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The Government Manager in 2000 A.D.

By Elmer B. Staats
Comptroller General of the United States

The following address was made on August 22, 1967, by Mr. Staats at the dedication of the Manager Learning Center, the American Foundation for Management Research, in Hamilton, N.Y.

The theme of this dedication ceremony is timely and appropriate.

It comes by coincidence at almost the midway point between the depression of the 1930's and the turn toward a new century.

Who is there that has the perspective to forecast the problems facing the Government manager 33 years from today?

Viewed in retrospect of an equal period of the past, who in or out of Government could then have foreseen that

—Nearly 400,000 people would be engaged in a program with its primary objective a manned lunar landing?

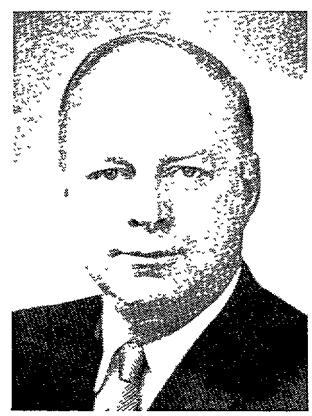
—Primary strategic weaponry would be the intercontinental ballistic missile?

—Several billion dollars would be committed to provide for a supersonic civilian transport?

—Social Security and Medicare would have been extended to virtually all of our citizens?

—Per capita income—influenced heavily by governmental policies and programs—would have increased from $362 to $2,317.

While the 33 years to the year 2000 may or may not bring equally dramatic and unforeseen roles for Government, it is imperative that a Government manager understand the basic



Elmer B. Staats, Comptroller General of the United States

forces which will determine the problems which he will face in the years ahead. And we may be sure that all Government managers will face more problems than they have at any time in the American past.

People may differ as to the variables which will determine the role of and the problems facing the Government manager in the years ahead, but perhaps could agree on the following:

—A rapidly growing population, increasingly urban in character.

—Continued changes in the pattern of family life, with a weakened role of the family unit.

—Rising expectations which grow from an ever-increasing standard of living where expressed needs will continue to outdistance resources and capabilities to meet them.

—An increase in the reliance on the National Government for financing and leadership of other governmental programs, with accompanying profound effects upon our Federal system of Government.

—A highly intensified struggle to develop and preserve our natural resources and our natural environment which will require additional constraints on exploitation and increased emphasis on scientific research.

—A further blurring of the lines between what is considered "public" and what is considered "private" in our national economy.

—And, underlying all of these, the pervasive and unpredictable effect of a rapidly changing industrial technology.

A full discussion of all of these factors is beyond the scope of this presentation. But let me discuss three which now appear to be central to the problems of Government management in the years ahead.

* * * * *

GROWTH AND URBANIZATION OF UNITED STATES POPULATION

Toward the close of Thomas Jefferson's life—1825—about 10 percent of our people lived in cities and towns. In 1960 some 70 percent of the population lived in cities and towns—on 1 percent of the land area. The remaining 30 percent lived on 99 percent of the land. By 2000 A.D. 90 percent of the American people will live in urban areas on less than 2 percent of the land, excluding Alaska. One out of ten Americans will live in 19 States containing half our total land, again excluding Alaska. Much of the Nation will still be relatively open area.

During the past 30 years perhaps the central forces affecting governmental programs have been these dramatic increases and location shifts of our population. The chief effect of these changes has been the necessity to adjust to mass living in large urban areas. In 1935 the population of the United States was approximately 127 million. We are right now on the point of becoming a Nation of 200 million people. In the year 2000—if present trends continue—we may have a population of more than 340 million. The economic and social consequences of our population growth will multiply by geometric progression our responsibilities for providing food and shel-

ter and complicate daily requirements to maintain law and order.

No knowledgeable person should assume that the population of the United States *must* grow to such proportions, but what numbers will it actually reach? Where will the people of the future live? What will be their makeup by race, by education, by residence—in and outside central cities or metropolitan areas? Will the future evolve without the problems which we currently associate with the mass migration to the large cities? Or will the slowing of growth—that must come sooner or later—be brought on by pressures generated by the growth itself?

The rapid growth of metropolitan areas on the one hand and the depopulation of the rural areas on the other have brought problems in the wake of both developments.

The Rise of Megalopolises

There will be heavy concentrations of people on the Atlantic and Pacific coasts within 50 to 100 miles of the oceans. The population of the Atlantic seaboard today from Boston through Washington is upwards of 27 million. Bureau of the Census projections show an increase to over 60 million along this 400-mile strip by 1990. An equally massive metropolitan area is foreseen for the 200-mile Pacific coast zone from Santa Barbara to Los Angeles to San Diego and the Mexican Border.

Herman Kahn, a member of the Commission of the Year 2000 of the American Academy of Arts and Sciences, predicts that by the year 2000 there will be at least three megalopolises in the United States.

> We have labeled these, only half frivolously—he writes—"Boswash," "Chipitts," and "Sansan." Boswash identified the megalopolis that will extend from Washington to Boston and contain almost one-quarter of the American people . . . . Chipitts, centered around the Great Lakes, may stretch from Chicago to Pittsburgh and north to Canada—thereby including Detroit, Toledo, Cleveland, Akron, Buffalo, and Rochester. This megalopolis seems likely to contain more than one-eighth of the U.S. population . . . . Sansan, a Pacific megalopolis that will presumably stretch from Santa Barbara . . . to San Diego, should contain more than one-sixteenth of the population.

Mr. Kahn foresees that these three megalopolises will contain "roughly one-half" of the total United States population, including the overwhelming majority of the most technologically and scientifically advanced, and prosperous and creative elements. Even Sansan, he notes, will have a larger total income than all but five or six nations.

The Decline of the Counties

Half of the counties of the Nation declined in population from 1950 to 1960. But perhaps a more incisive index of metropolitan concentration is the proportion of total national increase that occurred in the metropolitan counties. More than four-fifths of the increase from 1950 to 1960 was in these areas. And the rate of increase for the Negro population in the last three decades has been twice that for the non-Negro population.

Associated with this increase has been the dispersion of population within the central city itself. In the 20 years from 1900 to 1920 the metropolitan population increased 65 percent—75 percent in the central city, 40 percent outside. In the 20 years

from 1940 to 1960 the metropolitan population increased 55 percent—27 percent inside the central city, 102 percent outside.

Accompanying, and contributing to, the expansion in population and urbanization have been spectacular increases in production—on the farm and in the factory, in transportation and communication, and in health and recreation. We have contrived to produce the products required to meet the needs of our society through the skillful application of resources and inventions and through the liberal use of the raw materials of the world. Today 5 percent of our people grow more than enough food for all the rest.

But to fully understand the portent of these trends, we must go deeper. The recent tragic events in our large cities—although not fully understood—have revealed certain basic points. These are that, in spite of overall high rates of employment, there have existed in our cities for a generation a group—and some would call it a class—of citizens who have never been fully a part of society as most of us understand it. Here are some of the indications:

Increase in welfare dependency. Approximately 6 out of every 10 Negro youths reaching 18 have at some time been supported by the Federal Aid to Dependent Children program.

Increase in certain types of crime. For the crimes of burglary, larceny and auto theft, the Negro crime rate increased 33 percent between 1960 and 1965. The rates for non-Negro also increased, but not as much.

Missing males in the census count. At least 3 years ago we began to realize that the number of Negro males enumerated in the 1960 census was far fewer than it should have been. We now know that altogether the census count missed 10 percent of the Negro population, with a much higher loss rate in young adult males. Something like one male in six had, in effect, simply dropped out of organized society.

Educational failure. For 5 years or more, we have known that Negro children were doing poorly in school, even in those schools that would have to be described as quite good. For some time we have known the net results: until recently, about 56 percent of Negro youths called up for the selective service examination have been failing the mental test, a sixth-grade examination.

Deterioration of family structure in low-income neighborhoods. Probably not more than a third of the children of low-income Negro families now reach 18 having lived all their life with both their parents. Nearly one-third of the Detroit area Negroes under 18 live in broken homes.

For these people, the overall projections of expected increases in goods and services, better education, urban renewal, better health, and improved science and technology offer little comfort. Ways must be developed, indeed urgently developed, to provide the substitute for the discipline of the family unit which has played such an important role in our Nation's history. In large part, it will come to rest as a problem for the Government and the Government manager.

"CREATIVE FEDERALISM"—A GROWING PROBLEM FOR THE GOVERNMENT MANAGER

Ten years ago Federal financial assistance to State and local governments amounted to $4 billion a year; 5 years ago it amounted to $8 billion. It is now running at about $15 billion a year and may top $17 billion in fiscal 1968. It is expected to rise to about $60 billion a year by 1975.

It is estimated that Federal aid will constitute approximately 17 percent of the revenue of State and local governments by 1968.

Estimates of the number of Federal-aid programs differ. The figure most frequently cited is 170; another estimate puts the number at 220. These programs are financed through 400 or more separate appropriations, administered by 21 Federal agencies through 150 major Washington bureaus and over 400 field offices.

Programs are carried on in each of the 50 States. Nearly 92,000 units of local government, each with its own taxing, planning, financing, and operating authorities, are eligible for grants-in-aid under one or more Federal programs.

This seemingly endless number and variety of programs has created perplexing problems. For example, funds for job recruiting can be obtained from 9 manpower program sources, for adult basic education from 10, for prevocational training and skill training from 10, and for work experience from 5. On-the-job training can be financed under 5 programs; income maintenance is available under 9 programs. Eligibility rules, application procedures, allocation formulas, expiration dates, and contracting arrangements vary.

Take the case of a city which wanted to build a riverfront park. It found money available under four different Federal programs—the open-space program, the outdoor-recreation program, the beautification program, and the parks-development program. Even after making the choice that appeared to offer an advantage, the city was still uncertain as to whether it might have made a better choice.

The Quality of Government

Unsophisticated managers at the local level frequently do not have sufficiently skilled staff to tackle the maze of differing—sometimes inconsistent—regulations, planning prerequisites, financial matching ratios, reporting requirements, and statistical standards.

This system of seemingly arbitrary organizational patterns and differing legal requirements meshed with local organizations led the President to send a long message to the Congress recently on "the quality of American Government." The President took note of the need to "strengthen the Federal system through greater communication, consolidation, consistency, and coordination * * * to improve the quality of Government itself—its machinery, its manpower, its methods."

One proposal to make the Federal system more responsive to national needs is to return part of the Federal tax revenues to State and local governments with few or no strings attached. Support for this idea is generated by the argument that the Federal Government, through its taxing

power, is impairing the capacity of States to raise enough money to take care of their own needs.

The concept of tax sharing is simple but its application would certainly be highly complex.

Even so, an average of one of every five Members of Congress has sponsored or cosponsored a bill to provide some form of tax sharing. Most of the bills propose a formula under which a percentage of the preceding year's Federal personal income tax revenue would be set aside for tax sharing.

THE SCIENTIFIC REVOLUTION—ITS IMPLICATIONS FOR THE GOVERNMENT MANAGER

Last year we initiated Medicare in the United States. It coincided with the 100th anniversary of the discovery of antisepsis in surgery. In 1865 Lord Lister, inspired in part by earlier research of Louis Pasteur, demonstrated that carbolic acid could be used to free surgical patients from bacteria.

Much of the society we know today is a product of the scientific revolution which is in full tide over much of the world: modern communications, nuclear power, medical care, increased production of food, and a seemingly limitless number of additional achievements.

In the United States both the number and proportion of professional manpower made up of scientists, engineers, and technicians is larger than ever before. In 1960 they numbered nearly 2 million; by 1970, they will number 4 million, or more. In 1950, the Federal budget for research and development was approximately $1¼ billion. In 1967, this had risen to nearly $16 billion—nearly two-thirds of the national expenditures from all sources.

But these figures do not tell the whole story.

Without the genius and resources for application, without vigorous and imaginative exploitation of opportunities that scientific insights offered, and without the resolution to apply them to society's purposes, the application of these resources would not have borne fruit.

This is the role of the governmental manager of the future. It is his job to use his imagination to the limit to assure that the benefits of nuclear energy for the civilian economy will not be lost. that the byproducts of the space program will be translated into useful application in other areas, and that patents developed in connection with Government contracts will be wholly and freely available to the private economy.

It is the role of the scientist and engineer to discover and develop; it is the role of the manager—be he scientist or engineer, or not—to understand the implications of these developments for both public and private benefit.

That is the challenge, as Dr. Jerome B. Weisner, former Science Advisor to the President, said recently. In his words:

> Although most of us appreciate the individual creations of science for what they permit us to do, we do not fully comprehend the fundamental change that the scientific revolution has brought about . . . . Our only hope lies in understanding the forces at work, and then trying to guide the evolutionary process more to our liking.

Dr. Weisner went on to say, in words singularly appropriate to this occasion:

> We have seriously unbalanced the learning machine that is our society, and the human aspects of life have not received their share of attention . . . . The fact of the matter is that, until recently, we have not realized the need to grapple with these social problems.

If I were asked—what is the central aspect of concern to managers, whether of business, government and educational institutions, or social programs, today—I would say it is the change in the scale of movements and the sweep of events. This change of scale goes right across the board: from the pace of increase of new inventions, to population growth to communications to weaponry.

For the Government manager, this change in scale means that everything tends to be pushed to Washington faster and faster in bigger and bigger brief cases.

What Kind of Governmental Manager for the Future

All this means that Government cannot avoid the influence of crisis in most of its affairs—regardless of whether crisis is immediate or merely potential. It need not be a case of either war or acute economic depression, although this is the way we normally think of crisis. For example:

—So fragile is the texture of peace that the combined forces of Asiatic and African nationalism or the assimilation of nuclear weapons into the status of conventional arms could lead to catastrophic results.

—So sensitive is our economic mechanism that even mild dynamics in the international dollar balance or in the domestic demand-supply relationship can precipitate acute stresses.

—So rapid is the world's rate of population growth that the extreme contrasts between the "have" and "have-not" societies can generate dangerous coalitions of political unrest and adventure.

—So intense are our domestic problems of urbanization, education, transportation, aging, and shortages of some types of manpower, that we cannot indefinitely make these priorities wait simply because the budget is saddled so heavily with programs that were meant to deal with yesterday's priorities. For today individuals and groups demand action. They refuse to sit and accept their fate.

Our future will turn on reassessing and redefining national priorities.

The manager will increasingly live in an economy of priorities and of agonizing choices between public purposes and private preferences. Unless some step is taken toward the achievement of a national consensus as to our paramount purposes and goals—unless some great revision comes to pass in the present distribution of revenue sources among Federal, State, and local governments—the crisis of priorities will be one of the deepest tests of our policy machinery. As such it will inevitably involve the Government manager.

In planning for the future, the manager will have the advantage of—and must know the values of the use of—the newer technique most

frequently called "systems analysis" or "systems planning" which uses "cost effectiveness" as a major ingredient. By so doing, the decision-maker will have clearer ideas of choices open and ways of measuring results against planned objectives.

Qualities Government Managers Will Need

These are but a few random evidences of present and prospective crisis. What does it signify for the kind of Government manager needed in the future? Fundamentally it calls for the cultivation of a new attitude of mind which puts a higher and consistent value on what might be termed "anticipation." To do this, we must create within ourselves the desire to find time in our schedule to think. Tomorrow's executive must not only capably handle the traffic of administration, but also see to it that his policy machinery stays several lengths in front of next year's problems.

Granted that Government will from time to time have no escape from the improvised solution in a given set of circumstances, it simply will not do to fall back consistently upon makeshift answers to deep and pervading problems. The crash program is usually a palliative, both expensive and wasteful of talent and resources. It seldom turns out to the credit of those who launched it. What we want are answers without excessive reliance on the panic button. There is a difference between crisis Government and crisis administration.

The Government manager of the future must have the qualities of restlessness, of research, of dissatisfaction. This is where administration both supplies and finds its drive, and where it makes its contribution to the everlasting process of perfecting the imperfect structure of compromises that we call modern society.

The issue is really the rate at which this incremental process will go on; or how strong the vein of creativity will be in this group we choose to call "management."

If not every manager has it in him to be creative, he still has the opportunity to spread the contagion of leadership down and through the organization so that the environment encourages creativity among those who have the potential. This means less reliance on scripture-writing, and less emphasis on manuals of procedure, on dogmas of system and method, on fetish for hairsplitting in rubrics of budgeting, personnel management, and methodology, without losing the contributions of these essential disciplines.

If creativity means anything, we have to send our minds beyond the things about which we already feel certain. We have to unleash our notions, our curiosity, our instincts to experiment. It means that we have to break out of the mental environment. We have to find out what the other fellow is thinking about and why he's thinking about it. It means rediscovering the fact that there is a convergence somewhere along the line between and among every thread of public policy—between science and foreign relations, between housing and health, between transportation and defense, between budgeting and economics.

Contracts, Grants, Regional Compacts

The manager of the future will find himself carrying out more and more public policy through contracts, grants, regional compacts, institutes, foundations, and self-contained business-type enterprises which will make management at one and the same time both possible and difficult. The line between public administration and private participation will be less clear than ever, while the hybrid will flourish. And it is here that the manager will have his work cut out for him—in maintaining the essential responsibility that belongs with Government, in understanding the fine difference between supervision and interference, and in judging how well the ends of public policy are being served.

It is doubtful that the Government executive of the future can be grown and trained exclusively in the career civil service. He will have to have some firsthand experience with unfamiliar environments: the university environment, the regional environment, the business and research environment. We will have to develop an exchange of persons between Government and these allied communities, through reciprocal internships and residencies. From this there is no escape.

Still another determinant with which we must cope in the coming years is the growing appetite for data—the passion for facts, for information, for probability. This is inevitable as a society draws closer together, as public purposes fuse, as the public and private economies meld, as decisionmaking takes place in a continuum. In this process, the nature of Government will resemble less and less the analogy of the laboratory and more and more that of the pharmacy, since the medicines we will use must increasingly depend upon accurate prescription.

We will discover, I believe, that law and administration will necessarily seek a precision that they lack today. And this will require an understanding of the dynamics of both society and technology that, as I mentioned, we now do not have. Today we seem to be investigating technology to a degree that far outstrips our organized curiosity about society. The collection of refined data, its tabulation, its analysis and reanalysis, and its interpretation will be one of Government's major occupations, a situation to which we will be driven if we do not seek it voluntarily. And the reason is that Government is the only unselfish convenience we have for conducting such an enterprise.

Perhaps the most important and the least understood development in the new technology is the revolution in information, the continuing increases in speed, capacity, and versatility of big computers and long-distance communication facilities, the rapidly proliferating uses of electronic storage, retrieval, and processing of information. The big computers will soon be joined together in nationwide and even worldwide networks, and before very long they will have outlets in every office and home. This could result in the elimination of books and banks, the disappearance of printers and stenographers, and a revolution in newspapers—as television programs have already shown us.

The manager of the future must have a comprehension of the values and limitations inherent in the use of data, the art of timing in its collection, the process of designing the structure of investigation, the ethics of reporting and disclosure, and the fine judgment that interprets the significance of the information and applies it to policymaking.

The Meaning of Science and Technology

The manager of the future must grasp the meaning of science and technology in the relations between Government and all the rest of society. World wars may have produced the environment which gave science and technology the spark they were waiting for; science and politics, national and international, now go together and neither can function without the other. That is the central fact of our time, and it can only have one meaning for the future.

The manager of the future must realize that science and technology will continue their penetration of every facet of public policy and public management. For the executive, this means that we must close the gap between the two cultures, as C. P. Snow describes them—the scientific and the humanistic. We can no more leave science to the scientists than we can leave government to the politicians. We must comprehend the scientific environment, we must find ways to make science and public policy compatible, not merely as to national purpose, but particularly as to a working compatibility.

The problems of administration are surely destined to require this kind of understanding of science and technology. How else shall we make a contribution in the difficult fields of weapons control and disarmament, in problems of eliminating air and water pollution, in harnessing our energy sources for both human and industrial needs, in understanding the requirements of education and vocational motivation, in meeting the requirements of an exploding population at home and abroad, in providing the rising nations of the world with gifts of technology—since our material resources will not be sufficient to share with them?

No problem is more directly related to the future of our democratic society than the problem of attracting the best talent for public service. While a democratic society's government is not expected to have a monopoly of the most able people produced by the society, neither can it afford to provide for the public service an iota less than its full share of the talent available. The reason has been succinctly stated by the late Clarence B. Randall:

> The ultimate effectiveness of our governmental process, whether in Washington, or in the State capitals, or in the city halls, rests squarely upon the quality of the career officers, the permanent civil service.

In the past, the consequences of an average or below par public service have not been nearly as serious as they are now. As the role of government grows, and as the decisions of public officials at all levels of government have a more and more direct effect both on our daily affairs and on our prospects for the future, the quality of our public service has become a

major public concern. In the words of Mr. Randall:

> Today, as never before, the administration of our government calls for excellence in leadership. We need thoroughly competent executives, acquainted with the most modern techniques in managing large enterprises, from cost accounting to good human relations, from sound staff work to automatic data processing. We need scientists in our race for preeminence in all fields of research. Above all we need a continuing source of replenishment of this talent.

Importance of Staff Training and Development

We in the General Accounting Office, for example, recognize the importance of training and staff development. We have provided a full academic year of special or advanced training at the university level or its equivalent for about 100 of our people in the past 6 years. We are giving particular attention to the adaption of the computer to government planning and programing, systems analysis, and cost-effectiveness.

I would emphasize particularly in staff development work the need to focus on the initiative shown on the part of each individual. Without this no training investment is worth the cost. An individual's own efforts and interest (aside from his ability) must be the primary test as to whether the training program can be justified.

Conclusion

The meaning of what I have been trying to say is nowhere better expressed than by the Secretary of Health, Education, and Welfare, Mr. John W. Gardner. Here are his words from a commencement address this year:

> We now know beyond all doubt that nations die from within, and they are attacked less often by traitors within the gate than by traitors within the heart—complacency, apathy, cynicism, intolerance, self-deception, and an unwillingness on the part of the individual to lend himself to any worthy common purpose.

H. G. Wells wrote in 1906 that Americans were addicted to "a sort of optimistic fatalism." He was saying that Americans looked upon difficulties and challenges as opportunities and not as obstacles.

This healthy philosophy is in sharp contrast to statements heard too frequently today. One nuclear physicist recently defined an optimist as "someone who still believes the future is uncertain."

The responsible citizen is one who is willing to admit that he does not comprehend the future in this dangerous era, yet he knows he is called upon to deal with and solve what he may not fully understand. We can join, perhaps, with Charles Dickens in his more balanced, although seemingly paradoxical opening lines of A Tale of Two Cities:

> It was the best of times, it was the worst of times; it was the age of wisdom, it was the age of foolishness; it was the epoch of belief, it was the epoch of incredulity; it was the season of light, it was the season of darkness; it was the spring of hope, it was the winter of despair.

More apropos is a statement in a recent article by Elting Morison in the New York Times Magazine:

> How to give individual men the evidence they need to make sensible judgments about the kind of world they want to live in and how to give them the power to make their judgments stick, that is the unfinished business of the next third of the century.

This statement applies particularly to the governmental manager of the future.

Trends in Auditing Management Plans and Operations

By William L. Campfield

This article, originally published in the *Journal of Accountancy* for July 1967, develops the case for management auditing in private business enterprises. It discusses audit concepts which are also directly pertinent to the broadening scope of GAO audits of Federal agencies.

Auditing has been considered for decades to be an indispensable adjunct of the American way of doing business. In the traditional view, an auditor in attesting to some economic representation or fact is serving as an instrumentality by which interested parties (outsiders) obtain an objective, knowledgeable opinion regarding the status and fairness of financial data of one or more enterprises.

However, in recent years auditors have persuaded themselves and many enterprise managements that the auditor is destined for wider horizons than mere attestation to recorded historical information. The point has been advanced often that the skilled professional auditor has acquired knowledge and experience vis-à-vis a wide and diversified range of economic activities and business viewpoints. Hence, so the argument goes, the auditor should be the principal adviser to management in its effort to control the planning, performance and evaluation devices of the enterprise.

All of this sounds good, indeed. But, there are problems of potential conflict and compromise of independence when the auditor attempts to serve both as adviser and attestor. Also, there are grave questions of

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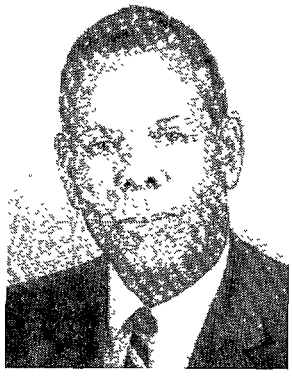

whether an enterprise receives *quid pro quo* when the auditor undertakes to render services pertaining to non-accounting matters. In these circumstances, can a case be made for "management auditing"? The balance of this article is a search for an answer through examining the rationale of management auditing, exploring some examples of its application, and offering some modest proposals and predictions of the future directions of the art. It is not deemed germane to the main thesis of this article to differentiate the respective and coordinating roles of public accountants and internal auditors in the performance of management advisory services or management auditing.[1]

A RATIONALE FOR MANAGEMENT-ORIENTED AUDITING

The need for the management audit arises out of management's needing people who are capable of independent analysis, of comprehending and contributing to the totality of plans and operations with which a management must deal. Control is the key attribute in the management process. Since external auditors have been widely recognized as experts on controls, they have claimed a leading spot for themselves as advisers to management. This expertise, especially regarding functional area interrelationships, is purported by the auditor to be of significant aid to management in identifying control areas requiring attention and in establishing better information flow between responsibility centers.

What Management Audit Means

Let us first inquire briefly into the meaning of management auditing and its relation to the traditional brand of financial auditing. The term operational auditing is used quite frequently to cover what is here termed management auditing.

Bradford Cadmus, former longtime Director of Research, Institute of Internal Auditors, referred to operational auditing as being characterized more by the state of mind of the auditor than by distinctive methods.[2] Another meaning is advanced by Neil Churchill and Richard Cyert when they define management audit as an audit "which results in a statement of opinion by a CPA with regard to the performance of the management function."[3]

A conceptualization of management audit is preferable to a strict definition. Management auditing, for purposes of this article, is an informed and constructive analysis, evaluation, and series of recommendations regarding the broad spectrum of plans, processes, people and problems of an economic entity. This extension of management controls, regardless of whether the auditor or someone else is the performer, is achieved through the threefold approach summarized below:

1. *Studying the prescribed organization*—reviewing formal organization structure, personal

[1] Those interested in these matters may refer to an article by the present writer, "Reciprocal Responsibilities of External and Internal Auditors—A Need for Closer Coordination," *The Illinois CPA*, Spring 1966, pp. 1-6.

[2] Bradford Cadmus, *Operational Auditing Handbook*, The Institute of Internal Auditors, New York, 1964, p. 51.

[3] Neil C. Churchill and Richard M. Cyert, "An Experiment in Management Auditing," JofA, February 1966, p. 39.

interrelationships, policies, procedures, information systems and flows, and decision centers in order to determine what management has established as optimum arrangements for running an entity.

2. *Evaluating the "live entity"*—determining such problems as what operating people are really trying to accomplish, the schedules and routines they have established to attain objectives. and a measure of the results achieved in the light of predetermined goals and standards of performance.
3. *Searching for profit inhibitors*—uncovering poor organizational structuring and responsibility assignment; breakdowns in operations, programing and work flow; inadequate or ineffective communications, evaluations and measurements; and disclosing results that fall significantly below established standards.

Now that we have a general concept of management auditing, we need to inquire about its relation to financial auditing and also to find a tentative means of preserving the integrity of the external auditor's attest function. The financial audit is the point of entry and the safety valve for all management assistance explorations. Robert Seiler advises the auditor to always maintain a lifeline back to financial auditing.[4]

Two factors commend the "lifeline" theory: (1) Most business activities of any significance will be expressed in accounting type transaction or pre-transaction records. Examples of the latter are various budgets and their supporting population and other statistical data. (2) The financial audit has a long-established historical acceptance, and other forms of auditing can be easily sold as an extension of financial auditing.

Many contend that financial auditing is a necessary but limited part of the auditor's services to management. They further point out that management is a matter of coordinating the totality of an enterprise, not just its financial management aspects. The auditor is knowledgeable and experienced over a wide range of management perspectives and controls. Hence (so the rationalization goes), he should offer his services as auditor to the whole of management, not just to the financial side. Regardless of how stated, the big selling point of management auditing is that it is a means of identifying and helping management find ways of reducing costs and achieving profits. Profits lie at the end of a long and effectively linked chain of interrelated activities and events. The auditor who purports to make substantial contributions to the earning of profits must involve himself in the totality of enterprise events. He cannot be contented with just fragmented financial events and transactions.

The Status of the Financial Statement Opinion

This brings us to the question of maintaining the integrity of the opinion prepared for the benefit of third parties.

[4] Robert E. Seiler, "The Operational Audit—An Extension of Management Controls," *The Internal Auditor*, March 1959, p. 10.

Can an auditor assist management in establishing and monitoring controls and systems throughout an entity, and then dispassionately express an opinion on the financial statements prepared by that management? A literal answer would be *no*—if we consider only the fact that the auditor has been involved in the systems or controls underlying the financial statements.

On the other hand, we are reminded that the auditor, whether an independent contractor or internal auditor, maintains a relatively high degree of independence or detachment in programing, examining and reporting on the areas of an entity for which he renders a professional judgment. *De facto* participation in management controls should not alone serve to impugn the objectivity of the auditor in expressing an opinion on financial statements. The auditor should maintain personal and professional integrity throughout the continuous examination of the whole enterprise fabric. If he does, his opinion regarding the fairness of financial statements should be justifiably drawn from that objective evaluation of the enterprise control system taken as an integrated whole.

In short, the auditor's opinion or attestation on periodic financial statements needs to be viewed more as just one part of a continuum of professional opinions and assistance regarding the dynamic enterprise rather than as an expression about a set of static data.

Now let us turn our attention to some examples and problems in applying management auditing.

EXPLORATION OF EXAMPLES, PROBLEMS AND SOLUTIONS

A "Thinking-Like-Management" Posture

The abundant literature leads one to believe that the successful practice of management auditing turns on a "thinking-like-management" posture by the auditor. Thus the process of examining the managerial control fabric begins with an attitude of trying to get an *overall picture* of the administrative habits and processes of the entity being examined. This approach permits the auditor to place symptoms and potential troubles into proper perspective. That is, he will identify them as due either to ineffective top management planning or communicating, or as deficiencies by lower echelons in implementing top management policies.

Since all enterprise activity is meaningful and profitable in relation to the goals and strategy adopted by management, we should examine the service to management input by auditors in these areas.

Auditor and Policies

First, the auditor might be useful in synthesizing accounting, economic, and other data which management would need in constructing its basic policy framework. Such data, for example, might deal with prospective demand for products or services of the whole industry, or they might pertain to key sources of supply or be pro forma estimates of the firm's relative standing with respect to share of markets, cost position or competitive strength within the industry.

Auditor and Plans

Second, the auditor could assist in establishing and reviewing the entity planning system. The most important reason for planning is to be in position to profit from current and potential technological, political, and social changes. To take advantage of today's rapid changes, an entity needs flexible planning in the manner adopted by the military. These are long-term strategic plans together with the alternative actions and tactics needed to meet relevant short-range developments. The auditor can help management establish an orderly system, can assist in allocation of responsibility for planning, can review the progress of the plans and can make evaluation for effectiveness.

Auditor and Decisionmaking

Finally, the auditor could help management in goal-setting and strategy by developing or refining the actual decisionmaking process. This takes careful thought and analysis, especially in an era where there is a high incidence of "decisions by formula." The auditor can review the overall decisionmaking machinery, looking especially to see if the system is capable of producing acceptable alternative action plans. During the review he will probably analyze and screen some of the alternative plans to determine whether top management is being given the right amount of relevant detail necessary to make a correct decision.

The auditor's review and analysis in the decisionmaking area should be directed toward pinpointing for management those alternative plans or strategies for which predicted outcomes are most nearly in line with predetermined criteria or preferences of management. Since the modern concept of planning is tied to the notion of influencing things to happen that would not otherwise occur, a knowledgeable and experienced auditor has an opportunity to make a substantial contribution to profitableness if he does a good job in the entity objective and strategy area.

Auditor and Authority Structure

Another broad management area in which the auditor might "earn his spurs" is in aiding management to design and maintain an adequate position and authority structure. And, as corollary, he could assist in strengthening and expediting the information flow between responsibility centers. The way in which people interact in the job situation determines the success or failure of an organization. Hence, the job and authority structure needs to be looked at closely and realistically. Specifically, these questions are pertinent: (a) Are the jobs and positions set up in a way to take maximum advantage of known or foreseeable "individual people abilities"? The converse would be textbook-styled descriptions which in practice could be almost meaningless. (b) Are the decisionmaking authority and responsibility clear? Is it better to further centralize or further decentralize decisionmaking in order to secure better operating results?

The auditor could be quite helpful to a management in the foregoing areas by doing five things:

1. Make constructive recommendations for improvement of the form and substance of position authorizations and controls.

2. Ascertain the major kinds of decisions that need to be made.
3. Determine the organizational level and the individual responsible for each major kind of decision.
4. Identify the entity activities and the personnel affected by each major kind of decision.
5. Determine the key management officials who need to be informed after each major kind of decision is made.

Since each major decision usually affects numerous functions or activities and the resulting several decisions are interrelated, management and its advisers are faced with the tough task of assuring that decisions are made as close to the action scene as possible. But, at the same time, the decisions must be made at a responsibility level high enough to guarantee that all activities affected are appropriately considered.

Auditor and Communications

There is typically a wide gap between top management and the workers down the line. Profitable results are dependent on workers' understanding clearly and quickly the substance as well as the form of management's policies, plans, and programs. Consequently, the auditor has another opportunity for "striking pay dirt" if he can help a management improve the entire communications system.

A fairly conventional examination of this system would include testing the adequacy of communication methods and media. For example, it is standard practice for various echelons of management and their advisers to inquire into and test the methods by which supervisors transmit instructions to workers, the methods and media used to publish entity policy, in job training, for securing employee suggestions, and so on. But more importantly, there is a need for management and its advisers to concentrate on developing a clear-cut communication philosophy. One dimension of such a philosophy is a clear understanding by all concerned of what information needs to be communicated, and to whom, if optimum employee participation is to be secured. This has also been touched upon earlier in the discussion of the entity strategy and decisionmaking apparatus.

In developing a communication philosophy, management must also have an understanding of and sensitivity to the ways in which ideas and motivations are communicated from one individual to another. In this regard, the informal communication system and the organization's "social system" should be closely examined. Management should use them to advantage wherever possible for orderly identification with overall goals and programs. These systems may represent a quicker and more natural way to move an idea than the more cumbersome formal memorandum route.

In concluding these comments regarding improvement of the communications system, it is pertinent to remind ourselves that today's workers are more affluent and more educated than their forefathers. Consequently, they are not likely to follow instructions blindly like many of their predecessors. Today's management is well advised to communicate its objectives, goals, plans and programs to all in-

dividuals in the enterprise in ways that are not only clear and concise but which also identify the well-being of the organization with the beliefs, the intelligence, the goals and the welfare of the individuals who must carry out the instructions of management.

Auditor and Results Measurement

One further area for auditor assistance and opportunity needs consideration. This is to help management pinpoint key functions or operations in the profit-making process and establish better criteria for measuring results.

With respect to the first issue, the auditor might, for example, reveal through analysis that a given investment in research for new uses of existing product lines offers the most attractive short-term and long-range profit opportunities for the company. Further analysis of planning data might show that relatively few distributors of the company's product are the main revenue producers. Increased emphasis and support of these revenue sources could result in elimination of marginal distributors and cause a major increase in profit margins. Again, illustratively, careful analysis of production centers or cost centers may reveal that one or a few centers generate a major portion of cost.

Closer management attention and action in such areas could achieve major increases in profitableness as a result of even minor increases in production efficiency and cost control.

With respect to aiding management in installing better measurement and evaluation devices, here are some of the broad areas in which the auditor might work:

1. Furnish guidance in the development of format and related instructions pertaining to revenue and expense budgets for each responsibility center.
2. Review or give guidance in the preparation of complete statements of the performance standards and yardsticks for measurement applicable to each major decision or performance area. The auditor should carefully reexamine each set of statements to make sure that they are consistent with policies, plans, procedures, and standards established at higher levels of responbility; e.g., assure that they are compatible with and properly support the companywide profit budget.
3. Critically examine and refine the units of measurement commonly applied in each major performance or decision area. In this regard, the auditor should help management in pinning down and interrelating the performance standards and measurements with the operating responsibilities of each person affected.

In order to bring about real improvement, the auditor would need to work closely with line officials to determine answers to the following questions: Are standards realistic in terms of possible accomplishment by subordinate personnel? Are the units of measurements familiar to the employee to whom they will apply? Are the standards mutually acceptable to managers and the workers who

will be evaluated? Are the standards actually used in keeping accomplishments in line with planned or budgeted performance?

OVERVIEWS AND PREDICTIONS

The so-called management auditor has cloaked himself with an awesome responsibility. Through self-anointed authority and encouragement by many entity managers, he has staked out claims as "fact finder," "trouble shooter," "father confessor" and the *sine qua non* of the management process.

To perform reasonably effectively as a key adviser to top management, it is necessary for the management auditor to acquire in depth the following skills and attributes.

1. Substantial knowledge of the total environment of the specific entity or entities he serves.
2. Workable skill and experiences with the analytical tools and techniques necessary for probing and analyzing complex entity problems. (This means, in particular, having reasonable familiarity with computer techniques, probability theory, statistical methods and other forms of mathematical science. All of these are tested techniques for compact quantification and simulation of multiple business functions and activities.)
3. An understanding of and sensitivity to human values and goals and the key ways in which ideas are moved from one mind to another.

The informed "administrative-economic type" adviser to management is likely to be in heavy demand for some indeterminate future period. His forte will be helping various echelons of management to: (1) better identify entity objectives and strategies, (2) correlate entity activities with broad social and economic goals and (3) serve as a day-to-day extension of top management controls wherever needed.

As an epilogue, the writer reminds the leaders of the accounting profession that the new brand of auditing will survive as long as it produces concrete evidence to managements of its ability to contribute to profits. Consequently, many of the debates on whether to label the activity "management auditing" or "management advisory services" or by some other description, or whether the existing professional standards or codes of conduct adequately cover these services could well represent "quixotic jousting at windmills." It seems to this writer that the real urgency of the day is for the accounting profession to recognize this *de facto* development and to get quickly to the business of devising and perfecting an up-to-date and forward-looking formalized system of education, orderly experience acquisition, and licensure for the novice practitioners of an emerging complex discipline. It is a step forward in the management area that will upgrade the accounting profession.

A Timesaving Technique For Report Review

721300

By D. L. Scantlebury and Donald G. Goodyear

Careful review of reports before issuance is an integral part of GAO reporting procedures. This article suggests a technique for improving and expediting the review process.

Have you ever reviewed a report and found it unconvincing, but you just could not put your finger on what was wrong with it? We think that anyone who has spent much time reviewing reports has had this experience more times than he would care to admit. Frequently, such reports sit in the reviewer's "in-box" for a time while he tries to decide what it is about the report that needs strengthening. If the weakness fails to suggest itself, he may substantially revise the report in the hope that his own command of language and breadth of thought will magically cause the deficiencies in the report to disappear. Often he is right; but, of course, all of this takes time—time that GAO can ill afford to spend in report processing.

During the past year, we in the Washington Regional Office have been experimenting with report reviewing techniques in an effort to overcome this problem. Our experimentation has produced a technique that we think has considerable promise for attaining our objective. This technique enables us to put our finger on those pesky omissions which prevent a report from being convincing and to provide for addition of the necessary information. Moreover, it enables many staff members who are not particularly gifted writers to prepare reports that need only editing to become acceptable products.

Nature of Timesaving Technique

The technique that we use is to analyze the first draft of the report

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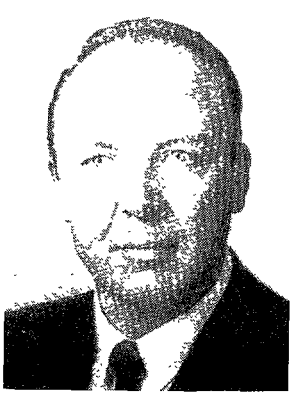

to determine whether it contains the three elements which, it has been generally recognized, are constituent parts of every finding—i.e., criteria, cause, and effect. Our report reviews are made before the site supervisor is released from the job and generally take no more than 1 day to perform. We do not worry about grammar and syntax at this point and no quibbling over words is allowed. We simply look to see that all important elements of the finding have been included.

To illustrate: What is missing from the following paragraph?

> Because the payroll supervisor at the X installation did not know the applicable payroll law, he allowed numerous persons within-grade increases above step 4 in their respective grades after their serving only 1 year in that step. The aggregate overpayments totaled $100,000.

Careful analysis will show that the paragraph lacks a clear statement of what the requirements are; or, if you will, a criterion—in this case, the appropriate law—and anyone unfamiliar with payroll laws will find the paragraph mystifying. However, if the criterion shown below is added as the first sentence of the paragraph, it becomes clear.

> The law applicable to within-grade increases provides that, before an employee becomes eligible for a within-grade increase, he must serve 1 year in the step he is in if that step is step 1, 2, or 3; 2 years if that step is 4, 5, or 6; and 3 years if that step is 7 or higher.

Another case in point is the following:

> We found that the agency had purchased computer tapes from computer manufacturers although identical tapes were available through the General Services Administration (GSA) at prices that aggregated about $150,000 less than those paid. These purchases occurred despite agency regulations which required that such items be purchased through GSA.

The paragraph above has no statement of cause. If such a statement is added, it becomes much more meaningful.

> The contracting officer made these purchases through the computer manufacturer because he had no prior experience in procurement and had not received any training prior to being assigned this responsibility. Also, as the result of an error, he was omitted from the distribution list for GSA catalogs. Consequently, he was unaware that GSA could provide these computer tapes.

Findings resulting from financial management reviews also need this

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type of treatment, although in any given case the effect may be hypothetical. For example:

> Although the agency's regulations require the preparation of a manual showing the detailed steps of the various operating programs being performed on ADP equipment, this has not been done. The official responsible for preparing the manual, the head of the ADP department, stated that he knew the procedures well and did not need a manual. His superiors had not checked to see whether his department was following agency regulations and they had no systematic plan for making such checks. Notwithstanding the views of the ADP department head, we believe that the agency regulations were soundly conceived and that a manual should be prepared.

Note how much more convincing this becomes when the probable effect is added as follows:

> Should the current head of the ADP department become incapacitated or leave Government service, it is highly doubtful that another person could learn to operate the system without exhaustive research and time-consuming reconstruction of the process followed in developing the ADP program now being used.

It may seem that the omissions in the examples above are so obvious that their absence would be noticed immediately without the use of any special techniques. We have found, however, that such omissions often are not noticed, sometimes even after several reviews. In this respect, our first experiments with this technique showed that a surprisingly high percentage—90 percent—of the findings contained in reports submitted by staff members did not contain one or more of these elements. Many of these had previously been reviewed more than once by various management levels within the Office. However, the reviews failed to detect the omission of one or more of the elements and the reports seemed weak as a result of the omissions.

To date, our use of the technique indicates that it not only helps the reviewer identify important elements of the finding that are missing from the report but that it also helps the report's author pinpoint what needs to be done to correct the report's weaknesses. First, it identifies exactly what element is missing. Second, it discloses instances in which poor organization is responsible for lack of clarity or convincingness.

Application of the Technique

Hopefully, we have convinced you that our approach has merit. Our next step is to describe how it is done.

We have found that each of the three elements of a finding constitutes a separate thought or subject, i.e., criteria are the laws, regulations, or other standards established as the objective or goal; cause is usually action or inaction which has prevented attainment of the objective;[1] and effect is the result of failing to meet the objective, comply with the law, etc., and is often expressed in terms of potential savings attainable through correcting the deficiency disclosed by our review. Using these definitions as a guide, each paragraph and sentence of the findings section of a report can be labeled as to whether it represents criteria,[2] cause, or effect.

It will be promptly recognized that all sentences do not clearly fall into one of the three categories. Many

[1] In some instances, cause will be the failure to establish effective or acceptable criteria.

[2] We use the plural form of this term since more than one criterion is often involved in a finding.

sentences in the findings section of a report merely contain factual information. However, the factual information usually is included to explain something about one of the three elements and therefore we label such factual material cause, criteria, or effect, depending upon the element to which it relates. For instance, we do not accept an agency's criterion in any given case without evaluating its acceptability for purposes of our examination. Thus, if we find that an agency has established a criterion that an automobile, to be retained, must be in use 50 percent of the time, we would not accept this criterion for our use without making our own evaluation of its validity. Accordingly, not only the criterion itself but any factual or explanatory material, which would demonstrate that this criterion is an acceptable one for our purposes, is labeled criteria.

After the finding has been labeled in this manner, it can be rapidly analyzed to find out if the three major elements of a finding are present and adequately explained.

The labeling technique has also been a very effective tool for reviewing findings for logic of organization. In this respect, as we have previously mentioned, each of the three major elements of a finding represents an independent thought. While mixing of the elements in a summary paragraph is customary, the clarity of a finding can be significantly impaired if the mixing is continued in the body of the report. When this happens, the report becomes very confusing to a reader, even though all essential facts on criteria, cause, and effect have been presented.

Reports in which criteria, cause, and effect are intermingled in the body of the report have perhaps been the most difficult type for the report reviewer to deal with effectively. The labeling system highlights this problem, as shown below:

First paragraph of body of report	*Label*
Sentence 1	Criteria.
Sentence 2	Do.
Sentence 3	Cause.
Sentence 4	Criteria.
Sentence 5	Cause.

Second paragraph of body of report	*Label*
Sentence 1	Cause.
Sentence 2	Criteria.
Sentence 3	Cause.
Sentence 4	Effect.

While our examples in the earlier part of the article were concentrated on opening paragraphs (due to space limitations), the technique is even more useful for dealing with the body of a report. Generally, reports are easier to understand if each of the three major elements is discussed separately and not broken up into segments and scattered throughout the report. Consequently, by rearranging the material so that the information on each element is consolidated, the clarity of the report can be improved substantially.

Sometimes we have found that subcriteria are necessary in the cause section of a report to show deviation from approved procedures, but these are subcriteria and do not alter the general rule. Since it is much easier to rearrange the material by major element when each major element is identified, the labeling system makes

it fast and easy to reorganize the material into a logical thought flow.

Effectiveness of the Technique

From the standpoint of the report reviewer, the use of the above labeling technique has been a real time-saver in that much of the guesswork is taken out of determining whether a major element is missing from the reports submitted to him for review and whether a report needs reorganizing. Because the guesswork is removed, the time he requires to analyze a report and deal with its author is sharply reduced. The primary reason for this appears to be that the report reviewer can communicate in specifics rather than generalities. This enables him to prepare concise, to-the-point comments on what he has found missing or wrong with the report.

To date, these comments have been accepted by staff members without lengthy arguments or discussions—presumably because the logic of the reviewer's suggestions was apparent. Moreover, almost without exception, it appears that staff members have been able to utilize these comments to significantly improve the content and organization of their reports without assistance from the audit manager, regional manager, or others.

In most cases, all that is required to put the report in acceptable shape is an editorial-type review.

There are, of course, many aspects of a report that must be given consideration before it can be issued. Legal issues must be considered as well as consistency with office policy. However, these reviews cannot be effectively made until a clear, logically organized report is available for consideration by those having responsibility for such reviews. We believe that this technique can produce such a report with far less effort than would be required without a systematic approach to this phase of report review.

The GAO Central Rate Audit of Transportation Charges

721301

By Joseph P. Normile

An important audit responsibility of the General Accounting Office is the centralized post-audit of rates charged by carriers for transportation services rendered to the Government. This article describes current policies and practices of the Transportation Division in Washington in carrying out this responsibility.

Nature of the Rate Audit

The GAO's central rate audit of Government transportation payments is the largest transportation audit operation in the United States, and, perhaps, in the entire world. It is also unique among the Comptroller General's various audit responsibilities for several reasons.

Transportation payments are the only class of Government disbursements for which the Comptroller General, under certain conditions, has the sole responsibility for the Government to audit the technical correctness of the charges and to recover overpayments directly from the carriers, certifying and disbursing officers being relieved of these responsibilities by law. The transportation audit is the last major centralized audit performed in the GAO headquarters, and it requires specialized kinds of auditors for what is probably the most complex pricing system for any service in the American economy.

The transportation audit covers the majority of Government payments for commercial transportation services, the principal exceptions being disbursements by Government corporations and payments on mail con-

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tracts and military ocean freight contracts. The number of individual transportation procurements for which GAO has sole audit responsibility amounts to over 8 million a year, and costs nearly $2 billion. About 530 people, or 15 percent of all GAO employees, are either auditing transportation payments or providing administrative and clerical support to the audit. Because of its size and complex specialization, the transportation audit presents some challenging management problems of planning, organization, and control that are not ordinarily encountered in the onsite type of audit.

Since early in calendar year 1963, the Transportation Division has been continuously and systematically analyzing and studying these problems to develop more efficient techniques of performing and controlling this audit, including the use of electronic computers. The purpose of this article is to summarize what the Transportation Division has accomplished as a result of these studies, how the audit is now performed, and what our plans are for developing and testing new methods for the future.

Historical Background of Rate Audit

Prior to World War II the transportation audit was a relatively small, specialized function of GAO performed in the Claims Division on about $60 million to $70 million a year of paid or unpaid bills. The transportation audit responsibilities of the Comptroller General were then altered drastically by three almost simultaneous events: section 322 of the Transportation Act of 1940; the act approved June 1, 1942 (31 U.S.C. 82g), relieving certifying and disbursing officers for overpayments made on the basis of incorrect rates or classifications; and World War II.

The legislative history of these laws shows that the Congress intended two objectives that concern us. One was to enable the Government to pay its transportation bills promptly, without any legal requirement to verify the correctness of classifications and the rates assessed by the carriers until after payment. The other was to eliminate the multiple-rate audit activities of the Government, by centralizing the entire responsibility in the GAO. With World War II came a thirtyfold increase in Government transportation expenditures to an average level of over $2 billion a year.

Without the authority of the two laws cited, Government certifying and disbursing officers would have required many years to examine (or have examined and certified by GAO) wartime transportation bills before payment. As it was, a greatly augmented rate staff of the GAO Claims Division was able only to screen through and partially audit the wartime paid bills by the end of 1947. The uncompleted rate audit work was then so large, and the normal transportation expenditures of the Government were so much higher than in prewar days, that Comptroller General Lindsay Warren established the Transportation Division in April 1948 as a separate organization to discharge his responsibilities in the field of Government transportation.

Mr. Harrell O. Hoagland, an attorney in the Office of the General Counsel, was designated by the Comptroller

General as director of the new division. He served in this position until he retired in December 1958.

Succeeding directors of this division have been:

John P. Abbadessa—March 1959 to December 1959.

Oye V. Stovall—December 1959 to May 1962.

Thomas E. Sullivan—May 1962 to date.

From the date of its establishment until December 1961, the reaudit of all World War II transportation payments absorbed the major time of the Division's top administrative and technical personnel, as well as an average of about one-fourth of its entire staff. During the reaudit, the Division reexamined about $8 billion of World War II payments and audited about $14 billion of postwar payments. It recovered about $260 million of overcharges in the reaudit (an addition to the approximately $240 million recovered on the same payments in the original audit) and about $200 million in its current audit.

With the end of the reaudit, the Transportation Division had a much more normal workload to audit. Not only was there no longer a huge backlog of reaudit work, but the conditions that led to the unusually high rate of overcharges on these payments had been eliminated by statute (canceling the Government's railroad land-grant discounts), by tariff amendments, and by the ability of the carriers to price their bills more accurately at a peacetime pace of operations. In this more stable environment, the Division began to restudy its rate audit policies and procedures and established a Planning Staff in November 1962 to coordinate its improvement activities.

Objectives of the Rate Audit

The particular audit procedures appropriate to any audit are, of course, dependent on its objectives. In its simplest terms, the principal objective of the rate audit is to recover overcharges paid to carriers. Since the GAO has the sole statutory responsibility for checking the technical correctness of carriers' charges, the audit is not concerned with the settlement of disbursing officers' accounts or with evaluating the quality of the administrative examination of bills prior to payment (except for certain incidental matters that are reported informally to certifying offices).

In the practical application of this objective, we qualify it in two ways: (1) by generally limiting our rate verification work to those transactions on which the identification and collection of overcharges can be done economically and (2) by surveying all transactions so as to be reasonably assured of accomplishing our principal objective and of detecting any unusual and significant error patterns in carriers' bills. A secondary, but very important, objective added to our rate audit in recent years is the evaluation of high-cost shipments for the purpose of reporting to Government agencies the savings that can be realized by using lower cost carriers, routes, types of carrier equipment, and other shipping alternatives available to the Government traffic managers.

These audit objectives are accomplished through the skill and judgment exercised by each transportation

rate specialist. Independent rate verification is the heart of this type of audit, because of the wide range of interrelated factors that must be considered to verify a rate. In freight, for example, among many factors that may be involved are the correct commodity classification, geographical area and direction of traffic, weights, packaging, routing prescribed by the shipper, equipment ordered and furnished, and tariff rules and footnotes. The freight or passenger rate specialist must be able not only to interpret and apply these technical factors accurately, so as to identify within a reasonable tolerance all significant overcharges in the transactions he audits, but also to work quite rapidly.

From this, it follows that management's job is to provide the best possible conditions for the individual rate specialists to apply their skills and judgment productively. Probably the most important of these conditions is organization of the work and paper flow, so that the hard core of overcharged transactions can be reached by the rate specialists systematically and with a minimum expenditure of their time on nonproductive items. With an average of over 700,000 bills of lading and transportation requests to be processed every month, the problem then is to isolate from this mass the kinds of transactions that are most likely to be overcharged. The solution lies in knowing enough about the overcharge potential of different types of transactions to establish reliable minimum standards of audit significance and efficient patterns for breaking out, sorting, and surveying transportation transactions.

Information System for Rate Auditing

The first study obstacle faced by our audit and planning staffs was the lack of operational information, particularly about workload volume, overcharge results, and audit time in relation to specific kinds of transactions. The audit reporting system was originally designed principally to distinguish reaudit from current audit activity and to relate production and results to organizational units only. Except for a brief experimental period, it did not relate audit time to workload or results.

At the outset, therefore, the primary planning objective was to develop a comprehensive system for collecting, summarizing, and analyzing essential audit information. After a period of trial and error, partly to determine what is essential, a system was designed and its major elements were installed during 1963 and 1964. The core of this system is a monthly computerized production report which summarizes about all the important audit information that can be efficiently collected and digested for use in a single report. Supplemental information is obtained from several quarterly electric accounting machine reports of a more detailed nature and by special studies, surveys, and internal reviews as needed.

Aside from being run on a computer, the new monthly production report differs from the old one principally by classifying all data into modes of transportation (rail, motor, air, etc.) and by showing the audit time for each class. Each of these modes, and in some cases submodes, has its own technical and/or admin-

istrative support problems, and for practical purposes each should be considered a distinct audit. These distinctions are now recognized in the reporting system for 23 modes of freight transactions and 12 of passenger.

The wide range of overcharge potential in transportation transactions illustrates the importance of modal information to all levels of supervisory and staff personnel. Overcharges vary from less than 0.1 percent of payments in some modes (e.g., bulk petroleum and heavy equipment shipments and rail, bus, and water passenger transportation) to about 2 percent for motor general commodity shipments and to a peak of nearly 3 percent for all rail freight shipments. The incidence of overcharges ranges from a high of about 1 in every 14 rail shipments to about 1 in every 5,000 bus tickets, and the average overcharge varies from only about $20 on an express shipment overcharge to more than $500 on an ocean freight overcharge.

With this kind of information, management is better equipped to apply the twofold audit approach of directing its resources to recovering the maximum possible overcharges from the productive modes and of maintaining a minimum cost surveillance of the nonproductive modes.

The recording of direct audit time by modes and types of work enables management to better control the direction of audit effort and to account for about two-thirds of the total audit costs. We now know how much direct audit time is spent on surveys and preliminary audits and on detailed rate verification of significant transactions, examination of carriers' protests to overcharges, and examination of claims (which are a class of unpaid transactions handled apart from the audit of paid bills). With a proration of other costs (supervision, staff assistance, and clerical and administration support), we know the total cost of the audit in any area. There is available to management for each of 35 modes, or separate audits, a comprehensive monthly report including number of transactions and amount paid, overcharges stated, overcharges canceled on the basis of carriers' protests, and audit hours that are easily translated into costs.

Selecting Transactions for Rate Audit

The Transportation Division has always broken down paid bills into modes and other types of transactions for audit. For many years, the Division had prescribed a minimum payment amount in some freight modes for an arbitrary separation of items to be surveyed and items to be audited in more detail. To further reduce the workload of rate verification by clearing as many properly rated bills as could be readily identified, the Division set a policy of surveying higher cost transactions as a regular procedure in certain modes and, from time to time, as a temporary expedient in some others. By agreements with most carriers, the Division had also set minimum amounts of overcharges that would be stated against the carriers ($10 for general freight overcharges, $5 for REA Express overcharges, and $5 for passenger overcharges) and the carriers were to abide by the same minimums in filing

claims for additional charges on paid bills.

The basic purpose of these audit minimums and survey techniques is to narrow down the number of transactions that the rate specialists are required to verify. It not only conserves valuable technical time for the important transactions but also more clearly delinates audit responsibilities.

As a practical matter, the specialist's responsibility is limited to transactions selected for detailed verification, or, as termed in the Division, "desk audit." Management collectively assumes the audit responsibility for items designated as insignificant (usually on the basis of amount paid), for overcharges below the minimum standards, and for other transactions cleared in preliminary audits prior to the detail rate verification. Obviously, therefore, the greater the volume that audit management identifies and clears as insignificant or properly charged, the more precise and controllable becomes the specific audit responsibilities of the individual rate specialists.

The information available from the improved reporting system and from special studies has enabled the Division to accelerate the steps begun years ago to isolate the more important transactions. As far back as 1960, a study made of about 7,800 small cost rail bills of lading confirmed the soundness of clearing rail charges below a specified minimum with only a scanning for obvious rate errors. Verification of these small charges disclosed a total of only $834 in overcharges on a total of $101,000 paid, while the cost of rate specialists' time for the audit was nearly $2,000. On the basis of this and later studies, we have in recent years extended the minimum payment policy to additional freight modes and to all passenger modes. Studies of higher cost transactions disclosed other large groups of transactions that could be identified and separated for either a preliminary audit or a detailed rate verification.

To permit better sorting of transactions, we developed a system for detaching from the paid bills the individual bills of lading or passenger transportation requests, cross-referencing them to the basic payment record, and handling them as independent transactions. Because of the additional clerical cost, we detach only those items above a minimum payment amount and in modes where the greater sorting flexibility provides audit advantages that offset the larger handling costs.

Altogether we detach a monthly average of about 55,000 higher cost items from certain freight and passenger bills. Three distinct audit advantages are gained: (1) the complete separation of higher cost items that would otherwise be intermingled with insignificant items on the same bills, (2) the capability of combining transactions with similar pricing factors, such as the same origin and/or destination, commodity, type of travel, etc., and (3) the greater capability and reliability of identifying in a preliminary audit correctly priced items among the higher cost transactions.

The detaching of these other items gives us the flexibility to handle key transactions individually and to sort them into the most efficient combina-

tions. These items, together with international and domestic household goods shipments that are ordinarily billed individually, account for 80 percent of the key transactions.

We are currently selecting an average of about 100,000 bills of lading and transportation requests each month for detailed rate verification; whereas, under the former audit policies, over 400,000 of our current volume would be selected. The approximately 300 rate specialists assigned to the audit are required to make correspondingly fewer individual decisions about the significance of transactions, the possibility of overcharges, and other factors that govern the extent of rate verification they perform in discharging their responsibilities.

Internal Reviews and Special Studies of Rate Auditing

To check the quality of the rate audit and to support management's responsibility for clearing the vast majority of paid items without detailed rate verification, we have independent internal reviews performed. From continuous analyses of audit results, we find problem areas also requiring special studies, so that at all times a fairly significant segment of the rate audit functions is under some form of study to validate or improve auditing procedures.

A major problem that has concerned us for some time is the cancellation of overcharges after receiving carriers' protests. From the early 1950's through fiscal year 1962, about 50 percent of the passenger overcharges issued and 17 percent of the freight overcharges issued were subsequently canceled by this Division. Cancellations result from many factors: our misinterpretation of classifications, tariffs, or Government rate quotations; elimination of favorable rates by amendments or supplements that were not on file at the time of audit; Comptroller General or court decisions that change rules or principles applied in the audit; carriers and/or administrative offices producing certificates, logs, commodity descriptions, travel dates, and other documents to support or clarify charges that were not available in the original paid record.

After intensive study of the causes for these cancellations, it became clear that the last group described above was the principal problem. Therefore, we now correspond in most cases to clarify unsupported or questionable charges, before resorting to the expense of stating overcharges. As a result of this change and other policy changes, the overcharge cancellation rate for the past 2 years has averaged only 5 percent on passenger transactions and about 9 percent on freight items.

A series of internal reviews in the two most important freight modes illustrate both the types of reviews performed and the validation of audit improvements. Before we began to detach items from paid bills for audit, our internal review of the rail and motor detail audits showed that we were passing a number of overcharges. Our analyses of the types of transactions involved and the problems of auditing complete bills indicated that the number passed was probably not unreasonable for economical audits. After we began detaching and sorting individual bills of

lading, however, our internal review of these modes showed that we were passing less than one half the amount of overcharges that were passed before the detaching system was installed. Most of those passed were generally small amounts, and many involved mixed shipments that required time-consuming verification of a number of separate rates on each shipment.

As previously described, the greater flexibility of sorting detached bills of lading opened up the possibility of identifying and clearing many properly rated transactions in a preliminary audit by senior rate specialists. When these items were attached to the covering bills, a preliminary audit was not considered feasible for higher cost rail payments and had been used with minimal success to clear a relatively small portion of the higher cost motor payments. Working with detached items, however, the senior rate specialists assigned to the preliminary audit have been clearing an average of 40 percent of both motor and rail bills of lading, which they consider to be properly charged or to have a slight chance of being significantly overcharged.

Our internal reviews of the items cleared have confirmed the judgment of our senior specialists. In the case of the motor audit, where we are recovering over $200,000 a month, an internal review of a large sample of cleared items showed that we might expect to recover about $10,000 more a month in overcharges if the cleared items were placed in desk audit for detail rate verification; however, this would require examining about 75 bills of lading for every overcharge at a cost that would be about 3 times the value of the recoveries.

So far I have illustrated only our demonstrated successes in improving major segments of the transportation audits. Our studies have also disclosed problems that have not been fully resolved to our satisfaction in two areas: the audit of over $300 million a year in payments for air passenger service (excluding contract service for the Military Airlift Command) and the audit of nearly $200 million a year for a specialized type of freight service.

The cost effectiveness of the air passenger audit has been substantially improved by selecting in a preliminary audit only the most heavily overcharged types of transactions which are separated from covering bills and sorted for detail audit. These procedures include rather high selection standards that generally preclude taking into desk audit types of transactions that are known to have only small and/or infrequent overcharges.

A recent internal review of cleared passenger items showed that our selectivity standards were probably passing about $300,000 a year of overcharges, primarily small (averaging $30 each), more difficult to recognize in reviewing complete bills, and obviously more expensive to recover than those we were getting. After thoroughly analyzing the types of transactions and the payment amounts involved in these cleared items, we believe that we can economically recover a fairly large portion of this additional overcharge potential. We are now conducting a controlled test of revised air passenger audit procedures for this purpose.

Various studies of rate audit problems in one of our major freight modes have confirmed the impracticality of an economical *manual* rate audit of these particular charges. An internal review conducted several years ago indicated that the total overcharge potential in this mode is probably over $400,000 a year. Despite our best efforts in reorganizing the audit and trying different sorting and preliminary audit techniques, we have been unable to recover a satisfactory portion of these overcharges and the results barely cover the rate specialists' salaries. The principal problem has become clear enough—that the most prevalent type of overcharges are generally small and can only be detected by costly manual research of mileage and rate tables. In this case, we believe that the solution lies in an automated audit system.

Automation Studies in Transportation Field

For at least 5 years there has been extenisve research throughout Government and industry to develop systems for computing transportation charges on automatic data processing equipment. As an organization responsible for checking transportation rates on a much greater volume of traffic than any single carrier or shipper and on all modes of transportation, we too are vitally interested in the automation of transportation pricing. For that purpose we have established a staff of computer systems analysts and programmers in the Division, composed mainly of transportation rate specialists. who have been trained at computer manufacturers' courses and on the job.

Our rate automation studies are directed to the following major fields: (1) continuous surveys of rate automation developments throughout the carrier and shipper industries and other Government agencies, (2) coordinated studies with agencies or carriers who have reached the stage of systems development, where it appears feasible to design rate checks for their systems, and (3) independent systems development work on significant modes or types of transportation transactions that are not under study elsewhere.

Our surveys of research results, and our discussions with leading systems personnel, were marked by the widespread agreement on one point: that in their present format complete automation of complicated tariffs for pricing purposes is theoretically possible but not economically practical. This conclusion is generally held because of the extreme complexity of most tariffs, their rules, footnotes, and other conditions for determining the correct rate. To be generally useful, automated tariffs would require a system not only storing an enormous amount of quantitative data (weights, rates, mileage, etc.) but also intricately structured so as to check a great many possible qualifying factors and alternatives on each and every transaction. For some time, therefore, the practical use of computers for transportation pricing will continue to be limited to relatively simple rate structures or partial sets of rates of particular value only to specific shippers and carriers.

While research continues on the more complicated tariff structures, some concrete accomplishments of

particular interest to us have been made. A large express company has completed automation of its principal military tariff and is now making trial pricing runs along with its manual system. We have already reviewed the computer system and held preliminary discussions with this company's officials about methods of periodically checking the accuracy of their computer pricing. During fiscal year 1968. we will be examining its program and its classification and coding procedures in depth, in order to develop simple and inexpensive methods of testing the accuracy of its computer-priced bills.

The General Services Administration (GSA) is now testing an automated system for preparing supply and transportation records, which has the capability of pricing certain types of motor shipments governed by simplified rates. We are watching this development closely and have arranged to work with GSA on the pricing aspects of its computer system.

Our major computer project is the independent design of an automated audit system for the freight mode with the manual audit problems described in the prior section. Very briefly. this system will require: a mileage table structured for computation of mileage over key points between hundreds of geographically coded origins and desinations; two separately identifiable and dated weight/mileage rate tables for the principal carrier associations, plus many special rates related to specific points and dates; the capability of finding the correct rate for the weight, carrier, and date involved and computing the line-haul charges over the correct mileage; and, finally, checking various auxiliary service charges against preset parameters to identify charges that should be examined manually.

The general system design has been finished, and we are now programing and testing the mileage table format on a skeleton basis. By the end of this calendar year, we hope to program and test the entire system. If it stands the test of cost and technical feasibility. we will plan by early 1969 to fill in the mileage and rate tables, arrange for required input data on shipments from the principal Government certifying offices, and have a going system.

Looking farther ahead, we foresee that the greatest advantages of automation in transportation will be in the billing, paying, accounting, and related functions. What we have in mind is the capability with computer pricing for the large Government certifying offices to take their obligation and other administrative data for transportation services procured and to sort them on tape so as to be in a position to either: (1) price the transactions. and render periodic payments to each carrier involved, without receipt of bills or (2) receive bills from carriers in tape form, match them against a tape of obligation and other validating data, and render payment on all items not excepted. The REA and GSA systems are potential possibilties for this type of application over the next several years, and the airline industry may reach a comparable stage for air travel services within the same period.

Results of Rate Audit Improvement Efforts

When the reaudit of World War II payments ended in December 1961, the median age of the Division's rate specialists was 52 years. The ensuing retirements steadily reduced the number available for the audit from 460 to about 300 at the present time. Concurrently, the regular payments actually audited rose from about $1.1 billion in fiscal year 1962 (excluding the World War II payments reaudited in the first half) to nearly $2 billion in fiscal year 1967. The resulting overcharges, excluding the reaudit, increased over the same period from about $7.1 million to $14 million.

A more precise comparison of audit productivity is in terms of the *net* overcharges issued (i.e., deducting cancellations) per audit hour, a unit that includes direct audit time plus a full allocation of leave, holidays, and first-line supervision. Compared with the results on the regular audit in fiscal year 1962, net overcharges on the freight audits increased from about $12 to $25 an hour and on the passenger audits from about $4 to $14 an hour. Other than the freight mode under automation study, we recover at least the full cost of the audit in all significant modes, and these recoveries range to a high of $61 an hour in the rail freight mode. In short, our transportation auditors are now about twice as productive on the average as they were 5 years ago.

The tremendous increase of transportation payments not only required new procedures but gave them a hard test. That these procedures were proven to be effective, that a high standard of quality is maintained, and that the audit keeps pace with rising workloads, demonstrate the competence and adaptability of the skilled men and women assigned to the transportation audit.

A parallel improvement of clerical and administrative functions supporting the audit has also come about. Over the same timespan the force assigned to this work declined from over 400 to about 230. The workload not only increased with the rise in payments but also with the new procedures for detaching items from bills and sorting all transactions more extensively for audit. These very competent men and women have introduced many innovations and mechanical devices that have raised their productivity in pace with the audit staffs.

Management of Research Equipment in Government Laboratories

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By Harold H. Rubin

This article summarizes the results of a GAO survey, made pursuant to a congressional committee request, which led to public hearings on management problems and techniques relating to scientific research equipment in Government laboratories.

In September 1966, the General Accounting Office was requested by the Research and Technical Programs Subcommittee, House Government Operations Committee, to undertake a special study of accounting methods and controls used by Federal laboratories in managing laboratory equipment. The subcommittee's interest in this area was based on the fact that a substantial amount of money was being spent for such equipment and there were indications that little management control was being exercised.

Our Office conducted a survey of equipment management techniques and controls at five major Government laboratories. In addition, for comparison, information was obtained as to the methods employed by six large private laboratories. All of these laboratories voiced the same opinion as to the difficulty in exercising management controls over the activities of scientists and engineers.

We noted that several laboratories had developed unusual techniques for managing scientific equipment and we felt that these techniques might have application to other laboratories. Consequently, our report to the subcommittee, issued in June 1967, described these techniques for consideration by the subcommittee.

The subcommittee decided to hold public hearings as a means of alerting other laboratories to these cost-saving techniques. Our Office worked with the subcommittee staff in the selection and interview of witnesses and prepa-

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ration for the hearings. Hearings were held on August 9, 1967, in the Rayburn House Office Building at which testimony was presented by representatives of GAO and three Federal laboratories.

The GAO statement, presented at the hearings by the author, summarized our findings as to effective management techniques and is presented below essentially in the form given.

The General Accounting Office made a survey of the accounting and management controls employed by five Federal research laboratories in promoting efficiency in the utilization of laboratory equipment and economy in the procurement of such equipment. This statement summarizes the results of our survey and outlines several of the significant techniques being utilized by individual laboratories which have resulted in substantial savings.

We believe that other laboratories also may be able to achieve significant reductions in cost through application of these or similar techniques in their activities. In our opinion, this hearing will serve to acquaint Government laboratories with these techniques and, thereby, lead to greater efficiency and economy in the management of laboratory equipment.

Federal expenditures for in-house research and development are estimated at $3.4 billion for 1967. While the amount of expenditures by Federal laboratories specifically for laboratory equipment is not known, we noted that at the five laboratories included in our survey the percentage of funds spent for laboratory equipment ranged from 3 percent to 13 percent of the total expenditures, or an average of 10½ percent.

Inasmuch as we were unable to obtain an authoritative Government-wide definition of the term "laboratory equipment," we considered laboratory equipment in a broad sense as any tool or instrument, with a useful life of more than 1 year, that was intended to be used in the conduct of an experiment or study in a scientific or technical laboratory. Generally, we considered as laboratory equipment those items classified by the respective laboratories as laboratory, electric and electronic, and photographic equipment, although where practicable we ommitted the following items from consideration: (1) facilities; (2) buildings; (3) laboratory furniture and fixtures usually permanently installed in a building; (4) office equipment not used directly for the conduct of laboratory work; (5) tools or instruments having a low value and therefore not capitalized by the laboratories; and (6) computers.

In order to obtain an understanding of the methods used in managing laboratory equipment, we surveyed the following five Government laboratories engaged in significant research activities:

National Bureau of Standards, Department of Commerce, Gaithersburg, Md.

Goddard Space Flight Center, National Aeronautics and Space Administration, Greenbelt, Md.

Brookhaven National Laboratory, operated by Associated Universities, Inc., under contract with the Atomic Energy Commission, Long Island, New York.

Naval Research Laboratory, Department of the Navy, Washington, D.C.

Cambridge Research Laboratories, Department of the Air Force, Bedford, Mass.

During the course of our work, we became aware of a novel equipment management technique being utilized at the Army Natick Laboratories in Natick, Mass., and we included that aspect in our survey.

Also, in order to compare operating methods of commercial laboratories with those followed in Government laboratories, we discussed the management of laboratory equipment with officials of six privately owned laboratories.

We found that attaining efficiency and economy in the procurement and utilization of laboratory equipment is a matter of concern to both governmental and commercial research laboratories. The principal problems are that it is often difficult to measure the value of output in the research area and even more difficult to relate equipment costs to output. Furthermore, management personnel are often at a disadvantage in trying to evaluate whether the task that a particular part of equipment will perform is worth

the cost of buying the item because the equipment and the tasks it will be used on are highly technical and difficult to understand—particularly for nonscientists.

Under such circumstances, it might be expected that management would seek out systems of incentives or penalties that would motivate scientific personnel to make economical and efficient choices of their own volition. However, neither the private nor the Government laboratories included in our survey have found incentives or penalties that will produce the desired results. Consequently, management of this equipment has been exercised through typical controls, such as budgeting and reviews by senior officials.

Inasmuch as no universally accepted system for managing this equipment has been found, many different management techniques are being used by the various laboratories. Some of the areas in which it appears likely that efficiency and economy can be improved are as follows:

1. Greater use of "offers of sale" could result in lower costs. In these cases, discounts are given which increase with the increase in dollar volume of purchases.
2. "Walk-throughs" by responsible officials have proved a successful method of identifying unneeded equipment that can be released for other uses.
3. More extensive use of equipment pools could reduce the need for new equipment.
4. Scheduled inspections of instruments assigned to various groups in the laboratories could provide useful information on usage.
5. Assignment of management personnel to assist scientific personnel in the performance of the management phases of their work could be a means of promoting greater efficiency.
6. Measuring the utilization of laboratory equipment to identify unneeded equipment which can be released for other uses.

These techniques involve two distinct areas—(1) procurement of equipment at the lowest cost, and (2) effective utilization of equipment in lieu of new procurement.

Procurement

Equipment and supplies required for laboratory operation frequently are specialized and the quantities required cannot always be determined in advanced. Under these conditions, the laboratories are practically forced to accept the list prices quoted by suppliers.

About 6 years ago the Brookhaven National Laboratory recognized that it was not able, under its normal procurement methods, to take full advantage of its purchasing power in negotiating with vendors selling certain classes of items. Consequently, Brookhaven developed a novel procurement approach known as the "offer of sale" concept. Under this concept, vendors are requested to enter into agreements to sell items at fixed prices upon receipt of orders and to rebate a portion of the gross sales at the time of invoicing, or at the end of the agreed period—generally 1 year.

This concept has been applied in selected areas where Brookhaven has determined that effective competition cannot be obtained, and has proved very successful, particularly on purchases of franchised items which normally are sold at a fixed price. The rebates vary, depending on the volume of sales. Brookhaven has estimated net savings of $300,000 to $400,000 since this concept was initiated about 5 years ago.

In 1966, for example, Brookhaven reported purchases of laboratory supplies, such as chemicals and glassware, amounting to $660,000. About $300,000 involved volume purchases by Brookhaven using standard procurement procedures and requisitions from General Services Administration (GSA) storage points. The remainder, about $360,000 involved purchases under the "offer of sale" arrangement, with rebates of $100,000. Thus, the savings were about 28 percent on the "offer of sale" purchases, and exceeded 15 percent of the gross amount of all purchases of laboratory supplies. Brookhaven has informed us that the prices paid were lower than the prices for identical items in the GSA Federal Supply Schedule.

Savings also were made on purchases of laboratory equipment such as oscillo-

scopes, vacuum pumps, leak detectors, etc. Rebates of $52,000 were made in connection with purchases of $775,000 in 1967 under the "offer of sale" arrangement. While the amount of rebate is relatively small compared to the gross purchases of $3 million, it should be recognized that much of the laboratory equipment is obtainable only from a single source or from franchised dealers and, therefore, effective competition does not exist.

Brookhaven is operated by a contractor (Associated Universities, Inc.) and, thus, is not bound by the statutes and regulations affecting procurement by Government agencies. While the Brookhaven technique may not be usable in its entirety in view of these statutes and regulations, we feel that it is adaptable for Government use and that substantial savings can be made using this technique.

Utilization

Significant reductions in operating cost should also be obtainable through better utilization of laboratory equipment on hand, thereby reducing the need to buy additional equipment.

None of the five Government laboratories covered in our survey (and none of the six private laboratories that we visited) maintained records showing the extent of utilization of laboratory equipment. We were informed that maintenance of such records would not be feasible due to the nature of the work being performed.

Information as to the extent of utilization of equipment is essential in determining requirements for procurement of additional equipment and for redistributing equipment in lieu of new procurement. Inasmuch as such utilization data is not available, other techniques are needed to supply such information. We noted the following techniques during our survey which appear to be effective in determining or controlling the extent of utilization of laboratory equipment.

1. *"Walk-Throughs" to Identify Unneeded Equipment*

During the period from November 1966 to May 1967, the Goddard Space Flight Center, National Aeronautics and Space Administration (NASA), identified unneeded equipment valued at $2.5 million. This was achieved by management personnel and senior scientific personnel as a team walking through the laboratory where the equipment is physically located and inspecting it to see whether it was needed and being used. We were told that at least one-third of the unneeded equipment is estimated to be laboratory equipment. $1.2 million of the equipment has been redistributed and, thus, should reduce procurement of like equipment.

Goddard officials informed us that this "walk-through" technique developed over a period of years and was prompted mainly by a directive from NASA headquarters. This directive had been issued in compliance with an instruction from GSA to implement the President's memorandum of September 16, 1966, on cost reduction.

The total value of unneeded equipment and supplies identified at all NASA locations as a result of this special "walk-through," known as "Operation Turn-in," is reported to be $4.4 million.

2. *Use of Meters to Record Utilization*

None of the five Government laboratories at which our surveys were conducted use meters for determining the extent of utilization of laboratory equipment. However, we became aware of the fact that such meters were being used at the Army Natick Laboratories.

In June 1965, an equipment maintenance and control program was instituted at Natick. The Equipment Coordinator at Natick informed us that during a tour of the laboratories he had noted substantial amounts of laboratory equipment which appeared to be unused and unneeded. The scientists refused to release the equipment, contending that the equipment was required. Consequently, he sought a means of determining actual utilization of the equipment.

Sixty-two elapsed time meters costing about $10 each were installed on selected electrical items such as galvanometers and oscilloscopes for a 9-month period, ostensibly to determine maintenance and calibration needs. This pilot test showed that 74.1 percent of the items selected were used less

than 25 percent of the available time and 16 percent were not used at all. Based on this test, the technical directors were convinced that much of this equipment was not needed by the individual scientists. Consequently, arrangements are being made to place all underutilized equipment in a pool for loan under controlled conditions.

At the time of our survey, there were over 13,000 items of laboratory equipment at Natick valued at $8.7 million. We were told that about 50 percent of these items are common-type items susceptible to control through elapsed time meters. Thus, the potential savings are substantial.

3. *Equipment Pools*

Although Natick is establishing an equipment pool covering common-use items which are in limited usage, this pool is not yet in operation and the extent of savings in procurement costs that may be realized is not determinable. However, it is evident that the scientific director feels that through use of the pool economies will arise through improved utilization of the equipment.

Brookhaven has several equipment pools in operation, including a central instrument pool and a high-energy equipment pool. We have been informed that during the 13-month period from June 1966 through June 1967 the value of equipment turned into the central instrument pool was $347,000. Equipment reissued was valued at $178,000. Presumably some, if not all, of this equipment would otherwise have had to be purchased. Consequently, the use of a pool at Brookhaven undoubtedly has resulted in savings.

The Naval Research Laboratory also maintains an equipment pool. This pool consists of some 1,500 to 1,800 pieces of equipment, such as signal generators, oscilloscopes, amplifiers, microscopes, etc. The value of this equipment is estimated at $500,000. This equipment is made available on a loan basis.

No information is available as to the amount of savings in procurement costs resulting from the maintenance of the equipment pool. Laboratory officials point out that, in addition to the obvious savings in procurement costs, there are other significant advantages.

Requests for additional equipment can be filled much more rapidly by borrowing temporarily from the equipment pool. Procurement of laboratory equipment frequently requires a substantial period of time. In the event that additional equipment must be purchased, the experiment for which the equipment will be needed can be started while the requisition is being processed.

The selection of the most suitable piece of equipment for the proposed experiment may be enhanced through use of items from the equipment pool on a trial basis. Otherwise it may be necessary to buy an item of equipment without sufficient assurance that it will fill the need most advantageously.

In the initial stages of consideration of a research problem several alternative approaches to the problem may be proposed. Preliminary experimental work may be done with equipment borrowed from the equipment pool to determine the optimum approach.

Army Natick Laboratories, Brookhaven National Laboratory, and the Naval Research Laboratory use, or are planning to use, equipment pools as one means of obtaining better utilization of their research equipment at lower cost. While no data is available as to the amount of savings resulting from the use of such pools, officials of each of these laboratories are convinced that procurement costs are reduced and that there are distinct operational advantages. It would seem that similar economies could be made by other laboratories through establishment of equipment pools.

The management techniques summarized above were noted during our survey of five laboratories and, therefore, should not be considered as the only means of promoting efficiency in the management of laboratory equipment. It is very possible that other laboratories have developed different techniques which also result in lowered costs for laboratory equipment.

The several techniques which have been mentioned are intended to minimize the cost of laboratory equipment and supplies without hampering the quality of the scientific and technical efforts. In the complex areas

of science and technology which these laboratories are exploring, it is obvious that the most important consideration in the management of laboratory equipment is to provide the scientist with the tools he needs for his research. The problem, therefore, is to achieve this objective at the lowest cost. We believe the several techniques which have been summarized should help to accomplish this objective.

A Capsule View of the Evolution of Accounting

By Ronald F. Lauve

This article provides a résumé of the historical evolution of the accounting function as we know it today.

Throughout history we have seen that necessity has been one of the key factors in the development of civilizations. Add to this man's inquisitive nature, his initiative, and a challenge and we have the basic ingredients of progress. These factors heavily influenced the evolution and development of accounting as a profession. Accounting was not born a profession but originated as a crude, elemental method of recordkeeping indicative of the primitive economic structure which it was intended to serve. The intended purpose of these early recordkeeping efforts was to safeguard merchants against theft, embezzlement, and fraud.

Technical development of recordkeeping methods was slow. However, as business and commerce expanded, increased in complexity, and became more diversified, the installation of newer and better systems of recording, documenting, and analyzing business transactions became a necessity. Thus, recordkeeping took on new and different functions and the underlying purpose of accounting—which at this stage was still elemental bookkeeping—gradually changed.

This paper summarizes briefly the history and development of accounting from the very elementary recordkeeping efforts during the eras of the Greek and Roman empires; through the heights of commercial Italy during the 13th, 14th, and 15th centuries; through the influential period of English merchants of the 16th through 19th centuries; through colonial America, to the present. A de-

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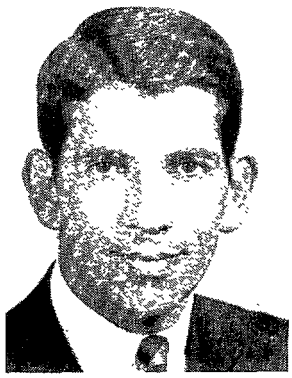


tailed historical analysis has not been made but, rather, only the more significant aspects of the growth and development of the accounting profession have been included.

Influences Prior to the Period of Italian Mercantilism

The earliest samples of recorded transactions were not those of merchants but, rather, were those of Sumerian priests during the period from about 3500 to 1500 B.C. These priests were charged with the responsibility of keeping account of the incomes of various temples. During this period and the ensuing eras of the Greek and Roman empires and on through the Middle Ages, the relatively simple aspects of business ventures created no need or incentive on the part of the merchants of the times to record or document their business transactions.

During the reign of the Greek empire, a man's prosperity and worth were measured in terms of capital rather than income. As a result, most Greek bookkeeping consisted only of records of accounts receivable and accounts payable. The physical nature of Greek record books was quite different from our present-day books of accounts, ledgers, and journals. Greek account books were often fashioned of wood tablets, and, when a liability was discharged, the written evidence of the debt—the wooden tablet—was physically destroyed. Rather than a receipt, the proof of payment became the testimony of an eyewitness who saw the actual payment.

The systems of Greek bookkeeping never progressed to a technical standard of any consequence due primarily to the fact that the Greek economy never progressed to a degree requiring a detailed or systematic method of bookkeeping. Although most accounts were poorly maintained and Greek bookkeeping never developed sufficiently enough to be classified as a single entry system of accounting, a fairly good means of preventing theft, embezzlement, and fraud had been established.

The period following—the Roman era—failed to contribute any significant advances to the field of accounting. It remained evident that capital and income had not been separated. Only occasionally did debits and credits appear. In later years, around 200 A.D., daily journal entries began to appear, and, for the first time, entries in one column were balanced with entries in another. Even though the comparison of figures in two separate columns was the high point of ancient bookkeeping, the figures were placed in two columns for convenience rather than principle.

Historians have stated that the development of bookkeeping systems in this era was further impeded by the use of Roman numerals and Latin in the record books. The use of Arabic numerals was slow to spread through Europe, and, as late as the 16th century, accounts in Europe were sometimes kept in Roman numerals.

The Italian Mercantile Period

For several centuries the development of accounting practices and the accounting profession, as such, remained practically static. During the period 1250 to 1350 the forerunner of today's double-entry accounting system began to develop. The growth and diversification of trade and the expansion of commerce that occurred in

Italy after the Crusades demanded newer and better methods of bookkeeping. Historians generally agree that the double-entry system developed simultaneously in several Italian trading centers. By the early 1300's some merchants had already begun to use equity and expense accounts.

During the 150-year period prior to 1400, the most important development in the fields of business and commerce was the nearly simultaneous evolution of partnerships, principal-agent relationships, and customer credit. The development of partnerships was probably the most important since it led to the recognition of the firm as an entity distinct from its owners. This 150-year period experienced vast geographic exploration and settlement. Merchants began to assume greater risks in efforts to establish markets for their goods. As a result, the principal-agent relationship developed through the consignment of merchants' goods to individuals acting in the merchants' interest.

In addition, widespread customer credit became an influential new element of business. The combination of these three elements necessitated a change in accounting procedures and practices—thus accounting began to develop into a tool of management and control rather than a method to simply balance the books or to safeguard against theft and fraud.

During this period, Italian merchants began the development of cost accounting; reserve accounts were introduced; methods of adjustments and accruals first appeared. For the first time, the books of business enterprises began to reflect the use of double-entry accounting.

During this period of development, the balance sheet took on a new significance. For the first time the balance sheet was used for taxation purposes. The Italian Government enacted into law a combination property tax and income tax. The income tax rate was based on a capitalized value of income from real estate, shares in the public debt, and business investments. The tax law required each individual to file a return, listing all property owned, and also a copy of the most recent balance sheet of any business enterprise in which the taxpayer owned a share. Merchants objected strenuously to the new law because of its inquisitive nature and the freedom given the tax commissioner to examine confidential company transactions. Because of serious protests, the law was repealed shortly after enactment.

Along with the development of the double-entry system of accounting, the first internal auditing system was established in the 1430's by the Medici Bank in Florence, Italy. This first system had one fatal weakness—no visits were made to the bank's branches by the internal auditors—the result in this case—bankruptcy!

Early British Influences

Well into the 16th century, Italian merchants were considered the leading businessmen of Europe. As business grew and commerce expanded, cities became commercial centers, thus attracting young merchants from all parts of Europe. During the 16th century, one such commercial center was Antwerp, Belgium, the favorite academic resource of young English merchants. At this time, however, English merchants had not begun to

use the double-entry method of accounting but, rather, preferred the single-entry method which consisted primarily of a list of purchases and sales.

As was inevitable in all facets of business during this era of commercial development, accounting procedures and practices of English merchants underwent changes. Gradually, forms of double-entry accounting appeared in the account books of English merchants. The early English account books were not meticulously kept and were quite confusing because of the treatment of expenses—no differentiation was made between business expenses and personal expenses. Moreover, merchants' profit and loss accounts served as the "dumping ground" for the items that the bookkeepers did not know how to handle.

For the most part, during the 16th century no effort was made to calculate the actual profit or loss of a period, possibly because personal accounts, especially expense accounts, were combined with business accounts. Balance sheets were not prepared, and journal entries were rarely, if ever, checked. For the most part, merchants failed to realize the advantages of the double-entry system.

Most of the 16th and 17th century authors of bookkeeping texts were teachers of bookkeeping. During this period, emphasis was placed on journal entries. With the evolution and growth of the double-entry method, two different approaches to teaching bookkeeping evolved—the journal method which emphasized journal entries and patented rules, and was favored by the "ancients," and the ledger method which emphasized accounting principles rather than patented entries, and was favored by the accounting revolutionists of the day, the "moderns." The struggle eventually resulted in the deemphasis of the journal book as the main book of accounting.

Near the middle of the 18th century, the ownership theory of accounting evolved. This theory reflected the accounts from the proprietor's point of view—the method commonly used today. This theory brought about the analysis of business transactions as impersonal statistical relationships rather than personal relationships. From this basic theory, it was recognized that the balance of capital accounts was not only the difference between assets and liabilities but also the original balance together with the net effect of changes arising from profits and losses.

The popularity and practical application of the ownership theory gradually increased. Among accountants it became a consensus of opinion that the purpose of accounting was to show the proprietor at all times the value of his capital. By the early 1800's, the basic principles of the ownership theory were firmly established—complete separation of ownership accounts from business accounts and the recognition and thorough understanding of the ownership equation. Thus, the foundation of modern accounting as a tool of management was firmly established.

Accounting in Colonial America

In the 1700's the barter—trading of goods for goods—as the prevalent type of business transaction in

colonial America. Money was scarce and, in many cases, bad. England did not allow the colonial government to mint coins and virtually all the English coins that reached America were returned to England in payment for necessities.

Early colonial bookkeeping was perhaps a century behind its European counterpart. Many colonial bookkeepers were aware of the general principles of the double-entry system of accounting but few recognized any need for perfecting such a system. Most account books showed a dire need for improvement in both legibility and accuracy.

Development of accounting systems was slow because colonial businessmen were generally lax and careless in recording and documenting their business transactions. Furthermore, these businessmen were neither obligated nor required to calculate profits to satisfy tax authorities or stockholders. More often than not the merchant was interested in the profit or loss on one transaction rather than the profit or loss over a period of time.

One of the most significant developments in the growth of double-entry accounting in colonial America was the initiation of credit transfers—purchase orders circulating from hand to hand, thus creating a type of paper money based on a merchant's credit and goods. This process gradually evolved into a formal bill of exchange. Soon after, the colonists formed their version of promissory notes. It was during this period—late 1700's—that formal systems of bookkeeping began developing. With the advent of these new business practices, bookkeepers began keeping their accounts in dollars rather than in English pounds.

Other factors, such as specialized trade and the issuance of coins, forced changes in the colonial system of bookkeeping. By the early 1800's, cash accounts and cash books were in general use. It was in this era that banks appeared. With these institutions came bank accounts, checks, and further refinements in the bookkeeping systems. Thus, through the diversification and expansion of business came the demand for more stringent and refined systems of accounting.

Influences of the British Joint Stock Companies Laws

Many features of the bookkeeping systems in use in America in the late 1800's were modeled after English statutes. Even today in this country many of our accounting and auditing practices are closely related to English law and practice.

In England in 1844 the Joint Stock Companies Act was passed. This law introduced the principles of general incorporation by registration and provided that books of account be maintained properly, balanced periodically, and that a balance sheet, depicting fairly the financial condition of the business, be prepared and presented to all stockholders. This act did not, however, prescribe the format or content of the balance sheet to be prepared, nor did the act require the preparation of a profit and loss statement. The act did require that independent auditors be appointed to examine any or all portions of the financial records of a business. In addition, the auditors were required to report to the stockholders their

opinion regarding the fairness and accuracy of the balance sheet.

Subsequent legislation was enacted to further strengthen the control of the English Government over the preparation, audit, and publication of financial data on English businesses. It was the intent of these laws that a true statement of assets and liabilities be made available for use by all present and potential creditors and stockholders of a company.

In 1856, a new Joint Stock Companies Act was enacted which abandoned compulsory accounting requirements and compulsory audits for registered companies. This law evolved from the general feeling that such matters of accounting should be resolved between the shareholders and the directors. The 1856 act stipulated that dividends be paid solely from profits, a profit and loss statement and a balance sheet be prepared annually, all accounts be audited annually and a report thereon rendered to the stockholders, and all accounts be maintained according to the double-entry system of accounting.

The importance of the corporate form of organization and its relationship to the securities market grew rapidly. The demand for more reliable accounting information increased significantly after the collapse of the city of Glasgow's Bank in 1878—caused by directorial mismanagement and falsification of accounts. This bank failure led directly to the passage of the Companies Act of 1879 which provided for a compulsory annual audit of all banking companies. In addition, pursuant to this act, auditors were required to state whether the balance sheet presented fairly the financial position of the company. Thus, the framework of some of our present-day accounting and auditing practices and standards was established.

The American Post Civil War Influences

History tells us that public accountants were first referred to as such in Scotland in the 1770's. In England a public accountant was considered as a "very capable bookkeeper." Oftentimes these specialists were called upon to assist other bookkeepers in the establishment and development of bookkeeping systems.

During the 1840's and 1850's England experienced tremendous growth in the number and complexity of corporate entities. This opened the field to public accountants—referred to in England as "chartered accountants." Soon, societies were organized, membership's being limited to "chartered accountants." Membership flourished, and the idea of societies of public accountants spread to America. As in England, the idea gained momentum and societies of accountants at both city and State levels began forming.

In New York in 1887, the American Association of Public Accountants, the first national organization of accountants, was incorporated and, shortly after, the organization established a school to educate potential professional accountants.

The duties of these early public accountants included opening and closing of books, preparing customers' bills, and posting to customers' accounts. By the early 1890's, the general duties of public accountants took on the attributes of accounting specialists and auditors rather than

those of simply "very capable bookkeepers." Accountants began to compile statements for executors and examine books of corporations, partnerships, and industries. Soon after, accountants began offering their services as consulting experts and auditors. In 1896, in the State of New York, the first "certified public accountant" examination was given.

By the late 1890's the duties of public accountants closely paralleled the duties of modern public accountants. Periodic expert examinations were made, matters of defalcation were investigated, complicated accounts were adjusted, and financial statements were prepared. In addition, accounting systems for all types of businesses were designed.

Shortly after the turn of the century, the members of several State societies were organized into the Federation of Societies of Public Accountants. The Federation's primary objectives were to promote accounting and auditing legislation and to upgrade the standards of accounting practice. Subsequently, in 1905, the Federation merged with the American Association of Public Accountants to form a strong centralized national organization of accountants.

The Emergence and Influence of the Large-scale Corporation

The advancement of accounting as a profession was greatly accelerated by the growth of the corporate form of organization in the United States after 1900. Public accountants became advisors in the fields of accounting, auditing, securities, and investments. In addition, enactment of Federal income tax legislation opened a completely new field to accountants. Statements on accounting policies and procedures were issued regularly by the national organization of public accountants—which by 1917 was known as the American Institute of Accountants. Also during this year the American Institute administered its first written examination on a national level. This examination was the forerunner of the "certified public accountant" examination as we know it today.

For the first time, the general public was made aware that public accounting was becoming a recognized profession. Because of the increase in the number of large businesses and of the tremendous increase in the number of business transactions, the balance-sheet audit was initiated to replace the type of audit previously used—that being the detailed examination of a great majority of individual financial transactions.

Other Influences

Further events leading to increased prestige and increased demand for public accountants occurred. Enactment of the Securities Act of 1933 and the Securities Exchange Act of 1934 gave the Securities and Exchange Commission the authority to prescribe rules and regulations governing the form of financial statements. Thus, the demand increased for accountants and their specialized knowledge.

In addition, results of court cases involving negligence on the part of public accountants in the preparation of financial statements made the profession aware of the need to modify accounting procedures and auditing standards. As a result, public accountants were forced to assume more responsibility for the verification of ac-

counts—especially accounts receivable and inventories.

Simultaneous with the development of accounting principles and auditing standards and techniques has been the growth and development of the modern-day accounting societies. Of leading importance, there is the American Institute of Certified Public Accountants which until 1957 was known as the American Institute of Accountants. The Institute has played a major role in the professional development of the accounting and auditing fields through the issuance of numerous bulletins, pamphlets, and books concerning both general and specific aspects of accounting.

In addition, the Institute has developed and currently administers the uniform nationwide "certified public accountant" examination to test and evaluate the knowledge of candidates aspiring to become "certified public accountants." To attain the highest level of professional development, the Institute has established as its objectives the raising of standards of the accounting profession, advancing accounting and auditing education and techniques, and creating a unified profession.

Summary

We have seen that, through the centuries, accounting, fostered by necessity, evolved from the crude, elemental methods of recordkeeping utilized by Sumerian priests to the highly specialized field that it is today. This evolution was indeed time consuming, plodding at a pace dictated by the economic structure.

We have also seen that the overall development of accounting was slow and, in many cases, by trial and error. However, accounting is not a static profession; there remains room for further development. The accounting profession continues to change, perhaps not as radically or as rapidly as many other professions, but the profession must continue to develop—once more through necessity—to fulfill its responsibilities to management, to maintain its position of usefulness to business and Government in general, and to meet the needs of the world's increasingly complex economic and social structure.

First Impressions

By William M. Romano

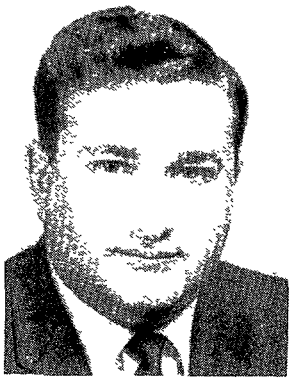
The reactions of new professional staff members to their work experiences in GAO are always of interest.

If I had one sentence in which to express my feelings to a prospective employee about my first year with the GAO, it would be this: If you think that by graduation from college you have been relieved of study, lectures, reports, tests, and grades—you could not be further from the truth. My most vital concern, as a senior at St. John's University, was to graduate. Graduation, however, meant more than receiving a degree. It meant liberation from the things described above.

Was I surprised when the Regional Office urged all staff members to enroll in a home study course entitled "Basic Computer Systems Principles." I found myself studying every night at the same time and desk as I did in high school and college. Two study habits developed in school proved extremely helpful in meeting the requirements of the course: concentration and perseverance. This was so because the course consisted of six sections with each section requiring at least 5 hours of study. Also, at the completion of the course the student is asked to prepare a program flow chart based upon what he has learned throughout the various sections. A program flow chart is a pictorial representation showing the sequence in which computer operations are to be performed.

At St. John's, the average semester credit hours given are 16. This amounts to 4 hours of lectures every day. However, during our training seminars held at the Regional Office, 8 hours of lectures a day were given—twice as much as in college.

Mr. Romano recently transferred from the New York Regional Office to the International Division in Washington, D.C. He joined GAO in 1966 after graduating from St. John's University, New York, where he received his bachelor's degree in business administration.



In college, we had to write at least one term paper for every course taken. In GAO it seems that every day a term paper is written. We have a report in the nature of a summary or memorandum for almost every distinct phase of an audit assignment. Also, the reports that are written during an audit will often involve a review of regulations or procedures, which is similar to the library research made in preparing a term paper.

Moreover, writing this article for *The GAO Review* has required the same kind of effort one encounters in the preparation of a paper at school. Perhaps even greater application is necessary in writing an article of this type. For example, in choosing a subject it was not sufficient to interest one reader (the prof) but a professional staff of over 2,300 members.

And when I completed my first assignment (a review of certain Internal Revenue Service functions), I felt the same apprehension as I did at the end of a final examination in college. The same questions raced through my mind awaiting the results:

- Was my information correct?
- Did I pass?
- Did I follow directions?

However, when I put down my pencil at the completion of the final examination in June of 1966 at St. John's, I had no intention of receiving a report card again. I was astonished to learn from our training coordinator that we would be graded under the performance rating program described in Comptroller General's Order No. 1.30. These performance ratings would show how the questions that ran through my mind had been answered.

The basic difference, however, between college and the GAO is that the lectures, tests, and grades that seemed so theoretical in school have taken on a practical aspect that gives them more interest. Similarly, outside readings on accounting, auditing, and the Federal Government have become more interesting because I can often see their application to the type of work I am doing.

Finally, I have found during my first year with the GAO that, while knowledge is important and necessary, it does not become powerful until it is put into action. One's success in life will be governed by the skill and effectiveness with which he puts his knowledge to use. This seems especially true at the GAO. But although the training that a new employee receives is important, the way he applies this training will determine his success.

What Accounting Majors May Expect in Government Service

By Zane Geier

This commentary is based on a presentation made by the author at a seminar on the outlook for accounting majors held at the University of Georgia, the Georgia Center for Continuing Education, Athens, Ga., May 5, 1967.

The General Accounting Office

Before discussing what accounting majors may expect in Government service, let me take a moment to explain what the U.S. General Accounting Office is. This Office is headed by the Comptroller General of the United States and is an arm of the Congress. Its main function is to conduct audits and investigations of how the many agencies of Government discharge their stewardship of public money and resources. Its work embraces almost all Federal programs, including performance by Government contractors under negotiated contracts. It also reviews the activities of State, local, and foreign governments where Federal funds have been used.

What the Government Expects of Accounting Majors

The Common Body of Knowledge study sponsored by the American Institute of Certified Public Accountants and the Carnegie Corp. suggests an impressive array of knowledge that a beginning CPA should have—

Accounting and computer operations

Humanities, particularly logic, ethics, and written and spoken English

Behavioral sciences

Law

Mr. Geier is an audit manager in the Atlanta Regional Office. He is a graduate of the University of Alabama where he was a member of Phi Eta Sigma honor society. He has been a member of the GAO staff since 1951. He is a member of the National Association of Accountants, the FGAA, and the Harvard Business Club of Atlanta.

Mathematics, statistics, probability
Functional fields of business.

Knowledge in these fields is also required of Government accountants, auditors, and comptrollers. Obviously, then merely having taken University of Georgia Course No. 518 in governmental accounting is not enough. The Government's requirements of accountants extend far beyond classification of receipts, expenditures, and obligations; beyond budgeting and accounting; and beyond preparation of reports.

On the other hand, in spite of increasing complexity and scope of programs, we in the Federal Government do not expect accounting majors to have graduated with an expertise in certain functional fields that are more or less peculiar to Government. Examples of such fields include military logistics and the transport, quartering, and supply of forces. Nor do we expect accounting majors to come to us with a knowledge of Government procurement practices, including the intricacies of the newer forms of contracts such as fixed-price-incentive type and option/incremental procurements.

Rather, we except accounting majors to have a sufficiently well-rounded background and be sufficiently flexible to adapt to new ideas, approaches, and techniques as new Government programs, technology, and social and economic changes evolve.

We expect accounting majors in Government service to put their knowledge to use effectively and to develop and expand that knowledge through self-education and by taking advantage of Government-sponsored continuing education programs. We expect them to align themselves with the accounting profession and to participate in its many activities and organizations.

What Accounting Majors May Expect in Government

In the next 10 years or so, the need for accountants will have greatly increased because of the following factors:

—The increasing complexity and scope of Government programs. The Federal budget now exceeds $140 billion annually and will undoubtedly go higher. State and local government budgets are increasing comparably as services are expanded with population growth.

—The expanding boundaries of our knowledge in all fields. Technology is increasingly dominant in Government, and accountants and financial administrators must continually innovate to adequately serve managerial needs in such areas as the missile and space programs, medical and scientific research, and nuclear energy. The new TVA 2.3 million kilowatt nuclear powerplant at Brown's Ferry, Ala., presents some unusual accounting problems regarding nuclear fuel inventories.

—The automation explosion as it affects the accumulation, transmission, storage, and retrieval of information used in managing Government programs. The Internal Revenue Service will continue to expand and obtain more usable information from its regional tax return processing cen-

ters. The military services will continue to upgrade and tie in through data transmission links its already vast networks of computers used in inventory management. Complex logistics problems of supply and distribution will require increased application of matrix and linear programing techniques using computers.

—The extension of the sphere of auditing in Government further beyond the traditional financial areas into the whole field of management performance. The General Accounting Office is in the forefront of this movement.

—A broad advance in organized problem solving through the use of "cost-benefit" or "cost-effectiveness" techniques. This involves important changes in the programing, planning, and budgeting procedures in the Federal Government. This system was directed by the President in 1965 to be used throughout the Federal Government. The new system brings "inputs" and "outputs" into sharper focus; that is. it permits more informed judgments in choosing between alternative courses of action because the "means" and the "ends" are more clearly defined through use of better data. Accountingwise, the new system provides for programing and control of Government operations and resources in terms of costs, inventories, and working capital as well as in terms of appropriations and obligations as in the past. The GAO will be working closely with the Bureau of the Budget and other executive agencies for several years before the accounting and budgeting systems of all agencies can be converted and operated smoothly under the new system.

The accounting major may also expect more attention to be given to the human side of accounting in Government. New techniques are evolving which will permit greater flexibility in utilizing the services of top Government accountants and other important members of the management team in the areas where their services will do the most good—in agencies and positions where the need is the greatest.

The Civil Service Commission recently announced a new program which will permit top accountants and Government executives to shift from one agency to another as the need arises. This will increase the horizons for the accountant as well as increase the benefits to the Government.

Federal Government Accountants Association—Symposium Notes

The 16th annual symposium of this association was held at the Sheraton Park Hotel, in Washington, D.C., June 14–16, 1967. Twenty GAO staff members from the Washington divisions and the regional offices were authorized to attend.

Because of the large number of general sessions and technical workshops held, it is not practicable in this publication to include a comprehensive report on the proceedings. The following notes on specific addresses and sessions are based on reports from the following individuals who attended.

Daniel Borth, Jr., associate director, Defense Division.

Lloyd Nelson, associate director, Civil Division.

William L. Campfield, assistant director, Office of Policy and Special Studies.

Francis W. Lyle, assistant director, Office of Policy and Special Studies.

Frederick K. Rabel, assistant director, Civil Division.

Joseph J. Donlon, Jr., supervisory accountant, Defense Division.

David Lowe, supervisory accountant, Defense Division.

A. R. Shanefelter, Jr., supervisory accountant, Defense Division.

Federal, State, and Local Governments Partners in the Decisionmaking Process

This topic was the subject of the keynote address delivered by Congressman Glenard P. Lipscomb of California.

He stated that Federal, State, and local governments have been partners from the very beginning of our Nation. But never before has such widespread attention been focused on this partnership.

The partnership in intergovernmental relations, he stated, is most likely to be thought of in terms of grant-in-aid programs. True, grant-in-aid programs, which have increased rapidly in numbers in recent years, account for most of the interactions between the Federal Government and other components of our Federal system. Yet, we must not overlook the fact that we have had a partnership for many years and that it has been evidenced in many ways. The very establishment of our National Government was the result of a partnership—a partnership of States banded together under the Constitution to meet common objectives; to form a more perfect Union; to provide for the common defense; to promote the general welfare of the people. The creature of the partnership became a partner of its creators.

In keeping with the theme of the symposium, Mr. Lipscomb said:

"Decisionmaking at all levels of Government is inherent in the administration of grant-in-aid programs. Decisions as to the object of the programs—designed to achieve national purposes or goals—are made by Con-

gress which establishes the framework of the program. Substantive policy lines are laid down by the Federal Government. But the States and their political subdivisions are given primary responsibility for administration, for making the day-to-day decisions."

In addition to improving administration, it was his view that a hard look should be taken at requirements imposed by the Federal Government to determine whether they impose undue burdens on State and local governments.

He summarized some of the complaints in the following manner:

—Grant conditions do not provide sufficient discretionary authority to enable State and local governments to apply funds to needs of highest priority.

—The requirement that States designate a single agency to administer a particular program interferes with organizational flexibility.

—Bypassing State governments through grants to local units weakens State planning and control.

—Lack of coordination between Federal agencies hampers administration.

—Different planning, accounting, and reporting requirements make for administrative difficulties.

—A multiplicity of audits interferes with administration.

The Congressman considered some of the ways in which Federal accountants and auditors can be used and some steps that they can take to smooth administration, reduce friction, and contribute to harmonious relations between the partners in Federal-State-local relationships. He stated that:

—They can be employed more effectively in drafting legislation—particularly those parts relating to financial controls which should be made a part of every new program, or extension or revision of existing programs.

—Their technical skill and experience can be used to a greater extent in formulating agency plans, regulations, financial provisions, operating and financing controls, and accounting, auditing, and reporting requirements applicable to such programs.

—Their knowledge of other programs, including those administered by other agencies, can be used to hold to a minimum variations in requirements that are so burdensome to State and local governments.

—They can assist in devising effective programs for reviewing progress and adherence to program objectives.

—In their audits at State and local levels, they can direct their attention to searching for ways in which operations can be carried on more effectively; they can seek out and suggest methods for eliminating deterrents to program accomplishments inherent in requirements imposed at the Federal level.

—They can render advice to State and local governments on their accounting, auditing, and reporting systems, including their systems of internal control.

—They can formulate informed judgments as to whether use of grant-in-aid programs is the more effective means of affording aid to State and local governments in meeting demands for increased public services.

Project PRIME—Department of Defense

This project was the topic for technical session A addressed by Robert N. Anthony, Assistant Secretary of Defense (Comptroller). Five concepts underlying Project PRIME were the essence of his talk.

First, he advanced the theory that operations are best expressed in terms of expenses rather than in terms of disbursements or obligations. Depreciation as a consideration in expense-determination was designated as a factor deserving study at some later date.

Second, he espoused the importance of separating expenses from working capital at the working level, even though at the top echelons of governmental management there might appear to be little impact on the decisionmaking processes.

Third, Mr. Anthony raised the issue as to whether and why operating management should be charged for the cost of goods and services consumed. In support of his affirmative position on this issue, he inquired into the usefulness of the necessary accounting paperwork and the matter of determining whether the application of the principles had been extended too far.

Fourth, in explaining the concept of working capital, he concluded that there was no alternative to holding assets in suspense, either through the use of working capital *funds* or working capital *accounts*.

He pointed out that working capital concepts need considerable explanation to those unacquainted with their objectives, mentioning those in the research and development areas as being opposed to the extension of industrial funds. On the other hand, he indicated how stock funds, a form of working capital, provided greater visibility to improve supply management.

Fifth, Mr. Anthony discussed the importance of gaining an appreciation of the complexities of data collection under an accounting system to achieve the objectives of Project PRIME in support of the Planning-Programming-Budgeting System.

Accounting Principles and Standards

Leonard Spacek, CPA, Chairman, Arthur Andersen & Co., addressed technical session D on the subject "Who Are the Partners."

Mr. Spacek defined accounting as the scoreboard of economics. He stated that both private and Government accounting must be beneficial to all segments of the public. He believed that there is a need for the accounting profession to develop concise and specific principles and standards.

To property rights he stated that the accountant is much like an umpire. However, under current accepted procedures, a "pitcher could dictate the size of homeplate" and this would be generally accepted by accountants.

He discussed the features of independence and responsibility in accountants and stressed the need for a final arbiter to determine precisely what are the accounting principles and standards. He took exception to the

use of precedence as the basis for acceptance of accounting standards without an analysis of the precedence to determine if it is applicable in today's world. He summarized his remarks by stating that "no rule is right by authority" but that reasoned decisions which are right, fair, and beneficial to all segments of society should be the foundations of principles and standards.

Federalism

Representative L. H. Fountain of North Carolina, Chairman, Intergovernmental Relations Subcommittee, spoke on "Today's Federalism" at a luncheon session. Representative Fountain pointed out that in order for States and local governmental units to better meet their responsibilities, several improvements must first take place. He called for action for (1) States to become stronger and more involved with the needs of people, (2) local communities to obtain more authority with regard to administration and taxation, (3) better administration of Federal grants by the Federal Government and State governments, (4) effective use of the States' broad base tax power, and (5) streamlining State legislatures and Governors' offices.

Federal-State Relationships in Grant Administration

James F. Kelly, Assistant Secretary, Comptroller of the Department of Health, Education, and Welfare, addressed technical session E on this topic.

He called attention to the dramatic rise in Federal grants-in-aid to the States which have risen 500-fold, since World War I, from $30 million in 1920 to $15 billion in 1967. He expressed the belief that a turning point has been reached where it is recognized that the old system of weak State and local government and minimum coordination between Federal, State and local levels is no longer tolerable, and that a new system must be constructed. Mr. Kelly discussed several new approaches, which have been recently taken, in order to create the needed new concepts of cooperation.

In response to a Presidential request for simplifying the grant-in-aid structure, the Secretary of HEW and the Budget Director have set up a task force which seeks to establish a model plan which will guide new legislative programs and create a framework in which individual programs may be carried out.

Another task force was formed by the Budget Director to develop a workable plan of grant simplification in consonance with the President's message of March 17, 1967, on the Quality of Government. This task force is particularly concerned with the merger for administrative purposes of projects with multiple sources of funding or separate projects with similar purposes.

A study group on effective planning has been formed by the Secretary of HEW, which is to address itself to the problems created by the disparities between the Federal appropriation cycle and the planning and operating requirements of the Nation's school systems.

Particularly noteworthy, in the area of simplified grant administration, is the enactment of the Comprehensive Health Planning and Public Health Services Amendments of 1966 (P.L.

89–749) which will facilitate a considerable degree of consolidation of health grants to State and local agencies. The combining of several categorical grants into a single "block" grant will permit the States more flexibility.

Also noteworthy is Senator Muskie's Intergovernmental Manpower bill of 1967. An important feature of the bill is to permit temporary assignments of personnel between Federal and State and local governments.

Mr. Kelly stressed the need for understanding and responsive Federal officials who realize that Federal dollars and Federal directives alone cannot meet the needs of the communities. He also referred to the need for the devoted and single minded attention of elected State and local officials. Mr. Kelly stressed the special need to overcome the emerging shortage of professional manpower which he believes is the weakest link in the chain of Federal-State-local relationships.

Mr. Kelly referred to the vital role which the financial management staff has in the achievement of management goals. He believes that financial managers of all disciplines, whether budgeteers, auditors, accountants, or others, must become an integral part of program management that serves the needs of all parties. In this context, he believes that greater reliance will have to be placed upon the internal audits of States and localities; that Federal requirements need to be designed to better serve the needs of the grantee; and that more effective use should be made by grantees of automation in financial management, and in information and support activities.

Role of the CPA in Federal-State-Local Programs

Hilliard R. Giffen, president of the American Institute of Certified Public Accountants, gave an interesting address outlining the role of the certified public accountant in financial affairs as found in Federal, State, and local government programs.

He reported that he had suggested to State societies of CPAs that their members should have a keen interest in State and local government programs whether financed entirely by the State or in part by the Federal Government. In summary, this segment of his speech related to the interest that certified public accountants should have in the problems of society, and the awareness they should have of what is going on in Federal and State governments, since these entities are becoming increasingly a major factor in the nature of the national economy and in the financial affairs of our Nation, and are becoming the control mechanism for the spending of a significant part of individual and corporate income.

Mr. Giffen dwelt at length on the problem of staffing the profession with truly competent men and women and how to encourage young people to prepare for entry to the accounting profession. He indicated that in the student bodies of our Nation, and in the citizenry in general, there is a lack of understanding of what accounting is all about. Many young people do not express an interest in, nor choose to enter the accounting profession, because in his opinion they do not have a perception of what an accountant does, what judgments he must exercise, or what his role

may be in the financial community and in the community at large.

He observed that accountants needed to be more visible in community affairs. He felt they often are so busy with their profession that they do not take time out to be involved in local matters of a religious, civic, charitable, or political nature. Accordingly, he called upon accountants everywhere to be more active in these affairs at the local and other levels so that they will become known as a professional group that has a broad interest in the social or service aspects of society.

Mr. Giffen expressed concern for the adverse picture of the accountant that is often found in the press and other modes of mass communication. He pointed out that one or two accountants who commit acts that are adverse to the profession cause a reflection on the entire body of accountants. He urged understanding that such isolated instances are clearly not representative, but receive inordinate attention because of the nature of the event.

He pointed out that about 8 years ago the American Institute of CPAs created a Washington office that is staffed by a full-time director. The AICPA had become aware of the important role of Government in our society and, looking to the future, thought it well to have an office that gave its primary concern to activities of the Federal Government and their relationship to the public accounting profession generally.

Mr. Giffen noted that the 20th century included among its many phenomena the remarkable growth of the accounting profession. This growth was essential because of the expansion of industry and commerce, the expansion of government, and the interlocking of both. There came into being the imposition of new Federal controls on corporate stock and bond issues. The intricate problems of income taxation by the Federal Government and other government entities created a vast new need for accountants. All of this development taken together has created a challenge to the accounting profession and an opportunity to be a partner in the decisionmaking process at various levels of government, industry, and commerce.

PPBS and the Financial Manager

This workshop was presented in four segments, as highlighted below.

The PPB Concept.—The discussion leader of this segment was Ben Posner, Assistant Director for Administration, USIA.

Mr. Posner repeatedly underscored the ideas that PPB is not necessarily a revolutionary idea; rather, it is another means of expanding the effectiveness of management decisionmaking. However, he admitted that it is a new way of looking at overall management planning, controlling, and measuring in terms of outputs or products instead of focusing on resources put into place. Among the necessary ingredients of successful PPB operation are the following:

Analytical capability to study possible alternatives, costs, and expected benefits.

Existence of planning-budgeting-performance experience over a substantial period and use of experience insights in the decisionmaking process.

Existence of an orderly budgeting process which can translate objectives and goals into action programs and the means of financing such programs.

An adequate accounting system which permits the collection, classification, and reporting of the financial data necessary to support the PPB system.

Mr. Posner stated that an organization must have acceptance of the PPB idea and willingness to use the tool from top management down through the ranks if it expects successful application.

Accounting Support.—Reece Harrill, Senior Consultant, Management Assistant Corporation, used a series of charts to demonstrate an accounting system which would support PPB as well as other management requirements. In his view, the accounting system is constructed by initially looking at an organization's requirements from top management down to the least performance center. Hence, the building of accounting classifications, etc., would appear in the first instance as an inverted pyramid. Data, however, are collected and reported from the bottom up; that is, the normal pyramid progression from the foundation to the pinnacle. Therefore, the cost accounts at the responsibility center level are the initial building blocks for accounting information.

Mr. Harrill demonstrated the relatively easy manner in which the essential cost summaries can be adjusted to provide the linkage with obligation and appropriation accounting. To demonstrate this, Mr. Harrill used a matrix illustration of alternative methods such as: "the stepdown method," "the checkerboard method," and the "crosswalk method" of converting costs to expenditures to obligations for a period. Mr. Harrill's illustrations demonstrated that the accounting system could be constructed to take care of internal and external reporting needs with equal ease.

PPB as Part of the Management System.—Frank Krause, Office of Financial Management, Bureau of the Budget, traced the evolution of PPB from its predecessor systems such as program budgeting, performance budgeting, and cost-based budgeting. Mr. Krause underscored the fact that PPB encompasses the further development of the evolution of the Federal budget process. It emphasizes more systematic use of planning and economic and quantitative data to further strengthen the total process. As such PPB is considered to have great potential for rational decisionmaking at all levels in the formulation of the Federal budget and in the more efficient execution of improvement programs.

Mr. Krause related some of the experiences of the various agencies with PPB systems from the time the Bureau of the Budget issued its first formal instructions in BOB Bulletin No. 66–3 (October 1965) up to the Fall Preview of the 1968 budget conducted by the Bureau. He made these points about this experience:

The Spring Preview of the 1968 budget was conducted on the basis of agency PPB submissions. The quality of those submissions showed considerable variation, reflecting the size and complexity of the job; the tight time schedule; the lack of staff with quantitative and economic analytical ex-

pertise; and, the need for experimentation in the agencies to get the most effective application. Nevertheless, important benefits were gained—these included better identification of programs and systems costs in the agencies, more in-depth analyses and cost-benefit comparisons, and more complete display of total program efforts in the major agencies. More important, the Preview identified problems of application in the agencies that laid the groundwork for more effective development and application of the system in the future.

This initial experience set the direction of further developmental efforts in preparation for the Fall Review of the 1968 budget. For example, consideration was given to changes in the program structure of several agencies and steps were taken to "firm-up" and strengthen selected analyses and program memorandum in individual cases. In addition, Bureau of the Budget Circular No. A–11 was revised to begin integrating PPB into the regular budget formulation process. The circular now requires a schedule showing the translation of financial data from the PPB program and financial plan into the appropriation structure used for budget presentation, and it provides that the cost data used in the PPB and the appropriation schedules shall reflect the same concepts and timing so that both presentations are on the same financial basis.

Mr. Krause pointed out the PPB is supported by many information systems such as budget systems, accounting systems, economic analyses, and various data processing mechanisms. All of these systems are being used in the Federal Government for the first time as an integrated way of revealing to top management total objectives, goals, and prospective programs.

Congress and the Budget.—This section was conducted by Paul Wilson, assistant clerk and staff director, Appropriations Committee, House of Representatives. Committee work is the distinguishing feature of the manner in which Congress operates. There are, for example, 13 subcommittees which consider appropriation requests. Most of Mr. Wilson's discussions centered on the problems and difficulties of congressional analyses and review of appropriation requests by executive agencies. Essentially, this discussion was an historical perspective of evolutionary change in the appropriations process. Mr. Wilson concluded his discussions with the view that PPB should significantly improve decisionmaking in the executive branch of Government. He was not sure at this stage that there would be any significant short-range changes in the way in which Congress conducts hearings on the annual budget and makes its annual appropriation of funds.

Principles of Financial Management

Frederic H. Smith, Deputy Director, Office of Policy and Special Studies, conducted the workshop on this subject.

The opening session was a panel discussion featuring the members of the Joint Financial Management Improvement Program Steering Committee on the subject of activities and problems related to financial management improvements. The panelists were William J. Armstrong, Chief, Office of Financial Management, BOB;

L. D. Mosso, Assistant Commissioner, Bureau of Accounts, Treasury Department; William A. Medina, Director of Financial Management and PBBS Training, CSC; and Frederic H. Smith, Deputy Director, Office of Policy and Special Studies, GAO. The panel discussed several subjects of current interest including the kinds of information needed by managers, current activities and projects of the JFMIP, current emphasis being placed on financial management by the President and the Congress, the proposal Legislative Reorganization Act of 1967, the role of the Civil Service Commission in recruitment and training of financial personnel, and the Government-wide career referral system currently being developed.

The second session was conducted by Seymour E. Blum, Acting Director of Management Services, Federal Aviation Administration (FAA), on the subject of organizing for development of an integrated financial management system. Mr. Blum indicated that the integrated financial management system at FAA is being developed by agency personnel without outside assistance from contractors. The program has the backing of the Administrator and is being directed by a steering committee composed of high level officials at headquarter levels representing the interest of both system designers and users. It operates through work groups which cut across organizational lines to assemble all the various experts required to design a system adequate to management needs. Counterpart organizations have been established in field installations. The program includes the following important features:

Policy statement.

A time phased schedule.

Definite assignments of management responsibility.

Use of working groups cutting across organizational lines.

Cooperation with the central agencies.

Training courses for executives and supervisors.

The next session was conducted by John Hall, Chief, Management Systems and Organization Branch, Bureau of the Census. He described the management information system of the Bureau of the Census which includes a cost accounting system based on accrued costs reconciled with obligations at the appropriation level for budgetary purposes. Mr. Hall illustrated the management benefits of the system through specific examples involving early identification of out of line situations and corrective action which resulted in savings.

Frank Krause, Office of Financial Management, Bureau of the Budget, spoke on current developments and what's ahead in planning-programing-budgeting in the Federal Government. He stressed the need for better communications between accountants, budgeteers, and management.

John P. Abbadessa, Controller, Atomic Energy Commission, described the AEC management information system integrating planning-programing-budgeting system and accounting. The AEC accounting system is based on costs which are reconciled with obligations at the appropriation level for budgetary purposes. Mr. Abbedassa emphasized the use of cost information in the topside decisionmaking processes.

American Accounting Association—Annual Meeting Notes

The American Accounting Association is a national organization of over 11,000 members composed of accounting educators, accounting practitioners, and other persons who are interested in the advancement of accounting. The 51st annual meeting of the Association was held from August 28 through 30, 1967, on the campus of the Pennsylvania State University at University Park, Pa. The following six GAO staff members attended this meeting:

Leo Herbert, deputy director for staff development, OPSS.

H. Edward Breen, assistant director for staff development, OPSS.

Harley R. Climpson, assistant director for staff development, OPSS.

William L. Campfield, assistant director, OPSS.

George A. Gustafson, supervisory auditor, San Francisco regional office.

William T. Stevens, supervisory auditor, San Francisco regional office.

Notes of interest on the sessions attended by the above follow:

Problems of Conglomerate Reporting

Presiding: Clarence L. Dunn, Louisiana State University, vice president, American Accounting Association.

Speakers: David Solomons, University of Pennsylvania; David Norr, First Manhattan Co.

The speakers approached the subject from the business community-investor point of view as opposed to the managerial-operational viewpoint. Both emphasized that the only real reporting problems of conglomerates attached to the need for more meaningful, segmented, disclosure data for purposes of potential investors and existing shareholders. This need, they noted, had been recently magnified by the quickening and hardening critical comment in the financial press as well as the increasing concern of the Securities and Exchange Commission with respect to the dearth of financial information flowing to the security markets, as related to the component parts of the "conglomerate(s)."

Mr. Norr adopted the definition advanced by Prof. Robert K. Mautz, University of Illinois, in his article "Identification of the Conglomerate Company" in the July 1967 issue of *Financial Executive:*

> "A conglomerate company is one which, because it is managerially decentralized, or lacks operational integration, or has diversified markets, may experience internally varying rates of profitability, degrees of risk, and opportunities for growth."

Mr. Norr noted that the investor's dilemma and hence the conglomerate reporting problem were rooted in the

very extensive variations which characteristically occur in one or more of the three elements of profit rate, risk, and growth among the component parts of the conglomerate. Without information as to these variations, investors and shareholders alike have no basis on which to make intelligent decisions. Mr. Norr concluded that conglomerates would have to come to some detailed breakdown as to divisional data, profit centers, etc., to enable investors to discern "trigger" items. He advocated gross profit reporting for the component but would leave to management whether the data should be presented according to classification, organization, product lines, etc. He did not favor "after taxes" reporting because of tax allocation effects.

Professor Solomons called attention to the differences in diversification by evolution or growth and diversification by acquisition. He observed that diversification by evolution historically created vertical entities with strongly centralized management. On the other hand, the modern-day phenomenon of diversification by acquisition has "fathered" the conglomerate. He noted that the greater the diversification of the conglomerate the less sharing of assets and commonality of cost centers. This truism, however, does ease one of the conglomerate reporting problems to the extent there is less opportunity for and less influence of common costs allocations and intracompany pricing.

Both speakers stressed the burden on management to produce meaningful detailed disclosure data in a conglomerate company. Foremost among the difficulties is the problem of cost allocations. But they both concluded that segmented data must be reported and that it would be more desirable for conglomerate management to take the initiative in this respect than to await a regulatory mandate. The principal questions are: (1) What is the reporting unit to be? (2) What information is to be disclosed? Neither speaker offered concrete answers to these questions but would leave the solutions to the discretion of conglomerate management, albeit advocating gross profit level reporting, segmented as much as possible, wherever feasible.

International Financial Reporting and the AAA Basic Standards

Presiding: Gerhard G. Mueller, University of Washington.

Speakers: Kenneth Berg, University of Washington; Gerhard G. Mueller, University of Washington.

This session was a discussion by members of the Committee on International Accounting. The committee's charge is to appraise international reporting and to associate the reporting objectives with the basic accounting standards of the AAA. International reports were examined in the light of the standards of relevance, verifiability, freedom from bias, and quantifiability. The committee reached the conclusion that the standards of the AAA are useful and can be used as guidelines for international reporting.

External Reporting

Presiding: Eldon S. Hendrickson, Washington State University.

Speakers: R. Gene Brown, Stanford University; Thomas F. Keller, Duke University; Alfred Rappa-

port, Northwestern University; Samuel R. Sapienza, University of Pennsylvania; Jay M. Smith, Jr., University of Minnesota.

This session was a report by members of the Committee on External Reporting.

The committee is charged with developing a framework for external reporting in terms of the four basic accounting standards — relevance, verifiability, freedom from bias, and quantifiability—set forth in the 1966 *A Statement of Basic Accounting Theory*. The committee, in approaching the problem, delimited report users to two classes—creditors and equity investors. System inputs and decision models for these groups have been tentatively identified. However, a prediction model linking inputs with outputs remains to be developed, and therefore, the committee reported only its progress to date.

Essentially the committee's actionable plan calls for determining appropriate inputs by testing them against each accounting standard within a hierarchy of objectives, concepts, and methodologies. The scheme seems highly adaptable for GAO reporting especially when recast into GAO's set of accounting standards (which necessarily differ from those of the American Accounting Association) and ultimate users, but final assessment of its practical usefulness in GAO work must await completion of the committee's study and its final report.

Accounting Practices of Not-for-Profit Organizations

Presiding: Edward S. Lynn, University of Arizona.

Speakers: William L. Campfield, General Accounting Office; Robert J. Freeman, University of Alabama; Fred J. Mueller, University of Washington; Glen G. Yankee, Western Reserve University.

Professor Mueller who discussed budgeting aspects, noted that governmental organizations emphasize so-called expenditure budgeting—spending the amount of appropriations and avoiding overexpending appropriations. He stated that the philosophy has been to use the budget as a device to obtain funds from the legislative bodies, rather than as a device to obtain control of operations. He also pointed out that cost consciousness and efficiency of performance should be the factors which are pertinent in operations of NFP organizations. He called for establishment of cost goals and comparison of actual results with these goals for control purposes.

William L. Campfield, U.S. General Accounting Office, discussed planning and control. He stated that "cost" can be viewed as "resources used in operations." He also stated that there is greater need for awareness of costs and that the concepts which are useful for profit organizations are likewise useful for NFP organizations. Availability of funds is not the whole story; cost planning and cost control with emphasis on outputs of as well as inputs into operations are also needed.

Professor Yankee, who discussed reporting, stated that as yet there has been no general acceptance of having (1) a consolidated statement showing all assets, and all liabilities and equities after elimination of all interfund

items, or (2) a consolidated statement showing (a) a total column, (b) a separate column for each fund, and (c) deduction of interfund items at bottom. He stated that NFP organizations seldom present revenues and expenditures together in one statement; if it is done, it is generally in the form of "changes in equity statement," without disclosing the cause-and-effect relationships.

Professor Freeman discussed problems of accounting for fixed assets, with emphasis on depreciation accounting. He made a plea for (1) full disclosure of all transactions—cost of acquisition through purchase as well as donations; (2) recognition of depreciation—it may be desirable to show cause-and-effect relationship in supplemental schedules; and (3) disclosure of disposals and explanations thereof.

Independence and Management Services in Public Accounting

Presiding: James B. Bower, University of Wisconsin, vice president, American Accounting Association.

Speakers: Bertrand J. Belda, Ernst and Ernst; Walter G. Kell, University of Michigan.

Mr. Belda defined "independence" of accountants as objectivity, professional detachment from clients, and high integrity. He stated that CPAs possess these attributes; any deviations would open up the CPAs to criticism and their practices would be in jeopardy. He also stated that these same factors of "independence" apply to both the attest function and to management services, and that "independence" is a relative thing, in the sense that it is more "appearance" rather than of "fact." He also added that those who are questioning the auditor's independence may not have knowledge of auditing as such, and that the auditor's involvement in management services is as old as the practice of auditing itself.

He also added that the attest function with respect to financial statements involves advice to the management just the same as that of the management service function. Therefore, in reality, the issue is a question of the CPA advising the client, rather than a question of decisionmaking function.

Mr. Belda concluded that it was a question of "competence" and not "independence." He raised the question whether CPAs should restrict their activities only to management services affecting accounting (an activity in which they are competent) and not to other areas, such as plant layout. He answered the question by saying that CPAs have wide knowledge about organizational structures, and if they run into trouble beyond their competence, they cope with it by hiring nonaccountants, who are specialists.

Professor Kell referred to "management services" as the "irresistible force," and "independence" as the "immovable object." He believes that something needs to be done immediately about solving the problem, since (1) there is such a wide diversity of opinion about this issue, e.g., some fail to see the issue as a problem of conflict of interest; (2) 25 to 50 percent of some firms' practices are in the area of management services, and (3) SEC, financial analysts, and others are questioning the CPAs independence. Although he recognized

that "independence" is not susceptible to precise definition, he defined two kinds of independence: independence "in fact," in which there would be no question of a conflict of interest as supported by the facts; and independence "in appearance," in which there could be a conflict of interest in the sense of how others see the issue.

Professor Kell made the following four proposals.

1. The AICPA should officially recognize two kinds of management services: broad information system type; and administrative services type. The second suggests a conflict of interest.
2. Rule 1.01 of the Professional Code of Ethics should recognize two kinds of independence: "in fact"; and "in appearance"; and the rule should be revised to specify that an auditor who performs "administrative services" is not independent and if such service is performed, in addition to the attest function, a disclaimer of opinion is in order.
3. The code of professional ethics should be revised to specify that they apply 100 percent to management services, except in the area of accounting systems; thus services rendered in area of "administrative services" would be incompatible. Nothing would prevent the CPA from hiring outside assistance for this work.
4. Generally accepted standards should be established for management services, similar to those now in existence for the attest function.

Information Systems and Managerial Accounting

Presiding: Gordon Shillinglaw, Columbia University and IMEDE Management Development Institute—vice president, American Accounting Association.

Speakers: Hector R. Anton, University of California at Berkeley; Peter A. Firmin, Tulane University.

Commentator: Norton M. Bedford, University of Illinois.

Professor Firmin stated that (1) there is a fine line between a "management information system" and a "decisionmaking system"; (2) a computer is not necessary in a management-information system; and (3) a management-information system can be an integrated system, or set up separately (nonintegrated) in which the "total" system would be the sum of the parts. The computer, however, has assisted in handling the whole problem of inputs and outputs. He also stated that management-accounting system is a part of the management-information system, and it deals with eight functional elements: perception; recordation; storage; retrieval; planning; recoding; training; and decisionmaking.

Professor Firmin summarized his presentation by saying (1) we must teach management-information systems to our students, who will be tomorrow's leaders and who will, in the large sense, do as we teach them, and (2) to be a good management accountant requires (a) knowledge of all phases of management (marketing, production, etc.), and (b) knowledge of mathematics. That is, we need interdisciplinary approach and we need

to be not only knowledgeable, but also operational in these areas.

Professor Anton stated that a management accounting system must be "goal oriented." Goals should be set as part of management information, so that management can take them as given. The organizational structure is also a "system" and it is also goal oriented. The difference between the two systems is that the goals set for the organization are for itself, per se, whereas goals for the accounting system are to achieve an interlocking situation; i.e., to impart information. Each system conditions the other and one is taken as the constraint of the other.

Professor Anton stated that, in the past, separate information systems were set up and then integraded to achieve a "total" information system. He feels that there has been much confusion over what we are really trying to accomplish. According to him, to set up "piecemeal" systems, and then tie them together, may not always work due to lack of reliability, and may not always include relevant interrelationships. He further believes that taking as given the goals of all levels of management and all the constraints will enable optimizing certain functions; e.g., optimizing of profits (or minimizing of costs). As we go up the organizational ladder, there are fewer goals and each level's output is consistent with goals of the level above it; i.e., a linkage is needed. Thus, an information system cuts across all lines, and in the design of the system (1) all levels of an organization should be manageable segments; (2) the system should be designed from top down to the bottom level; and (3) information should be obtained from bottom to the top level—lower order of system "looks up" for its design and design "looks down" for information. Professor Anton believes that the accountant in the overall process should not ask management what it wants by way of information, but he should furnish the information "which management needs."

Professor Bedford stated that there were three developments in the area of management-information systems: Theory of Networks, i.e., theory of organization as being complete network problem; Statistical Communication Theory, i.e., concept of information which reduces uncertainty; and Cybernetics, i.e., feedback. He agreed with Professor Firmin that the accountant should become a systems analyst, and the profession should expand further into the information system area. He disagreed with Professor Anton's organization structure concept of levels; going from top to bottom in designing the system. Professor Bedford feels that we should be able to go up and down the "ladder." He also took issue with Professor Anton's statement that management does not know what it wants, because it can obtain information experimentally and by inquiry.

In response, Professor Anton stated that there may have been a misinterpretation of his concept of organization levels. He clarified his idea of this by stating that to make the system manageable, start the system at the top; this furnishes the needed constraints upon the lower level, and thereby requires the subgoals to be consistent with the main goals. Also,

the information has to move from the bottom to the top, because the detail is at the bottom and needs to move upward. By taking the goals as given and within the constraints, the advisable approach is to be as flexible as possible in accomplishing the objectives, both organizationally and procedurally.

Management Planning and Control in the Federal Government

Presiding: Lawrence L. Vance, University of California at Berkeley—president, American Accounting Association.

Speaker: Robert N. Anthony, Assistant Secretary of Defense.

Mr. Anthony spoke at the luncheon on August 30 on "The Challenge of Service Accounting."

He said he was there to make a pitch for greater interest in the subject of accounting for nonprofit-seeking organizations. Accounting for these organizations is a fascinating and important subject, but one in which research and teaching today is inadequate.

He stated that an objective of nonprofit-seeking organizations is to employ resources so as to provide a satisfactory level of service. He suggested that the term "service accounting" might be a more reasonably accurate name for the type of accounting found in these organizations.

He commented that all members of the Association should be interested in service accounting because it covers such a large segment of economic activity. To him, the accounting problems in service organizations are sufficiently different from those in profit-seeking organizations so that they pose a whole new set of challenges and intriguing questions to be investigated and resolved.

Managerial Decision Models and Accounting

Presiding: Charles T. Horngren, Stanford University.

Speakers: Harold Bierman, Jr., Cornell University; Thomas H. Williams, University of Texas.

Professor Horngren gave an overview of the efforts of the Committee on Managerial Decision Models and stated that the report would cover decision models, linkage of decision models with accounting systems, and description of how the accounting systems can implement decision models.

Professor Bierman discussed the problem of relating accounting to decision models and concluded that information for planning and decision making can be classified as: marginal; differential; incremental; and opportunity. He stated that these are viewed as part of one concept. He also stated that the committee is addressing itself to the relevant costs (which may be opportunity cost), and not to actual cost or price paid, per se. The important quality measurements are: relevancy; verifiability; and freedom from bias.

Professor Williams addressed himself to an inventory model and a queuing model. With respect to the inventory model, he dealt with "units of goods to fill future demand," and described the "decision variables" as being the number of units to be reordered, noncost variables (e.g., lead time or time lag between reordering point and receipt of goods), and cost variables (e.g., carrying costs, order-

ing costs, shortage costs, overstock costs, etc.). Professor Williams favored the use of average costs and marginal costs for analysis purposes, except for fixed cost elements. He likened the queuing problem to the problem of model for inventory analysis, except the queuing approach would deal with "cost of providing future goods to meet future demand," and would involve such information as demand and supply factors.

Ode to Departure of GAO Site Audit Staff

(Presented to GAO staff on completion of accounting systems review at the NASA Flight Research Center, Edwards Air Force Base, Calif.)

It's been joyous,
    It's been hectic!
Our peace and calm
    You misdirected.
Any boo-boo's
    You've detected
Like skilled surgeons
    You've dissected.
Your leaving now
    We feel rejected
Doesn't it show?
    We're so dejected!

Biscal & Fudget Office.

NEWS and NOTES

Defense Contract Audit Agency and GAO—Certain Comparisons

At a hearing on July 28, 1967, before the Subcommittee on Military Operations, House Committee on Government Operations, on relationships between the Defense Contract Audit Agency (DCAA) and the General Accounting Office, the Comptroller General provided the following informative comparisons:

1. DCAA audits are confined to contractor activity. GAO audits cover the broader field of contractor and governmental activity.
2. DCAA performs primarily an advisory service, acting as part of a team of technical advisors to the contracting officer. DCAA plays an operational role and its activity cannot be said to have all the attributes of an internal audit function.
3. GAO has broad statutory authority providing for access to contractors' records under negotiated contracts in order to perform its independent review as part of the legislative branch. This authority gives GAO the means to examine all records pertaining directly to, and involving transactions under, a contract or subcontract.

   Although DCAA is authorized to review contractors' administration and performance under certain types of negotiated contracts in broad areas—as is GAO—it is not authorized to examine records and documents needed to conduct similar types of reviews of negotiated firm fixed-price contracts or fixed-price-with-escalation contracts. In the latter areas, DCAA's right of examination is limited to cost or pricing information submitted under Public Law 87–653 (the "Truth in Negotiations" Act).
4. One of the basic purposes of GAO is to examine as an independent auditor the adequacy and effectiveness of the system of management control, including internal audit, which each Federal agency is required to maintain. The scope of this audit responsibility extends beyond activities conducted by the Government agency itself to those conducted under contract.
5. The basic difference between the responsibility of the audit personnel of executive agencies and of GAO is recognized by section 117(a) of the Budget and Accounting Procedures Act of 1950. That section requires the Comptroller General, when deciding what areas of activity to audit, to consider the effectiveness of accounting organizations and systems, internal audit and control, and related administrative practices of Federal agencies. GAO gives full consideration to the work of the audit organizations of the contracting agencies concerned.

Article on GAO

The Armed Forces Comptroller, the professional journal of the American Society of Military Comptrollers, devoted most of its issue for April 1967 to auditing. The lead article is by the Comptroller General, *Elmer B. Staats*, on the subject "The GAO's Long Range Plans for Military Audits." Other articles in the issue pertain to the work of the Defense Contract Audit Agency and the military internal audit agencies.

Congressional Use of GAO Reports

Those interested in what happens to GAO reports submitted to the Congress can gain some insight into this process by a study of the report on the activities of the House Government Operations Committee for the 89th Congress (1965–66). This report of over 200 pages, printed as a committee print in December 1966, summarizes actions taken by this committee on numerous GAO reports received during this period. This committee is responsible on the House side of the Congress, among other things, for receiving and examining reports of the Comptroller General and for submitting recommendations thereon deemed necessary or desirable to the House.

The report notes that the committee received a total of 431 GAO audit reports during the 89th Congress. Brief information about the committee's consideration of numerous individual GAO reports is set forth in the committee's summary report.

GAO Audits of GSA

The Administrator of the General Services Administration, Lawson B. Knott, Jr., made the following statement before the Joint Economic Committee on May 16, 1967:

"* * * during the past year the General Accounting Office has examined several GSA operations. In each instance, the approach was fair and reasonable and we were afforded an opportunity to comment upon proposed findings and recommendations prior to publication of the final GAO report. Although we do not always agree with the GAO findings and recommendations, we do agree with the majority of them and our views and statements of corrective action taken are included in GAO's final report to Congress. The GAO recommendations are constructive and helpful to our management of the affairs of GSA and the GAO examinations supplement our own self-evaluation capabilities which we are taking steps to strengthen."

GAO in Vietnam

During the hearings on GAO's 1968 appropriation before the Senate Appropriation's Committee in May 1967, the following comments on the value of GAO work in Vietnam were recorded:

Value of GAO Presence in Vietnam

Senator YOUNG. I can understand why the military, especially in time of war, and AID officials and others would prefer not to have you around but I always feel a little better when you have an office near some of these large operations. The very fact you are there causes these people to be a little more prudent and a little more careful in handling of U.S. funds and material. It is very difficult, though, to do a good job in Vietnam at the present time, is it not?

Mr. STAATS. Extremely difficult. We feel sure that we can do a reasonably good job with the small staff we have, supplemented with others who will be coming in on a temporary duty basis.

Senator YOUNG. I spent some time with your people in Saigon. I usually do this in many places of the world. I always find your personnel very well posted.

Importance of Line Supervision

Speaking at the 13th Annual Career Service Awards Banquet of the National Civil Service League, Washington, D.C., April 21, 1967, John W. Gardner, Secretary of Health, Education, and Welfare, commented as follows on the importance of line supervision:

"Some day it will be recognized that skilled attention to the supply, quality and development of the men and women who make up an organization is the most critically important factor in the effectiveness of the organization.

"Much of the most crucial work of developing personnel must be done by line supervisors. Personnel development, properly conceived, properly executed, must be a part of the very texture of the day's work."

Financial Management Improvements

The Bureau of the Budget's annual call for agency data on financial management improvement activities (BOB Bulletin No. 67–11, June 29, 1967) refers to the President's message in March 1967 on "The Quality of American Government" as follows:

Besides highlighting the cost reduction program as an "unremitting drive to reduce the Government's cost of doing business," the President directed attention to further development of the planning-programming-budgeting system. With respect to the latter, he pointed out that:

"The system has taken root throughout the Government, but it will not be able to function fully until more trained men and women, more data, better cost accounting and new methods of evaluation are available."

The efficiency of financial systems and their contribution to management are matters of direct concern to agencies under the Joint Financial Management Improvement Program. Reports in response to this Bulletin should identify actions taken or planned to meet those objectives.

Central Financial Reporting in the Federal Government

The following seven recommendations developed on this subject by the Steering Committee for the Joint Financial Management Improvement Program were approved by the Secretary of the Treasury, the Director, Bureau of the Budget, and the Comptroller General in June 1967. These recommendations are designed to provide a policy framework for long-range development efforts in this area.

1. *Criteria for evaluating information needs.*

"Although there is no clean solution to the problem of measuring costs and benefits in this area, we believe that with extensive improvements of agency accounting systems, the Treasury will have a better basis for more actively assessing the reasonableness of alleged needs for Government-wide financial information. We recommend that you endorse a modest expansion in central report development, aimed at filling the higher priority data needs of both public and private users of Federal reports. The character and pace of such development should be designed to take advantage of the widening incidence of accrual accounting systems and should reinforce other Joint Program efforts to stimulate agency accounting developments. * * * This is not intended to infer that we recommend setting in motion a climate in which every alleged need is accepted. On the contrary, we believe that the policy of caution should be preserved. To assist in this matter, the Treasury Department, in consultation with the Steering Committee, will undertake to develop techniques and standards for evaluating information needs and for adopting or rejecting given reporting proposals."

2. *Measuring Federal impact on the economy.*

"We recommend that as a general policy the Treasury Department undertake to obtain centrally the Federal data needed by the Bureau of the Budget, Department of Commerce, Federal Reserve Board, Council of Economic Advisors and others for measuring the economic impact of Federal operations where the data needed (1) are Government-wide in nature, (2) are of the type that would normally be produced or could readily be produced by a fully developed accounting system, and (3) are of a summary nature. These needs should be satisfied to the maximum extent within the framework of reports designed also to serve other needs for Government-wide financial data, and in cooperation with agencies concerned with compiling data on the national economy. The Department of Commerce should retain responsibility for obtaining financial data expected to be gathered in the agencies primarily by statistical methods rather than from accounting systems."

3. *"Keystone" report.*

"We recommend that the concept of a 'keystone' report at the top of a coordinated system of more detailed reports be adopted as an objective, with the development of a keystone report to begin with the selection of data from existing reports for publication as a separate pamphlet or as an extractable portion of another report. The overall scheme of reports, amplifying the 'keystone' data, would encompass not only Treasury reports, but actual-year data in the Budget Document and reports of other agencies where appropriate."

4. *Government-wide balance sheet.*

"We recommend that developmental work on an overall balance sheet or consolidated set of balance sheets, be carried on as an integral part of Treasury's central reporting, keeping pace with the growth in stature of agency financial systems (even though they may not all be formally approved) and keeping an open mind on the question of whether publication of such a statement might some day become desirable and serve a useful purpose."

5. *Earlier year-end closing of books.*

"We recommend that the closing process be shortened, principally by changing the date for appropriation write-offs from September 30 to an earlier date, and by reducing the time allowed for subsequent adjustments before closing the final monthly Treasury statement and the Combined Statement. This change, however, should be preceded by an intensive effort to achieve full compliance with the present September 30 closing. Several years will undoubtedly be required to accomplish the entire objective, and particular attention will have to be given to problems inherent in overseas operations."

6. *Program oriented reports.*

"We recommend that development of program oriented financial reporting be deferred until the PPB System is more fully developed."

7. *GAO audit of agency reports submitted to the Treasury.*

"We recommend that the General Accounting Office make the examination of agency reports submitted to the Treasury a part of its review of agency financial operations, with the understanding that the recommendation would have to be implemented on a gradual basis depending upon staff facilities."

Planning-Programming-Budgeting

Three committee prints of interest on this subject, prepared by the Subcommittee on National Security and International Operations of the Senate Committee on Government Operations, were released in July and August 1967. These pamphlets contain:

A compilation of official documents issued by the President and the Bureau of the Budget on PPBS.

A collection of eight articles on program budgeting, systems analysis, and cost effectiveness studies. The articles are by Alain C. Euthoven, Charles J. Hitch, Klans

Knorr, Frederick C. Mosher, David Novick, Vice Admiral H. G. Rickover, Henry S. Rowen, and Aaron Wildavsky.

A committee staff memorandum summarizing some of the issues pertaining to the PPB system.

These committee prints were prepared in contemplation of hearings on PPB by the subcommittee.

Annual Compilation of GAO Findings and Recommendations for Improving Government Operations

This annual report covering the fiscal year 1966 was issued to the Congress by the Comptroller General in August 1967 (B–138162). This report contains a classified summary of the principal GAO findings and recommendations during the fiscal year 1966 pertaining to all Federal departments and agencies. The classification is along functional lines and is the only such overall summary report issued by the Comptroller General each year. Copies of this report were sent to heads of Federal departments and agencies recently and the following excerpts from acknowledgment letters received are of interest.

From the Secretary of Commerce

"This is a very useful compilation and we will examine it carefully for improvement ideas that may be applicable in Commerce."

From the Secretary of Labor

"I appreciate receiving a copy of the report and am certain it will prove to be of value to the Department."

From the Administrator of Federal Aviation Administration

"Regarding the several items contained in your report which specifically concern this agency, I am pleased to report that actions have been taken to preclude recurrences of the deficiencies cited. In those instances where changes in policy and/or procedures were required to provide corrective action, I have directed that internal reviews be performed to ensure their adequate implementation."

From the Chairman of Federal Communications Commission

"The report will be of great benefit to this agency as we continue our efforts to achieve efficient and effective operations."

From the Chairman of Securities and Exchange Commission

"We are reviewing the report for management improvement ideas which might be applicable to the operations of the Commission."

From the Chairman of Federal Home Loan Bank Board

"The suggestions set forth in your compilation can be of benefit to the many Agencies of the Federal Government and those that might be of some use in this Board's operation will be considered."

From the Chairman of Federal Deposit Insurance Corporation

"We appreciated receiving this copy and will be guided by some of its points and findings as we continue to improve our operations."

A Case for Cost-Effectiveness Analysis

During a GAO preliminary review of an activity of an agency, it was noted that the agency had contracted to purchase certain equipment considerably in advance of the actual need dates and average lead times to produce the equipment. *Edward E. Winchester*, now in OPSS, was the auditor in charge of the review at the time. He informed the cognizant assistant director that the agency had expended $2 million toward the purchase but, before production was completed, it canceled the order because of the lack

of sufficient funds. He also advised that the cost of $2 million to the Government could have been avoided had the agency made an adequate analysis of its budgetary resources and alternative methods of production available to the contractor before it authorized the contractor to start production of the equipment.

It is of interest to note, as Mr. Winchester points out, that the criteria for reporting findings of this nature is a long established one and is set forth in the Bible under Luke 14: 28–30 which states:

"For which of you, wishing to build a tower, does not sit down first, and calculate the outlays that are necessary, whether he has the means to complete it?

"Lest, after he has laid the foundation, and is not able to finish, all who behold begin to mock him,

"Saying, this man began to build, and was not able to finish."

Under the frame of reference concept, this case illustrates (1) the use of an appropriate, relevant, material, and indisputable criterion, and (2) an instance where training in cost-effectiveness analysis could be useful to an audit group evaluating a management act.

Competitive Negotiation for Architect-Engineer Services

The July 1967 issue of Consulting Engineer includes an article by the Comptroller General, *Elmer B. Staats*, on this subject. The article is entitled "Competitive Negotiations Can Work." Mr. Staats addressed the Legislative Conference of the Consulting Engineers Council of America on March 7, 1967, discussing the GAO review of the procurement of architect-engineer services by the Federal Government (report to the Congress, April 20, 1967, B–152306).

Management Philosophy in the Marine Corps

In testifying on Marine Corps posture for 1968, the Commandant of the Marine Corps, Gen. Wallace M. Greene, Jr., expressed the following bit of management philosophy before a joint session of the Senate Armed Services Committee and the Department of Defense Subcommittee of the Senate Appropriations Committee earlier this year.

The people and the material of the Marine Corps require management—efficient management—if we are to accomplish our assigned missions quickly and economically.

We have always considered efficient management—if we are to accomplish our as-command. And, although we will always treat the Marine as an individual and not as a symbol on a punch card, we can use automatic data processing and other modern management tools to help us in our jobs as commanders. Consequently, I require all my generals to learn automatic data processing and other management principles and techniques * * *.

Recognition of Government Experience for CPA Certificate

During the month of August 1967, two important States, Pennsylvania and Michigan, took actions which will permit recognition of GAO experience as qualifying for the CPA certificate. As a result, 40 States plus 2 jurisdictions now permit such recognition.

As of June 30, 1967, there were 439 CPAs in the General Accounting Office. An additional 84 staff members had passed the CPA examinations and will receive their certificates when they complete the necessary experience requirements.

Pennsylvania

On August 1, 1967, the Pennsylvania State Board of Examiners of Public Accountants advised us of its important decision to give consideration to accepting the experience of certain employees of certain governmental agencies as qualifying under the Pennsylvania CPA statute.

Candidates must be graduates with a baccalaureate degree from a college or university approved at the time of graduation by the State Council of Education, or have an equivalent education. Candidates must also have completed at least 12 semester hours of academic training in accounting, but not necessarily as a part of their undergraduate work.

The Board also stated that an applicant's experience must meet the standards set forth in the so-called Hansen report of the American Institute of CPAs with respect to the type of experience, quality and diversity of work performed, and quality of supervision. The Board further stated that it would be guided by the general standards and procedures set forth in AICPA's Statement on Auditing Procedure No. 33. Government agencies will be required to submit detailed reports for each employee candidate with respect to his experience.

This development is of great importance to the General Accounting Office because, for the first time, it permits our professional staff members to qualify for the CPA certificate in this State based on appropriate experience gained in the service of the General Accounting Office. The Comptroller General has commended the Pennsylvania Board, which is chaired by Mr. Irwin Dubin, CPA, for its outstanding public service in reaching a decision on this matter.

Michigan

The passing of Senate bill 20 by the Michigan Legislature and its signing into law by the Governor on August 17, 1967, represent steps forward for the accounting profession in the State as a whole and particularly for the professional accountants and auditors of the General Accounting Office. The bill amends the Michigan Accountancy Law to raise educational standards, to enable candidates for the CPA examination to take the complete examination prior to gaining the required practical experience, and to recognize the quality of professional experience on its merit regardless of where such experience was obtained.

The significant change, as far as our staff in Michigan is concerned, is demonstrated in the following quoted portion of the section of the law dealing with experience: "The experience shall have been obtained in a responsible audit position (1) under the direction and supervision of a certified public accountant of this or any other State, or (2) in a governmental agency. . . ." The remainder of this section, which describes the qualifying experience in greater detail, is similar to that contained in the District of Columbia Accountancy Law.

Changes in Maryland CPA Requirements

The Maryland Board of Examiners and Public Accountants has changed its education requirement by reducing the number of accounting hours required of the college graduate to a number which will allow most of our

staff members residing in Maryland to take the examination, if otherwise qualified. The Board also eliminated the economics section of the CPA examination which has been an additional part of the examination in this State for years.

Staff Development Activities

During July, August, and September, the Staff Development group in the Office of Policy and Special Studies conducted seven 5-day GS–7 courses in Washington and in the regional offices for 258 staff members; 1 intermediate training course in Denver, attended by 39 staff members; 3 courses in financial management for 91 staff members; and a pilot advanced technical seminar in financial management in Detroit, attended by 27 staff members.

A total of twelve 2-day faculty visitor programs have been scheduled for the regional offices and 2 for the Washington office during the 1967–68 school year. A total of eleven 2-day student programs have been scheduled for the regional offices and 2 for the Washington office during the same period.

A Staff Development Manual has been drafted and is nearing completion.

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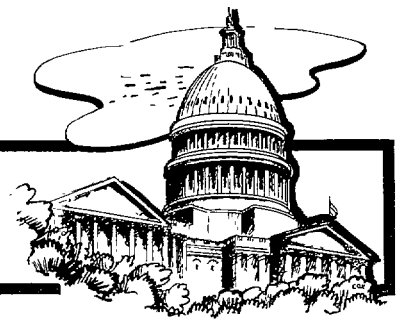
HEARINGS and LEGISLATION



By Margaret L. Macfarlane
Chief, Legal Reference Services, Office of the General Counsel

The Comptroller General and representatives of the Office testified before congressional committees on a wide variety of subjects during the summer months.

Social Security Amendments of 1967

The Senate Finance Committee considering the Social Security amendments of 1967, invited the Comptroller General, *Elmer B. Staats*, to appear in connection with an amendment entitled "Quality and cost control standards for drugs." The proposed amendment was designed to carry out recommendations made by GAO in reports on costs of prescribed drugs for welfare recipients (B–114836, February 3, 1966) and on pricing methods used by various States in the purchase of prescribed drugs under federally aided public assistance programs (B–114836, April 28. 1967). At the conclusion of his statement, given on September 12, 1967, Mr. Staats called the attention of the committee to two other amendments directed to the quality of and payment for nursing home care carried out under the public assistance titles of the Social Security Act. Two studies made by GAO with respect to nursing home care and control of payments for prescribed drugs for welfare recipients in California and for old-age assistance recipients in the Cleveland, Ohio, area were considered pertinent to the committee's study of the nursing home care amendments. (Other GAO participants: *Messrs. Ahart* and *Chicca.*)

Defense Procurement

On August 3, Mr. Staats presented a statement before the Subcommittee for Special Investigations of the House Committee on Armed Services, incident to its study of the procurement system in the Department of Defense. The Comptroller General not only reviewed the significant work of the GAO in the field of Government procurement during the past 18 months but also furnished the committee with an outline of the present and future work contemplated by the Office in the procurement field. (Other GAO participants: *Messrs. Keller, Newman,* and *Chemery.*)

On July 27, the deputy general counsel, *J. Edward Welch*, testified before the Subcommittee on Special Investigations of the House Committee on Armed Services on a bill (H.R.

5791) to authorize multiyear procurement contracts for supplies and services for the Department of Defense.

Defense Contract Audit Agency

The relationship of the GAO with the Defense Contract Audit Agency was the subject of a statement presented on July 28 by Mr. Staats before the Subcommittee on Military Operations, House Committee on Government Operations. (Other GAO participants: *Messrs. Weitzel, Keller, Newman, Hall,* and *Chemery.*)

Financial Management Improvements

At the request of the Special Studies Subcommittee of the House Government Operations Committee, the Comptroller General discussed on July 17 GAO activities to improve financial management in Government agencies. This was a followup of hearings held in 1966. The Comptroller General included with his statement a report on the current status of the approval of accounting systems in the Federal departments and agencies. (Other GAO participants: *Messrs. Weitzel, Morse, Smith, Ahart, Borth,* and *Johnson.*)

Use of Contractor Service Personnel

Following a report to the Congress on June 9, 1967 (B–133394), on economies that could be realized in using contractor service personnel to perform engineering and related technical support services, the Special Studies Subcommittee of the House Government Operations Committee asked the Comptroller General to testify on the costs of using civil service personnel or contractor furnished services to perform engineering and related technical support services at the National Aeronautics and Space Administration's Goddard and Marshall Space Flight Centers. This testimony was given on June 21. (Other GAO participants: *Messrs. Ahart, Henig, Barclay,* and *Rasor.*)

Automatic Data Processing

Current problems and developments in automatic data processing were discussed by the Comptroller General at a hearing before the Subcommittee on Government Activities of the House Government Operations Committee on July 18. Two studies relating to the management of ADP facilities being undertaken by the GAO were outlined at the hearings. Additionally the committee was advised of several problem areas needing further attention and study. (Other GAO participants: *Messrs. Morse, Mahoney,* and *Keller.*)

Limitations on Claims of Former Reserve Officers

John T. Burns, associate general counsel, testified on August 23 at the request of a Special Subcommittee of the Senate Judiciary Committee on S. 725, a bill to waive certain limitations on claims of retired reserve and former reserve officers under Public Law 88–579. Testimony was furnished in opposition to the legislation.

Ryukyu Islands

The results of a GAO review of activities of the United States Civil Administration of the Ryukyu Islands were presented by *Joseph DiGiorgio,* assistant director, International Division, at a hearing on August 22, before Subcommittee No. 3 of the House Committee on Armed Services. The subcommittee was apprised of areas

for management improvements. (Other GAO participants: *Messrs. Schornagel* and *Hunter.*)

Federal Research Laboratories

On August 9, *Harold H. Rubin*, associate director (research and development), Defense Division, summarized for the Subcommittee on Research and Technical Programs, House Government Operations Committee, the results of a survey of accounting and management controls used by five Federal research laboratories in promoting efficient utilization of laboratory equipment and in the procurement of such equipment. (Other GAO participants: *Messrs. Shnitzer* and *Marshall.*) (See article on p. 38 for more information about this survey.)

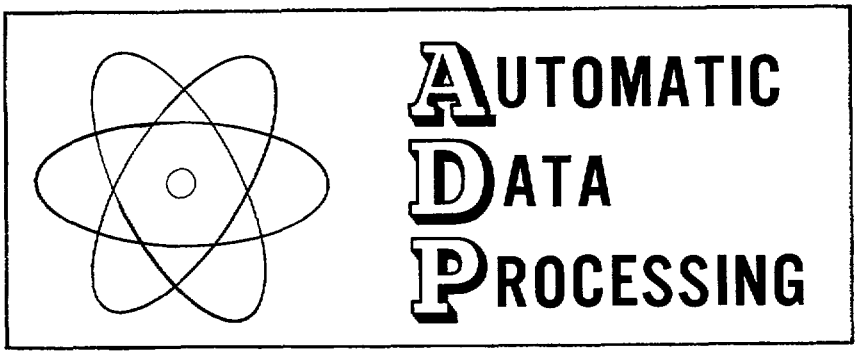
Postal Organizations; Project LITE

At the request of the Independent Offices Subcommittee of the Senate Committee on Appropriations, the general counsel, *Robert F. Keller*, attended the hearings on funds for the President's Commission on Postal Organization on July 31 to answer questions on the legal authority of the Post Office Department to transfer funds for the study.

Mr. Keller also attended the hearings on August 1 by the Subcommittee on Military Operations of the House Committee on Government Operations on its study of Air Force contracts for automated retrieval of legal information and testified on GAO cooperation in the LITE project.

Planning-Programming-Budgeting

On September 21, the Assistant Comptroller General, *Frank H. Weitzel*, furnished testimony to the Subcommittee on Economy in Government, Joint Economic Committee, setting forth GAO views on the Planning-Programming-Budgeting System and plans for increasing the capability of GAO to assist the Congress in this important area. (Other GAO participants: *Messrs. Morse* and *Rathbun.*)



Congressional Hearings on ADP

On July 18, 19, and 20, 1967, the Government Activities Subcommittee of the House Committee on Government Operations held public hearings on increasing efficiency and effectiveness in the management and use of data processing techniques in the Federal Government. The chairman of the subcommittee, Jack Brooks of Texas, was the sponsor of Public Law 89–306, enacted in 1965, which provided additional policies and procedures for the economic and efficient purchase, lease, maintenance, operation, and utilization of ADP equipment.

The hearings had a dual purpose: first, to determine how Public Law 89–306 was being implemented and, second, to define problem areas which will have to be resolved in the future. The following five broad categories were discussed by the testifying witnesses:

1. Implementation of Public Law 89–306.
2. Need for improving data processing educational opportunities available to higher echelon Federal officials.
3. Federal Communications Commission investigations and studies relating to data processing as potentially subject to Federal regulations.
4. Problems relating to the patenting and copyrighting of data processing programs.
5. Status of Federal efforts to extend data processing capabilities to American colleges, universities, and secondary schools.

The Comptroller General, *Elmer B. Staats*, was the leadoff witness. Matters of particular interest to GAO officials and staff members growing out of the Comptroller General's testimony and expressions of interest by committee members included:

1. The tie-in of GAO statutory accounting responsibilities to computer developments and usage in the Federal agencies together with the assertion of progress being made in the development of more sophisticated accounting systems.
2. The undertaking in GAO to devote more attention in future audit programs to reviewing the internal management of data processing, particularly in the major agencies.
3. The undertaking to incorporate in GAO reviews of individual agency ADP management operations the incurrence of costs

by Federal agencies to acquire by contract data processing services from sources outside the Government.

4. The strong emphasis by the Comptroller General on our intention of reviewing agency accounting systems in operation after they have been approved by us and reporting on the results of such work to the Congress. This statement was made in direct response to the subcommittee chairman's expression of concern that we might relax our interest in agency accounting systems after they have been approved.
5. The statement by the Comptroller General that it is our intention to provide some form of training in ADP to all members of the GAO professional staff.
6. The expression of renewed interest by the chairman of the subcommittee in the possibility of Government contractors being covered by Public Law 89–306 at some future time (in the original bill they were included but were dropped before final enactment). Interest was also expressed in the effect of the change in ASPR on costs to the Government for computer services on Government contracts.
7. The inquiry by the chairman of the subcommittee as to the feasibility of extending the information service now provided by LITE (Legal Information Through Electronics) system to congressional offices on an "online" basis. He was informed that such a service probably could be provided but that it would require some study.

Phillip Hughes, Deputy Director, Bureau of the Budget, discussed the principal actions taken by the Bureau of the Budget to carry out its responsibilities under Public Law 89–306. The subcommittee was particularly interested in the Bureau's efforts in establishing standardization and compatibility among the various ADP users, both internal and external to the Federal Government.

Joe Moody, Deputy Administrator, General Services Administration, summarized GSA's accomplishments over the past 18 months in ADP procurement, equipment sharing, reutilization, and the formulation of regulations governing ADP selection and use.

Dr. A. V. Astin, Director, National Bureau of Standards, testified to NBS's cooperation with other Government agencies and with the United States of America Standards Institute to provide better management as well as standardization and compatibility among ADP equipment users. He stressed the importance of developing hardware and software standards concurrently so as to effectively utilize the systems approach and develop standards based on performance. Dr. Astin outlined some of the problems incurred by NBS in funding and recruiting qualified personnel to carry out its ambitious program.

John Macy, Chairman, Civil Service Commission, described the Commission's efforts, first to recruit and develop needed data processing specialists for Federal agencies and, second, to orient middle and upper-level Federal officials in the area of

data processing capabilities. Mr. Macy also discussed the various training courses the Commission operates and assured the subcommittee that these programs would be expanded to meet future governmental requirements.

Rosel Hyde, Chairman, Federal Communications Commission, discussed FCC inquiries into the ADP area. These investigations are focused upon three broad areas: (1) extent of regulation of on-line information and data processing services; (2) whether the common carriers offer adequate services to meet the present and future needs of the computer industry; and (3) whether adequate security is being maintained over data being stored in computers and transmitted over communication lines.

Edwin Reynolds, Acting Commissioner of Patents, testified that at the present time the Patent Office does not hold computer programs to be patentable. He expressed concurrence with the report of the Presidential Commission on the Patent System which recommended that patent protection not be extended to computer programs.

George Cary, Deputy Register of Copyright, reported that, since May 1964, over 100 computer programs have been copyrighted. He said that, if H.R. 2512, the bill for general revision of the copyright law, is enacted, the present copyright policy will be continued.

Dr. Donald Hornig, Director, Office of Science and Technology, discussed the problems encountered in making computers available to universities, colleges, and secondary schools. He predicted a bright future for computers, both as an aid to teachers and in providing individual instruction to students.

Comptroller General Rules Against Air Force EDP Award

On April 12, 1967, the U.S. Air Force selected the International Business Machines Corp. to furnish well over $100 million of EDP equipment for its base level data automation program. Immediately after the selection, Honeywell, Inc., one of the four bidders, protested the Air Force selection of IBM to the Comptroller General of the United States.

Before making its selection, the Air Force made a series of benchmark tests to determine if the Honeywell system, as well as others, could meet the requirements set forth in the bid proposals. The Air Force found that the Honeywell system was deficient principally because it could not process the anticipated base level workload in 200 hours of operating use time. The Air Force did not discuss this deficiency with Honeywell to see if corrections in the system were possible.

The Air Force determined that IBM, the only bidder meeting the benchmark tests, was the only responsive bidder. On this basis, IBM was selected as the contractor.

In its protest, Honeywell asserted that the Air Force, by not holding discussions with Honeywell concerning its proposal, had failed to comply with the statute (10 U.S.C. 2304(g)) governing negotiated procurements which requires negotiations with all bidders within a competitive range. Honeywell contended that, given the opportunity, it could have modified its proposal within a short time and at

little increase in cost, and have met the benchmark tests.

On July 14, 1967, after a number of meetings with representatives of the Air Force, Honeywell, and IBM, the Comptroller General held that the statute and the regulations required discussions with all bidders within a competitive range; that in determining competitive range, price and other factors, including technical capability, should be considered; and that in the circumstances Honeywell should have been considered to be within a competitive range and further discussion should have been conducted with Honeywell and other bidders before final selection.

Shortly after the Comptroller General's decision was announced, the Air Force canceled its selection of IBM equipment and announced that negotiations would be held with all four firms which originally submitted proposals. The Air Force set September 1, 1967, as the deadline for the submission of new proposals with selection of the contractor expected on or about December 5, 1967.

Seminar on Haskins & Sells Auditape System

A seminar was conducted in the GAO auditorium on July 21, 1967, to discuss the Auditape system developed by the accounting firm of Haskins & Sells. The seminar, sponsored by GAO, was conducted by representatives of this firm and was attended by over 200 representatives from more than 30 Federal agencies.

The Comptroller General, *Elmer B. Staats*, opened the seminar by welcoming all the participants. *E. H. Morse, Jr.*, Director, Office of Policy and Special Studies, then addressed the group, pointing out that the General Accounting Office has been interested in exploring better ways of utilizing electronic computer techniques in accounting and auditing operations. Since it appeared that the Auditape concept might be useful to various Federal agencies, GAO invited Haskins & Sells to conduct a seminar at which the system could be explained and some of its uses demonstrated.

John Queenan, senior partner of the firm, explained that the Auditape system represented a set of generalized computer programs that could be useful for a variety of audit and management purposes. The system was developed and used originally by the firm in its audit practice. However, it soon became apparent that it could also be useful for internal audit and other management purposes and accordingly it was made available to the firm's clients.

The system, which was described briefly in the Spring 1967 issue of *The GAO Review*, was developed to fill the need for computer programs that could be used both effectively and efficiently:

1. By persons having no specialized knowledge of computers or programing languages and having only a nominal amount of simple instruction.
2. On a wide variety of records interchangeably without any need for preparation of special programs for each application to be processed.

Because of the simplicity and versatility inherent in these features, the developing firm regards the Auditape system as the "key to the computer" for audit and management personnel

who are not data-processing specialists and as a useful utility program for those who are.

Kenneth Stringer, partner of Haskins & Sells, discussed the basic functions of the Auditape system. The specific functions that can be performed by the system could be generally classified as:

Arithmetic calculations.

Special analyses.

Statistical sampling.

The system can be used either to perform initially or to verify the accumulation of control totals on as many as six fields of data simultaneously or the addition, subtraction, multiplication, or division of individual amounts in any two specified fields.

The second general function or special analyses refers to those analyses prepared to serve management or audit requirements for information that is not available from regular reports. Experience shows that management and audit requests for special analyses occur frequently in many organizations and that considerable special programing is often required to comply with these requests. Where the system can eliminate the need for such programing, both the time and cost required to supply special information are reduced.

The third general function of the system is the application of a statistical sampling plan. The sampling plan, incorporated within the Auditape system, was developed by Haskins & Sells to meet the special sampling requirements of auditors.

Joseph Wesselkamper, principal of the firm, described the equipment requirements for use of the Auditape system and discussed the routines that make up the system. Equipment requirements include the following components and features of an IBM tape system:

1. Processing unit—1400 series or system 360 with 1401 emulator with the following features:
   Memory capacity of at least 8,000 characters.
   Advanced programing.
   High-low-equal compare.
2. Card read—punch.
3. Printer with 100 print positions or console typewriter.
4. Magnetic tape units—at least three units for applications requiring an output tape.

The Auditape system can also be used with 1401 simulators provided by certain other computer manufacturers.

The Auditape system includes five basic routines.

Edit routine.—The edit routine causes selected data to be read from the input record regardless of its format and written in any specified field on an output tape in the Auditape record format. This output tape then becomes the input for any of the other routines in the system.

A subtotal or include/exclude subroutine can be processed simultaneously with the edit routine at the option of the person using the Auditape system. These subroutines can be used for special analyses and other purposes by providing subtotals of input data in certain specified classifications and by including or excluding input data based on certain specified criteria.

Print/punch routine.—The results from the other routines are written on an output tape in the Auditape record

format. With these tapes as input, the print/punch routine can be used to provide printed or punched card output or both. This routine includes options to permit the fields in the Auditape record to be printed out in any desired order and to print appropriate descriptive headings over each column of data.

Summarize routine.—This routine is used to summarize details of records by some identifying characteristic such as customer number or inventory part number.

Mathematical routine.—The mathematical routine performs addition, subtraction, multiplication, or division of amounts in any two quantitative fields in the Auditape record or of amounts in one of such fields and a specified constant amount.

Audit sample routine.—This routine computes the approximate optimum sample size required to obtain the statistical precision and reliability specified for a particular sample and selects the items to be included in the sample.

Several other routines are currently being developed to add to the capabilities and flexibility of the system. As these routines are completed, the Auditape will be recalled for updating. It is also planned to adapt the Auditape system for use with certain other models and makes of computers as rapidly as feasible.

The seminar was concluded with live demonstrations on computers provided by the General Services Administration and the Department of Labor.

Later this year it is expected that the Auditape system will be made available to interested agencies under some form of licensing agreement. While this system is not necessarily advocated by GAO, the opportunity to hear an explanation of this system from the developers was provided because of the far-reaching potentials it seems to provide from the standpoint of increased economy and efficiency in auditing and other management operations.

Additional meetings to discuss the nature and implications of this development will be scheduled for additional GAO staff members later this year.

Recent Staff Designations

Hyman S. Baras

Hyman S. Baras has been designated an assistant director of the Defense Division, effective August 13, 1967.

Mr. Baras, who has been with the Defense Division since joining the General Accounting Office in April 1957, is a member of the Procurement staff. He will be responsible for directing audits of contract administration activities of the Department of Defense.

Mr. Baras was employed by a firm of certified public accountants in New York City, before entering Government service. He is a 1943 graduate of Brooklyn College, holding a bachelor of arts degree in political science. He received his accounting training at the graduate level at the City College of New York following 3 years of service in the military intelligence branch of the Army.

Mr. Baras is a CPA (New York) and is a member of the American Institute of Certified Public Accountants and of the New York State Society of Certified Public Accountants.

Charles S. Collins

Charles S. Collins was designated an assistant director of the Defense Division, effective August 13, 1967.

In this position, he will be concerned with the planning and direction of GAO work relating to medical services, fuel distribution systems, and civil defense activities in the Department of Defense.

Mr. Collins joined the General Accounting Office in 1950 and since that time his assignments have included auditing of activities of the Veterans Administration and all of the military departments.

Prior to joining the Office. Mr. Collins had several years of public accounting experience with leading national public accounting firms in London, England, and New York City. He also served in the British Army from 1939 to 1945.

Mr. Collins studied accounting at the Metropolitan College, St. Albans, England, and has passed the examinations of the Association of Certified and Corporate Accountants in England and the CPA examination in New Jersey. He is a member of the American Institute of Certified Public Accountants and the Federal Government Accountants Association.

Gerald K. DeRyder

Gerald K. DeRyder was designated assistant regional manager of the Washington Regional Office, effective July 2, 1967.

Mr. DeRyder received a B.B.A. degree (cum laude) from the Western Michigan University, Kalamazoo, Mich., in 1957. While attending college, Mr. DeRyder was employed by a practicing CPA in Kalamazoo, Mich. After graduation he joined the Los Angeles Regional Office of GAO where he served until he transferred to the Washington Regional Office in 1964.

He served in the U.S. Marine Corps from 1946 to 1948 and again from 1950 to 1951.

Joseph DiGiorgio

Joseph DiGiorgio was designated an assistant director in the International Division effective August 7, 1967.

In this position, he will be concerned with the planning and direction of this division's work with respect to the international activities of the Department of Defense.

Mr. DiGiorgio is a graduate of Pace College and served in the U.S. Army from 1943 to 1946. He is a CPA (New York) and a member of the American Institute of CPAs. He attended the Executive Training Program at the University of Michigan in 1963.

Before joining the former Corporation Audits Division of GAO in 1950, Mr. DiGiorgio had extensive experience in industry and public accounting. From 1956 to 1965 he was with the New York Regional Office. From 1965 until his latest appointment, he was director of the European Branch of the International Division.

James L. DiGuiseppi

James L. DiGuiseppi was designated an associate director of the Defense Division, effective July 30, 1967.

Mr. DiGuiseppi, who heads the Manpower staff of the Defense Division, joined the General Accounting Office in 1951.

Mr. DiGuiseppi is a native of Easton, Pa., and a graduate of Bucknell University. He attended the Harvard Business School Program for Management Development in 1961. Mr. DiGuiseppi is a CPA (Virginia) and a member of the American Institute of Certified Public Accountants.

Clifford I. Gould

Clifford I. Gould has been designated assistant director of the Far East Branch, International Division, effective July 30, 1967.

Mr. Gould joined the General Accounting Office in 1954 and was a member of the Kansas City Regional Office staff, until his assignment to the Far East Branch in 1962.

Mr. Gould served in the U.S. Air Force from 1946 to 1949 and from 1951 to 1952. He graduated from Kansas State University in 1953 with a bachelor's degree in Business Administration and took graduate work in economics. In 1962, he completed the Program for Management Development at the Harvard University Graduate School of Business Administration. He is currently a director of the Honolulu Chapter of the Federal Government Accountants Association.

Werner Grosshans

Werner Grosshans was designated as assistant manager of the San Francisco Regional Office, effective July 2, 1967.

Mr. Grosshans was granted a B.A. (accounting) degree by San Jose State College in 1958. With the exception of active duty in the Army in 1959, he has been continuously employed in the San Francisco Regional Office since his graduation. He was given the GAO Meritorious Service Award in 1962.

He is a CPA (California) and a member of the Federal Government Accountants Association and the California Society of CPAs.

Richard W. Gutmann

Richard W. Gutmann, who has been an associate director in the Defense Division, has been designated director of the European Branch, International Division, effective July 11, 1967.

In this position, he is responsible for GAO audit activities in Europe, North Africa, the Near East, and South Asia.

Mr. Gutmann is a graduate of George Washington University and attended the Advanced Management Program of the Harvard University Graduate School of Business Administration in 1962. He is a CPA (Kansas) and prior to joining the General Accounting Office in 1954 he was a partner in a public accounting firm in Dodge City, Kans. He served in the U.S. Navy from 1942 to 1945.

Morton E. Henig

Morton E. Henig was designated an assistant director in the Civil Division, June 19, 1967. He is in charge of the accounting, auditing, and investigative work at the National Aeronautics and Space Administration.

Mr. Henig served in the U.S. Army from 1946 to 1947. He received a bachelor of science degree in accounting from Rutgers University, in 1951. Prior to joining the General Accounting Office in September 1951, Mr. Henig worked for a public accounting firm.

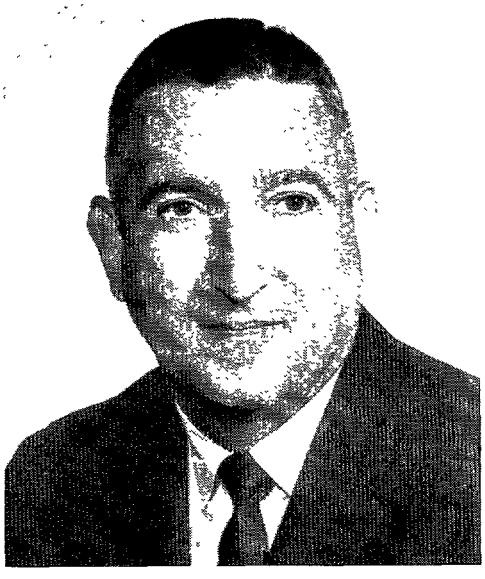
Other than in the Civil Division, Mr. Henig's service in the General Accounting Office included an assignment in the European Branch from 1957 to 1962. He received a Meritorious Service Award in 1967.

Ralph M. Kee

Ralph M. Kee was designated an assistant director, Defense Division, effective August 13, 1967. In this capacity, he will be concerned with planning and programing the accounting and auditing work of the Defense Division.

Mr. Kee is a graduate of the Grand Island Business College, Grand Island, Nebr. He is a CPA (Ohio) and a member of the Ohio Society of Certified Public Accountants.

Prior to joining the General Accounting Office in 1957, he had several years of diversified accounting and auditing experience as a staff member of a public accounting firm in Abilene, Kans., and on audit staffs of the U.S. Navy Cost Inspection Service and the U.S. Army Audit Agency. Since joining GAO, Mr. Kee has been a principal staff member of the Office of the Director, Defense Division.



Harry C. Kensky

Harry C. Kensky was appointed director of the Program Planning Staff in the Office of the Comptroller General in July. This staff was established on July 7, 1967, by Comptroller General's Order No. 2.15.

Mr. Kensky is a graduate of New York State University, and received an MBA degree from Temple University, where he has also completed the required course work for a doctorate degree. He served as a communications officer in the U.S. Navy from 1943 to 1946. In 1962 he completed the Advanced Management Program of the Harvard University Graduate School of Business Administration.

Mr. Kensky is a CPA (Pennsylvania) and a member of the American Institute of CPAs, Pennsylvania Institute of CPAs, and the Federal Government Accountants Association. He is a past president of the Philadephia Chapter, FGAA, an honorary member of Beta Alpha Psi, and a member of Delta Pi Epsilon, graduate business education fraternity.

Prior to joining the General Accounting Office in 1951, Mr. Kensky was associated with a Philadelphia CPA firm. In January 1951 he joined the Corporation Audits Division, Washington, D.C. Since 1952 he has been assigned to the Philadelphia Regional Office and was appointed assistant regional manager in 1960.

William D. Lincicome

William D. Lincicome was designated an assistant director, Defense Division, effective August 28, 1967.

In this position, he will be concerned with planning and conducting examinations of research and development activities of the Department of Defense.

Mr. Lincicome attended the University of Illinois where he received a B.S. degree in accountancy in 1942. He is a CPA (North Carolina).

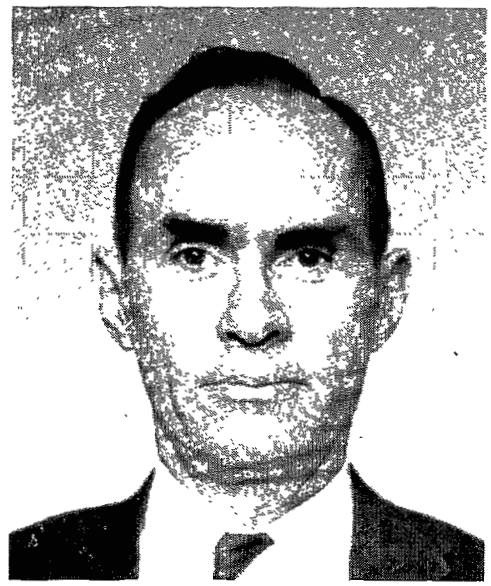
After serving in the U.S. Army during World War II, he joined the Corporation Audits Division of the General Accounting Office in 1946. He has been a member of the Washington staff since that time, except for 2 years' service in the European Branch.

Medford S. Mosher

Medford S. Mosher was designated as assistant manager of the Chicago Regional Office, effective July 30, 1967.

Mr. Mosher received the degree of bachelor of business administration from the University of Wisconsin in 1947. He is a CPA (Wisconsin) and a member of the American Institute of Certified Public Accountants and the Federal Government Accountants Association.

Before joining the staff of the General Accounting Office in 1953, Mr. Mosher was associated with a public accounting firm and engaged in a private practice of accounting. He served in the U.S. Army from July 1943 through November 1945.

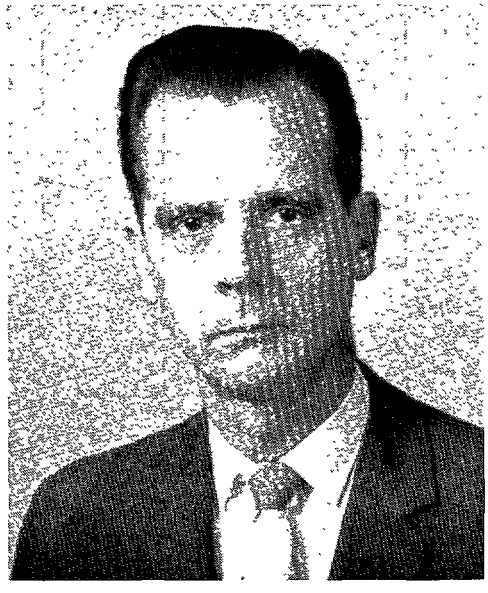


Daniel B. Rathbun

Daniel B. Rathbun was designated deputy director for Systems Analysis in the Office of Policy and Special Studies, effective September 5, 1967.

Mr. Rathbun served in the Army Air Corps from 1941 to 1946. He received his bachelor's degree from Pomona College and his doctorate in economics from the University of California (Berkeley).

During the period 1951–61, Mr. Rathbun was engaged in college teaching and in the Bureau of the Census. From 1962 to 1965, he served in the office of the Assistant Secretary of Defense (Comptroller) where he was the director of the group responsible for the analysis of requirements for naval forces. For the past 2 years, he has been the director of the manpower requirements office in the office of the Assistant Secretary of Defense (Systems Analysis).



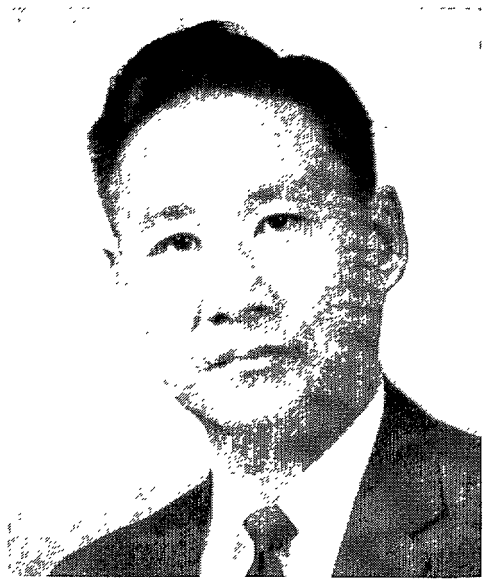
Harry L. Shepherd, Jr.

Harry L. Shepherd, Jr., was appointed as assistant director in the International Division on July 17, 1967.

In this position, he will be responsible for directing reviews of economies and military foreign assistance programs.

Mr. Shepherd returns to us from the Bureau of Public Roads where he was Chief for Compliance. From 1952 to 1963, he served as a member of the professional staff of the Civil Division of the General Accounting Office.

Mr. Shepherd is a CPA (Maryland) and a member of the American Institute of Certified Public Accountants. He served in the U.S. Navy from February 1945 to August 1946.



Susumu Uyeda

Susumu Uyeda was appointed an assistant director in the Office of Policy and Special Studies on August 6, 1967.

Mr. Uyeda graduated with honors from the University of California at Los Angeles with a bachelor of science degree in business administration. He is currently working towards a master's degree in public administration at the American University.

Mr. Uyeda came to the General Accounting Office from the Defense Supply Agency where he most recently served as the Director of the Defense Eastern Regional Audit Office which was responsible for audits of all DSA activities east of the Mississippi River. Previously, Mr. Uyeda served with the U.S. Army Audit Agency as an assistant district manager in the Pacific District and as a program director in the headquarters office. In 1962, he was selected as the auditor-of-the-year for the entire Army Audit Agency.

Richard J. Woods

Richard J. Woods was designated an assistant director in the Civil Division June 19, 1967. He is in charge of the accounting, auditing, and investigative work at the Department of Labor.

Mr. Woods attended the Virginia Military Institute in 1944 and graduated from St. Vincents College at Latrobe, Pa., with a bachelor of science degree in accounting in June 1951. He is a CPA (Virginia) and a member of the American Institute of Certified Public Accountants.

Mr. Woods served in the U.S. Army during World War II. He joined the General Accounting Office August 1, 1951. Except for a tour in the International Division from 1963 to 1966, his service in the General Accounting Office has been with the Civil Division.

Professional Activities

Office of the Comptroller General

The Comptroller General, *Elmer B. Staats,* addressed the following groups in recent months:

The Fels Institute of Local and State Government, University of Pennsylvania, Philadelphia, Pa., May 24.

U.S. Chamber of Commerce Board of Directors' meeting, June 30 (informal talk).

National Institute of Public Affairs' Career Education Awards meeting, July 7 (informal talk).

The Eleventh Summer Institute for Federal Executives of the University of Wisconsin, Madison, Wis., July 27, on "Administrative Accountability and Organization Controls."

Dedication of American Management Association's Manager Learning Center in Hamilton, N.Y., August 22. Mr. Staats spoke on "The Government Manager in 2000 A.D." This address is printed in this issue of the *Review.*

State Budget Directors Institute, Natural Bridge State Park near Lexington, Ky., September 18, on "New Developments in Program Appraisal."

National Association of Accountants, Washington Chapter, September 20, on "Management Information Needs in an Era of Change."

Colorado Society of CPAs, Denver, Colo., September 21, on "New Developments in Federal Financial Management."

American Institute of CPAs, 80th annual meeting, Portland, Oreg., September 26, on "Protecting the Taxpayer's Dollar."

The Assistant Comptroller General, *Frank H. Weitzel,* addressed the Brookings Institution Conference for Business Executives in Washington, D.C., on June 27. He spoke on "The Role of the General Accounting Office."

On July 16, Mr. Weitzel spoke at the Financial Management Institute for State Fiscal Officers, Bureau of Employment Security, Department of Labor, at Airlie House, Warrenton, Va.

Lawrence J. Powers, the Assistant to the Comptroller General, discussed with participants of the Executive Seminar Center on Administration of Public Policy at Kings Point, N.Y., on September 19, the role of the General Accounting Office in assisting the Congress to maintain legislative oversight of Government operations.

Office of the General Counsel

Robert F. Keller, general counsel, participated in sessions of the Public Contract Section of the American Bar Association, Honolulu, August 4–11. The subject of discussion was Public Law 87–653.

J. Edward Welch, deputy general counsel, participated in the D.C. Bar Association program on "Government Contracts Revue," June 8. On June 9, Mr. Welch lectured at the Defense advanced procurement management course, Fort Lee, Va.

On August 14–15, at Hershey, Pa., Mr. Welch spoke before the Fire Apparatus Manufacturers Association Meeting on Government contract bidding problems. On August 22, Mr. Welch lectured at the 41st procurement law course, JAG School, Charlottesville, Va., on "GAO's Role in Government Contracting."

Stephen P. Haycock, assistant general counsel, lectured on August 24 before the Defense advanced procurement management course, Fort Lee, Va., on "Problems in Formal Advertising."

Office of Policy and Special Studies

E. H. Morse, Jr., director, is serving on the following professional society committees for 1967–68:

D.C. Institute of CPAs—Governmental Accounting Committee (chairman).

American Institute of CPAs—Committee on Education and Experience Requirements for CPAs.

American Accounting Association—Committee on Managerial Decision Models.

Robert L. Rasor, associate director, attended the Executive Development Program of the Graduate School of Business and Public Administration at Cornell University during June–August 1967.

Articles by *William L. Campfield,* assistant director, appeared in the July 1967 issues of the following professional journals:

Advanced Management Journal, article entitled "Primer on Reports that Persuade Management Action."

Journal of Accountancy, article entitled "Trends in Auditing Management Plans and Operations." This article is reprinted in this issue of the *Review.*

Francis W. Lyle, assistant director, has been appointed to serve as director of the membership committee of the Washington Chapter of FGAA for fiscal years 1967–68.

Civil Division

A. T. Samuelson, director, was elected a national director of the National Association of Accountants for a 2-year term beginning July 1, 1967.

Jack L. Mertz, assistant to the director, has been designated "Member of the Year" by the Washington Chapter of the National Association of Accountants.

William D. Martin and *Harold L. Stugart,* supervisory auditors, have been appointed associate directors of member attendance for the Washington Chapter of the National Association of Accountants.

Defense Division

Mathew Gradet, assistant director, Support Services Group, is serving on the Membership Committee of the District of Columbia Institute of Certified Public Accountants.

Field Operations Division

Charles F. Carr, supervisory auditor, Boston, addressed the Merrimack Valley chapter of the NAA in April. The subject of his talk was "Current Concepts in the U.S. General Accounting Office."

Mr. Carr has been elected first vice president of the Boston Chapter of FGAA for fiscal year 1968.

Roger F. Verville, supervisory auditor, Boston, has been elected to the board of directors, Boston Chapter of FGAA for fiscal year 1968.

William F. Engel, supervisory auditor, of the Chicago region, Rock Island office, has been elected director of the Quad Cities Chapter of FGAA for fiscal year 1968.

David P. Sorando, regional manager, and supervisory auditors *W. A. Broadus, Jr.,* and *James L. Silvati* have been elected to serve as officers of the Cincinnati Chapter of FGAA during 1967–68. Mr. Sorando will serve as president and Messrs. Broadus and Silvati will serve on the executive board. Mr. Sorando spoke at the Albany, Ohio, Margaret Creek Conservancy District meeting held on September 5, 1967. His talk covered the responsibilities and functions of the General Accounting Office.

John N. Toler, Jr., supervisory auditor of the Dallas region, San Antonio office, has been elected director of programs of the San Antonio, Tex., Chapter of FGAA for fiscal year 1968.

George T. Kropp, Jr., supervisory auditor, Denver, has been appointed to serve on the Committee on Members in Industry and Government of the Colorado Society of CPAs.

Franklin A. Curtis, assistant regional manager and *Curtiss G. Lovelace,* supervisory auditor, Detroit, have been elected to serve as officers of the Detroit Chapter of FGAA for fiscal year 1968. Mr. Curtis will serve as director and Mr. Lovelace as treasurer.

Marvin E. Gettle, supervisory auditor, St. Louis suboffice, spoke at the Chanute Air Force Base Training Seminar on August 3, 1967. His subject was "Responsibilities of the General Accounting Office."

Hyman L. Krieger, regional manager, and *Ralph E. Anderson, Karl E. Deibel,* and *Milo L. Wietstock,* supervisory auditors, Los Angeles, participated in a University of Southern California course entitled "National Administration Laboratory." They spoke to the students on July 13, 1967, and discussed the functions and organization of the General Accounting Office, GAO's approach to defense contract audits and audits involving State and municipal government organizations such as audits of the war on poverty.

Karl E. Deibel, supervisory auditor, Los Angeles, participated in a panel discussion on personal development in the Government at the September 13, 1967, meeting of the Los Angeles Chapter of FGAA. He discussed GAO's concepts in professional development.

Gerald W. Hicks, supervisory auditor, was elected treasurer, and *Milo L. Wietstock,* supervisory auditor, was appointed assistant director of the Los Angeles Chapter of FGAA for fiscal year 1968.

Walter H. Henson, regional manager, New Orleans, was elected to the board of directors, New Orleans Chapter of FGAA and appointed as program chairman for fiscal year 1968.

Paul C. deLassus, supervisory auditor, New Orleans, has completed the Executive Development Program sponsored and directed by the Graduate School of Business and Public Administration at Cornell University.

Robert Drakert, regional manager, New York, on June 22, 1967, addressed the Civil Service Commission executive seminar on administration of public policy. He spoke on the duties and responsibilities of GAO.

Guido D. D'Angelo, supervisory auditor, Philadelphia office, has been elected first vice president of the Philadelphia Chapter, FGAA, for fiscal year 1968.

Joseph J. Calnan, supervisory auditor of the Seattle region, Anchorage suboffice, has been elected to the board of directors of the Anchorage Chapter of FGAA and is chairman for fiscal year 1968.

Carl E. Weber, supervisory auditor, Seattle, has been elected president of the Seattle Chapter of FGAA for fiscal year 1968. *Gary D. McGill* and *Roger L. Johnston,* supervisory auditors, Seattle, are education director and membership director, respectively.

Louis Searleman, Clarence O. Smith, and *Williston B. Cofer,* supervisory auditors, Washington region, are serving on the ADP research subcommittee for the Washington Chapter of FGAA. Their current research project is the development of a directory of computer information in the Federal Government to facilitate the exchange of computer programs and applications.

Successful Candidates—May 1967 CPA Examination

Forty-seven members of our professional staff passed the May 1967 examination for the CPA certificate.

Washington divisions	17
Far East Branch	1
Regional offices	29
Total	47

Washington Divisions

Name	*Division*	*State*
David J. Attianese	Civil	Virginia.
Richard W. Bricker	Civil	Virginia.
Dockery S. Dobbins	Civil	Virginia.
Norman M. Goldstein	Civil	Maryland.
Gerald V. Grant	Civil	Virginia.
Charles N. Gryboski	Civil	Virginia.
Danny R. Latta	Civil	Virginia.
William D. Martin, Jr	Civil	Virginia.
Thomas E. Melloy, Jr	Civil	Maryland.
Ronald G. Morgan	Civil	Virginia.
Robert S. Procaccini	Civil	Virginia.
William J. Rita, Sr	Civil	Virginia.
Jay L. Scott	Civil	West Virginia.
Kenneth E. Shuman	Civil	Virginia.
Craig M. Spratt	Civil	West Virginia.
Marvin I. Brown	Defense	Virginia.
Ludovico R. Giordano	Office of Policy and Special Studies.	Virginia.

Far East Branch

Sammie W. Gillentine	International	Hawaii.

Regional Offices

Name	*Region*	*State*
Edith J. Byrne	Atlanta	Tennessee.
James T. Campbell	Atlanta	Tennessee.
Phillip Battryn	Boston	New Hampshire.
Thomas Coder	Boston	Massachusetts.
Arthur R. Goldbeck	Chicago	Illinois.
Stewart M. Herman	Chicago	Illinois.
Walter T. Hovey	Chicago	Minnesota.
Donald L. Allgyer	Cincinnati	Ohio.
Robert D. Murphy	Cincinnati	Ohio.
Don E. Roose	Dallas	Texas.
Charles Smith	Dallas	Texas.
Douglas R. Carlile	Denver	Utah.
Eva S. Copland	Denver	Colorado.
Dayl C. Stapleton	Denver	Colorado.
Noel E. Winfrey	Denver	Colorado.
Melvin G. McComb	Detroit	Ohio.
Walter H. Blood	Kansas City	Kansas.
Lynn H. Brown	Kansas City	Oklahoma.
Dennis A. De Hart	Los Angeles	California.
Walter A. Choruby	Seattle	Oregon.
Donald E. Cortright	Seattle	Washington.
Rodney E. Espe	Seattle	Washington.
Harold J. Johnson, Jr	Seattle	Oregon.
Roy Lum	San Francisco	California.
James D. Childress	Washington	Virginia.
Thomas P. Langan	Washington	Virginia.
Robert F. Raspen	Washington	Virginia.
David B. Stark	Washington	Virginia.
Irving B. Ross	Washington	Virginia.
William D. Sims*	New Orleans	Louisiana.

*Passed examination, November 1966.

New Staff Members

The following professional staff members joined the accounting and auditing divisions and reported for work during the period June 16, 1967, through September 15, 1967.

Civil Division

Benz, William J.	King's College
Bleier, Terry F. (Mrs.)	University of Texas
Bolker, Barbara R. (Miss)	University of Miami
Briggs, Janice M. (Miss)	University of Connecticut
Broadt, Kenneth A.	Bloomsburg State College
Calabria, Ronald A.	Providence College
Carter, David B.	New Hampshire College of Accounting and Commerce
Caswell, Charles D.	University of Maine—Portland
Chellino, Frank J., Jr.	Bloomsburg State College
Edwards, Marjorie A. (Miss)	Westminster College
Ford, Sara P. (Mrs.)	Baltimore College of Commerce
Foster, Jerry A.	Virginia Polytechnic Institute
Fox, Thomas W.	St. Francis College
Gallucci, Michael A.	St. Francis College
Graeca, Raymond A.	Gannon College
Hearrell, James L.	Texas Technological College
Hockman, Kenneth D.	Roanoke College
Jacques, Rachel E. (Miss)	University of Maine—Portland
Johnson, Harry A.	Gannon College
Kessinger, Norman L.	Shippensburg State College
Kunkel, Raymond L., Jr.	Bloomsburg State College
Machin, Walter E., Jr.	Colorado State College
Miller, Marilyn W. (Miss)	University of Maryland
Morris, Ollie M. (Miss)	Southern University of Baton Rouge
Mullin, James R.	St. Francis College
Rezendes, Victor S.	Bryant College
Ritchick, Stanley P.	St. Francis College
Rosini, James J.	Bloomsburg State College
Schechterly, William A.	Pennsylvania State University
Shores, Ronald L.	West Liberty State College
Stankosky, Gerald	Bethel College
Starnes, Richard P.	Columbia Union College
Sullivan, Ariel Y. (Mrs.)	Howard University
Van Cleve, Edgar P.	Columbia Union College
Worrell, Benjamin E.	West Liberty College
Zickefoose, Lura A. (Miss)	Columbia Union College

Defense Division	Byrd, Patricia A. (Miss)	University of Mississippi
	Clark, Beverly J. (Miss)	Middle Tennessee State University
	Cole, Dallas H.	University of Utah
	Wilson, David E.	University of California at Berkeley
International Division Far East Branch	De Aguiar, James K.	Rockhurst College

REGIONAL OFFICES

Atlanta	Anderson, Jerry R.	Belmont College
	Corbett, Bobby W.	Valdosta State College
	Deitz, Danny R.	Western Carolina College
	Geiger, Michael D.	Valdosta State College
	Harder, Ward D.	Middle Tennessee State University
	Hilton, Daniel E.	Western Carolina College
	Hoard, George G.	University of Georgia
Boston	Cunningham, O. James	Ohio Wesleyan University
	Darlington, Douglas S.	Babson Institute
	Donaldson, Richard H.	Lowell Technological Institute
	Edson, Robert P.	Suffolk University
	Greeley, Paul M.	Northeastern University
	Kaminskas, Thomas	University of Massachusetts
	Moonan, John X.	Boston College
	Plumpton, James C.	Northeastern University
	Silsby, William M.	University of Denver
	Sliney, Thomas R.	University of Massachusetts
Chicago	Kriens, Loretta A. (Miss)	Oregon State University
	Phipps, Clifford D.	Buena Vista College
Cincinnati	Boone, Charles D.	Indiana University
	Conn, Charlene (Miss)	Eastern Kentucky University
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	Herrick, Michael D.	University of Utah
	Osborne, John L.	Eastern Kentucky University
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	Goldsmith, Larry A.	University of North Dakota
	Holmgren, Thomas W.	University of North Dakota
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	Thompson, Dennis G.	Oklahoma State University
	Williams, Ronald W.	Kearney State College

Detroit	Goldstein, Sharon L. (Miss)	University of Toledo
	Herman, Robert W.	Michigan State University
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	Johnson, Dennis K.	Ferris State College
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	Ross, Michael J., Jr.	Lawrence Institute of Technology
	Schwartz, Weldon H.	Milton College
	Semar, William S.	Ferris State College
	Sevon, Patrick H.	Lawrence Institute of Technology
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	Hubbard, George W.	California State College at Long Beach
	Jaster, Lesley J.	LaSierra College
	Koebert, Richard H.	California State College at Fullerton
	Lightbourne, Dennis E.	California State College at Los Angeles
	Miranda, Gerald N.	University of San Diego
	Morin, Robert A.	University of Arizona
	Nash, Edward N.	Montana State University
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	Schulz, Thomas J.	University of Southern California
New Orleans	Comeaux, Jerry R.	Southeastern Louisiana College
	Harper, James L.	Little Rock University
	McElfresh, Wallace D.	Northwestern State College
	McNeel, Patrick S.	Francis T. Nicholls State College
	Smith, Leon M., Jr.	Southeastern Louisiana College
	Webb, Thomas E.	Louisiana College
	Whitten, Lamond G.	Northeast Louisiana State College

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	Hark, William P.	Manhattan College
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	Levine, Richard M.	New York Institute of Technology
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	Hebert, Michael G.	Portland State College
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Readings of Interest

The reviews of books, articles, and other documents in this section represent the views and opinions of the individual reviewers, and their publication should not be construed as an endorsement by GAO of either the reviewers' comments or the books, articles, and other documents reviewed.

Guide to Contemporary Theory of Accounts

By John W. Coughlan, Ph. D., C.P.A., Prentice-Hall, Inc., Englewood Cliffs, N.J., 1965, 563 pp., $15.

Dr. Coughlan's basic purpose in writing his book is to present a *complete* statement as to the underlying assumptions and methods that have contributed to the development of contemporary accounting. I believe this alone separates *Guide to Contemporary Theory of Accounts* from those ordinary accounting texts that, seemingly, are being unceasingly ground out with no end in sight. This is a fresh and really "new" accounting text.

The remarkable and important aspect of this book, aside from the subject matter, is what may be found in the book. Presented is a single volume source covering every phase of the theory of modern accounting, written by an expert in accounting instruction and practice along with the thinking and position of accounting bodies such as the American Institute of Certified Public Accountants, National Association of Accountants, American Accounting Association, and their various functioning committees; Government regulators such as Internal Revenue Service, Securities and Exchange Commission, Interstate Commerce Commission; teachers and theoreticians such as Herbert Miller, Perry Mason, Paton and Littleton, Corbin and Taussig; several business leaders; various laws, codes, and textbooks. These are a few authorities covering the range of source material presented in the book. Included at the end of each chapter are recent CPA examination theory questions and suggested solutions which cover the subject matter in the chapter. The appendix includes a test on theory of accounts for determining the degree of preparedness for the CPA examination. Here is a one-volume reference work for the practicing accountant, the financial analyst and investor, the senior and graduate accounting student, as well as, and especially for, those prospective CPAs.

The first several chapters of Dr. Coughlan's book present the form and content of the basic financial statements, that is, the balance sheet, income statement, and source and application of funds statement. The meaning of assets, liabilities, equity, etc., is given along with a complete

discussion of current terminology. The author provides a description of the conventional analyses of financial statements and also explains the current trends in financial analyses.

Then, except for the last chapter, the remainder of the book follows a discussion of the basic postulates of accounting as follows:

The Monetary Postulate
The Entity Postulate
The Fiscal-Periods Hypothesis
The Cost Basis of Accounting
Conservatism

The discussion presents and describes all of the basic assumptions or postulates in detail. The author delivers all the accounting methods and techniques resulting from these various assumptions, but is careful neither to advocate nor justify one assumption in lieu of another or one postulate versus another postulate. One gets the idea, however, that the utility of contemporary accounting could be greatly improved should certain of the basic assumptions be dropped. This is borne out in the last chapter entitled "Industrial Accounting."

Industrial accounting is described as that improvement of contemporary accounting resulting from a scrapping of certain basic assumptions. The author admits that the approach does violate many of the principles expressed in the book, but it more than suffices in upholding the paramount objective of accounting—usefulness. This approach, which has come to the front in recent years, offers an accounting compatible with the demands of big business, whereas mercantile accounting or contemporary accounting, as we know it, is relegated to the antiquity of small-scale Italian traders for which it was developed 500 years ago.

The format and style of presentation makes Coughlan's book easily understood, informative, and interesting. *Guide to Contemporary Theory of Accounts* is recommended to GAO staff members as refresher material for those "old timers," an asset in the library of those furthering their accounting education, and a necessary labor-saving reference work for the CPA candidate.

Ralph E. Crews
SUPERVISORY AUDITOR,
CIVIL DIVISION.

Management by Exception

By Lester R. Bittel; McGraw-Hill Book Co., Inc., 1964; 320 pp., hardback, $8.95.

Measure, project, select, observe, compare, decide—these six action verbs collectively sum up the author's concept of a system designed to permit management by exception. Development of this concept and, equally important, translation of the concept into a practicable, usable system of management are accomplished in easily understood, nontechnical language. The value to be derived from the material presented is threefold: (1) a better appreciation of the effort that must be expended to achieve a workable management system, (2) an understanding of a framework against which management performance can be evaluated, and (3) an opportunity to contrast and reevaluate the methods employed in managing our own work.

The author briefly covers the elements susceptible to quantitative measure (people, money, materials, and equipment) and suggests five cri-

teria to use in selecting the elements to be measured. These criteria are cost, potential value as a control, frequency, availability, and statistical soundness. With the exception of frequency, the criteria suggested are those usually considered in GAO audit work in determining work to be programmed and in formulating recommendations for corrective actions to be taken by agency management.

He offers relatively simple mechanics for establishing priorities for selecting the critical measurements for control purposes from among the multitude of measurements available to management. He insists—and rightly so—that, after selecting the measurements, managers should preplan (1) the degree of variation to be tolerated, (2) the duration of variation to be tolerated, (3) the level of authority to be required in dealing with the variation, and (4) the alternative courses of action to be taken when exception variations occur.

The author believes that managers must observe and compare actual performance with expected performance. Emphasis is placed on analyzing causes for deviations from criteria and reporting of action required to appropriate management levels. This corresponds to the GAO policy of determining the basic causes of the adverse conditions we encounter.

This book has an exceptionally good condensation of the current philosophies on general versus close supervision and on appraisal techniques. This limited treatment on supervision is intended to stimulate interest in further reading in these areas.

I believe that the thoughts expressed in this book significantly contribute to an understanding of management and, if considered imaginatively, could stimulate practical innovations in the ways and means of effectively accomplishing the goals of our office.

Irwin M. D'Addario
ASSISTANT REGIONAL MANAGER,
SEATTLE REGIONAL OFFICE.

How Managers Make Things Happen

By George S. Odiorne, Ph. D., 1961, Prentice-Hall, Inc., Englewood Cliffs, N.J., fifth edition; 215 pp., hardback $5.95.

Mr. Odiorne, writing from a wealth of experience as an industrial manager, lecturer, and educator, has provided both the manager and the management accountant with a statement of management principles that should improve the performance of all who aspire to be managers.

For the manager and the accountant who must not only ferret out facts but, quite often, pinpoint management problems that categorize facts into efficiency and inefficiency columns, this book will be a valuable aid. The book is addressed to the manager who is not satisfied with the "Status Quo" and seeks to find ways to improve his operation.

The key to being a manager who makes things happen, Mr. Odiorne points out, is constancy: constant change; constant application of flexible rules and regulations within established policy that, in turn, result in constant growth and expansion; constant discipline geared for constant flexibility; constant effort; and constant authority. Management means "thinking" action, having the foresight to size up a situation accurately

and change, or redirect, techniques and methods constantly until the desired results are achieved at peak efficiency. Management is "thinking" action in terms of long-term growth and achievement, which is becoming an increasingly important objective to the accountant.

Mr. Odiorne recommends that the manager use a personal staff he has trained and that he get and use ideas of others by providing incentives such as personal satisfaction and recognition of abilities. The manager can best maintain objectivity by remembering the individual and knowing the individual's value to the group, and he must judge the individual on performance as part of the group rather than on personal traits.

Today's management accountant should give well-deserved attention to Mr. Odiorne's theory that the wise manager disciplines by determining what's wrong, not who's to blame. He criticizes constructively—for the agency and for the individuals involved; he criticizes factually and leads the individual to evaluate his own mistakes while inspiring him to improve or correct. Discipline is necessary and expected, but criticism must be constructive and, above all, skillfully timed to effect the desired results. The subordinate should always be disciplined privately, calmly, and without loss of dignity. A manager should take the time and effort to establish with each subordinate that personal rapport which indicates the regard and respect of one person for another.

In conclusion, Mr. Odiorne points out that no set of rules or procedures, and no framework of patterned progress can work smoothly or result in growth unless the individual involved exercises professional judgment, maintains carefully established principles, and listens and speaks with interpretative intent.

Paul M. Gaskill,
NORFOLK REGIONAL OFFICE.

Administrative Behavior: A Study of Decision-Making Process in Administrative Organization

By Herbert A. Simon; New York: The Free Press, 1965; paperback $2.45, hardback copies available.

Simon concludes that his book does not provide definite administrative principles but provides a framework for analysis and description of administrative situations and a set of factors to consider in arriving at a valid proposal for organizational problems.

According to Simon, decisionmaking is the heart of administration and a vocabulary of administration must be derived from the logic and psychology of human choice. Decisionmaking is not confined to formulation of overall policy; on the contrary, the task of "deciding" pervades administrative organization as much as "doing." Simon distinguishes between two types of elements in a decision: one type leading to selection of final goals, "value judgments," and the other implementing goals, "factual judgments."

Some factors that influence the decisionmaking process are discussed, such as relative roles of value and factual judgments; rationality in decisionmaking; contrast between psychological and logical elements in the process of choice, including ways an

organization modifies individual behavior; equilibrium resulting when people permit their decisions and behavior to be influenced by participation in an organization; process of communication; and concepts of efficiency and organizational loyalty. These factors are as applicable to Government organizations as they are to other organizations. Also, a limited discussion is devoted to an analysis of traditional "principles of administration," showing their inadequacy for application to organizational problems.

Simon's book will interest those concerned with management analysis; I dare say it will stretch one's thinking. An idea which permeates his book is that the key to analysis of organizational problems is a clear and realistic understanding of the decisions made within organizations and the flow of the premises and influences that combine to make up the decision. For such an analysis, a vocabulary more precise than one that would describe management as "dealing with people" is needed. Simon attempts to describe and to give more insight into this vocabulary and into the very thing that management analysts deal with—the analysis of decisions.

Edward L. Mahle
DETROIT REGIONAL OFFICE.

Improving the Effectiveness of Research and Development

By Robert E. Seiler, McGraw-Hill Book Co., New York, 1965, 210 pp., $10.

This important book is the result of a study jointly sponsored by The College of Business Administration Research Program of the University of Texas and Sandia Corp., Albuquerque, N. Mex., a nonprofit, research-oriented prime contractor to the U.S. Atomic Energy Commission. The agreement between these two participants required that the study be directed toward a review of laboratory accounting systems with primary attention given to (a) methods employed in the allocation of resources to research activities, (b) means by which managerial control is exerted to assure maximum results from the allocated resources, and (c) those techniques employed in measuring performance of individuals involved in research and development activities.

As accountants are fast learning, the primary problem in achieving a satisfactory degree of audit of a research and development activity lies in the absence of a reliable method of comparing research costs with results. This volume, nonetheless, emphasizes the following areas:

- The application of quantitative methodology to research and development.
- Budgetary planning of research and development.
- Project-selection methodology.

The information presented was obtained from 116 cooperating companies.

Of primary importance are the author's chapters on planning, selecting, controlling, and evaluating research and development projects. In these chapters the author demonstrates the usefulness of written plans, timing, comparative costs, and the significance of cash flow to successfully evaluating research and development efforts. Formulas and instructions are

provided to compute various return and worth calculations. In addition, current research and development control trends are set forth in graphic and tabular form.

An audit approach, and an indeed interesting proposal, appears in the final chapter. In the author's words:

"The evaluation of research has some valuable side effects if it is undertaken in conjunction with the evaluation of other functional areas. Cooperation is enhanced through an awareness of the contributions made by the various activities within the firm, and frequently soft spots in the organization can be located. One research manager reported that such an integrated evaluation process revealed wastes and inefficiencies in translating research results into commercial products. As a result of this knowledge, a new system of project management was instituted, so that one manager supervised the research results from the inception of the project through engineering into full-scale production. The result was a significant saving in manpower and capital investment."

Appendix "A" to Dr. Seiler's book contains a reprint of the questionnaire used to gather the information upon which the text is based. The questionnaire sets forth 47 specific inquiries of which many or variations thereof would appear to have direct applicability to the performance of comprehensive audit work. For example:

- Do you have formalized procedures for periodically reviewing all research projects currently in process to determine whether they should be continued or discontinued? If yes, explain briefly the nature of these procedures.
- How frequently is actual progress on a typical project, in terms of cost, manpower required, and completion date, checked against the estimates made at the time the project was approved?
- How often are research and development objectives reviewed and revised on a formal basis?
- Are plans communicated and distributed to key personnel in written form for appropriate dissemination?

The depth of perception, the overall organization, and the identification of so many facets of the problem of evaluating research and development make this volume excellent reading.

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CIVIL DIVISION.

Some Observations on Statistical Sampling in Auditing

By Howard F. Stettler, The Journal of Accountancy, April 1966.

In the evolution of public accounting into its present-day form, statistical sampling has become a major tool in auditing the financial statements of today's vast and complex corporate entities. Increasing emphasis is also being given to the use of statistical sampling in GAO's financial and comprehensive audits. Despite this considerable reliance upon statistical sampling, the body of knowledge is constantly changing and being improved upon as auditors gain greater experience in this area. It is toward this goal of improving our knowledge that Professor Stettler addresses himself in his article in *The Journal of Accountancy*.

Professor Stettler discusses three types of statistical sampling: acceptance sampling, discovery sampling, and estimation sampling. The first two types are used in sampling for attri-

butes. Acceptance sampling is a means for determining that the number of defectives (errors) disclosed in a test of a predetermined number of items from a given population does not exceed the number specified by the sampling plan. Discovery sampling is a means of discovering at least one defective item in a population if defective items are present in excess of some stated percentage. According to Professor Stettler, discovery sampling is little more than a different way of looking at the results of an acceptance sampling plan.

The third type, estimation sampling, is used for sampling for variables. These variables can be such items as the amounts of individual accounts receivable or the cost extensions for goods in inventory. Estimation sampling can also be used in attribute sampling to develop an indication of the proportion of defectives in the population.

Before proceeding to his major contentions, the author first warns against assuming that sampling in auditing yields positive information about a given population, when in fact it can yield only negative conclusions. Thus, a sample will not reveal the exact number of defective items in a population. What the sample will do is tell the auditor that he can accept the population, with a stated amount of confidence, as not having more than a stated percentage of defectives if the number of such defectives disclosed by the sample is equal to or less than the number specified by an acceptance sampling table.

The same observations may apply to conclusions based on estimation sampling. Thus, the average dollar amount of a sample of accounts receivable selected at random from a given population multiplied by the number of accounts in the population will not yield an exact estimate of the total accounts receivable. The only appropriate statement is a negative one that at a given confidence level, say 95 percent, the total of the receivables is not greater than an amount somewhat higher than the estimated total and not less than an amount of somewhat lower than the estimated total.

Having warned his reader about the limitations of the types of statistical sampling under discussion, the author proceeds to what he believes, at least for attribute sampling, is the simpler and more reliable technique—the sample of one of each type of transaction.

According to Professor Stettler, it is commonly assumed that tests of transactions must be made to give assurance of compliance with the stated plan of internal control, and acceptance sampling is generally proposed as an effective means of achieving this assurance. However, it is extremely difficult, if not impossible, to set a meaningful maximum for the percentage of defectives that can be tolerated in the population being sampled. A better approach is to ascertain what controls exist to give assurance that the basic internal controls are being followed. One of the ways of finding this out is by means of a "walk-through" of one of each kind of transaction. This should suffice for the test of transactions. According to one expert quoted in the article, the walk-through is not a test of the operations of an organization's sys-

tem, but rather a means of assuring that effective communication has taken place between the auditor and the employees being questioned about the organization's procedures.

The same technique can be used with computerized accounting systems. The auditor can take a variety of samples by means of a "test deck" of hypothetical situations, asking how input containing known exceptions is actually processed by the computer. A sample of one is taken of each different situation the computer program is supposed to recognize and treat as an exception. If this test shows that the stated program checks were actually incorporated in the program and functioning, then the auditor may rely on other controls, such as records of program changes during the year to satisfy himself that the stated checking was being done throughout the year.

Thus Professor Stettler contends that the auditor may properly ignore the question of sample reliability when adequate controls are present and that only one of each type of item need be tested. If internal control is deficient, the auditor's modification of his examination should not be in the direction of increasing sample size; rather, he must expand his samples in the tests of the account balances themselves against verifiable supporting evidence to achieve greater reliability.

Finally, the author reaches the conclusion that estimation sampling is perhaps the only approach that is valid and useful for auditing purposes. And under this concept, the objective is not to estimate the total of the population, but rather to gain assurance that this total is no less than some figure that is not materially less than the stated total, and no more than a larger figure that is not materially greater than the stated total.

It is important to note that the article is apparently commenting upon statistical sampling as it applies to the auditing of financial transactions. Even considering Professor Stettler's contentions in this limited context, it is difficult to fully accept the premise that estimation sampling is the only usable sampling technique available to auditors. His emphasis on the negative nature of sampling results could have perhaps been better stated by stressing that statistical sampling is a tool to be used, at the discretion of the auditor, in conjunction with and not as a replacement for other valid and accepted auditing techniques. Viewed in this context, his points on the limited value of sampling results are well taken as are his remarks about the walk-through technique of sampling one of each kind of transaction. As such they will benefit the auditor faced with the difficult task of confirming the adequacy of an organization's internal control over the recording and reporting of financial data.

Roger L. Sperry
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CIVIL DIVISION.

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