from about 1900. The contribution of the professional organizations will be discussed more extensively in Chapter 4.

The Personal And Corporate Income Taxes After several abortive attempts, the U.S. Treasury finally succeeded in imposing an income tax in 1913. Although challenged as unconstitutional, this form of taxation was eventually validated by constitutional amendment. Other countries, notably Britain and Germany, imposed income taxation before the end of the nineteenth century.

The significance of this development lies both in the contribution it made to strengthening the accounting profession by opening it to a new field of accounting, and in the additions to knowledge made by its success in handling acts and related commentaries. It is the law, and textbooks, the necessity to determine income, as a preliminary to the determination of taxable income, provided a major impetus to the extension and improvement of accounting practice, and the essentially legal ideas and concepts of the tax laws influenced the development of accounting theory in subtle ways.

The First And Second World Wars In the first and second world wars the governments of the countries taking part utilized to the fullest extent the industrial sectors built up during the late nineteenth and early twentieth centuries. In the United States large portions of the industrial sector were engaged in the production of weaponry, ships, ammunition, motor vehicles, military clothing, and a wide variety of goods and equipment needed for the war effort.

Only a small part of this production was carried out by the government itself; the greater part was allocated to private industry through the medium of the defense contract. There was considerable federal allergy to cases justified by defense contractors. Many of these companies underestimated the costs of standard and differential or incremental costing is attributable in large part to this situation.

Government Accounting Politicians do not favor disclosure. When in power they resist it, and the opposition does not fight too hard for fear
it will inherit the obligation. It is no accident that in most countries government accounting is a byword for backwardness and obscurity.

The tremendous increase in government revenues which followed the introduction of income taxation, particularly at the level necessary to finance the first world war, vastly increased the problem of government accountability. In the English-speaking countries, government accounting has traditionally been accounting for receipts and payments, which paradoxically is less informative than the accrual system. It may be noted, however, that the Kingdom of Sweden in the seventeenth century, and the Austria of Maria Theresa in the eighteenth, developed sophisticated forms of government accounting comparable to contemporary business systems, and that the cash basis is no more essential to government accounting than to any other kind.

Beginning in the 1890s, attempts were made in the United States to reform the federal budgeting and financial reporting process, and similar movements were discernible elsewhere. The Taft Commission, which reported in 1912, resulted in the establishment of an executive budget only nine years later, and the Budget and Accounting Act of 1921 enacted some of the Taft recommendations. In 1949, the 81st Congress completed the task of legislating the Taft Commission's report by passing Public Law 764. Nevertheless, even now, the actual implementation of reforms proposed by the Taft Commission is a long way from completion.

In addition, state and local government accounting have developed their own techniques and literature, as the revenues from sales and property taxes have increased through both legislation and inflation.

The Dairy Of Scientific Management. By the end of the nineteenth century there were many of the problems of industrial organization and management that had been identified, and a scientific approach toward their solution was proposed by F.W. Taylor, the Gildred's, and others between 1885 and 1920. Imitating the dictum of Lord Kelvin, this approach has been summed up in the phrase: "What cannot be measured, cannot be managed."

It was clear to the pioneers of scientific management that accounting had a large part to play in the measurement of cost and output and in the evaluation of managerial performance. The business schools established after the turn of the century placed emphasis on the study of accounting as a tool of management control, and a substantial literature has developed on this aspect of accounting. We may note as landmarks the early work of Garcke and Fells and Hamilton Church on standard costing and the invention of break-even charting by Henry Hess in 1904. This literature, which grows more extensive daily, belongs to the area designated management accounting, which is also the title of the monthly publication of the National Association of Accountants in the United States.

The development of management accounting has been marked by two significant changes in emphasis, which cannot be ignored by any student of accounting theory. One is the attempt to apply to accounting data the mathematical methods which have proved powerful tools for investigating the world of natural phenomena. This field of statistical method has produced many experiments of varying success. The use of ratios and averages is well established, whereas other measures of central tendency appear to have limited applicability. Compound arithmetic, as used in financial evaluations, has a long history in accounting for bonds, pension liabilities, and some forms of depreciation. More exotic mathematical methods, such as Markov chains, Boolean algebra, and Bayesian statistics, wait their turn to perform for accountants.

The other change is the attempt to solve accounting problems within an interfunctional, and consequently interdisciplinary, framework of management. Before the industrial revolution it was common for merchants, bankers, and artisans to keep their own accounts. As specialization became necessary in the growth of manufacturing firms, accounting was one of the first functions which the manager transferred to someone else. The accountant became increasingly isolated from the decision-making centers of the firm; leading to the separation of accounting from operating management, and outside pressures created a tendency for accounting aimed at such external users as financiers, creditors, and the tax authority to acquire the major share of the resources available for the accounting function. The twentieth century has seen a reversal of this trend.

In the process, the accountant has both contributed to and taken from the other functions of management. To production planning and control he has given standard costing; from it the statistical techniques used in quality control have been taken over for variance analysis. To marketing he has given cost-volume-profit analysis, and from marketing he has taken the principles of valuation of joint products. Figure 1-1 suggests other forms of ideas of this type, as the accountant has interacted with specialists in finance, cybernetics, organization theory, systems analysis, decision theory, and human behavior.

It is this contributing factor to the growth of accountability knowledge which is mainly responsible for the sharp upturn in the graph since about 1950. A comparative study of the literature on management accounting prior to and since that date reveals the enormous impact which this cross-pollination has had on the development of accounting thought, an impact which has yet to work itself out in the body of knowledge we call accounting theory. However, we can perceive this impact in the form of the various approaches to accounting theory which will be identified in this book, particularly the behavioral and communications approaches.

CRITICISMS OF ACCOUNTING

Such pervasive growth might suggest that accountants were doing something right. On the contrary, however, many serious criticisms of accounting have been voiced, both inside and outside the accounting profession. Accountants claim that their work is useful to stockholders, but financial statements do not show realized and liquidated profits available for dividends, or cumulative investment, profits, and dividends to date. They claim that their work is useful to creditors, but statements of the financial position do not reveal current market values of assets and legal rights against them. They claim to assist in tax assessments, but financial statements must be reworked in accordance with fiscal legislation to
provide a figure for taxable income. And financial statements do not report some important magnitudes such as value added, which would be useful in negotiating with labor unions.

Until forty years ago, there was little criticism of accounting by accountants. A landmark was the publication in 1939 of Kenneth MacNeal’s *Truth in Accounting*, which attacked contemporary financial reporting standards with what the author himself called “ill temper and sweeping denunciation.” A CPA with many years’ experience, MacNeal dealt to some extent with generally recognized abuses, such as bypassing the income statement with profits and losses, and failing to recognize known investment losses. In the intervening thirty-five years these abuses have ceased to be the main target and to a great extent accountants have been successful in eliminating them. Most of his strictures, however, were leveled at the accountant’s unwillingness to “value,” i.e., to depart from historical costs, with the result that the figures contained in financial statements had no relation to the “truth.”

The truth, following Fisher and Canning, lay in “the meaning of value in its economic aspect,” which was well known and complete enough to serve most practical purposes. “A balance sheet and profit and loss statement purport to state values. In order to fulfill their purpose they must state values according to economic concepts . . .” This is a very misleading proposition; economics is not a science of values but a theory of relative prices. It was precisely on this point that modern economic theory acquired its strength, namely, the recognition by the medieval Schoolmen that the domain of truths capable of being proved by reason was limited and that many doctrines must be accepted on the basis of faith alone. Thus, economists who followed Thomas Aquinas and Duns Scotus turned away from questions of value, a subjective concept, and occupied themselves with questions of price, an objective reality.

MacNeal predicted one of two outcomes: either accounting principles and practice would remain unchanged, with the accounting profession declining in reputation and remuneration, or accountants would supply the public with “the truth” and prosper accordingly. During the intervening thirty-five years there has been very little change in accounting principles and practice, but the accounting profession has increased in numbers and prosperity as never before. This observation alone should ensure that MacNeal’s criticisms are carefully examined and not simply taken at face value.

Since MacNeal wrote there have been innumerable restatements of his criticisms, but the rationale has changed subtly over the years. Although many critics still proceed from the assumption that accounting can be referred to a framework of economic theory, it has become unfeasible to call this the truth. Instead, the critics direct attention to the need for information useful in making economic decisions. The desired values are not intrinsically good, but acquire their virtue from the decision models which call them forth.

Thus accounting is being criticized for many reasons: that it is based on irrelevant historical costs instead of opportunities, that it omits prices, or that its models consist exclusively of identities but lack behavioral functions and do not lend themselves to optimization procedures; that it ignores psychological factors and uses ‘arbitrary’ allocation procedures . . . that the balance sheet is not comprehensive enough because its inclusion criterion is too superficial; that the additivity assumption on which it operates is illusory if . . . that its measures are not accompanied by error estimates, etc. . . .

It will be one of the aims of this book to examine these criticisms in some detail. The task is clearly a fascinating one; as Brief pointed out in a recent article, the revolt against accountants has been brewing for nearly 100 years and certain accounting problems appear to be perennial and impervious to regulation and legislation. At this time, however, we are interested principally in their effect on the need for accounting theory.

THE NEED FOR ACCOUNTING THEORY

It is in the context of the tremendous growth in accountability knowledge and the accompanying fundamental criticisms of accounting and accountants that the need for accounting theory has manifested itself. In Chapters 2 and 3 we shall outline the historical development of accounting theory; here we examine the concept, and explain the relationship between theory formulation and research methodology.

A theory is a systematic statement of the rules or principles which underlie or control a set of phenomena. A theory may be viewed as a framework permitting the organization of ideas, the explanation of phenomena and the prediction of future behavior. Accounting theory is that branch of accounting which consists of the systematic statement of principles and methodology, as distinct from practice. Thus, the rule of conservatism belongs to the subject of accounting theory; the practice of providing for future losses from current doubtful receivables, being a question of practice, does not. It is clear, however, that theory cannot be divorced from practice, which it underlies, explains, and attempts to predict. There is not and cannot be any basic contradiction between theory and facts.

A theory is above all an explanation. There is a widespread misconception that a theory must aid in prediction, but not all theories do. The theory of evolution, for example, has no predictive ability whatsoever; it is impossible to use it to forecast changes which will take place in living things. Similarly, a political theory may explain revolution in social-economic terms, but could not predict that Chile would become the first country to vote a communist government into power, or to liberate itself from one.

A theory is an explanation, but not every explanation is a theory in the scientific meaning of the word. *Epistemology* is the science of the method or grounds of knowledge, and a theory must conform to the rules of this science. In everyday language we use the word theory to denote a speculation, a conjecture, even a doctrine. In science, a theory is an explanation of phenomena which accounts for them to the satisfaction of knowledgeable persons, and this presupposes that the theory consists of propositions, each of which can be established by empirical research or is necessary.
for the explanation in question, and has not been demonstrated to be false. For example, an economic theory may utilize the empirically verifiable concept of a production function, and the unverified but undisputed motivational assumption of profit maximization, to explain the supply curve.

There are three main views as to what a theory is, referred to as reductionism, instrumentalism, and realism.

Reductionism starts from the assumption that theories do not refer directly to observables (percepts) and do not make statements which are directly testable. They do, however, provide a disguised reference to observables, a kind of shorthand which can be translated back into the observables themselves. This view has been criticized on the grounds that all theories contain terms which cannot be translated in this way, including those which no reputable theorist wishes to abandon. Further, a theory which could be supported in all its terms by explicit definitions would be a static theory, incapable of growth and therefore useless for explaining or predicting new phenomena.

Instrumentalism views theory as an instrument, a tool bag or set of calculating devices, to be used on observation statements. This view emphasizes the abstract and systematic role of theories and their use for explanation or prediction, but makes no reference to content. In this framework, a theory cannot be true or false, only logical or illogical.

Realism is the term used for the view that theories are bundles of propositions, each of which may be a true or false statement referring to real world phenomena or objects. If each of the propositions is believed to be true, then we have a complete concordance of theory and fact. The approach to theory used in this book is best described as realist.

Another distinction which is often encountered is between positive and normative theories. A positive theory explains what is, a normative theory, what ought to be. It is clear that, ideally, there should be no such distinction, and Gunnar Myrdal has drawn attention to the political assumptions underlying positive economic theories. A good accounting theory is both positive and normative, as it will explain practice in terms of its usefulness.

The uses of accounting are becoming more and more sophisticated and require explanations of what was in the past, perhaps, taken for granted. Many of those with whom accountants work are graduate scientists, engineers, and humans well grounded in logic and other aspects of epistemology. It is no longer sufficient for these critics to reply to their questions by saying, "this is the way it has always been done," or "this is how it must be."

Finally, accountants are being challenged by the existence of new problems, to which traditional explanations of accounting do not seem to apply. Areas of accountability opening up to accountants currently include social accounting, human resource accounting, and public sector accounting. It is very significant that in 1975 the chairman of the Securities and Exchange Commission, Ray Garrett, Jr., and Commissioner A.A. Sommer, Jr., called for a recognition that traditional models, rules and modes for disclosure may no longer be adequate. Specifically, the impact of inflation on financial reporting was the principal issue, and the commissioners drew attention to the need for "innovative presentations" where a "single-valued, articulated set of financial statements" did not tell the "economic story."

WHAT IS RESEARCH?

Explanation implies knowledge, and knowledge presupposes discovery but just as every explanation is not a theory, so not every process of inquiry is research. The essence of research is the expansion of knowledge through problem-solving techniques which have been tried and tested in different fields. The following description provides a framework for understanding what we mean by research. The initial step in research is problem-finding. Problem-finding can be generated either formally or informally. Formal problem-finding implies the use of punctilious and methodical procedures while the informal approach is subjective and nonroutinizable.

Observations of others in prior research is one of the most productive sources of formal problem finding, since new problems may arise which indicate that expanded research is needed. Other formal approaches to problem-finding are:

The Analog Method uses knowledge gained in one area to formulate a hypothesis in a related area.

Renovation is used to replace defective components with a view to restoring or improving the effectiveness of a theory.

The Dialectic Method consists of developing alternative methods for challenging, refining, or disposing of existing or proposed theories. It evaluates the advantages and disadvantages of different courses of action.

The Extrapolation Method extends current trends into the future and postulates questions relative to the predicted outcome.

The Method of Morphology analyzes all possible combinations of related problems.

The Decomposition Method breaks problems down into their component parts and analyzes each area.
The Aggregation Method takes research findings or theories from other areas and applies them to more complex problems.

Informal methods are also utilized in problem-finding:

Conjectures are hunches or intuitive feelings frequently used by decision makers.

Phenomenology is the description of the formal structure of phenomena abstracting from interpretation or evaluation.

Consensual activity is a group definition of a problem.

Experience is the observation of the problem itself.

THE RESEARCH PROBLEM

A research need arises when there is insufficient knowledge to solve an existing problem. The problem must first be defined or stated accurately. A quality of a well-defined problem is that it represents in all essential respects the environment from which it is drawn. Inadequate definitions can arise because of descriptive (what is) and normative (what should be) judgments or because of time-dimension deficiencies, such as taking a problem which has been critical in the past and assuming that it is also critical at the present.

Once the problem is identified and defined it should be put in a solvable form. This is referred to as hypothesis formulation. Frequently problems are posed in global or universal terms impossible to investigate.

A hypothesis is the building block from which a theory is constructed and can be most easily recognized as a proposition of an “if...then” variety. In this form it will suggest experiments whereby the proof or disproof of the proposition may be undertaken. It may be described to an accountant as the journal entry of research methodology, the means whereby a problem is translated into a convenient form for study; convenient because it is acceptable to the researchers seeking to replicate the experiments it suggests.

For example, the problem “what information should be provided to investors” is incapable of solution in that form; it is too wide, too general, and suggestive of too many different solutions between which we are unable to choose. Research methodology requires that it be restructured as a set of hypotheses, such as: “If accounting policies are disclosed to investors, then investors will be able to distinguish between companies in respect of quality of earnings.” This restatement directs attention to the possibility of using established mathematical techniques for measuring discrimination, established financial techniques for measuring quality of earnings, and established sampling techniques for identifying investors. It also suggests experimental design, which is a central part of research methodology.

RESEARCH METHODOLOGY

A prime factor in the concept of research methodology is something known as scientific method. While scholars argue interminably about what is meant by scientific method, they behave as though its meaning is generally understood. We shall therefore attempt an explanation, knowing that many will disagree.

Two primary methods of reasoning can be observed in the discoveries which lead to knowledge: induction and deduction. Induction can be defined as reasoning from the particular to the general; deduction from the general to the particular. Historically, Roger Bacon is identified with inductive reasoning; Descartes with deductive. Modern science, of which Galileo is the acknowledged father, combines induction and deduction interactively. Galileo observed that heavy objects fall with increasing speed, and from these particular observations he arrived inductively at a hypothesis—that the speed is directly proportional to the distance. Lacking the measuring equipment to test this hypothesis he used deductive reasoning to arrive at the conclusion that the hypothesis was incorrect, because it implied that objects falling unequal distances would require the same elapsed time, a proposition which could easily be disproved by observation. This led to a new hypothesis, that the speed is directly proportional to the time elapsed, suggesting the experiment of rolling balls down an inclined plane.

The research sequence can be viewed as a cycle of observation — hypothesis — experiment — conclusion — observation, in which the mode is sometimes inductive, sometimes deductive. Underlying the process is the indispensable element of inspiration, which feeds observation and the choice of the problem, the construction of the experiment, and the inference which supports the conclusion.

Research methodology can also be viewed narrowly as a set of strategies, domains, and techniques employed in hypothesis testing. Of these the central and most important is the selection or construction of a model. A model is a correct representation of something else, which nevertheless abstracts from some of the properties of the thing being modeled. A model automobile may have no motor; a model ship may be unable to float. These features have been assumed immaterial in view of the purpose which the models are to serve, the automobile as a toy, the ship for display. In the same way, a model in research is a construction which permits the observation of the effects of certain selected variables identified by the hypothesis, and may therefore abstract from aspects of the reality modeled which are unaffected by the variables selected, or effects in which the researcher is not interested.

In summary: a theory is a complex set of rules or principles based upon knowledge preferably derived from research. Research is characterized by a certain methodology, which is a reliable set of methods. A method is a family of models which have been found useful for hypothesis testing. A theory, therefore, is essentially a set of acceptable hypotheses.
RESEARCH IN ACCOUNTING

Research in accounting is of relatively recent origin. It is clear, however, that abundant opportunities for research exist. Virtually every principle and rule of accounting is unsupported by knowledge scientifically obtained. This suggests that in spite of the need, little research has in fact been carried out. The critical weaknesses of much accounting research are the absence of hypothesis formulation and of research methodology and an undue reliance on the practice of counting heads.

The more important research strategies which have been used in accounting research appear to be 1) opinion, 2) empirical, 3) archival, and 4) analytical. Opinion research of an informal kind is widespread and underlies the pronouncements of professional institutions. Formal opinion research involves surveys using questionnaires and polls, with or without interviews. Empirical research, in which what is studied lies within the experience of the researcher, includes the descriptive work involved in writing case studies as well as the observation of that which can be perceived either in the field or in a laboratory. Archival research is basically the examination of recorded facts, and since accounting by its very nature consists of recorded facts, most accounting research is archival. The library search is a characteristic method of archival research. Analytical research involves the adoption of analytical methods from other disciplines for the purpose of solving problems in accounting; the use of mathematical models is a frequent example.

The methodological limitations of accounting research, however, are not the central problem in the development of accounting theory. One critical problem is the failure of many researchers to understand that an explanation of something in accounting must start with observations outside accounting. Just as a definition which contains the word being defined is useless—"cost accounting is accounting for costs"—so a hypothesis which relies on observations of what accountants do in order to explain why they do it is of little use in theory construction. The concepts "asset," "liability," "equity," "revenue," "expense," and "income" must be established without reference to their function in accounting before we can use them to explain accounting.

The other problem has been put succinctly in these words:

But of all the phenomena science tries to deal with, it has been least successful with those involving human behavior. Few scientific findings in this sphere conflict to any great extent with the ordinary man's experience and common sense. And when they do, more likely than not it is science that turns out to have been wrong or incomplete.13

CLASSIFICATION AND ACCOUNTING THEORY

A taxonomy is a classification designed to aid the analysis and interpretation of a field of inquiry. A classification of accounting systems should be of value in many ways:

- By sharpening the focus of description and analysis
- By assembling a mass of data in a form suitable for explanation
- By permitting the isolation of critical factors which must be considered in setting accounting standards

By adaptation, a good taxonomy becomes a predictive tool, enabling the analyst to determine probable outcomes of decisions to change a system. More importantly, a taxonomy should lead to the development of models which permit inferences to be drawn from changes in causal and modifying factors to changes in accounting systems.

Classification in accounting has only recently begun to consider the theoretical implications of taxonomy. The most frequently encountered classification of accounting systems, into financial, tax, managerial, and so on, lacks the qualities of an efficient classification in that the classes are not mutually exclusive.

The role of classification in financial accounting appeared to be well understood and generally agreed until recently. In the area of practice there was (and is) widespread use of charts of accounts which reflected the balance sheet and income statement categories underlying the well-known basic equation. In the area of theory, it was frequently pointed out that this was the fundamental process; Mattessich made it the point of departure in his quest for a measurement theory of accounting: "The most basic measurement is classification, a fundamental discriminatory process whereby the various categories can be identified and distinguished through numerals." The division into classes can be a scale of measurement, and he gives as his example, a chart of accounts.14 The same proposition is found in such different sources as a book on controllership, which identifies the five basic classifications as assets, liabilities, proprietorship, revenues, and expenses,15 and a contribution to the normative theory of accounting, where the last three were given the names, residual equity, income, and cost.16

The area of managerial accounting, however, did not disclose any comparable uniformity of ideas, and the study of different classifications of cost threw up the possibility of alternative sub-classes but also revealed a weakness in the basic classification used by financial accountants. This was the observation that a chart of accounts should not be based upon the balance sheet, because many accounts required by a business are eliminated in the preparation of the financial statements, in particular the so-called "clearing accounts."17

By 1969, when Sorter drew attention to the problem,18 the idea that accounting events were not given in nature had been recognized widely, and attention was being devoted to "economic events" as the phenomena which accountants were attempting to interpret and represent. Unfortunately, this concept led to the identical classification schemes as in listing accounting events. Sorter postulated that accounts were needed to provide information to be used in decision models, that individual users would develop their own input values, and therefore a financial statement should include all items relevant to any decision model. The startling implications of this observation led Johnson to attempt to design a structure for a financial accounting system of this type.19
The principal source of a user-oriented classification of accounting is a book devoted to classification systems and financial statements. Fitzgerald and Schumer extended their inquiries to three different countries and found that they could identify four bases: intended use, liquidity, degree of permanence, and legal dispositions. A book review by Russell Taussig in The Accounting Review for July 1963 (p. 665) suggested that the authors had "developed elements of information theory as applied to accounting."

CONCLUSION

In the last analysis, all systems of inquiry possess the following five structural characteristics:

1. User psychology, or how a person perceives and evaluates the world (see Table 1-1).
2. The type of decision to be made.
3. The institutional or organizational context.
4. The mode of presentation of information (personal or impersonal communication, verbal or written, public or private).
5. A philosophy of evidence congruent with number 1.

TABLE 1-1 PSYCHOLOGICAL APPROACHES TO INQUIRY

<table>
<thead>
<tr>
<th>System</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Locke</td>
<td>Begin with experience, judgments, basic facts, and inductively derive or predict a more general theory. Heavy weight given to expert judgment.</td>
</tr>
<tr>
<td>Leibnizian</td>
<td>Begin with a basic theory or axioms and deduce general positional truths; collect evidence to validate theory and develop single &quot;best&quot; model for communication to users.</td>
</tr>
<tr>
<td>Kantian</td>
<td>Begin with at least two alternative theories; collect data to verify each theory; present several explicit theorems, with evidence; allow user to choose &quot;best&quot; model.</td>
</tr>
<tr>
<td>Hegelian</td>
<td>Begin with at least two completely antithetical theories; collect a single data set to evaluate all theories. Dialectical confrontation of models in conscious conflict enables user to formulate his own theory or model by creative synthesis.</td>
</tr>
<tr>
<td>Singerian</td>
<td>Continual learning and adaptation; define &quot;wicked&quot; problems in a solvable approximation; combine theory and experience to redefine problem in closer approximation; constantly adjust complexity of inquiry to maximize information.</td>
</tr>
</tbody>
</table>

Source: George B. Weatherby, op. cit., p. 67.

A book on accounting theory must deal with each of these structural characteristics, which will be discussed at length in subsequent chapters.

Important in this process is the distinction between perceps and concepts. Perceps are the objects of perception; concepts are the ideas we form concerning the objects perceived. The confusion of the two is a major logical error, responsible for many of the difficulties which accompany the exposition of accounting theory.

ENDNOTES

1. The expanded version of the AICPA definition put forward by Grady does nothing to remedy these defects. Paul Grady, "Inventory of Generally Accepted Accounting Principles for Business Enterprises," Accounting Research Study No. 7, New York: AICPA, 1965.
8. See Chapter 7.
16. In an address before the NAAA meeting on March 18, 1975.
17. This section summarizes and adapts Chapters 1 and 2 of Research Methodology and Business Decisions by John W. Buckley, Marlene H. Buckley and Hung-Pa Chiang, National Association of Accountants, 1975.
SELECTED ADDITIONAL READINGS

Look up "theory" in reputable dictionaries, encyclopedias and other reference works. Other general references


Works on Research Methodology and Accounting Theory


Richard Mattessich, Accounting and Analytical Methods, Homewood, Ill.: Richard D. Irwin, Inc., 1964, Chas. 1 and 2.