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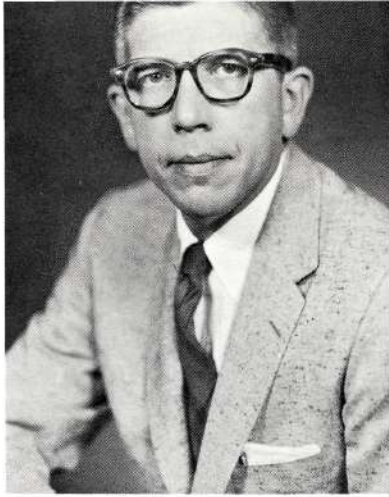


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Mr. Trueblood came to our firm in 1946 after serving as Lieutenant Commander in the U.S. Navy Cost Inspection Services. He received his B.B.A. with distinction at the University of Minnesota and did graduate work at Loyola and Northwestern Universities.

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The New Frontier of Financial Executives

by Robert M. Trueblood

This article is adapted from a paper given by Robert M. Trueblood at a full-day seminar on The New Frontier of Financial Executives at the Management Institute of the University of Wisconsin on October 24, 1962. The entire seminar was organized, developed, and written by H. Justin Davidson.

AS AMERICANS moved westward in the last century, there were always new lands to map out. The people in each tiny colonial outpost carried the cumulative knowledge and certainty of man's experience with them. But, beyond the certainty and knowledge within each outpost, the frontier was all around the brave and forward-looking settlers.

In the United States today, there is no longer a physical frontier. But still there are frontiers for men to explore and to conquer. In the world of ideas, there have always been new frontiers. And in accounting today, as in the great world of ideas, there are ever new frontiers to be surveyed.

And each of us who is a practicing professional must every day consider some of these new frontiers of accounting—the very real challenges that we who are concerned about the future can see looming on the horizon. This is our responsibility, as well as our obligation.

Before we look at the "new frontiers," however, we need to turn to history to help assess the reasons why today, in 1963, we should be pausing to consider very real and very new challenges to the financial function in business. And in turning to the past in order to understand the present, we should think not only of the history of the accounting profession, but of the history of the larger business community of which accounting is a part.

The Past

Looking back over the history of the business community for the past fifty years, we can discern at least two periods of major business change that have significantly involved the accounting profession.

The first important period of innovation came during the early 1900's. For it was in 1914 that Frederick W. Taylor's book, *The Principles of Scientific Management*, first appeared.¹ Taylor, who is often called the

¹ Taylor, Frederick W., *The Principles of Scientific Management*, New York, Harper and Brothers, 1914.

father of modern industrial engineering, began a continuing revolution in methods of industrial management. This was a technological revolution concerned with work measurement, time study, and work planning in industry. But like many other revolutions, Taylor's industrial revolution had some side effects on other aspects of the management process. An indirect, if not direct, effect of his industrial engineering development was an acceleration in the evolution of accounting techniques. It was only after the development of industrial engineering that a widespread use of cost accounting and work budgeting techniques could and did take place. In this sense, Taylor could perhaps be called the father of cost accounting, as well as the inventor of work measurement methodology.

Following the rapid period of progress after Taylor's work in the early 1900's, a long pause in the growth of accounting science intervened. During this period the accounting profession had the opportunity to consolidate—to absorb the impact of Taylor's innovations, to develop and refine new systems of cost accounting, and to find a proper and accepted place for these cost accounting and budgeting techniques within the financial management function.

After this interlude, a second significant period of technological innovation began in the late 1940's. It is this period which we should particularly consider. For technological innovation during this latter time has been even more pronounced than during the early 1900's. Observe some of the technological breakthroughs in scientific management which have occurred since 1940:

1941: For the first time, scientists—perhaps more correctly, scientific methods—were employed to attack managerial problems. Not unexpectedly, the problems approached were problems of military management. Scientists and scientific methods were credited with important contributions to allied victories in World War II. In this process the foundation for an entirely new kind of activity was laid—the application of logical problem-solving techniques to management problems, or *operations research* as it is now called.

1943: Abraham Wald of Columbia University's Statistical Research Group, devised a new method of making decisions based on sample evidence with a minimum amount of effort—a new statistical technique called *acceptance sampling*.

1944: John von Neumann and Oscar Morgenstern pub-

lished a book called the *Theory of Games and Economic Behavior*, a monumental work which has had profound implications for managerial decision-making that are still being explored.²

1946: The ENIAC, the first large-scale digital computer with a stored program, was developed at the University of Pennsylvania.

1947-49: During this period, both the theory and the practical methods used in the *linear programming* technique were developed by Koopmans, Dantzig, Cooper, Charnes, and others.

1951: The theoretical foundations for improved methods of inventory control and production scheduling were laid down in an article entitled *Optimal Inventory Policy*, by Professors Arrow,³ Harris, and Marschak.

The period of innovation which commenced in the early 1900's has run its course. But the era of change which began in the 1940's is still continuing. Information theory, dynamic programming, heuristic programming, new methods and theories of production scheduling (such as PERT), and new statistical techniques (such as Bayesian statistics)—these are only a few of the developments in this more recent managerial revolution. All of these new techniques are being usefully applied by business managements today.

Today's Forces of Change

It is difficult to emphasize too strongly the revolutionary changes taking place in business management today. They have affected, and in the future will continue to affect, the practice of accounting and the financial management function. Today, we face the problem of assessing the impact of these changes on the practice of accounting. Perhaps more important is the opportunity for accountants to shape the impact of the changes on the practice of their profession.

To what extent can and should we integrate these technical innovations into the financial management function? To what extent may accountants be forced to accept and to incorporate some of these changes in practice? What will be their impact on the scope and organization of the financial function? What will be the job of the controller, the treasurer, and the financial vice president in the 1980's?

² Neumann, J. A. and D. Morgenstern, *Theory of Games and Economic Behavior*, Princeton, Princeton University, 1945.

³ Arrow, K. J., Harris and J. Marschak, "Optimal Inventory Policy," *Econometrica*, 1951.

This history and these questions regarding the future make the contemplation of new frontiers meaningful and necessary. Should we be resentful of our past? Should we fear our future? Or should we rather observe the present and adapt and adjust ourselves to the changes which are implied?

The business world and, indeed the whole world, will change greatly over the next quarter century. Edward Teller, the physicist, recently argued that in each century since 1650, man has doubled his knowledge of the world and of mankind. While any such estimate is necessarily rough, it does suggest the enormous accumulation of knowledge that has been taking place over the last three centuries.

Within our own profession, it is estimated that our knowledge of accounting and the accounting process has doubled in the past thirty years. For further evidence of the tremendous forces of change at work in accounting and business today, we need only turn to the computer which today is considered a commonplace thing. Fifteen years ago there were no computers in business.

But, to put the argument for change even more vividly if predictions are right, we will learn as much about accounting in the next century as in all previous history. Accordingly, unless business and business management are to lead a strangely isolated existence, the change over the next twenty-five years will be staggering.

If we accept the certainty of change itself (even though the outcome of this change be uncertain), one conclusion is immediately apparent. Within the daily context of each of our jobs, we must place central importance on increasing our own problem-solving ability and our own ability to keep on learning. In a rapidly changing world, anything we can do to develop flexibility of mind, receptivity to new ideas, and the habit of learning for one's self promises to be of greatest value both to us as individuals and to the society of which we are a part. This argument suggests that the ability to continue to adapt and to learn new analytical skills and techniques is at least as important as learning to do well what is presently the best operating practice. The answers of today are apt to be the dead weight of tomorrow. This is the main conclusion that follows from what we know and what we do not know about the next quarter century.

Beyond this, we do have a good deal of evidence about some specific directions of change:

1. A first trend we can predict is that business management will become steadily more analytical and scientific, and its reliance on personnel hunch and intuition

will steadily decrease. This will mean even more widespread use of computers and sophisticated operations research techniques. Acceptance of a more objective point of view will at least mean the use of a more logical, orderly, problem-solving approach by business management: more careful definition of problems to be solved, increased care in setting forth the important variables to be considered, greater attention to gathering accurate quantitative data bearing on the problem, and deliberate use of formal logical processes in evaluating all the factors involved. In some vague, intuitive way, this is what we must be doing when we reach decisions now. The foreseeable trend is one of bringing problems to the surface, examining them, and effecting a more explicit decision-making process.

2. A second development which can be predicted is that management and administration as such will increasingly become a separate professional job with skills, and perhaps even training, of its own. Management will increasingly become the middleman in the battle of diverse interests within the modern firm, as contrasted with its present position of unchallenged power and sometimes little responsibility. Management will still, of course, continue to make decisions, but even more of its time will go toward getting its plans and policies carried out. And management may well be able to do a more effective job of changing and utilizing organization structure, people, and technology to get specific tasks performed. This will be especially true if anticipated development in the behavioral sciences fulfill their present promise.

3. Along with this move towards professional management, there comes a corollary trend: the increasing replacement of lower and middle management personnel with machines or automated devices. As one of our foremost experts in computers has recently observed, the job of the inventory control clerk is perhaps more susceptible to automation and mechanization than the job of the bulldozer operator. The job of the buyer in the department store, the trust officer in the bank, and many others may be equally vulnerable. In our own profession, we have seen numerous clerical jobs disappear with the increased use of data processing equipment—and the use of computers and new problem-solving techniques has just begun.

4. Another major change which can be envisioned is that business, and with it business managers, will be judged more and more on their performance as responsible citizens. Managers of tomorrow will need to be more socially aware than the manager of today. This

change does not necessarily mean that managers will automatically become more ethical. But tomorrow's managers will be held responsible for a broader knowledge of, and involvement with, the social and economic forces at work in our society. Increasingly, business decisions will be made within parameters set by political and social considerations, as well as by the market place. Already, as a result of episodes such as the recent price-fixing case, responsible business thinkers have insisted that business must move voluntarily in this direction—perhaps at some sacrifice of profits—in order to avoid even harsher sanctions that alternatively might be imposed by the community.

This fourth and last prediction is, of course, a controversial one. It makes a lot of businessmen unhappy. Many insist their job is to make a profit and the public good be damned. Indeed, the most important job of the businessman is to make profits, but he must make profits within a framework accepted by society—a framework that society will enforce through the political process or through moral pressures. The job of both John D. Rockefeller and the present chief executive of U. S. Steel was and is to make profits. But the acceptable behavior of Roger Blough in search of a profit is not the same as that of John D. Rockefeller more than half a century ago. Whether this is good or bad, the fact remains that it is apt to be so.

These predicted changes are certainly not the only changes to come. But they may be some of the most important ones. Now, what about their implications for accounting and accountants?

The Scope of the Accounting Function

The first and perhaps most important implication of these observations is that the future will bring a drastic change in the scope and nature of the accounting function. Unfortunately, there is no clear guarantee in which direction this change will take us. Let's briefly explore, for a moment, the directions in which the accounting function may go.

To make any meaningful prediction about the future course of the accounting profession, we must distinguish two purposes which are commonly subsumed under the general name of accounting. One purpose is, of course, the stewardship or fiduciary function—the development of financial information for reporting to third parties such as stockholders, the government, and many others. The other is the decision-making or managerial function of the accounting process.

The Stewardship Function

Looking to the future of the stewardship phases of professional accounting, it seems clear that, in the foreseeable future, accountants will continue to perform this service. But it also seems likely that this aspect of accounting will expand. If there is increasing social and political pressure for businesses to behave in a public-spirited fashion, there will probably be a corresponding increase in the scope and quantity of business information to be communicated to outside parties. For example, the information requirements of governmental agencies can almost certainly be expected to grow: accounting with regard to cost renegotiation of contracts, setting rates for regulated companies, determining compliance with regulatory statutes, determining the status of funds advanced by the government as loans and grants, to name a few.

Similarly, it would seem that the business of accounting and reporting to other groups can also be expected to increase. Many companies now are beginning to furnish a variety of data to employees, unions, and even the communities in which they are located—in some cases in response to enlightened self-interest, in some cases in response to pressure.

Furthermore, it can be expected that the scope of accounting reports to stockholders may well expand in the future. Furnishing additional material and information, supplementary to the usual balance sheet and income information, may come to be accepted practice in reporting to stockholders. And some day there may even be audit reports on the overall performance of management, supplemental to a reporting on financial results.

In any event, indications are that the stewardship reporting aspect of accounting can be expected to continue to grow in the future. It is probable, however, that the growth and expansion in this area of professional accounting may not be nearly so exciting or so dramatic as growth in other phases of accounting.

The Managerial Function

For the genuinely startling and exciting developments in the accounting future, let's turn to the decision-making or managerial function.

As first described by John Dewey, decision-making, problem-solving, or managing may be viewed as involving a three-stage process aimed at answering these questions:

What is the problem?

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What are the alternatives?

Which alternative is best?⁴

What relevance does this decision-making process have to accounting?

The tie between the accounting process and the decision-making process is basically one of information. In its broadest and most fruitful sense, accounting is an information or data-providing function. Information of one kind or another is required at each stage of the problem-solving process.

Consider, for example, the first stage of the problem-solving process. *What is the problem?* A standard cost system is an information system designed to answer this kind of question in a specific, although limited, area. One of the uses of a favorable or unfavorable variance generated by a standard cost system is simply to tell management that it has a problem, a decision to make. A standard cost system doesn't define the alternatives—that requires investigation of the reasons for variance—nor does it tell which alternative is best. The standard cost system is an information device to indicate *when* there is a problem.

As a further indication of the information link between accounting and decision-making, consider the third stage of the decision-making process. Choice of the *best alternative* requires criteria against which to judge various possibilities. Choice requires information concerning the various alternatives, information cast in a form consistent with the criteria. For example, the choice of investment alternatives may be judged against a rate-of-return criterion. Thus, information about the alternatives must be provided in rate-of-return form. Here, accounting in the information-providing sense is clearly linked to the decision-making process.

Without pursuing the point further, it is evident that accounting for decision-making, or managerial accounting, is best described as an information-providing function where the word "information" is construed in its broadest possible sense. It is important, too, that managerial accounting in this sense encompasses much more depth and breadth than many have traditionally tended to include in managerial accounting.

Defining managerial accounting in this information-producing sense, let's turn to the implications of some current developments. It would seem that change,

⁴ Dewey, John, *How We Think*, Heath & Co., Boston, Mass., 2nd Edition, 1933, p. 120.

radical change, in current practices and procedures follows immediately. Business managements using operations research techniques have demands for new kinds of information which have not generally been generated by conventional accounting systems. In electronic data processing, there is an entirely new information-processing and communication technology which is making possible information transmission and manipulation that has never before been explored. In the behavioral sciences, new developments in organization theory may drastically change current concepts of what the proper content of, and channels for, information flows should be—with direct and indirect repercussions on people, organizational structure, and job performance.

All of these underlying forces are at work to produce a change in present concepts of managerial accounting. The end result will be a much broader, deeper, and more comprehensive accounting and information function within the progressive business of tomorrow. It should be emphasized that within the near future, these concepts *will* be placed into practice. Accounting within the firm will concern itself more with integrating information flows and decision requirements. Information flows will be more closely tied into the decisions which are to be made. Information flows to decision points will be more accurate and timely—whether the decision point be a man, a machine, a department, or the board of directors.

These changes in accounting information will not be restricted only to medium and large firms. The same changes will come to the small, as well as to the medium or large. Even now, the use of fairly sophisticated data processing techniques, previously thought to be impractical, is becoming more and more common in the small firm.⁵

The Organizational Structure Within Businesses

Another implication of the several predicted trends of the future concerns the structure of accounting within the firm. We have argued that the future will bring a tremendous change in the scope and nature of the accounting function itself. This change in scope must necessarily affect the organizational structure of the accounting function in business. But here, it is far from clear what the end result may be. One possible change is a downgrading in importance of the people who have

⁵ A good index of the speed with which these changes are coming may be the cost of computer systems. The first computer was developed in 1946. In 1963, with improved technology and lowered cost, many small businesses must already seriously consider the use of a computer.

performed the traditional accounting service, with the duties required under a new and broadened accounting-information concept being assumed by other professionally trained people. For example, many of the data processing and operations research specialists claim that accountants are not competent to perform the new, broader information-control functions required, and that accountants should be replaced by more qualified personnel. Indeed, in some firms, these assertions have proved true. In some instances, the controller and financial vice president have *not* been entrusted with administration of either the data processing or operations research functions. In some few firms, persons trained primarily in data processing or other new techniques have assumed responsibility for the information-providing process.

In general, this possibility that the role of the financial executive will be downgraded is to be rejected. But the possibility can be rejected only on the basis of one premise—the premise that accounting and accountants will assume the responsibility of keeping abreast of new developments, and that they will assume the attendant obligation to integrate these new developments effectively with the large body of skills and specialized knowledge they presently possess.

To summarize the effect of new developments on accounting organizations, it is not at all clear whether a new class of professionals will integrate and subsume the present accounting function or whether, ideally, accounting will subsume these other developments. What is fairly obvious is that the controller or information executive of the future will be responsible for a much wider range of duties and will assume a deeper involvement in all information systems within the firm. The time may hopefully come when a controller will be thought of in terms of an information controller, rather than an accounting controller.

Accounting Education for Tomorrow

A final and most important implication of these several predicted changes can be mentioned only briefly. This is the implication for accounting education. If evaluations of the future of accounting are correct, should there not be a major re-evaluation of the kinds of accounting that are being taught in many of our colleges and universities? From several recent foundation reports, from accountants in management, and from the profession itself—there has come the suggestion that current accounting training is too much oriented toward traditional financial accounting, and not suffi-

ciently oriented toward the managerial point of view. The point has also been made that accounting curricula too often reflect little awareness of new developments in other fields of knowledge which affect the accounting process, and that accounting curricula often neglect the liberal arts point of view which aims at providing a well-rounded understanding of the business world and the social environment in which we live.

If all these charges are true, as in many cases they seem to be, then it follows that we in the accounting profession have an obligation to help bring about some of the needed changes—changes such as providing a strong focus on the use of data in making business decisions, and in establishing suitable decision-making processes for business organizations. We need to teach our future accounting leaders to deal effectively with the following kinds of questions:

What kind of data do we need?

Where do we get the data?

How do we manipulate these data to make them useful?

How do we use the data, and what are the effects of the data upon the organization?

This kind of educational approach *providing a stronger emphasis on management uses of accounting information* is a basic requirement if we are to develop leaders for a broadened managerial accounting function of the future.

The frontier is about us. We must each be more aware of it and the challenge it offers—the challenge that accounting practice of today must move ahead, with new thinking. In the past, the accounting function has been a principal source of information flows within a business. If it will, the accounting function of the future will assume an expanded responsibility for information flows. Accounting has an obligation and an opportunity to take a significant part in the development of new quantitative information systems.

As a part of healthful future developments, accounting must partly detach itself from its historical preoccupation with the fiduciary and stewardship responsibilities. Responsibility for fiduciary decisions is a proper and major concern of the accountant. But if the accountant of the future is to comprehend and contribute to the decision-making, information-flow processes within tomorrow's business organizations, he must integrate his stewardship responsibility with a responsibility for the broad, fertile, productive, and profitable advances in the decision-making process.