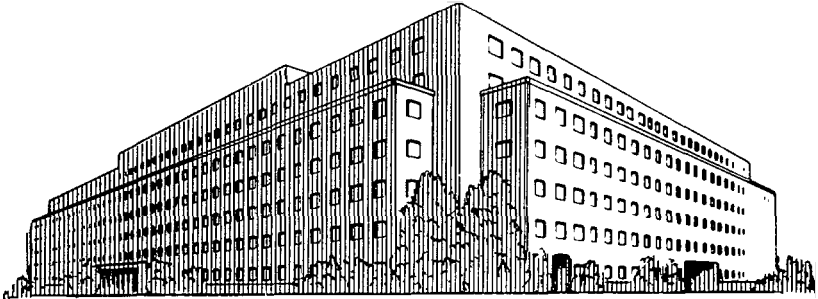


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# The GAO Review



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# THE GAO REVIEW

## SPRING 1967

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# The General Accounting Office—How Its Activities Support Better Management of Federal Programs

By Elmer B. Staats

*Comptroller General of the United States*

This article is based on a speech given by Mr. Staats before the North Alabama Chapter, American Society for Public Administration, Huntsville, Ala., February 17, 1967.

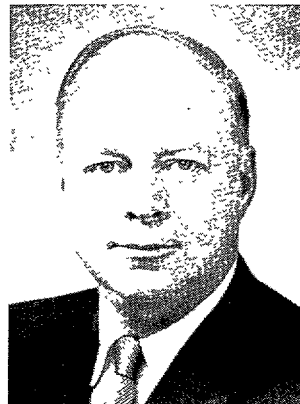
The American Society for Public Administration was founded and has its great strength in the common interest of all people in improving the art, science, and process of public administration. This is the common denominator objective which has always been important; at no time, however, has it been as important as it is today.

The increasing size of Government, the rapid growth of governmental influence in the area of science and technology, the blurring of lines between public and private enterprise, and the rapidly changing relationships between Federal, State, and local gov-

ernments—all demonstrate the importance of this society which can bring together these interests on the common ground of learning how to carry out these programs more effectively and efficiently.

Without fear of exaggeration, it is my belief that the learning gap—the technological gap if you will—of the next decade will be in finding ways to make governmental machinery more effective. And that is why it is so important that all citizens interested in improving the public service and all backgrounds and disciplines find a common focus of interest in the improvement of public administration.

**Elmer B. Staats, Comptroller  
General of the United States.**



It is fair to say that it is much easier to stimulate the public interest, and to some extent people in Government, in the action side of government programs than it is in the techniques and perfection of management. Yet we all well know how basic are careful planning and sound management to the success of these programs. This is true whether we are talking about technological management, administrative management, or financial management.

### ***GAO Responsibilities and Functions***

As you know, I speak for an organization established and directed by law to achieve greater efficiency and economy in the management of the U.S. Government—the General Accounting Office.

It has far-reaching responsibilities in prescribing accounting principles and approving accounting systems, in assisting agencies in the development of improved financial and management information systems, as an arm of the Congress in evaluating and appraising governmental programs, in reviewing weaknesses in management procedures and organizations, and in assisting the Congress generally on studies of whether programs are being carried out effectively and in accordance with the intent of the Congress.

I would like to emphasize at this time two of our basic functions.

- The role of GAO in the improvement of financial management practices.
- The evaluation or audit of the agencies' management of Governmental programs.

The concept of independent and impartial review, or audit, of governmental expenditures, which underlies the law creating the General Accounting Office, is founded in American and Anglo-Saxon history. While our organization was not established until 1921, this ancient concept of independence underlies that legislation.

The Comptroller General, the chief executive officer of the General Accounting Office, is an agent of the Congress. While appointed by the President, he can be removed only by impeachment or joint resolution by the Congress. The Comptroller General cannot be reappointed. Both he and the Assistant Comptroller General are appointed for terms of 15 years.

The Comptroller General and his staff are appointed on a nonpolitical basis; every Comptroller General has emphasized the nonpartisan nature of the organization.

We have a staff of 4,025 people, including 2,200 professional accountants and auditors. Our staff includes about 100 attorneys, highly trained and with reputation both in and out of Government for competence and objectivity.

Headquarters of GAO are in Washington. We have 16 regional offices in the United States and 4 overseas.

We have one of the most active recruiting and training programs for accountants and auditors in the country. We visit over 400 colleges and universities each year where we interview interested quality students.

As critics of Government operations by agencies and contractors we must develop the facts correctly and must interpret them fairly to all par-

ties. GAO must maintain, therefore—and it is my purpose to maintain and improve wherever possible—the high professional competence of our personnel.

As an agency of the Congress, we provide a multitude of services to the Congress.

- Assisting in the drafting of legislation.
- Handling inquiries from Members as well as committees.
- Making factual investigations.
- Testifying before committees.
- Furnishing audit reports on the Federal agency operations.

Our Office is responsible, with limited exceptions, for audit of all programs, activities, operations, and financial transactions of the Federal Government. The scope of our work extends to 12 major departments and some 60 independent agencies and commissions in the executive branch. We also make audits of financial transactions of organizations in the legislative and judicial branches.

I am directed by law, as Comptroller General, to “prescribe the principles, standards and related requirements for accounting to be observed by each executive agency.” And I am directed by the statute also, together with the Secretary of the Treasury and the Director of the Bureau of the Budget, to “conduct a continuous program” of improving accounting and financial reporting in the Government.

### ***Need for Improved Financial Management***

These and similar directives in other statutes stipulating the duties

of the Comptroller General are specific and clear. But in financial management in the Federal Government there is too large a gap between the requirements of the law and its execution. One reason for the difficulty Government agencies have in living up to what the law requires is, I think, lack of understanding.

And lack of understanding is due in considerable part to difficulty in communication. If we all better understood the importance of wise financial management out of which come intelligent courses of action, we would all work harder to require the maintenance of good accounting systems that tell us where we are at all times.

Accordingly, I hope to be able to communicate to you my sense of the importance of achieving better financial management throughout the Government and to suggest some ways in which we are trying to make progress. Let me begin by discussing briefly the Federal budget.

In January of this year, the President presented his budget for the fiscal year 1968. It called for administrative budget expenditures of \$135 billion.

At that time the President also stated that administrative budget expenditures for the fiscal year 1967 would be \$13.9 billion higher than the expenditures he estimated 1 year ago. I know of no more vivid example of the increasing complexity of public administration.

An expanding economy; a growing population; and increasing space, military, and economic commitments create an ever-increasing demand for Federal expenditures. Economic, so-

cial, and welfare programs gradually have become national programs rather than being confined to State or local levels. This in turn creates a greater need for understanding and cooperative effort—including cooperative efforts in the field of accounting and auditing—among Federal, State, and local administrators.

### ***Approval of Agency Accounting Systems***

One of the most important responsibilities of the General Accounting Office is the requirement—by law—to approve all executive agency accounting systems when they are deemed adequate and in conformity with our prescribed principles and standards. The first GAO comprehensive statement of accounting principles and standards was issued in 1952, 2 years after passage of the Budget and Accounting Procedures Act of 1950 which spelled out these requirements.

Although the General Accounting Office has been vigorously pressing the various Government agencies since then to establish accounting systems which could be approved, there is still much to be done.

For many years we have provided professional and advisory assistance to the agencies to assist in developing their accounting and financial management systems. And with the need for doing so growing constantly, we recently increased the number of our staff assigned to this work by four-fold with the hope that, within the reasonably near future, the goal sought by the Congress and the President of improved Federal agency accounting may be attained.

### ***Planning-Programming-Budgeting Systems***

In close relation to this, the President has directed the introduction of integrated planning-programming-budgeting systems (PPBS) in the primary executive departments and agencies. In announcing this action the President said:

“Each Cabinet and Agency head will set up a special staff of experts who, using the most modern methods of program analysis, will define the goal of the department for the coming year. Once the goals are set, this system will permit us to find the most effective and least costly alternative to achieve these goals.”

One of the important elements of this system is accounting-based cost data. It is apparent that many agencies do not, at this time, have accounting systems that will produce such data and, consequently, much work needs to be done if PPBS is to be fully effective.

In May 1966, I met with the Secretary of the Treasury and the Director of the Bureau of the Budget to discuss ways and means to make the Joint Financial Management Improvement Program more effective.

The Chairman of the Civil Service Commission also participated in this meeting. He is concerned with the critical problems of recruiting, classifying, and training people for accounting and financial management work.

We found ourselves in agreement that direct support by the President would provide a most important stimulus to all agencies to bring about improvements in financial management. Accordingly, the President issued a statement to the heads of Federal departments and agencies on May 24,

1966, requesting them to take specific actions.

I consider the President's support of transcendent importance. With his forceful interest as well as the interest of other top Governmental officials, it behooves us all to improve the financial management systems greatly throughout Government.

The Planning-Programming-Budgeting System has been highly publicized in the Federal service over the past 2 years. While it has contributed much to more effective management and to more adequate program evaluation, it is still in most agencies more of a promise than a reality.

There is still much to be done to relate the budget process to the program planning process in most agencies. There is still inadequate cost data. In most cases the management information system is inadequate to produce the kind of reports needed by top management.

Of critical importance is the fact that we have too few people who can apply the theory of PPBS to practical problems faced by administrators in getting acceptance in the Congress and elsewhere of the results flowing from the cost effectiveness analyses.

We believe that GAO can contribute to the long-range PPBS objectives through improvements in accounting systems, which will produce needed cost data for use in estimating and in measuring performance. We want to be sure that automatic data processing techniques are used properly in agency accounting systems and that these systems are integrated with the overall information system.

We have joined with the Civil Service Commission and the Bureau of the Budget in developing an interagency ADP training program. Internally within GAO we plan to provide all of our professional accountants and auditors with at least some ADP training. Also, we hope to introduce more cost effectiveness analysis in our audit reports and to evaluate agency cost effectiveness analysis as a part of our audit work.

### ***Project PRIME in the Department of Defense***

Some of you, perhaps, are participating in the development and installation of Resource Management Systems within the Department of Defense of which Assistant Secretary Robert N. Anthony's project PRIME is a part. Essentially, Project PRIME seeks to revise the programming system, the budgeting system, and the management accounting system so that they will be more useful to managers at all levels. Its focus is on two objectives:

- The integration of programming, budgeting, and management accounting so that the information used in these three systems will be consistent.
- The development of more intelligible information on the consumption of operating resources (as opposed to investment resources).

Our Office consults almost on a day-to-day basis with the Department of Defense on this project. We hope that this endeavor will get active support at all levels within the Department of Defense, because we feel that it will help to fill a serious gap now



existing in the Department's management system.

### ***National Aeronautics and Space Administration Projects***

The Financial Management Division of NASA has as one of its objectives the research and development of new techniques for performing management functions. A current joint project with the Management Information Systems Division is to provide NASA headquarters with a real-time accounting and reporting system.

Another project of NASA's Financial Management Division is the training of scientific, technical, engineering, and administrative people involved in project management in the uses to be made of financial and cost data reported to NASA by its contractors.

### ***GAO Auditing and Reporting***

Of equal importance to GAO's responsibility for encouraging and assisting the Government agencies to establish adequate accounting and financial management systems is its responsibility for evaluating how the agencies carry out their activities.

In the words of one Member of the Congress, GAO must evaluate from time to time how effectively appropriated funds are *applied* by the agencies to the purposes legislated by the Congress. Accurate, unbiased, and non-political audit reports to the Congress, reflecting the independent judgment of GAO on the effectiveness, efficiency, and economy with which programs are carried out will continue to be one of our primary missions. We are constantly working to improve these reports to make them more useful to the Congress and to the public.

Preparing and issuing these reports is admittedly difficult. At times we are accused of being "the department of 20/20 hindsight." We do not believe that this characterization is warranted, but I hope that we will always be receptive to constructive criticism.

We ourselves have the responsibility of the critic. This, in part, is what the Congress established us to be. But we also have a responsibility—in addition to criticism—for offering constructive proposals where our audits show need for improved service, organization, or procedures, or where a change in the law may be desirable.

One of our principal objectives in making audit reports is to encourage better evaluation and better planning in the agencies themselves. We believe that these reports provide a healthy discipline in this respect. But over and above these gains we hope to point out through our audit reports—as well as in other ways—instances where adequate and reliable cost data have been useful in fostering cost consciousness and better management. In some cases, however, we expect to submit reports where we conclude that the absence of these data has resulted in waste or inefficiency.

### ***Internal Auditing***

Another method for obtaining effective financial management is the developing of strong internal audit machinery in the Federal agencies. Too many agencies do not have adequate audit staffs, or their charters may be weak, or there is absence of attention by top management to their reports.

We have in mind several reports to the Congress over the next few months which we hope will contribute to a greater recognition of the importance of internal auditing to good management.

Last summer we submitted such a report to the Congress setting forth our views as to the adequacy of the internal auditing in Vietnam. More recently we sent a report on the Defense Contract Audit Agency to the Congress in which we offered a number of suggestions for improving the internal auditing.

In all this we have a closely related responsibility to help congressional committees directly in carrying out *their* evaluation function. And we hope to be even more useful in this respect by carefully relating our time schedules and the subjects of our reports with those of the congressional committees. Many of our reports to the committees are quite similar to those which we make public; in fact, some of our reports to the committees are made public by the committees or later by GAO itself.

GAO audits, at one time or another, almost every application of appropriated funds you can think of. But of particular interest are our audit responsibilities in the field of negotiation and administration of Government contracts. In these audits, we inquire into whether or not:

- Contracts are made with due regard to the "lawfulness and justice" of public accounts.
- Prices paid to the contractors are reasonable.
- Contractors properly discharge their responsibilities under the contracts.

- Administrative contracting practices are effective and efficient.

Since June 1964 for example, the work of our auditors here at Huntsville—with, of course, the cooperation of the managers of the various programs—has resulted in changes in types of contracts, cancellations of unessential procurement items, cutbacks in certain types of test equipment and similar improvements.

The most important measure of this accomplishment—aside from the dollar savings involved—is the better administration of programs that has been achieved and which will continue.

### ***GAO Audit Work in the Department of Defense***

In carrying out our audit programs we focus on areas of heavy expenditures as much as possible. Today over 50 percent of our staff is assigned to work with the Defense Department, particularly on procurement, construction, and manpower matters.

Let me report at this point that we have had fine cooperation from the Department of Defense and from NASA. Secretaries McNamara, Vance, Morris, and Ignatius—and Administrator Webb—are strong supporters of GAO. While we may differ in given situations, there is no reluctance on their part to seek out the facts and to act accordingly, and they do.

In this connection, we have recently reorganized our operating division in Washington responsible for our accounting and auditing work in the Department of Defense. This division—the Defense Division—has been organized, and is now operated,

along the functional lines of the Department of Defense. We now have operating groups responsible for audit work in seven functional areas—facilities and construction, management control systems, procurement, manpower, research and development, supply management, and support services.

Our Defense Division recently completed a review of the implementation of Public Law 87-653—the “Truth-in-Negotiations” Act of 1962. This law was passed largely as a result of a series of GAO reports showing how costs to the Government were increased substantially because contractors did not furnish, and the Government did not demand, adequate cost or pricing data for contracts awarded without competitive bids.

We made a sample review of 242 contracts negotiated since the law was passed. In the large majority of these contracts we found that verifiable cost and pricing data still were not identified adequately, notwithstanding the new law. Department of Defense officials and prime contractors had no record identifying the cost or pricing data submitted and certified to by the prime contractors and subcontractors in most of these cases to support significant cost estimates.

A similar broad examination of a large number of supply and construction contracts negotiated in Europe and the Far East showed essentially the same conditions. Insufficient cost and pricing data prevailed in the award of these contracts.

Let me mention other examples of the broader, across-the-board type of evaluation that we are making. We are surveying the extent to which facilities—such as buildings, furni-

ture, or equipment—used by Defense Department contractors engaged primarily on negotiated contracts are being leased rather than purchased. We want to know whether Government costs are increased appreciably as a result of these practices. And we want to know to what extent these leased facilities are used in the operations of the contractors.

We are making a survey of procurement practices of the Defense Department and the military services. We want to know and compare the degrees of competition sought in the award of procurement contracts by the military services, the appropriateness of the types of contracts awarded by each, the controls each service retains over approval of subcontracts and contract changes, and similar types of comparative information.

We also have undertaken a defense-wide review of Government-owned facilities and equipment in possession of contractors.

### ***GAO Audit Work on Civil Agency Programs***

My remarks so far have been directed largely toward GAO activities in the defense and space areas. Let me turn now briefly toward the areas of health, education, welfare, and urban development.

The commitments made by the Congress for new programs in all these areas are very large indeed and our auditors are heavily engaged in specific reviews of many types of new undertakings. Here, also, we plan to step up our efforts on extensive, across-the-board types of audit review.

Because these programs involve so many agencies and organizations out-

side the Federal Government, General Accounting Office audits are being carried to an increasing extent beyond the activities of the responsible Federal agencies into State and local agencies using Federal funds.

### ***Need for Improved Communication in Intergovernmental Programs***

The increasing responsibilities associated with our social programs have led many prominent officials to the conclusion that a greater dialogue among Federal, State, and local administrators is sorely needed. Duplication of effort, groups working at cross-purpose, and general inefficiency is the concern of many leaders.

Lack of technical competence and administrative ability which often identifies itself with "patronage" appointments contributes to this dilemma. Thus, Federal programs do not always achieve the intended goals—they frequently show lack of coordinated effort to the point of near failure.

There is also the question of greater State and local voice in the planning of Federal grants and national programs. Certainly little support can be mustered for those programs considered by local authorities to be of low priority compared with other programs they regard to be of high priority. Conflicts between Federal and local planning show the need for greater coordination in the programming and planning stages.

This was the force of the President's memorandum to heads of certain Federal agencies last November. He directed Federal administrators to take steps to afford representatives of

State and local governments the opportunity to advise and consult in the development and execution of Federal programs directly affecting the conduct of State and local affairs "to the fullest practical extent."

The President recently has recommended legislation to broaden educational and training opportunities for students planning careers in the public service and for public employees who desire to improve their skills. The President wants provision made for financial and technical assistance to strengthen State and local personnel management and to permit interchange of personnel between the Federal Government and State and local governments.

Legislative proposals toward these goals are now before the Congress but it may be some time before the Congress will enact some form of legislation. Meanwhile, I believe that there is much that can be done to improve intergovernmental relationships without violating basic principles held dear by various segments of our society.

Associations such as the American Society for Public Administration, the Federal Government Accountants Association, and others can hold regional conferences, with workshops where Federal, State, and local administrators, accountants, and educators can confront one another in professional discussions.

These forums present an excellent opportunity to break down barriers of misunderstanding. Discussions can provide solutions to the most perplexing problem.

In these sessions, Federal Government administrators could work with State and local executives to improve

budgeting and management. Our Federal administrators might learn even more than State and local administrators. There is no better way to allay apprehensions than to let all sides be heard.

How will the General Accounting Office fit into these new patterns of

interrelation? We will carry out the responsibilities given to us by the Congress. But I would like to emphasize that we will make every effort to do so within the spirit of the President's dictum when he said last November: "The basis of creative federalism is cooperation."

# What is the Role of the Internal Auditor?

By Hassell B. Bell

721290

**Strong internal audit systems are essential parts of good management systems and their effectiveness is of direct concern in the day-to-day work of GAO accountants and auditors. This article is based on a speech given by the author at the first symposium of the Quad-Cities Chapter of the Federal Government Accountants Association, Quad Cities, October 8, 1966.**

About 25 years ago, Victor Z. Brink, Robert B. Milne, and John B. Thurston met with a number of internal auditors to determine whether there was a field for a new organization devoted exclusively to the development of internal auditing. The formal incorporation of the Institute of Internal Auditors followed, and the problem of defining the proper scope of internal audit work began.

## *An Emerging Controversy*

At that time, there appears to have been a considerable difference of opinion as to whether internal auditors should conduct "financial audits" or

"operational audits." Neither term was defined precisely, and the result of the controversy was a compromise. In the ensuing years, the controversy as to the proper scope of internal audits has received a vast amount of attention. Various organizations and authorities have taken positive positions pro and con. The consensus of these positions tends more and more to broaden the area of interest of the internal auditor, but to my knowledge the matter is not settled. Perhaps it cannot be settled. In any event, in the past 25 years the function of internal audit has become firmly established, and, since 1950, the need

Mr. Bell is an associate director of the Defense Division and is currently in charge of the support services staff. He has been with the General Accounting Office since 1949. From 1952 to 1954 he was manager of the New York Regional Office. Mr. Bell is a certified public accountant (Texas). Prior to joining the General Accounting Office, he was employed by a public accounting firm in Dallas, Texas.



for internal audits in the Federal Government has had specific legislative sanction. The subject continues to receive the attention of congressional committees.

It seems clear that, in the beginning, the founding fathers of internal auditing intended that the scope of internal audits place primary emphasis upon those matters which are related to accounting and finance and that the internal auditors proceed cautiously into technical matters. One writer, active in the field since the early forties, stated recently that his views still were that technical aspects of product and manufacturing were the areas of the qualified engineer and that the internal auditor's area properly included all other phases of the company's operations which involved the policies and procedures of a business-administration nature. The writer did not, however, explain what he considered to be the areas involved in "technical" aspects. For that matter, how much difference of opinion actually exists as to just what constitutes "technical aspects of product and manufacturing"?

Any professional auditor could add a substantial number of matters which someone would class as technical. This is natural. Those of us who have specialized in any field consider many matters of professional judgment or training in our field as technical. It is doubtful that much can be done to quiet the endless discussion.

### ***The Eyes and Ears of Management***

We in the General Accounting Office look upon the total function of

internal audit and control as a highly important part of a management-control system. This total function can serve as the eyes and ears of top management in such important ways as:

- Locating opportunities for eliminating waste and inefficiency.
- Recommending improvements in policies, procedures, and organization structure.
- Providing checks on performance by individuals and by organizational units.
- Reviewing compliance with applicable statutory and other legal requirements.
- Testing for existence of unauthorized, fraudulent, or otherwise irregular acts.
- Identifying potential trouble spots in future operations.
- Providing an additional channel of communication between operating levels and top management.

But we in the General Accounting Office do not think that there should be any significant restrictions on the work of the internal auditor if he is to be fully effective as an important part of a management system. To be effective, the internal auditor must probe into areas sometimes considered sacrosanct, or "technical" if you wish, by other elements of his organization, but he must do this in such a way as to develop in the people responsible for managing those areas a real appreciation of his ability to make a contribution. Let me illustrate this process with a story—the essential elements of which are true. Only the names have been changed, the story has been simplified, and a few facts have been treated with poetic license.

## ***The Auditor in Action***

There is a company which I call the Ready-To-Go Company which occupies an exclusive position of world fire fighter. This company builds and operates a large fleet of firefighting equipment and disperses it around the world's forests so as to be able, on a moment's notice, to extinguish fires caused by a variety of reasons.

This company's experience has convinced it that it needs a variety of specialized fire trucks. These trucks are not readily available in the open market. The Ready-To-Go Company, therefore, designs fire trucks and has them built to its own specifications. Moreover, since its fire trucks contain unique equipment that requires specialized skill for its maintenance, the company operates its own worldwide chain of garages.

The company is now quite well established and over the years has experienced rather remarkable growth. The company has accumulated a vast store of resources and knowledge and completely dominates its field.

Organizationally, the company is comprised of an operations division, a design division, a maintenance division, and a supply division.

The operations division decides how many and what kind of fire trucks it needs and where they will be placed. It decides also how often its fire trucks will be repaired, where they will be repaired, and just what repairs will be done. The job of the design division is to keep on hand and on order a complete line of fire trucks, as specified by the operations division. The sole purpose of the maintenance division is to see that the fire trucks are repaired according to the order of

the operations division, as to both the time allowed for the total job and the specific work to be done. The role of the supply division is to buy and keep in stock sufficient material and repair parts so that the maintenance division can do its job with dispatch. Each of the divisions has a substantial number of senior personnel especially trained for their duties. Moreover, the company prides itself on being progressive and, of course, uses the latest management techniques.

As a part of its program to constantly improve its operations, the Ready-To-Go Company employed a firm of nationally known engineers to design for it a system for managing its garages, which was geared primarily toward early identification of the work to be done, and a system for work scheduling and reporting, which would tell the proper operating officials the status of the physical work on a daily basis. The company's guiding principle is "service to the fleet of fire trucks."

Under its system, a team of maintenance men from a garage inspects each truck prior to its being sent for repairs and submits to the garage that will make the repairs a list of essential items which must be fixed to ensure proper working of the truck. This action sets in motion a large number of other actions, each of which is an integral part of the system. For example:

1. The repair list is analyzed and broken down into work orders.
2. The work orders are further analyzed, and material and labor needs are established.



3. Estimates of costs to repair are developed.
4. A group of specialists interlaces these work orders with existing work orders and schedules them into a production-line process so that each "trade" or labor specialty can perform its work in sequence and move the truck along to the next repair operation.
5. Material requirements are furnished to the supply division to alert it to the quantity and timing of material needs.
6. Material needs are analyzed by the supply division, and, where material is in stock, it is set aside for the particular truck that is to be repaired. This is done to prevent the material from being used elsewhere; its use elsewhere would cause perhaps a work stoppage which, under company policy, must never occur. If a serious work stoppage were to occur, it might in turn cause a slippage in delivery of the fire truck to the operations division and delay its going back on the line.
7. Material needed, but not on hand, is bought and set aside for the specific truck undergoing repair.

At this point everyone is pleased. The stage is set for an orderly repair of the fire truck. Men and materials are available, and the task is undertaken with great enthusiasm. The garage controller dutifully accumulates the cost and physical progress of the job in relation to the estimates, and, on schedule, the truck leaves the garage ready to take its place on the

line. The cost of the completed job is well within the estimate, and the job was completed on schedule.

In the meantime, the disposal branch of the supply division has been busily ridding the warehouses of obsolete and surplus material to make room for incoming shipments. If it is fortunate, the disposal branch will be able to sell the old material for some 10 cents on the dollar—more than enough to cover the cost of handling and preparing the material for sale.

As mentioned earlier, this is a progressive company and has not one, but three, internal groups making periodic studies of various phases of the company's operations.

The first group works for the garage manager and, on orders from him, conducts studies of workflow, tests labor standards, etc. Since the garage manager, as a part of the team whose motto is "service to the fleet of fire trucks," is motivated primarily toward getting done what the operations division says is necessary, this group points its reviews toward uncovering and eliminating those system problems that impede repair progress.

The second group works for the controller, who is concerned with accounting, finance, budgeting, and the accumulation of historical data. Some of his questions are:

1. Is time and material being charged to the proper work order?
2. Is overhead being allocated to all work on a consistent and reasonable basis?
3. Do the financial statements truly reflect the status of the assets

and liabilities and the results of operations?

4. What is the cash position?
5. Are customers paying their bills on time?
6. Am I paying bills promptly?

His eyes and ears, the internal review branch, make sorties and report to him that all is well. Of course, the investment in inventory is growing a bit, but, since the inventory belongs to the supply division, the controller does not carry it in his formal accounting records. It is not part of the garage's assets, and his review group is not particularly concerned with it.

Finally, supply specialists have their day. Their division is concerned with having enough of the right kinds of material on hand at all times to permit the maintenance people to repair the fire trucks. Their watchword is "fill-rate," and the ability to fill *all* requisitions promptly is their ultimate goal.

The eyes and ears of this division sally forth and in time report that the fill-rate is now a phenomenal 97 percent, the stock is where the locator cards say it is, the physical condition of the stock is good, expeditors are on top of "due-ins," the disposal branch is showing a nice profit, and, in general, while there are a few procedural things that should be tightened up, all is well and the fire truck drivers are happy.

Into the picture now walks an auditor dispatched by the company's board of directors to evaluate the operations of one of the garages. The auditor possesses neither specialized training in industrial engineering nor the mores of supply. In preaudit

briefings he learns that:

1. The garage is, as a matter of policy, operating at a profit break-even point.
2. All repairs are progressing on schedule, and have done so for the last 3 years. The garage has not experienced a major work stoppage in the memory of the oldest employee.
3. Actual recorded cost of jobs performed closely approximates estimates.
4. The quality of the garage's work is good and, of course, the fire truck drivers are happy.

The auditor attempts to verify all that has been told to him and finds that what has been represented to him is, in fact, true. Jobs are being completed on schedule, work stoppages are practically nonexistent, recorded cost of performance closely approximates estimates, and the fill-rate is 97 percent.

The bulging warehouses and salvage yard trouble him a bit, however, and he wonders if this sort of salvage is really a necessary part of the total operation. It occurs to him that there is quite a volume of material, which had been previously set aside for use in repairing a specific truck, being released from "escrow," as it were, and periodically returned to general stock. He begins to wonder about this volume. He then notices that the declarations of excess and surplus run in cycles that closely follow the pattern of releasing material from escrow. He decides to compare the quantities of material set aside for specific trucks with open repair orders and finds to his amazement that material in substantial quantities

is being held to repair trucks that were repaired and returned to the fleet months before.

His curiosity is now aroused. He assesses what he has learned and proceeds to ask the company experts a number of rather searching questions. For example, how good are material standards if actual material requirements are so much less? He learns that there are no material standards. Why does not a comparison of recorded repair costs with estimates show the material underruns? He learns that only labor is considered in the estimates. Why are there such long delays in releasing for general use material set aside for a specific repair job? He learns that management did not know that there were delays. Who reviews estimates of material requirements which are set by planners, and how good is the reviewer's criteria for judging the quality of his subordinates' work? He learns that the principal criteria are "experience and judgment." The auditor ponders in amazement, "what happened to the system of internal review?"

### ***Overzealous Compliance***

In pursuing the answers to his questions, the auditor found his culprit—overzealous compliance to a motto.

Remember, the guiding principle in the garage was service to the fleet of fire trucks. Under this principle, nothing was to impede the orderly flow of repair. This concept permeated the organization—from the garage manager to the lowliest apprentice mechanic. Was it not perfectly understandable then that material planners would build into their

estimates some cushion to guard against work stoppages? The only real question was, did it have to be 100 percent? Was not the supply division justified in giving first attention to filling requisitions?

The auditor found that, in these garages, labor standards were very important, not as a means of controlling costs, but as an indispensable aid in scheduling work to meet repair schedules. Material standards did not serve that purpose. Reviewers considering estimates of material requirements were motivated by the same principle as that of the estimators—be sure there is enough.

In analyzing and evaluating the internal review system, the auditor had the thought that, while the Ready-To-Go Company had three separate review groups staffed with men well qualified in their fields, the company did not really have an effective independent internal audit system. Each of the three groups was in a sense a part of an operating organization, and their lines of inquiry were, of course, colored by the mission of their operating boss.

Happily, in this case, the auditor was able to convince the company that a system of reasonable material standards not only could make the work of the estimators easier but also should serve as a brake on the needless accumulation of material which must some day be sold at a fraction of its cost. He was also able to convince the company that a second look at the placement of its internal review function might indicate the desirability of creating a true internal audit organization completely independent of its operating elements.

### ***Properly Oriented Curiosity***

In the above story, the auditor found himself in the middle of a complicated operation, run by people who were well qualified to handle their individual technical duties. But, with the exercise of a great deal of properly oriented curiosity, he was able to point out major shortcomings in a technical management system.

Not all problems faced by internal auditors are as complicated as the one just described. Some simpler ones come to mind.

Nearly everyone will applaud a traffic manager who dutifully takes great care to consolidate his shipments to take advantage of lower freight rates. But is there a danger that, in his technical zealotry to properly manage traffic, common sense is sometimes overlooked? It was an auditor, unskilled in the complex rate-structuring field, who pointed out that this consolidation idea, when applied to high-cost, low-volume repair items was "penny wise—pound foolish." His simple analysis showed that the few hundred dollars of "savings" in transportation costs were actually costing the company hundreds of thousands of dollars in lengthened pipeline and procurement costs. The auditor's ability to look at the total problem paid handsome dividends in this case.

In these examples, I have tried to illustrate that internal audit can serve a constructive purpose. Its scope may be limited only by the internal auditor's own personal limitations as to oriented curiosity and breadth of thought. His work is tough but personally satisfying and, though his

field is several decades old, it is still in its infancy.

Projects such as those just described are handled by professional men eager to assist management achieve its objectives. Generally, they are college graduates with majors in business administration; have some practical experience in the public accounting profession, industry, or Government; and have supplemented their experience with more study and with attendance at seminars. Such men are justifiably proud of their achievements and learn to feel that they can tackle almost any problem in their chosen field. They probably can, but unfortunately they do not always decide such things. Ahead of us is still an enormous task of gaining greater acceptance of our potentialities.

Very often we find that progressive companies, like the mythical Ready-To-Go Company, have several groups engaged in the total internal audit process. In one branch of one large Government agency, we found quite a number of independent groups whose duties, at least in part, fit our definition of an internal auditor. Some of these groups would probably be offended if called internal auditors. Do internal auditors salve their consciences by saying to themselves that such organizations do not really understand internal review as they do. But what about top-level managers? Do they understand? If so, why would they create an internal audit staff with a charter as broad as the universe and then create other organizational units to look into various aspects of "operational matters"?

## ***Industry Surveys the Internal Auditor***

Some time ago one of our large daily business journals reported on the results of a survey on what private companies are doing about internal audit. The gist of the story, as I interpreted it, was that the acceptance of the internal audit function was growing but, more and more, management was filling the need for internal audit personnel with engineers, economists, and others with specialized training.

What do the results of this survey mean? Has management concluded that specialized training in fields other than accounting and finance is desirable? Have internal auditors failed to communicate to management precisely what they can really do? Or, have they assumed that their charter for internal audit is broader than it was thought to be by those who approved it? In all three instances the answer is probably yes.

## ***Congressional Interest***

I stated earlier that there is current congressional interest in the function of internal audit in Federal agencies. Early in 1966, the Government Activities Subcommittee of the House Committee on Government Operations advised us that it had a continuing interest in the development of effective internal auditing systems in the executive departments and agencies of the Federal Government. The subcommittee suggested that it might be timely for us to take a look at such systems. The General Accounting Office has several examinations underway. Some very interesting facts are emerging. For example:

1. In several cases we are observing a lack of independence on the part of the internal audit organization, which generally arises from the function being organizationally responsible to too low a level or the internal audit function being part of a group directly concerned with operations. This tends to put the auditor in the position of auditing his boss.
2. In some cases we observe that so much time is spent in doing routine, time-honored things like counting the cash, checking inventory extensions, etc., that little time is left to really think about what could and should be done and to develop a plan to get on with it.
3. In many cases we find that the work of the internal auditor is very narrow and that more thought should be given to assessing the larger meanings of some of the specific problems he finds.
4. In some cases, we note a decided reluctance to follow up on findings previously made.

The above discussion brings out some of the varying opinions on the role of internal auditing. There is still a wide range of opinion among businessmen as to what they expect from internal auditors. In the Federal agencies, the role of internal auditors and the type of internal audits actually performed vary widely. It is not unusual for internal auditors themselves to boldly write their charters on a broad basis and then to take a relatively narrow view in carrying out their responsibilities. Examples

are legion where we in the General Accounting Office have commented that agency officials should expect and receive more meaningful reports from their internal audit staffs. One can conclude then that the role of internal auditing can be almost anything that the management wants it to be.

Current trends seem to indicate a general broadening of the areas of concern and interest of internal auditors, with a parallel broadening of educational and experience background for that work. We can look for this trend to continue and to pay handsome dividends.

# Relationship Between the General Accounting Office and the Office of the Inspector General in the Department of Agriculture 721271

By Henry Eschwege

**This article is based on remarks presented by the author during the regional conference of Region II, Office of the Inspector General, at the National Arboretum, Washington, D.C., on February 21, 1967.**

The purpose of this paper is to provide an explanation of the relationship between the audit responsibilities of the Inspector General of the Department of Agriculture and those of the representatives of the General Accounting Office who are assigned to carry out examinations of programs and activities of the Department of Agriculture.

The General Accounting Office was created in 1921 as an agent of the Congress to assist the Congress in carrying out its general oversight responsibility with respect to the receipt and expenditure of public funds.

The Office is headed by the Comptroller General, Mr. Elmer B. Staats, who serves for a term of 15 years. Although appointed by the President, the Comptroller General can be removed only by impeachment or by a joint resolution of the Congress and he cannot be reappointed.

Thus the law has freed the Comptroller General from political and related considerations in making independent decisions with respect to the expenditures of Government funds and in making recommendations to the Congress and the executive agencies which he considers appropriate.

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One of the major roles of the GAO is to check on the effectiveness of the systems of management and internal control of each Federal agency. In fulfilling its obligations, GAO:

- Prescribes principles, standards, and related requirements for accounting.
- Conducts audits.
- Passes on legality of expenditures.
- Settles claims.
- Carries out investigations on its own initiative.
- Makes reviews and investigations for the Congress and its committees.

GAO employs a staff of approximately 2,200 professional accountants and auditors and 100 attorneys. It maintains 16 regional offices and numerous suboffices within the United States, as well as offices overseas.

Although areas of common interest exist between the General Accounting Office and agency internal auditors, final objectives and responsibilities differ in important respects. Internal auditing is an integral part of an agency's system of management control. In making its audits, the General Accounting Office reviews the entire control mechanism within an agency, including the various provisions made by management for internal reviews or audits of agency affairs. If its findings warrant, the General Accounting Office will rely on the work of the internal auditors. Internal auditing is not in lieu of or supplementary to GAO audit work; it should be established primarily as an aid to management in discharging its responsibilities.

The effectiveness of the internal auditing is recognized in setting the scope of a GAO audit. In an area where the internal audit work is capably carried out, the amount of work to be performed by GAO can be substantially curtailed.

The GAO is interested in the degree of acceptance by management of reported findings and recommendations of its internal auditors and the action taken thereon. The extent to which management considers and acts upon recommendations is an important factor which is considered in GAO audit work.

The General Accounting Office maintains a site audit staff in the South Agriculture Building, Washington, D.C., on a continuous basis. This staff directs to a large extent the GAO audit work at the headquarters offices of the various Agriculture agencies, as well as the work done by our representatives in the field in connection with our continuing audits of agricultural programs. Our audit inquiries are not limited to the Government offices carrying out program activities but include also interviews and reviews of records at the establishments of businesses, State and local bodies, associations, farmers, and others involved in programs administered by the Department.

The Office of the Inspector General (OIG) submits its annual program of audits and investigations to the GAO site audit staff in Washington, D.C. In addition, monthly listings of audit and investigative issuances or reports are furnished. These data provide information on the work planned and accomplished by the OIG from the standpoint of audit coverage



being given to the many programs and activities carried out by the Department.

GAO evaluations are based also on reviews of OIG's reports and issuances and on supporting working papers and other records. In 1965, GAO made a survey of the audit activities and staffing at the headquarters office of the Inspector General in Washington, D.C., to obtain more knowledge about its organization and operations. The survey indicated that the establishment in 1962 of the OIG at the Department level was an important factor in making the internal audit function more effective.

Pursuant to a specific request received from Congressman Jack Brooks, Chairman of the Government Activities Subcommittee, House Committee on Government Operations, the GAO has initiated reviews of some aspects of the internal audit systems in most of the civil departments of the Government and in the Department of Defense. In line with this request, the GAO staff at the Department of Agriculture will be making a special review of some aspects of the internal audit system within the next year.

In the meantime, continuing evaluations of the internal audit functions at the Department are made by reviewing primarily the work of the regional offices of the Inspector General since these offices have been delegated considerable freedom and responsibility for carrying out audit and investigative assignments. These reviews are made in conjunction with GAO audits of programs and activities which are carried out in the Agriculture agencies.

Before a GAO audit is initiated, inquiry is made of whether and if so to what extent, the OIG has given audit coverage in recent years to the particular activity to be reviewed. For example, several months ago GAO staffs looked into the possibility of reviewing certain aspects of a particular program. It was found that the Inspector General's staff was about to make a review in this area and the GAO work was therefore deferred.

By following such a procedure, possible duplication of audit effort is avoided and the demands made at one time on the program operators for answering audit inquiries and providing space for audit personnel are minimized. Where feasible, the results of the OIG's work may be used by the GAO to limit the scope of its audit or, if it is considered that a particular activity has been covered adequately, GAO manpower may be diverted to other activities needing attention.

In inquiries made into the audit coverage of the OIG, some instances have been noted where the preparation of working papers could be improved so that they would contain an adequate portrayal of the scope of work undertaken. Also, some GAO reports have suggested that internal audit coverage of certain programs be increased in view of weaknesses noted.

For example, GAO's report to the Congress (B-146820, November 23, 1964) pointed out the need for strengthening controls over dollar refunds due the Commodity Credit Corporation because of adjustments made on amounts financed on cotton exported under Public Law 480. The report included the opinion that

broader internal audit coverage would help to ensure that dollar refunds due would be collected. The Inspector General agreed with these views before the report was issued and GAO was able to inform the Congress in its report that the Inspector General was taking action to provide appropriate audit coverage.

Since a GAO objective is to make recommendations for improvements not only to the agencies but also to the Congress, it has in several instances cited in congressional reports the findings of the OIG along with GAO findings to draw attention to the magnitude of the conditions warranting corrective action. For example, GAO reported to the Congress in January 1967 on the need for increased efforts by the Farmers Home Administration to collect or otherwise settle accounts of debtors who still owe a balance on their loan after the security property has been liquidated. The report noted that the conditions continued to exist although GAO had previously issued several reports on the subject and although the Inspector General had issued 17 reports to one State office during a 15-month period, noting deficiencies in the servicing of these accounts.

Another example of how GAO gives consideration to the work done by the OIG involves the annual examinations of the financial statements of the Commodity Credit Corporation and the Federal Crop Insurance Corporation. These audits are made by GAO pursuant to the Government Corporation Control Act. Its reports to the Congress have noted that appropriate recognition was given to

work done by OIG in selecting transactions for examinations.

It is GAO's general practice, unless specifically directed otherwise by committees or members of the Congress, to submit drafts of proposed reports to the Congress to the agency for comment. By special arrangement, copies of such drafts are also sent to the Inspector General so that he may comment on the findings and may have an opportunity to bring such findings to the attention of the Secretary of Agriculture if considered desirable.

The submission of report drafts affords the OIG an opportunity to comment on audit activities which it has carried out or is planning to carry out in the general area of activities discussed in the GAO draft report. It also appraises the Inspector General of the nature of the tentative findings and conclusions of GAO well in advance of the issuance of the final report. Thus, it can be seen that, in GAO's relationships with OIG, there generally is full and free disclosure of findings and of activities under review. There are instances, however, where the nature or source of the GAO inquiry has to remain confidential because of specific instructions placed on us by congressional committees or individual members of the Congress.

In addition to audit activities, the GAO has in the past year given increased emphasis to the need for improving financial management in Government. The implementation of satisfactory financial management systems will go a long way towards avoiding many of the deficiencies

currently being disclosed in audits of Government activities.

A strong internal audit organization is one of the prerequisites to sound financial management. In April 1966 the Comptroller General met with principal officials of the Department, including the Inspector General, to offer consultive services in strengthening all aspects of financial management.

Another important aspect of good financial management is the development of accounting systems which will produce data that will assist Government managers to make informed decisions and to run their programs effectively and efficiently. The GAO staff at Agriculture is currently devoting a good part of its time to reviewing accounting systems submitted to the Comptroller General for approval.

The Director of the Office of Budget and Finance has overall responsibility for the development of accounting systems in the Department. However, the Office of the Inspector General can make a valuable contribution in this area by highlighting, where applicable, how accounting systems can be strengthened to avoid weaknesses disclosed by OIG audits.

Let me briefly dwell on another aspect of the Inspector General's work—the investigative functions. GAO, in its audits and reviews of program controls, tests for indications of dishonesty and abuse; but indications of violations of Federal criminal laws are promptly turned over to the Department of Justice. Aside from indications of irregularities which may arise during GAO audit work, committees or members

of the Congress and the public also submit or refer complaints or information which require investigation.

Some of the complaints from the public, for example, allege mistreatment of private citizens at the hands of Government officials or misconduct by certain Government employees. Such complaints usually do not point to any overall weaknesses in management controls but they need to be investigated so that irregularities, if any, can be corrected. OIG has cooperated with GAO on several of these complaints, in that it has agreed to make the necessary investigations and report the results to GAO.

To sum up, there is some similarity in the relationship existing between the General Accounting Office and the Office of the Inspector General and the relationship that exists between internal auditors of a large business corporation and its independent certified public accountant. But the respective functions of the GAO and the OIG generally encompass much more than the rendering of opinions as to whether financial statements are fairly presented. Both organizations evaluate the effectiveness of the management of programs and activities. The Inspector General makes such evaluations to apprise top management of how well its policies, guidelines, and instructions are carried out.

GAO responsibilities are, to a large extent, concerned with keeping the Congress informed of how effectively and efficiently management is discharging its responsibilities as established by law and legislative intent. Although the objectives differ, there

is a zone within the activities of the two organizations wherein the auditing procedures are similar. Thus, the results of an effective internal audit can be used to supplement or limit the amount of audit work done by GAO.

The reverse, however, is not necessarily true. Internal auditing responsibilities of top management cannot be relaxed on the basis that GAO is also making reviews of an agency's programs and activities.

# Audit as an Aid to "Management by Results"

By Richard W. Gutmann

721292

This article is based on a speech given by the author in October 1966 at the 13th National Conference of the Armed Forces Management Association in Washington, D.C. Mr. Gutmann's speech, as given, is printed in The Journal of the Armed Forces Management Association for 1966.

The concept of "Management by Results" is a particularly interesting and thought-provoking one for an auditor. One of the techniques used by the General Accounting Office in identifying areas of possible weaknesses, where we may be able to identify causes and suggest remedial action, is to look at the results of an operation.

Before discussing in greater detail some instances where the General Accounting Office has utilized the "Management by Results" principle, it seems desirable to first discuss cer-

tain prerequisites for managing by results.

## *Prerequisites for Management by Results*

The following six prerequisites are essential for effective management by results.

First, there must be a broad definition of objectives of the organization. Every organization must have a clear statement of its mission. Business school academicians say that business managers must ask themselves "What business are we in?"

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The Armed Forces managers generally have well-defined, broad objectives, and these missions and functions are clearly set forth in organization manuals. For example, the Supply Directorate of the Army Tank Automotive Center is responsible for providing inventory management to all Department of Defense activities on tactical vehicles, including integrated-repair-parts management for such vehicles.

Second, the broad objectives must be broken down into tasks and subtasks. For example, the mission of providing integrated-repair-parts management requires performance of such tasks as computing requirements, making procurement, and planning distribution. The task of computing requirements can be further broken down into such subtasks as obtaining reliable asset data, usage data, due-in information, and density data for end items.

Third, yardsticks or criteria for measuring attainment of the objectives must be devised. For example, in the logistics area, various indicators have been devised to measure supply effectiveness—such as percentage of total line items at zero balance, percentage of warehouse refusals, and percentage of requisitions filled on time. Of course, management must be interested in the degree of economy, as well as the effectiveness, with which it is accomplishing its objectives.

Fourth, there must be a management information system that produces data pertaining to those situations where the desired results are not being attained. The data processing

equipment available to us today can produce information far beyond human capacity to assimilate and analyze within a reasonable time. Information systems utilizing electronic data processing must be programmed in such a way that the machines do a considerable portion of the analysis, and only the areas requiring it are brought to the attention of management. Of course, this type of information system is only useful where many bits of information on literally thousands of transactions must be brought together.

Development of information systems to bring to management attention the results of specific “one-time” decisions is, in some respects, a more challenging problem. For example, a decision to replace a gasoline engine with a diesel engine in new tanks rather than in old tanks undergoing rebuild may be a one-time decision. Is there a system for bringing to the decision-maker’s attention the results of that decision in terms of cost effectiveness? The results may lead the manager to the question of whether the system for gathering data upon which to base such decisions is adequate.

The fifth prerequisite is a systematic examination into areas where the desired results are not attained, with the dual intention of (a) alleviating the present difficulty and (b) identifying the basic causes to prevent a recurrence.

And sixth, of course, is the development and implementation of remedial action. This is so axiomatic that it requires no elaboration.

### ***Areas Where Audit Is Useful***

Where can an auditor be helpful to the manager applying the principle of management by results? In general, an auditor is useful wherever an independent viewpoint, that is, the viewpoint of someone outside the mainstream of operations, is desirable. Applying this criteria to the six prerequisites above, one can see that the last three particularly lend themselves to evaluation by an auditor.

With respect to the management information system, the auditor can be useful in testing the validity and accuracy of the reports being generated by that system. Being independent of operations, the auditor is not plagued by the subconscious desire we all have to make things look good for the boss. Also, procedures and regulations, no matter how carefully written, invariably seem subject to varying interpretation. Unless the manager receives statistics prepared on a consistent basis with respect to performance of similar activities under his responsibility, he may not give his attention to the area of greatest need. An auditor can help him attain the needed consistency.

The auditor can also be useful in examining into those areas where the reporting system discloses that the desired results have not been attained. He can trace management actions back to determine whether or not a better result could have been attained through some modification in procedures or practices.

The auditor, being independent of operations, is also in a position to make objective recommendations for remedial actions.

### ***Application of Management by Results Principle by GAO***

It should be emphasized that we, in the General Accounting Office, do not automatically consider that a poor result is caused by poor management. We recognize that many unforeseeable contingencies may arise that bear upon the results of management's effectiveness. However, the primary objective of our audit work is to identify ways in which the Government's activities can be more effectively managed. Following are some examples of how GAO looks at results to identify areas for possible concentration of audit efforts.

Our work in the area of combat readiness provides one of the best examples of the application of the principle of management by results. The end objective of logistics management by the Armed Forces is maximum combat readiness of operating units. We have studied the readiness of helicopters, missiles, fixed-wing aircraft, and combat and tactical vehicles.

Where the readiness of a specific unit has failed to meet prescribed standards or criteria, we have examined deeply into the causes. We have traced causes from the using unit level up through the immediate support units to the inventory control points and even to contractors' plants. In some cases we have found that readiness could have been improved by better quality control at contractors' plants—by attaining greater accuracy in the various factors used in requirements computations, in distributing spare parts, in programming maintenance activities, in making equipment inspections at the user

level, and in refining the research and development efforts.

During our early reviews in this area, we found that the readiness reporting system was not functioning well. Since that time tremendous improvements have been made in reporting so that managers now know where action is needed.

In another case, we used the management by results technique in evaluating the validity of a table of allowances. In this instance we simply visited the installation and inquired into whether the items on the table were in use and were needed. We found that some items were not desired or that substitutes had been obtained. The installation was unaware of the fact that the inventory control points would make procurement on the basis of the requirements of the table of allowances rather than wait for requisitions to come in. The military department subsequently made a broad study of this subject and was able to reduce planned procurements by almost \$400 million. The prerequisite for management by results that was missing in this case was an information system that would

have told management that some of the items on the list were not needed or were more elaborate than required. Subsequently, an authorization document review committee was established and it recommended a reporting plan that was adopted by the service.

### ***Concluding Remarks***

These comments should not be construed as a broad indictment of the entire logistics management of the Armed Forces. We all know that a tremendous job is being accomplished in this extraordinarily difficult area.

Although the foregoing remarks have been directed toward supply management functions and problems, the principle of management by results may be applied effectively to many other areas of Armed Forces management. As our management problems become increasingly complex, application of this principle, as well as the closely related "management by exception" technique, will be of increasing value. Managers should consider greater application of these concepts using both internal and external audit resources in their application.



721293

# The Importance, Process, and Pitfalls of Planning

By Robert B. Hall

The author discusses the importance of planning the direction of audit effort in the General Accounting Office and makes some suggestions for strengthening this aspect of our work.

## *The Importance of Planning*

Often, planning is the first activity to disappear from an organization when other activities are competing with it. This is because planning requires a major investment in time and effort—and hard work—but has the least immediate rewards.<sup>1</sup>

Yet, we know that the manager who bases his decision making on hunch, feel, and chance is endangering the effectiveness of everyone in his organization and the organization itself.

This is the dilemma we face in planning.

In the type of activity conducted by GAO, planning is vital to the success of our work. Our planning

efforts form the foundation for our decision-making process as to what reviews of agency and contractor activities are undertaken as well as the direction these reviews take. They also provide the background and perspective so essential to conducting the reviews properly. Our planning work helps us to provide leadership and supervision to field activities that must carry out the reviews. There is, therefore, enthusiastic support for the increased emphasis being given by the Comptroller General to this area.

From the inception of GAO in 1921, the breadth and depth of our Government-wide audit responsibilities in relation to our available re-

<sup>1</sup> Similar to the theory behind Gresham's law.

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sources has required the most efficient utilization of our staff. Over the years this has led to the adoption of our basic policy of directing available resources and talents to the areas in which they can be most effectively used to fulfill the greatest apparent need and benefit to the Government.

A substantial planning effort, therefore, has always been essential to comply with our policy on direction of audit effort. Now that Government expenditures are rapidly approaching \$200 billion annually and new Federal programs are being added each year, the problem of obtaining the best utilization of our resources is demanding an ever-increasing and more sophisticated planning effort.

The need for carefully planning our direction of effort can perhaps best be illustrated by the situation in our Defense Division. Since the Defense Division was formed 10 years ago, defense expenditures have doubled but the Washington staff and field resources available to the division have decreased because of demands for resources in other areas such as our international work.

We normally attempt to direct our audit resources to problems of the greatest significance. Our objective is to make the most constructive contribution possible to improved management of Government operations. This is a high goal. But it has the advantages of permitting us to more effectively fulfill the basic audit responsibilities placed upon us by the Congress; it opens our horizons to more challenging work; it tends to attract (and retain) higher calibre people to our organization; and it

tends to place responsibility for performing internal and administrative-type audits within the Federal agencies where it should be.

The extent to which we achieve the above goal in our direction of audit effort obviously depends largely on what process we follow in planning our work and on our ability to avoid the inherent pitfalls and problems of planning.

### *The Process of Planning*

According to our Comprehensive Audit Manual, the general basis for the planning of specific work to be done in the review of an agency is the information developed from the preliminary survey. A preliminary survey must be made on all initial assignments. Thus, the basic tool of the planner in our audit work is the preliminary survey.

Initially, the preliminary survey provides us with an understanding of the agency's purpose, background, and operations through which we acquire the needed perspective to more effectively carry out our work. Information obtained for this purpose includes (1) a broad understanding of the important features of legislation concerning the agency's purpose, (2) the way the agency is organized to carry out its functions, (3) general policies prescribed by top management to govern agency activities, (4) nature and location of activities and assets involved in the agency's operations, and (5) the agency's place in the organizational pattern of the Government and its relationships with other agencies.<sup>1</sup>

<sup>1</sup>The Manual notes that documents in support of the information obtained while we perform work of this nature should be used to start or update the permanent files

Next, we find out how the agency itself performs its operations. A review of a "limited" number of transactions from beginning to end gives us a feel for the operation and brings us in contact with technical personnel who can help us obtain a realistic understanding of the operations. Thus, we determine how the agency generally performs its activities—why the basic decisions are made and the basis for them.

With this general understanding of the significant activities and the manner in which they are controlled, we begin to develop a basis for selecting areas that may warrant more intensive work. Sources of survey information for identifying areas in need of improvement or important unsolved management problems include:

- Probing into operations which pose unusual problems of control.
- Observation.
- Printed congressional hearings.
- Discussions with committee staff members.
- Management and internal audit reports.
- Discussions with agency management and operating officials (who else knows their problems better?).
- Studies by the Bureau of the Budget and by consultant firms.

If this happens to be our initial survey, we develop long-range plans to cover all important activities of the agency over a period of years based on the priorities established by our preliminary survey information.

These long-range plans can be included in a planning report which

summarizes apparent management weaknesses identified, ranks their importance, and furnishes background and perspective. Such a report provides an effective basis for deciding the best way to utilize our limited manpower resources to the best advantage before major commitments of audit resources are made.

Through the means of a comprehensive preliminary survey, we have a choice of the reviews we can undertake, that is, alternative courses of action. These alternatives are weighed in relation to (1) which agency management problems have the highest priority in terms of significance or need for improvement, (2) which problems have the most congressional interest, and (3) which problems are more susceptible to corrective action.

Our final step is to draw up short-range plans for reviews into major problems or areas which our management believes have the highest priority and represent the best use of our resources.

### ***Pitfalls and Problems of Planning***

Research and experience show some of the major pitfalls and problems of planning in many organizations to be as follow.

#### *Failure to establish an adequate factual background*

This can happen when the work which went into assembling the data is unimaginative and is done within a framework which is artificially limited or hopelessly out of date. Consequently, personnel in the organization know that such planning will never survive the test of time so it

invokes little or no respect at the outset.

*Failure to realize that the initial planning effort will be expensive and time-consuming*

When immediate answers are not forthcoming, impatience may be expressed with the entire planning project. Since time is relative to magnitude of the task, several months might represent a short time in our type of work when initial preliminary surveys are made of activities as complex and large as those in the Department of Defense.

*Lack of participation by those who must carry out the plan*

Resistance to plans usually develops when individuals concerned with carrying them out feel that they have not had a part in developing them. The widest possible participation is the best assurance that plans will be intelligently and enthusiastically supported and administered.

*Limited resources*

When there are limited resources available, it is sometimes contended that an investment in planning cannot be afforded. Yet, the more limited the resources, the greater the need to invest adequately in planning.

*Lack of support for plan*

The personnel who must carry out the plan may not be sold on the plan as a concept in the first place and may merely give it lip service or, worse still, the decision maker within the organization may not be in sympathy with the objectives and goals to be derived from the plan and he denies it the needed resources and support.

*Superficial or limited objectives*

The objectives defined in the plan may be superficial or not up to the capacity of the organization to produce. This can happen in our type of work, for example, when planning is based more on prior experience or preconceived notions than on real efforts to identify current management problems of the greatest possible significance.

*Lack of long-range effort severely limits short-range planning*

Good short-range planning is dependent to a great extent upon taking certain actions, such as investing resources in broad comprehensive survey work, the full benefits of which are of a long-range nature.

*Sacrifice of long-range efforts in favor of short-run results*

The results of long-range planning are several months or years away; whereas, managers may be primarily interested in results today.

*Seeking the "illusive shortcut"*

A lack of direct contact by executives with operations for a lengthy period may lead to loss of reality and a tendency to skip the planning effort and seek the "illusive shortcut." To avoid this, management experts suggest that executives supervise an assignment occasionally from its inception to completion.

***Suggestions for Strengthening Planning***

The success of our audit efforts cannot be left to chance. To ensure that adequate planning efforts are made, planning capability ought to be a major factor in developing our

professional staff and increased emphasis should be given to this subject in training programs and instructions. Increased emphasis can be given, for example, by:

- Further developing concepts and principles of planning direction of audit work for issuance to the staff and for use in training programs. The subject of planning the direction of audit efforts may be of sufficient importance by itself to warrant a special training program.
- Creating motivation and the type of environment which promotes good planning.
- Making staff members more aware of the pitfalls and problems of planning and the importance of avoiding them.
- Requiring preparation of planning reports on survey results, particularly on initial reviews of Government activities. Such reports could briefly describe what appear to be the most significant management weaknesses or areas warranting review, give some

background and perspective, and then rank their importance and our ability to cope with them.

- Requiring closer adherence to the concepts set forth in the Comprehensive Audit Manual. The Manual contains, I believe, an excellent framework for planning our work.

### ***Conclusion***

In conclusion, for each major activity we review, there is obviously a need to develop background and perspective on the agency's operations, to determine how these operations are managed, and to gather sufficient information to most effectively apply our direction of effort policies. With such information we can begin to evaluate management performance and identify the major unsolved problems. Once such a foundation is established in a particular activity, we are in a position, with appropriate updating, to furnish the Congress with timely reports on significant matters that are of concern and interest to that body.

# Selection of a Statistical Sample 721294

By A. R. Horton

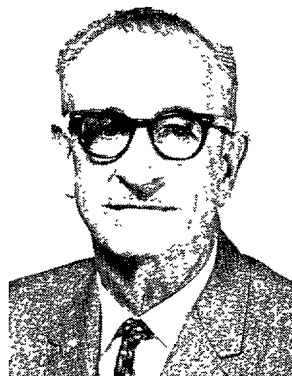
**Statistical sampling is a technique of growing interest to auditors. In this article, Mr. Horton describes and illustrates the selection of a statistical sample on an actual audit assignment.**

In the early days of aviation, pilots flew by the "seat of their pants" and in past years auditors navigated to some extent by using their noses and general sensory facilities. They both did a good job under the circumstances which prevailed at the time. However, no one will deny that technological advances have made such methods of navigation obsolete in many instances. Judgment sampling still has its uses, such as providing a means of disclosing the presence of an undesirable condition, but ordinarily is not useful in estimating with any precision the degree to which the condition is present in the universe being sampled. The results of a judgment sample simply can

not be defended successfully as being representative. Consequently, in recent years accountants have given increasing attention to the use of statistical sampling, to provide themselves and their clients with greater assurance of the validity of their findings.

Determination of the size required for a statistical sample and the method of selecting the sample requires consideration of the circumstances in each case. The following comments are presented somewhat in the form of an abbreviated case study on selection of a statistical sample during a recent audit assignment. Some details affecting the determinations have not been included, and the descrip-

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tion is confined to certain principles or procedures believed to be of general interest and application. The procedures which were used are not presented necessarily as the best which could have been devised, but rather to illustrate some of the problems which may be encountered in selecting a random sample and certain limitations on the use of statistical sampling.

### *Description of the Problem*

The audit assignment required review of a State program which is financed, in part, by grant of Federal funds. The overall program consisted of several individual programs which we will call programs A, B, C, and D. Preliminary review had disclosed two attributes applicable to programs A, B, and C, where deviations or errors apparently would have significant effect on the cost to the Federal Government of assisting in the financing of the program.

Detection of these deviations required obtaining information from two external sources which we will call sources X and Y. The preliminary review also had indicated that deviations in attribute #1, which would require checking at source X, were largely confined to programs A and B. Deviations in attribute #2, which would require checking at source Y, were largely confined to programs B and C. The potential for deviations in program D appeared to be minor, and this program was eliminated from further consideration.

In order to demonstrate the effect of these deviations, we wanted to project the sample results in terms of dollars to the program activity

throughout the State. However, the individual programs were administered on a decentralized basis at more than 100 locations in the State, and the records in which we were interested were maintained at those locations. A random sample suitable for projection to statewide activity would have required our staff to visit numerous locations and would have extended audit time and cost beyond that which was considered reasonable. Consequently, it was decided to sample the activity at a small number of locations which could be considered representative and which comprised a substantial portion of the total State activity. In so doing, we relinquished the possibility of projecting the results of the sample to the total activity of the State, but considered that projection of the results to a significant portion of the State activity would be sufficient to support a recommendation and demonstrate the savings which could be achieved.

In selecting the locations to be sampled, we chose two of the largest urban areas (to obtain volume) and two rural areas which we considered generally representative of rural locations. Although selection of these rural areas was made at the sacrifice of volume coverage, it was believed advantageous to include these areas in the sample because our preliminary review had indicated some possibility of variance in error rates at urban and rural locations.

The preliminary review also had indicated that review of the individual items in the sample would require, in many instances, considerable time in determining the absence or presence of deviation in the attributes and the

dollar effect of deviations. Hence it was essential to limit the size of the sample to a quantity which would be practicable. To minimize the number of items in the sample, we considered combining the population units which we wished to sample—units in programs A, B, and C—at the four selected locations. Although the incidence of deviation in attribute #1 in program C and in attribute #2 in program A was believed to be relatively minor, it would have been possible to make one sample of the three programs to obtain information on both attributes. Projection of the results of the sample to the total population of the four locations would have been valid with respect to the combined deviations in both attributes.

However, there were decided advantages if we could report independently with respect to each attribute. The potential for savings through correction of deviations was substantially greater for one attribute than for the other. The action needed to correct deviations in the two attributes would not be the same. Also, we had reason to believe that agency action could be obtained more readily with respect to one than the other. Consequently, we decided to make separate samples of each attribute, even though this meant approximately doubling the amount of sampling work to be done. Thus a sample for testing attribute #1 was to be taken from the population of programs A and B, and another sample for attribute #2 from the population of programs B and C.

In the interest of brevity, the remainder of these comments pertain to the sampling for attribute #1.

### *Determination of sample size*

Our preliminary judgment sampling had disclosed a 10 percent rate of error in attribute #1 in programs A and B, and from available data we estimated a population of about 20,000 involved in these programs at the four locations we had selected for review. With an expected error or deviation rate in the attribute of not more than 10 percent, 95 percent assurance of accuracy of sample results, plus or minus 4 percent, would require a sample consisting of 214 units.<sup>1</sup> We believed that although the actual error rate might exceed 10 percent, it was unlikely to exceed 15. A 15 percent error rate in our sample of 214 would provide 95 percent assurance of accuracy, plus or minus 5 percent, which we considered would still be acceptable for our purposes.

We next considered whether this sample size of 214 items would be useful as a sample of variables, suitable for estimating the dollar value of error in the population. The preliminary judgment sample had disclosed a dollar error ratio of 7.6 percent. The dollar amount of payments in the universe to be sampled was about \$1,740,000. If the error ratio in the judgment sample held true for the statistical sample, we might project to the population an error of about \$132,000. However, the range in the amount of deviations disclosed in the judgment sample was large. By appropriate formula we determined that the sampling error amounted to \$3.58 per unit of the population sampled, at a confidence level of 68.26

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<sup>1</sup> Handbook of Sampling for Auditing and Accounting, Vol. I—Methods—Herbert Arkin—McGraw-Hill Book Co., Inc. (table D-2C, p. 354).



percent. Application of the factor 1.96 to produce a 95 percent confidence level resulted in a sampling error of about \$7.02 per unit, or about \$140,000 when applied to the 20,000 units estimated in the population. This would make any estimate of dollar error in the population meaningless, on the basis of results from the sampling for attributes.

We further determined by appropriate formula that, on the basis of deviation in the variables disclosed by the judgment sample, a statistical sample suitable for projecting the dollar amount of error to the total population would require a sample size of about 1,500 units. As previously explained, we could not consider making such an extensive sample.

We decided to proceed with the sample size of 214, based on the formula for sampling attributes. This would permit us to estimate the number of deviations in the population with reasonable confidence and precision, but we would have to be satisfied with illustrating the effect of deviations by describing the dollar effect disclosed in the sample, without projecting it to the population. We believed that this would still be adequate support for our finding and recommendation.

### *Selection of the sample*

The actual selection of the sample presented various problems. The population units which we wished to sample consisted of transactions with an individual or group of individuals over a period of time varying from 1

month to many years. The population changed from day to day with new units being added and others deleted, and statistics were not maintained by the agency with respect to active totals at any date. We needed some sort of combined listing of these units at the four locations, arranged in an order which would not affect random selection. We planned to select a starting point in the list through use of random number tables and use an interval of selection which would produce the number of units required for the sample.

Of several alternatives available, we decided to use lists of payments made to population units during a current month. These lists were available for individual programs, by locations, in numerical sequence by check number. Ideally there would be only one payment per month to any one population unit, unless an error were detected in the payment or some adjustment was needed in the same month. We determined that the likelihood of this in any volume, was remote and that the lists would represent, for practical purposes, the active population during the period. We recognized that there might be some overstatement of total population if population units received payments and subsequently were deleted during the same month. However, we found that the number of deletions during the month were small in relation to the total population, and would not affect the size of the sample.

From the check number listings in unbroken numerical sequence (except

for a few numbers not used due to spoilage or cancellation), we determined that the total population with which we wished to deal was 19,251 units. We could have proceeded with the original plan for interval selection of the sample, the interval in this case being 89 ( $19,251 \div 214$ ). Selection of every 89th item from a list of 19,251 items is not only laborious but subject to clerical error. Consequently, we decided to make the selection by applying numbers obtained from random number tables to the check numbers on the population lists.

Another reason for use of this method of sample selection was that IBM cards available at the agency included the check numbers for the payments to the population we were sampling. Hence the actual selection of the sample was accomplished with a card sorter and print-out of the list of items selected. Also, we were able to request the information we needed regarding attribute #1 from source X, which had compatible equipment, by submitting a deck of cards to the source. The deck was prepared through the cooperation of the agency, by means of card reproduction equipment.

The sample of 214 which we needed amounted to about 1.2 percent of the total population. A selection of all check numbers ending in one of the digits 0 through 9 would provide a 10 percent selection. From random number tables we determined that this number would be 3. The sample size

then was reduced by using a two-digit number ending in 3. Use of one additional number to form the two-digit combination would provide only a 1 percent selection of the population which would be insufficient in size. Use of 2 additional numbers would provide a 2 percent selection—more than enough—which could subsequently be reduced.

Again we referred to random number tables and selected the numbers 0 and 1. Thus a selection of all check numbers ending in 03 and 13 would provide a 2 percent sample, or about 385 items. To reduce this more nearly to the 214 we needed, we made partial use of a three-digit combination. If eight of the 20 possible three-digit combinations ending in 03 and 13 were eliminated, this would provide a sample of the required 1.2 percent size.

From the random number tables we selected four numbers—3, 5, 7, and 8. This provided the final basis for selection of the sample, which was to select all check numbers ending in 03 and 13 except those ending with 303, 313, 503, 513, 703, 713, 803, and 813. Application of this basis of selection produced an actual sample of 230 items, which was satisfactory.

### *Content of the sample*

As a matter of interest in what can be expected from use of random number tables, the following summary compares the population percentages in the universe with those in the sample for attribute #1.

	Population		Sample	
	Units	Percent- age	Units	Percent- age
<b>Location:</b>				
#1.....	14,006	72.8	164	71.3
#2.....	4,519	23.5	56	24.4
#3.....	449	2.3	7	3.0
#4.....	277	1.4	3	1.3
<b>Total.....</b>	<b>19,251</b>	<b>100.0</b>	<b>230</b>	<b>100.0</b>
<b>Program:</b>				
A.....	13,003	67.5	150	65.2
B.....	6,248	32.5	80	34.8
<b>Total.....</b>	<b>19,251</b>	<b>100.0</b>	<b>230</b>	<b>100.0</b>

As shown above, the sample taken at random for the combined programs in the combined locations followed the actual relative weights of the programs, and the incidence of the combined programs at each location, within reasonable tolerances. This had no significance with respect to a breakdown of sample results, since the sample could not be used with the necessary degree of confidence for determinations regarding any individual location or program. However, it did increase our assurance that the sample was representative of combined activity within the combination of locations tested which, in turn, was considered as representative of the entire program activity.

### **Results of the review**

This article was intended primarily as a discussion of the selection of a statistical sample, and not of the results obtained from it. If the need for making a sample is evident (and this would depend upon the signifi-

cance of the effect of the suspected deficiency, the effort involved in making the sample, and other factors) and if the method used is sound, then it should be of no concern whether the results of the sample support or reject the preliminary determination of deficiency. If they do, then the auditor has support for his finding, and if they do not, he is saved from making a recommendation based on insufficient evidence.

However, it may be of interest to describe very briefly the results of our review of the 230 cases comprising our sample for testing attribute #1. The review disclosed 21 instances of error or deviation, which was only slightly less than the 10 percent error rate found in our judgment sample. However, due to circumstances which need not be described here, we determined that somewhat less than half of these errors could have been avoided by instituting new procedures which we intended to recommend.

Our interpretation of the results of

our sample was that there had been between 530 and 1,064 errors in the population of 19,211 at the four locations during the period covered by our review, which could have been avoided if new procedures we had in mind for recommendation had been in effect. The average avoidable error disclosed in our sample was \$228. The population of 19,211 covered in our test represented about 46 percent of the total population of the State involved in programs A and B.

We could not project dollar values of error to the populations on a sound statistical basis, as previously explained, but we estimate that avoid-

able Federal participation in the overpayments at the four locations selected for review would range from \$41,000 to \$83,000 annually.

In our reporting on this matter, the results of our review will be used only in illustrating the savings to be achieved from the new procedures which we had intended to recommend. During the course of the review, we had discussed the feasibility of the procedures with the agency and with source X. The agency was enthusiastic as to the potential for savings and initiated the procedures shortly before we completed our review.

# The GAO Views Air Force Management 721295

By Charles W. Kirby

**This paper is based on a speech given by the author at a management seminar held on November 15, 1966, at the Air Command and Staff College, Maxwell Air Force Base, Alabama.**

During the years from 1961 through 1966, the General Accounting Office issued almost 600 reports to the Congress on Department of Defense activities. In addition, several hundred reports were issued to the Secretary of Defense and to lower echelons of the military departments.

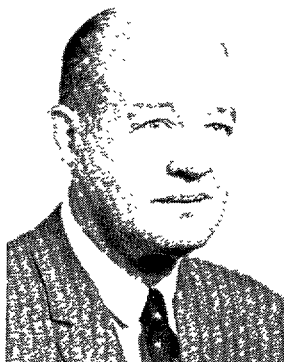
Most of these reports were concerned with weaknesses or deficiencies in management. But it should be understood that the cases discussed in this paper and the reports issued in the past are not to be construed as an indication of our overall opinion of Air Force management or of the management of any other military department. The accomplishments of the Armed Forces of the United States

are well known throughout the world and speak for themselves.

This does not mean that there is not room for improvement. In a recent speech, General John P. McConnell, Air Force Chief of Staff, summed up the proper relationship between efficiency and economy of operations as they pertain to the national interest. He said:

“Economics may be secondary where the very survival of our nation is concerned, but we cannot afford to strain our economy to the point where physical survival would become meaningless. I am confident that, through wise management and good judgment, we can obtain and maintain a force structure that meets the military demands of the future and yet imposes no undue strain on our economy and resources.”

**Mr. Kirby has been with the General Accounting Office since 1937 and with the Defense Division since it was established in 1956. At the present time, he is the assistant director in charge of the facilities and construction staff, Defense Division.**



## ***Examples of Weaknesses in Management***

Following is a brief review of case examples of management weaknesses resulting in increased costs, which have been the subject of GAO reports.

### ***1. Use of executive aircraft by contractors***

A review of nine defense contractors that used company operated or chartered aircraft extensively indicated that the cost of operating this aircraft was substantially more than the cost would have been for equivalent commercial air transportation. Practically all the additional costs were charged, through overhead, to contracts with the Department of Defense and, to a limited extent, with NASA. For example, during the year we reviewed, the cost of operating the five private executive aircraft of one contractor was about \$1 million, or about six times the cost for equivalent commercial air transportation. Our tests indicated that most of this contractor's flights were routine in nature with no priorities assigned. This contractor has since reduced its executive fleet to one aircraft.

The military departments concerned agreed that the contractors had not needed the aircraft to the extent that they had been used. As a result, in negotiating overhead costs for the years under review, certain disallowances were made. Also, the entire matter has been referred to the Armed Services Procurement Regulation Committee for its consideration.

### ***2. Contractor's use of leased facilities***

An Air Force contractor, whose business is predominately with the

Government under negotiated contracts, entered into a 25-year non-cancellable lease for property which cost about \$27 million. This lease committed the contractor to pay total rentals of about \$46 million during this period. Under the Armed Services Procurement Regulation (ASPR) the cost of the land and the interest expense on the contractor's investment in buildings and land would not be reimbursable under the Government cost-reimbursement contracts in effect. However, ASPR does permit reimbursement for leasing costs, and thus the contractor is being reimbursed by the Government for all his costs of acquiring the property.

If the use of the facilities almost exclusively for negotiated Government work continues over the balance of the 25-year period of the lease, the Government will pay, through reimbursement of rental payments, about \$19 million more than the cost of the buildings. During this same period, the contractor will save a substantial amount, which we estimate at about \$10 million, in interest expense which it would have incurred for financing the ownership of the facilities. Also, the higher leasing costs are included in the cost base in establishing fees or profits on Government contracts.

In our report, issued in September 1966, we recommended to the Department of Defense that, in its review of the rental cost principle, it either consider the costs of rented buildings and land used by Defense contractors to be allowable to the extent that they do not exceed the costs of ownership or provide a clear distinction between owned and rented facilities in establishing profits or fees.

### 3. *Utilization of military personnel*

Department of Defense policies in general state that civilians are to be used in positions which do not require military personnel. We found, however, that the Army, Navy, and Air Force were using enlisted personnel, many with special skills, in such nonmilitary activities as officers' and noncommissioned officers' clubs, hobby shops, bowling alleys, golf courses, and commissary stores. We estimated that about 9,000 enlisted personnel, whose annual pay and allowances totaled about \$40 million, were being used in nonmilitary activities. During our review, the Secretary of Defense initiated a program for reassigning military personnel who had been assigned to noncombat, support-type activities.

The initial phase of the program contemplated that, by the end of calendar year 1966, 75,000 military personnel would be reassigned. Recently, we were informally advised that the program was almost on schedule.

Our primary concern in this case was to bring to the attention of the Congress the uneconomical aspects of using trained military personnel in activities requiring much lesser skills. We suggested that the Congress might wish to establish guidelines.

### 4. *Use of equipment in long supply*

In 1963 and 1964 the Defense General Supply Center reported to Headquarters, Defense Supply Agency, that over 500,000 Army beds and mattresses were in long supply and that the Center proposed to issue these beds to the Air Force and the Navy in lieu of procuring new beds. However, the Center was instructed not to

issue substitute items without the concurrence of the requisitioning service. Later the Air Force and the Navy refused to accept the excess beds, and the Center bought, at a cost of \$8 million, 165,000 preferred, but more expensive, beds and related bedding.

About 250,000 beds were disposed of prior to our inquiry into this matter. The remaining 250,000 excess beds were withdrawn from disposal during our inquiry and subsequently requisitioned by the military services, including the Air Force and the Navy, for use in southeast Asia and supporting areas, at a saving of about \$10.6 million. In our opinion, additional procurement savings of \$9.4 million could have been realized if the 250,000 beds had been used to fill continuing Army, Air Force, and Navy requirements rather than disposed of.

The reasons of the Air Force and the Navy for not accepting the excess beds were not clearly documented, but evidently they had been based on other than technical considerations. The decision by the Defense Supply Agency to acquiesce to the desires of the services was based, to a substantial degree, on its desire to maintain good customer relationships. We believe that, had this matter been referred to the Secretary of Defense, a different decision might have been reached, in view of the significant amount of potential savings. The Department of Defense expressed general concurrence in our findings. Action has now been taken to require written documentation of disagreements on the use of selected nonmilitary substitute items in long supply. This added control feature should result in improvement.

### 5. *Increased use of rebuilt tires*

We made an analysis of the tire-rebuilding statistics for 80 Air Force installations and observed tire inspection and rebuilding practices at 11 of the installations. We found that many used tires were being condemned when they could have been rebuilt and that others were being used to the point where retreading was impracticable. We estimated that more extensive rebuilding of tires would have resulted in savings of as much as \$2 million in one fiscal year and could result in substantial savings in future years.

Action has been taken to strengthen periodic inspection of tires and to refer this matter to the Inspector General of the Air Force as an item for special attention in future inspections. Also, the Department of Defense brought our findings to the attention of the other military departments.

### 6. *Contractor use of leased vehicles*

Beginning in August 1962 the Air Force Systems Command awarded contracts to firms for leasing vehicles, such as sedans, station wagons, and pickup trucks, for the use of contractors in performing Government contracts at Vandenberg Air Force Base. We estimate that savings of about \$800,000 could have been realized over a 3-year period if the Government had purchased the vehicles and furnished them to the contractors.

It has been the opinion of the Department of Defense that it was the intent of the Congress to preclude the acquisition of passenger vehicles other than those specifically authorized in annual Department of Defense

appropriation acts. It is our view, however, that the congressional restrictions pertain only to vehicles to be procured for use by Government agencies and departments and that funds appropriated for procurement can be used to buy vehicles needed by contractors.

The Air Force informed us that it still felt that the law imposed rigid congressional control over the acquisition of passenger vehicles for use of both agency and contractor personnel. However, it was recognized that savings might be realized, and our interpretation of the law was accepted. We were told that 101 of the 425 vehicles discussed in our report were programmed for replacement in 1966. Also, the Air Force was attempting to program procurement of the remaining 324 vehicles so that they would be on hand when the leasing contract expired in February 1967.

### 7. *Uncontrolled credit-card purchases of gasoline*

We found that maximum use of Government gasoline outlets was not being made primarily because responsible military officials had not taken action to control Government credit-card purchases of gasoline from commercial sources. An estimated \$5 million was being spent annually for the credit-card purchases. The cost of gasoline purchased on credit cards was 10 to 16 cents a gallon more than the cost of gasoline purchased at Government outlets. We did not attempt to establish the amount of savings that could result from purchasing gasoline at Government outlets. However, it is apparent that the savings would be substantial even though it is recog-



nized that credit-card purchases would be necessary under certain circumstances.

We found an almost complete absence of any management control to effectively restrict credit-card purchases. Two of the results were that supervisors and drivers believed that the use of credit cards was saving the Government money and that officials were not aware of the large volume of credit-card purchases.

We have been advised that control measures have been instituted and that use of credit cards and of Government gasoline outlets will be included in management and internal reviews conducted by the military departments.

#### *8. Use of leased transportation equipment*

During the period October 1961 through June 1965, the Air Force spent about \$1 million more to lease liquid oxygen and nitrogen transport trailers from common carriers than it would have cost to purchase and maintain the trailers. The Air Force had not considered comparative costs before it made the agreements with the carriers, but it did not agree that the leasing arrangements had resulted in avoidable costs in this instance. The Air Force took the position that, since the trailers in its inventory were of military design, it would not have considered purchasing commercial-design trailers even though acceptable military-design trailers could not have been purchased in time to meet requirements.

We pointed out that the leased trailers had been of commercial design, that they had been considered

to be satisfactory for the purpose, and that they would have been equally satisfactory had they been owned by the Government. The Air Force subsequently informed us that its policy would be revised to require consideration of comparative costs of leasing versus Government ownership of transportation equipment.

#### *Significance of Examples*

Case examples like these lead to such questions as—Just what does it all add up to? or What causes these things to happen?

I would say that in most instances the major cause was the failure on the part of management officials to use proper judgment in making their decisions. Too often a manager is inclined to go along with the “book,” or, in the case of the military, the regulations; and consequently he does not give proper attention to all aspects of the matter and the full result of the decision he will make. This is not to imply that regulations are not to be followed. However, most regulations give the manager some leeway for the use of commonsense and judgment. Regulations and management systems can never completely solve a manager’s problem. He must think for himself, and he must take the time to do this and not fall back on the stock answer that “regulations permit it.”

Case examples are history. What about the happenings of today, and what is planned for the future with respect to management controls in the Defense Establishment? To give a more vivid picture, I should like to draw an analogy between a manager’s responsibilities and those of the pilot of an aircraft.

When management responsibilities are limited to a small area of operations, a manager is able to keep himself oriented by direct observation of his operations and of the subordinate personnel who conduct the operations, just as a pilot, flying within the short range of an airport, is able to keep himself oriented visually. These means provide the manager and the pilot with adequate bases for appropriate decisions so long as the areas of their operations remain limited. But their areas of operations do not remain limited. As their careers develop, the manager is assigned to larger and more complex areas of operations and the pilot is assigned to higher performance, longer range aircraft. Neither of them can then adequately orient himself by direct observation. Thus an alternative means must be provided.

The pilot is given such an alternative means. His aircraft is equipped with a panel displaying an array of sophisticated instruments for assisting him in making appropriate and timely decisions and for warning him of impending danger by identifying potential trouble spots. Now if the analogy were completely valid, we could say that the office of the manager is similarly equipped. However, the analogy breaks down at this point, because, unfortunately, the manager's office is not equipped with such a panel or with its equivalent.

### ***Current Efforts To Improve Management Practices***

At the present time, strenuous efforts are being made by the military services and DOD to give their managers better ways and means to more

efficiently carry out their programs. In fact, the Congress and the President are insisting upon this. These efforts will not produce an array of sophisticated instruments displayed on a panel in the manager's office. The efforts are directed toward the development of something more prosaic but in some respects just as sophisticated: systems of management control which today are usually referred to in DOD as Resource Management Systems. As a matter of fact, the Air Force, through its Project FIRM, has been one of the leaders in this development of the DOD systems in that it tested many of the concepts now included in the Resource Management Systems.

Resource Management Systems has six principal objectives which seem complex only if stated in the technical terms of the accountant or the financial manager. Without overemphasizing the use of the terms "accrual basis of accounting," "expense accounting," and "cost-based budgeting," let us see how the principal objectives are rooted in common sense and good business management.

*First*, perhaps underlying all the other five objectives, is that of *broadening* the purposes for which authority to use resources is given to the individual command and management levels. The goal is to increase the flexibilities by which the local command may shift available resources as local conditions would suggest. To get this objective down to the simplest terms: Would a housewife prefer to have the household budget stated in terms of \$40 for meat, \$15 for vegetables, and \$25 for canned goods? *or* would she prefer to have

it stated in terms of \$80 for *food*, which she may spend at her discretion for one item or another of the food requirements? I am sure she would state her preference for the latter, for she might rightfully ask: Who knows best when and how to make these decisions?

*Second*, so that a better appreciation may be gained of the quality of management performance, the systems would attempt to match *costs* of performance with *work units* of performance. Suppose you decide to build for your household three matching pieces of furniture in your home workshop over the period of the next 3 months at a total cost of \$215. You arrange for the procurement of the wood, nails, glue, finishing materials, et cetera, as well as for the services of your young son, Joe. Joe is to be paid \$15, at the rate of \$5 a month. You pay \$100 down on the materials and are to pay \$50 in each of the following 2 months. Material worth \$150 is delivered, and the remaining \$50 worth is to be delivered later.

After 1 month you have finished one piece—a chair. One night some friends drop in. They ask what the chair has cost. Should you say \$215—the expected total cost of all three pieces—or \$155—the cost of the materials delivered and the \$5 paid Joe. I am sure you will agree that you should express only the cost of the materials and labor in the chair. This, we shall assume, is \$95. All of us could agree that this is the reasonable way of viewing the project. This simple example expresses the

fundamental of the accrual basis—namely, matching what we have done with the cost of doing it.

*Third*, the systems would have us know what resources or assets are left over at the end of 1 month which could be used in following months. To revert to the above example, if you are making up a budget for the second month, would you give any consideration to the fact that you had \$60 worth of materials left over from last month, and \$50 worth still on order? Of course, you would. It just makes sense. Well, the accrual basis, in its simplest terms, merely provides visibility or disclosure of those carried-over resources.

*Fourth*, the systems will place emphasis upon what one expects to get done in terms of end-objectives, not simply upon the individual amounts of materials, glue, nails, et cetera, which are necessary to get the job done. If that visiting friend should ask: “What did you accomplish working in the basement all last month?” would you answer him by saying that you made arrangements for \$150 worth of wood, \$5 worth of nails, \$5 worth of glue, et cetera, or would he be better informed if you told him that you had built a chair for \$95 and that you hoped to finish two matching pieces for about \$120? The latter expresses the end-objective of your project; the former expresses the facts in terms of details similar to the present appropriation structure.

*Fifth*, the systems would reduce the number of reports which purport to measure the same accomplishments

but which at the present time are not compatible. The systems would take advantage of computer capabilities to integrate related management systems. To illustrate, let us assume you have three instruments on your panel, all purporting to measure the same thing, yet all three tell different stories. What would you do? I am sure you would replace them with one instrument which is more dependable and accurate. This same principle underlies the recent systems development in Defense; namely, provide one central system and bring all related or interfacing systems into reasonable and current compatibility therewith.

The *sixth* objective relates to the PPB system—the planning-programming-budgeting system. The Resource Management Systems are merely the Defense prototypes of the PPB system which embraces the entire planning - programming - budgeting - accounting - reporting complex. The systems emphasize the necessity of being able to bridge across or “walk across” with confidence from one set of data of the integrated system to another, that is, from planning to programming to budgeting to accounting. The lack of this capability has been one of the weaknesses in the Defense systems. Full advantage has not been taken of the computer capabilities to build in each segment the potentialities for supporting other facets of the integrated system.

It has been our experience that too many management officials feel that they already have all the means necessary for exercising effective control.

If they have a vague feeling that there are some blind spots in their view of operations, they accept it as a way of life—a situation about which nothing can be done. Moreover, they find it extremely difficult to make positive decisions that will bring about changes. The net result is that they are not fully aware of the value of soundly conceived management systems and do not realize that such systems can illuminate the dark corners of their operations and thus remove the blind spots.

In other cases we have seen managers whose sole measure of the effectiveness of their operations was whether they had accomplished their missions. Of course, all will agree that the successful accomplishment of a mission is a primary objective. But this does not mean, necessarily, that the operation has been performed efficiently and economically. The result achieved may have been due, in large part, to the fact that the managers had almost unlimited funds—or they may have been just lucky. Next time around, lacking proven management control techniques and tools, their luck may not be as good and they may have to operate on much tighter budgets. On the other hand, where effective management systems are in operation, adherence to the requirements of those systems should more certainly ensure the overall success of most undertakings within the resources that should be required.

In the development of management systems, the statutory responsibilities of the General Accounting Office and

of the agencies differ—but in the final analysis we are all partners in this business. If we fail, the Congress will bang together the heads of all the partners, without partiality. The Comptroller General has assured all

agencies that we in GAO will assist them, in every way possible, in improving their management systems. The full success of this endeavor, however, rests with the managers of the programs.

# How Can We Audit the Computer?

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By Earl M. Wysong, Jr.

**This article discusses the growing impact of computer systems on auditing procedures.**

In view of the increasing utilization of electronic computers for processing data in the Government environment, it is important that we, as GAO auditors, are able to adapt ourselves to the new auditing concepts which have been created by the revolutionary methods used by these machines for processing data and producing reports. This article discusses the various approaches for auditing electronic data processing systems. Emphasis is placed on the relative advantages and limitations that are inherent with each audit approach and the audit techniques applicable to the approaches.

The Federal Government in recent years has experienced a tremendous growth in its dependence upon electronic data processing equipment.

**Mr. Wysong, a previous contributor to the *Review*, is a supervisory accountant in the Defense Division, currently on temporary assignment with the Civil Service Commission assisting in the development and presentation of the ADP training program for Federal auditors. Mr. Wysong received the M.B.A. degree from George Washington University in 1964, is a CPA (Maryland), and a member of the American Management Association.**

Further increased computer utilization is anticipated in future years as evinced by the *Presidential Memorandum on ADP* dated June 28, 1966, which states in part:

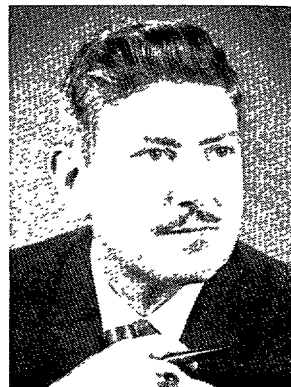
“I want the head of every Federal agency to explore and apply all possible means to

—use the electronic computer to do a better job

—manage computer activity at the lowest possible cost.”<sup>1</sup>

This added emphasis on computer utilization coupled with the increased sophistication of computers and peripheral devices has led to the development of new concepts of automating and integrating data processing systems. As a result, our audit ap-

<sup>1</sup> *GAO Review*, Fall 1966, p. 59.



proaches, examination techniques, and systems evaluation procedures must be realigned in accord with the concepts of electronic data processing systems.

In his excellent article, "The Audit Function in the Automatic Data Processing System" which appeared in the Spring 1966 issue of *The GAO Review*, Joe W. Johnson pointed out the three basic approaches to auditing the computer. As stated in the article,

The "around the machine" approach is based on the verification of the output information by tracing to the source data with no consideration being given to the processing operation. The "through the machine" approach operates on the logic that if the source data can be proven correct and the process through which this data passes can be proven correct then the output must be correct. In practice, a combination of these two approaches is used with the audit program tailored to the system under review.

Regardless of the approach used, any audit involving electronic data processing systems must include the verification of the accuracy, completeness, and reliability of source data. The objectives of such verification comprise the determination that all pertinent data are accumulated, accurate, properly recorded, and accurately input to the processing equipment.

### ***Around-the-Computer Approach***

The *around-the-computer* approach is the one that most of us have been using whenever we have encountered an electronic data processing system while following an audit trail. This approach can be used effectively for audits of data processing systems that produce output information in sufficient detail to permit its correlation with input data. Since traditional,

familiar concepts and techniques are utilized in the *around-the-computer* approach, auditors who have little specialized knowledge of auditing electronic data processing systems can use the approach successfully. It has several limitations, however, that make its use less desirable and often impossible.

When auditing systems with a large volume of transactions, the auditor may encounter such difficulty and consume so much time in attempting to sample transactions and matching their input to output that the value of the audit may be questionable. Additionally, it is usually necessary to interrupt the flow of normal operations both at input and output to review the processing of numerous transactions and, without increasing the audit scope and sample, the results obtained will provide information only as to their accuracy and not as to the degree or cause of error. Furthermore, because changes in operating instructions are constantly being made, the samples traced and the results obtained would apply to a limited portion of the data audited. There is considerable doubt that auditing around the computer will provide for the procedures and practices pertaining to internal control to be effectively reviewed or tested.

Probably the most severe limitation to this approach, however, lies in the fact that in many systems output actually cannot be verified to input because in the manipulation, segregation, and summarization of data, their identity in the final form is destroyed. With increased computer sophistication and systems integration, tradi-

tional audit trails rapidly are becoming extinct.

### ***Through-the-Computer Approach***

As indicated by its name, the *through-the-computer* approach concentrates upon the machine processing rather than the end products of the system. Strong system controls provide the foundation upon which this approach relies. The auditor must first determine whether internal controls are adequate and then evaluate the actual effectiveness of the controls and proper performance of machine and manual procedures. To perform this evaluation, the auditor traces a transaction through its entire processing operation. Several specialized audit techniques have been developed which permit the auditor to make maximum use of the capabilities and efficiencies of computers in performing an audit using the *through-the-computer* approach.

### ***Test decks***

Perhaps the most common technique in use today is the test deck. A test deck usually takes the form of a deck of punched cards containing a series of dummy transactions which are processed through the system. They can, however, be tailored to specific desired results and purposes and, therefore, may be designed in any input form. In some cases, it even may be desirable to use live data for testing purposes. By inputting to the data processing system at a predetermined point a set of test situations (either valid or invalid) the auditor can determine the system reaction to any type of transaction. In

this way accuracy and logic of computer programs can be verified and an effective evaluation of the system of internal control can be made.

There are several important factors which must be considered when designing a test deck in order that successful results will be obtained. The exact point in the system at which the test data are to be entered and the number and type of tests desired are factors for consideration in connection with the type of test deck being designed and the purpose it is intended to serve. They may be used to test all types of transactions in the entire system including both manual and computer procedures or they may be used to test only the phases of the computer program. They also may be designed to test only a single condition or function or to verify specific transactions.

Since no special programing is required to implement this type of test, one advantage to its use is that it is relatively inexpensive. Additionally, the results obtained from such tests are effectively presented and indisputable.

There are, however, certain inherent limitations involved in the use of test decks. They can be used only for the specific purpose for which they were designed and only for the testing of procedures. They do not test transactions and, therefore, do not disclose the cause of error. Test decks are difficult to design and must be adapted to the environmental factors of the system being tested.

### ***Operations research***

A recently developed technique for auditing through the computer makes



use of operations research. This technique requires the auditor to prepare a computer program which would be a model of internal control for each segment of the processing operations. The auditor, using his programs, processes live data through the computer and then repeats the process using the organization's regular programs. The results obtained in the two operations are compared to determine significant differences which might affect his evaluation of the system of internal control.

This dynamic auditing technique not only affords an excellent evaluation of internal control but also provides for the expansion of the basic audit model to include a limited decision-making capability and the actual development of the audit program itself. With this technique, exceptions showing all errors in the system can be listed by type. Furthermore, the program can be designed to evaluate these exceptions through the use of statistical sampling techniques, thereby determining the volume and class of errors. The exception listings themselves generate the additional audit steps necessary for the remainder of the audit program.

Although the use of operations research as an auditing technique offers great promise, its primary limitation is obvious. It requires that the auditor have a vast amount of technical knowledge of machine operation and programing techniques before it can be successfully applied.

### *Computer logic*

Another audit technique used in the *through-the-computer* approach is the examination of computer programs

and system logic to determine the existence of control measures. The objective of controls within an electronic data processing system is the detection of errors and inconsistencies in data to protect assets and provide adequate audit trails. Control measures generally may be classified into three types. The first of these is editing, which pertains to the checking of information contained in the record to ensure its completeness and to verify its contents. The second type of control, program controls, relates to those steps taken to verify that the proper and correct number of input records have been processed in the proper sequence to pertinent output devices and to check the accuracy of the computed results. System controls comprise the third category and include those checks made by the system itself to detect its own errors as well as any additional controls built into the program at the discretion of the programmer.

Although this procedure is technically feasible and sound, there are some limitations to its use. Primarily, it requires an extremely high level of programing skill—even higher than that required to write the original program. Additionally, there is no guarantee that the program reviewed is either the most current one or the one regularly used.

Auditing through the computer presents many advantages over the *around-the-computer* approach. By checking a transaction completely through the processing operations, the auditor is assured of increased reliability of results and a better understanding of the system and the controls incorporated in it. He can

extend the scope of his testing to encompass many more transactions in more refined detail. Since this approach is procedures-oriented, it is not normally necessary to interrupt regular operations.

Auditing exclusively through the computer also has certain limitations. The most serious one is the requirement for the auditor to possess extensive knowledge and technical proficiency in the area of electronic data processing. The cost of processing test transactions through the system could exceed the value derived from this procedure. Furthermore, the processing of test transactions could alter usage statistics, consumption data, or balance figures. In some situations, it may not be practical or even possible because of the design of the system, to adequately test system controls by the sole use of this approach.

Since each of the audit approaches discussed above has certain advantages and disadvantages associated with the various techniques employed, the most effective method for auditing electronic data processing systems would incorporate the best features of each approach into one combined approach.

### ***With-the-Computer Approach***

In using the *with-the-computer* approach,<sup>2</sup> conventional audit techniques still can be used to some extent. It may be necessary, however, to make use of the computer to accomplish many of the audit steps. This approach can be tailored to fit

<sup>2</sup> This approach—using the computer as an audit tool—has been described in various terms, including semiaround or semithrough the computer, computer assisted audit techniques, and the combined approach.

the processing system being audited. Depending upon the amount of complexity and sophistication of the system, the audit approach can be slanted toward the degree of around or through the computer required to perform a satisfactory audit. The determination of the direction toward which the audit should be slanted requires that consideration be given to several factors.

The primary consideration in the determination of the degree of computer utilization in the performance of the audit is the appraisal of the value of the audit benefits received in comparison with the costs of computer use. Further consideration should be given to the scheduling of audit activities to minimize interference with normal processing operations. Additional factors for fundamental consideration include the degree of technical proficiency possessed by the auditors and the availability of computer time for their use.

Also to be considered before proceeding with the audit are certain factors pertinent to the hardware and software characteristics of the system. For systems in which the major processing activities are performed by electronic computers the approach should be slanted more toward auditing through the computer than it would be for those systems that employ a significant amount of manual or punched card processing. Software characteristics to be considered in determining the degree of computer utilization desired include:

1. whether output can be associated with input,
2. whether the transactions proc-

- essed are voluminous in quantity or varied in type,
3. whether internal control measures and visible audit trails are present, and
  4. whether the system operating programs are stable.

In addition to the audit techniques previously discussed in this article, there are several other techniques that are applicable for use with the computer. A technique involving the development of special computer programs is used quite extensively by auditors. Such programs may be developed by the auditor, if he has the proficiency, or by the organization's programming personnel. In the latter case the auditor should supervise the testing of the program to assure that it will satisfy his requirements. Programs may be used effectively to perform several important functions, such as (1) checking information stored in electronic records, (2) selecting from electronically-stored records the information desired for review or further examination, (3) checking information obtained in other tests with that stored in electronic records, and (4) duplicating selected parts of the processing operations as a check on normal system operations. Computer programs may also be developed to summarize the types of errors and to statistically project the error rates.

Probably the most effective use to be made of specially developed computer programs is in the area of selecting audit samples. Electronic data processing equipment is generally well suited to perform this routine task. Sample selection may be made through the use of random number

or systematic sampling techniques, by the sorting and stratification of any desired classification of information, or by the extraction of individual unusual or specific items of data.

Programs which will automatically select items for sample test on a scientifically random basis are available from most equipment manufacturers. Some organizations have developed their own standard audit programs. For example, the Air Force has developed standard audit programs for use with its standard management information systems. Two Air Force programs that are already in operation are discussed below.

*Flexible Audit Selection Technique (FAST)* is a program routine that provides for a scientific random sample selection during audits of supply accounts. It is stored internally on the magnetic drum of the UNIVAC 1050 II system and is integrated with the program routines that comprise the Air Force standard base level supply data processing system. A "program select" card is used to call FAST from storage and to specify the criteria for test of data stored in basic and associated detail records of the system.

For the auditor to test the stock position of any specific class or category of supply items, it would be only necessary for him to have the desired information punched in the program select card which then would be input to the computer to call FAST into operation. The program would automatically generate record addresses at random and test the data at each address for the selection criteria specified until the required sample size had been attained. For example, to

sample the current stock position of serviceable repair parts of a particular weapon system and with a unit cost in excess of a stated amount, the auditor would prescribe on a standard format the information he desires from the records. He would receive a printout of the specified number of sample items containing information such as authorized and on-hand quantities, due-in and due-out quantities, excess quantities, average quarterly demands, follow-up actions, disposal or procurement actions, and any other pertinent data available in the detail records of the supply organization. Additionally, the auditor could determine the confidence level of the sample because FAST also provides the size of the universe from which the pre-determined sample size was selected.

*General Random Audit Sample Selection (GRASS)* is a program routine designed to extract random samples from magnetic tape files of Air Materiel Areas using the IBM 7080 system. It has the ability to generate random numbers and select audit samples internally when a "variable data control" card with data pertaining to the sample size, universe size, and generator base number is introduced into the computer. GRASS can scan files containing as many as 1,000,000 individual records of fixed or variable length and select up to 100,000 sample records.

The program requires that the auditor provide a random starting point for the internal random number generation process used in making the sample selection. Unlike FAST, GRASS is not designed to perform any test or examination relative to the

data in either the universe or the sample. It, therefore, cannot stratify its sample selection and, consequently, does not possess the flexibility of FAST. The purpose of GRASS is to perform only the task of selecting a random audit sample.

Another technique is the inclusion of a special checking routine in the program which permits the auditor to have special information prepared for his use or tests made of computer operations during regular processing of the operating program. This procedure calls for a set of instructions, which are incorporated in the operating program but are normally bypassed, to be put into operation. Thus, the auditor can evaluate the processing of data that normally would be processed only on an exception basis.

The organization's regular operating programs may be used for certain functions. For example, an excellent source of audit information is the historical data used to produce transaction registers, document registers, etc. In addition, inquiry routines that are normally incorporated into the processing programs permit individual inquiries of stored data for items of particular audit interest. Edit routines also can be used to advantage by the auditor in certain situations requiring many detailed checks.

Let us not forget that the computer is also a mathematical wizard that operates at extremely high speeds and with uncanny accuracy. In this capacity, it can be used effectively to check mathematical computations or to tabulate the results of manual reviews of transactions, records, or studies.

Electronic data processing equipment has demonstrated its value as an aid in accomplishing clerical and accounting functions. Most of this equipment also has the capability to perform many of the audit tasks which have been performed manually by the auditor and, further, to extend the scope and fineness of detail of audit tests while achieving added audit effectiveness and efficiency. It is, therefore, only logical that we should use these capabilities to the fullest extent practicable.

### ***Computer Communications***

Computers are in their third generation now and there is already talk of a fourth generation. On-line, real-time systems<sup>3</sup> are a reality today. In the near future, the most dramatic technical advances probably will occur in devices for communicating with computers. The results will be the development of huge intra-agency and intra-company communications networks.

Already in existence within the Department of Defense is a worldwide, high-speed data transmission and switching network called AUTODIN that links most major Defense computer installations. It is now possible without any human intervention for a remotely located installation to submit a requisition to an inventory control point and for the inventory control point to direct a supply depot to ship the needed item.

Some Defense contractors have in

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<sup>3</sup> On-line, real-time systems are computerized networks of hardware devices in a configuration which permits direct communication from remote terminal stations to central computer files with the specific capacity of servicing transactions and information inquiries immediately.

being automated installations that permit data pertaining to labor and materials to be introduced into the processing system at remote stations within the plant or at subcontractors' plants. The data are communicated to computers completely electronically, are manipulated and processed with the application of stored burden rates, and result in output consisting only of summarized work-in-process totals and printed checks.

It is not inconceivable that at some time in the future we in GAO could perform some of our audit steps without even leaving the office. Using the capabilities of on-line, real-time computer systems integrated with complex communication and switching networks, we could extract from agency files stored data for purposes of verification, examination or evaluation. For example, let us consider the potential which could be available to us through the maintenance by the Department of Defense of a central information file, or data bank, on its contractors and contracts. Through remote terminal devices (teletypewriter, telephone, microphone, typewriter, etc.) located in GAO offices, we could generate inquiries for certain information pertaining to a specific contractor or contract. Such inquiries would be transmitted via a switching terminal device to the central information file where the computer would determine the file location for the specific information desired, extract the information from the files, and communicate it back to the remote terminal device at GAO. Supply information also could be extracted in a similar manner for the auditor's use in evaluating the effec-

tiveness of controls or the performance of processing operations. For this evaluation, the auditor could use specially developed or standard programs or operations research techniques with a computer installation within his own office.

### **Conclusion**

We are experiencing a revolution in audit approaches, examination techniques, and systems evaluation procedures. It is not a sudden, violent type of revolution that will abruptly bring about the obsolescence of auditors. Rather, it is one of a relatively gradual nature that began over 15 years ago when electronic computers

were only mumbling about their capabilities for processing data, and it is continuing yet.

Electronic data processing is producing a truly dynamic impact on auditing. As the capacity and availability of computer equipment increases and more sophisticated and integrated accounting and management information systems are developed, the growing requirement for more sophisticated use of computers by auditors soon will make obsolete the *around-the-computer* approach to auditing. The audit approaches and techniques described here are only the beginning steps toward this increased computer utilization.

## Eighth Annual Western Briefing Conference on Government Contracts

The following comments on this conference were provided by *Werner Grosshans*, supervisory auditor, San Francisco regional office.

This conference, sponsored by the Federal Bar Association, was held at Palo Alto, Calif., on October 13 and 14, 1966, and was presented in four panel discussions covering the topics (1) Truth in Negotiations Act, Public Law 87-653, (2) Progress and Problems in Incentive Contracting, (3) New Developments in Government Contracting, and (4) Prime Contractor-Subcontractor Relationships.

As an overall observation, this conference was quite interesting, and of value to staff members engaged in contract audit work, although the section on incentive contracting was too technical. Of particular interest to me was the group's interest in GAO and the many references to GAO audits. The panel discussion on Public Law 87-653 was of immense interest to the lawyers, contract negotiators, and administrators representing private industry and I believe they will be of great interest to GAO auditors also.

While no conclusions or answers were given to the many problem areas raised, it seemed as though everyone from industry was quite pleased to hear that they were not the only ones with problems in dealing with Government agencies.

### ***Discussion on Public Law 87-653***

The panel moderator was John E. Cavanagh of Lockheed Missiles and Space Company. The panel consisted of *Stephen P. Haycock*, assistant general counsel, GAO; Col. George W. Thompson, Office of Directorate of Procurement Policy (I&L), OSD; James C. Foley, assistant general counsel, North American Aviation, Inc.; and Harold C. Nachtrieb, practicing attorney with a San Francisco law firm. (When the moderator introduced Mr. Haycock he commented that someone had mentioned that GAO had quite a nerve to disguise one of its people as a human being and place him on the panel.)

Mr. Haycock in his presentation defined "data" as contemplated by Public Law 87-653, as well as the meaning of "complete, accurate and current," and commented that estimates are not acceptable substitutes for factual data if available. He pointed out the importance of listing source documents on the Form DD 633 for the protection of both parties, since it will eliminate disputes as to whether specific data was disclosed and used during negotiations.

Mr. Haycock pointed out that the major problems we encounter involve

situations where a significant period of time elapses between the time of proposal and the time of negotiation. Government attempts at collections for defective pricing are based only on data available at time of negotiation. Data which becomes available after certification but prior to contract award, which was not disclosed to DOD cannot, in Mr. Haycock's opinion, be used against the contractor in actions under Public Law 87-653. In this regard he indicated that the footnote to the Certificate of Current Cost or Pricing Data is probably not enforceable.

Reliance on defective data is the key to success in collections. Under common law the individual is liable for incorrect statements; however, under Public Law 87-653 he is liable even for information not disclosed. Another interesting point discussed was whether the contracting officer is presumed to have known about data which, although not actually known to him, was available to other Government representatives (DCAA or price analysts). The Armed Services Board of Contract Appeals (ASBCA), in the American Bosch Arma case, held that he should be charged with knowledge of certain data actually given to the auditors, even though the auditors did not examine all such data. Mr. Haycock pointed out that this ruling created a problem because sampling is an accepted technique in proposal evaluation, and that proposal analysts should not be expected to look at every document.

This point was quite controversial. Colonel Thompson used as an illustration the hypothetical case where the contractor drove up in two vans

loaded with data, thus claiming that all data was made available and that he had effectively complied with the law. In his opinion, to expect the Government to wade through this mass of data and relate it to the proposal was totally unreasonable. Colonel Thompson pointed out that the contractor has the responsibility for disclosure. In his opinion, it is not a game that the parties are playing. Both parties should strive to work together and not make the job as difficult as possible for each other.

Mr. Nachtrieb raised the question that, since contractors can be held liable for erroneous data, why should they weaken their position by providing fully cross-indexed information which could serve as the basis for a detailed audit? In his opinion, it is totally reasonable to drive up in two vans and let the Government wade through this data. Under the doctrine of waiver, the Government then would have waived its rights if the data was made available but not used. In his opinion, the ideal situation would be to let the Government have the right of access to all data. With the volume of data available the contractor would have complied, yet the Government obviously could not examine all this data.

An interesting discussion also evolved on the signing of certificates. Industry representatives felt this to be a one-way street which is not reasonable. In their opinion, ideally the Government should also sign for all data received and certify that all data known to them was disclosed to the contractor. A question also arose as to who should sign for the contractor. Generally the consensus was



that the individual was wide open, since it is impossible for him to be aware of all data in the plant. It was pointed out that, as lawyers, they do not like to sign the certificates. It was the moderator's opinion that they should not sign them, because they may occupy space in jail which was intended for their clients.

Another area discussed briefly was the problems associated with lump-sum price reductions made during negotiations. Mr. Haycock felt that it is not necessary to find pricing deficiencies over and above those lump-sum reductions. He pointed out that in the ASBCA decision on American Bosch Arma the Board ignored the lump-sum reduction since it was not shown to be attributable to any particular elements of the proposal. He stated that, in the absence of better information, an acceptable solution might be to prorate the lump-sum reduction to all elements. In this regard, the minutes of negotiations could be most important and it was felt that greater care should be taken in preparing these minutes, to minimize future disputes over the amounts negotiated for given elements of cost.

### ***Prime and Subcontractor Relationships***

The panel moderator on this subject was W. Harwood Huffcut, regional counsel for MSTs. The panel consisted of William D. Craig, counsel for Douglas Aircraft Co.; Daniel J. Harnett, corporate director of contracts at Northrop Corp.; Hugh T. Verano, division counsel for General Dynamics; and Dale A. Harrison, legal officer at The Boeing Co.

The panel stressed the importance of the team approach for bidding on major systems. It was pointed out that the larger systems make it mandatory that a good team be fielded, and in many cases success or failure is dependent on the strength of the team and not necessarily on that of one member. In this regard, the panel commented on the importance of written agreements among the team members as to their relative positions in case of contract award. The recent decision against G.E. and in favor of Air Technology was cited as an example of disputes that can arise. In this case, G.E. apparently pulled work in-house contrary to its proposal, which indicated the work would be done by Air Technology. It was pointed out that subcontract awards were subject to Government approval, and the mere fact that a vendor is shown in the proposal does not preclude the Government from selecting an alternate source. In this case, however, the contractor—G.E.—had made this change.

Considerable time was spent in discussing the problems encountered in contract clauses to be selected for a given contract. The major problem area seemed to cover fixed-price contracts, and also included comments on difficulty in dealing with DOD, NASA, and AEC, with each having its own regulations.

The question was also raised as to who will pursue claims against the subcontractor; should this responsibility be that of the Government or of the prime contractor? The question was also raised as to whether a settlement should be worked out, or the

issue pressed in court. If settlement was reached, would the prime contractor be subject to subsequent Government claims? While no clear-cut solution was given, it was the speaker's opinion that (a) Government approval should be obtained for proposed actions before proceeding, and (b) the approval time of the Government be limited, so as not to jeopardize a contractor's legal position resulting from possible delays.

Another interesting area discussed was the requirement for subcontractor compliance with Public Law 87-653. It was the group's feeling that ignorance and zealotry by the buying staff of the prime contractor resulted in many requests for cost and pricing data, as well as certifications, which really were not needed under the law. For the subcontractor's protection, it was suggested that he furnish only what was required under the law; provide everything required, but not volunteer data. It was also suggested that the subcontractors clearly mark proprietary data, since the prime con-

tractor could not assure safeguarding of such data once it left its possession.

The question of financing was discussed briefly. It was pointed out that quite an inequity exists between prime contractors and subcontractors. The latter encounter significant bidding costs, which are normally not funded; yet the prime contractors in many cases do get partial funding, especially in program definition phases. A popular suggestion was that subcontractors should ask in their proposals for progress payments, since it is generally too late to ask for these after the prime contract has been awarded. The speaker pointed out that the prime contractor gets 100 percent reimbursement for subcontractor claims; therefore, he would not object to the claim providing the Government accepts the subcontractor's proposal.

In this regard, the speaker pointed out that Lockheed-Georgia Company in its proposal for the C-5A airplane requested 90 percent progress payments, as compared to the normal 70 percent, and was successful.

# Recruiting and Strengthening the GAO Professional Staff

Top management officials in the General Accounting Office have given considerable attention in recent months to ways and means of expanding and strengthening the GAO professional staff as necessary to keep abreast of the growing responsibilities of the Office. The Comptroller General recently advised the heads of GAO divisions and offices that:

“The quality of our personnel is undoubtedly the single most important factor in the long-term effectiveness of the GAO. Moreover, it takes several years to develop our younger recruits to their full potential and even under the best conditions we will experience some turnover. In any event, we would certainly all agree that unremitting efforts will be required if we are to attract, develop, and hold good people. In particular, each of our operating divisions and offices will need to devote more attention to this matter by way of assistance and supplementation of the current efforts of the Office of Personnel and the Office of Policy and Special Studies.”

Specific approaches being considered included:

1. Initiating a major increase in emphasis in current recruiting efforts with colleges and universities—particularly at the regional office level—to interest top students in the field of accounting and auditing. The quota for the 1967 graduating classes (fall and spring terms) is 395, compared with actual recruitment last year of 280. The 1967 budget contemplates a staff of accountants and auditors of 2,450 as of June 30, 1967, compared to 2,210 on the rolls as of December 31, 1966. A

further increase to 2,550 by June 30, 1968, is planned.

2. Authorizing regional managers and the auditing divisions to provide summer employment for outstanding upper classmen and graduate students with authority to place promising individuals on leave-without-pay pending the completion of their academic work.
3. Encouraging the return of former GAO employees who had exceptionally good records in the GAO and who have since performed well in fields of work directly relevant to current GAO programs. In carrying out this policy, due regard will be given to the career development of our present staff members.
4. Requesting the Civil Service Commission to place accountants in the short-age category so as to bring them under the provisions of 5 U.S.C. 5723, which authorize payment of travel and transportation expenses of new appointees when assigned on completion of college work to first-duty stations.
5. Recruiting college graduates qualifying under the Federal Service Entrance Examination and the Management Intern Examination with majors in academic work which is judged to be of direct relevance to the work of the GAO. Examples would be individuals with majors in economics, industrial management, engineering, public and business administration, mathematics, and perhaps a few others.

This program will involve participation with the executive branch agencies in the combined nationwide screening and interviewing program, coupled with interviewing by GAO officials of faculty and students other than in accounting and auditing. Such latter-type inter-

viewing will normally be done in conjunction with and at the same time as the current program of interviews for accountants and auditors and, preferably, in advance of taking the Federal Service Entrance Examination and the Management Intern Examination. Recruitment from these two examinations, it should be emphasized, is *supplementary to and in no sense in lieu of* accelerated efforts to increase our recruitment of accountants and auditors.

6. Obtaining authority to appoint at GS-9 accountants with appropriate experience or graduate work so as to make it possible to provide for accounting majors the same authority which now

exists with respect to individuals who are employed under the Management Intern program.

7. Opening upper levels of employment in GAO to individuals with needed skills in accounting, auditing, and other pertinent fields.
8. Strengthening existing training programs.

The letter sent by the Comptroller General to college and university faculty members and officials explaining the extension of GAO recruiting interests to students in fields other than accounting appears on the next page.



COMPTROLLER GENERAL OF THE UNITED STATES  
WASHINGTON, D. C. 20548

February 17, 1967

To College and University Faculty and Officials:

As you know, the United States General Accounting Office is the independent accounting, auditing, and investigative organization of the Federal Government, located in the legislative branch. In this capacity, we make independent examinations of operating programs, financial activities, and the management performance of the executive organizations. In addition, we audit private corporations which have negotiated contracts with the Federal Government. We also prescribe accounting principles and standards for agencies and approve their accounting systems when they have been properly installed.

For many years, the General Accounting Office has emphasized recruitment of quality graduates in accounting from colleges and universities for our staff replacement and growth. Excellent relationships at these schools have resulted in our employment of many of these students.

Now, however, because of the shortage of accounting graduates and our need to improve our capacity to serve the Congress through additional specialized skills, we plan to start immediately to recruit college graduates from such fields as Economics, Industrial Management, Engineering, Public Administration, Business Administration, and Mathematics. Recruitment for students in these fields will be at the GS-7 level from the Federal Service Entrance Examination, and at the GS-7 and GS-9 levels from the Management Intern Examination.

We wish to emphasize that the recruitment from these two examinations will be supplementary to and in no sense in lieu of our regular efforts to recruit qualified accounting graduates. In fact, our recruitment goal for accounting graduates this year is higher than for any recent year. We plan to interview interested students from these other fields at the same time we make campus visits to interview interested accounting students.

We would appreciate your informing your students of our interest in considering them for possible employment. Our interviewers will be on your campus in the near future and they will be happy to explain to you and your students the work of and the opportunities for employment in the United States General Accounting Office.

Sincerely yours,

A handwritten signature in cursive script, reading "James A. Abate".

Comptroller General  
of the United States

## Reviews of GAO Accounting Principles and Standards

Two professional accounting journals have recently published commentaries by independent reviewers on the restatement of accounting principles and standards for Federal agencies, issued by the Comptroller General in 1965. Since these reviews express independent viewpoints on an important aspect of the Comptroller General's accounting responsibilities, they are printed in their entirety in this issue for the benefit of all GAO accounting and auditing staff members.

### **Review by Eric L. Kohler**

Mr. Kohler's review appears in the Summer 1966 issue of the Federal Accountant. The editor of that magazine included a resume of Mr. Kohler's career which is also printed below.

*No one is better qualified to review a publication on the problems and procedures of Federal accounting and Federal financial management generally than Mr. Eric L. Kohler, Honorary Life Member of the Federal Government Accountants Association. A certified public accountant with wide experience in private industry, a prolific and respected contributor to the literature of accounting, a former teacher of accounting at university level, twice president of the American Accounting Association and an active and constructive member of numerous professional accounting organizations, few if any men have had the extent or quality of his service to the Federal Government. As a one-time controller of the Tennessee Valley Authority, a high*

*level official of the War Production Board, controller of the Economic Cooperation Administration, and advisor to numerous high Federal officials, Mr. Kohler is in a position to view the General Accounting Office's Accounting Principles and Standards for Federal Agencies, both objectively and with a deep understanding of the accounting problems with which Federal administrators are confronted, and of the opportunities in Federal agencies for the application of sound principles of accounting and financial management.*

Mr. Kohler's review, which is substantially as printed in the Federal Accountant, follows:

The Comptroller General of the United States. *Accounting Principles and Standards for Federal Agencies*, Washington, D.C.: United States General Accounting Office, 1965.

*Twenty-eight years ago this reviewer, newly appointed controller of a well-known, still flourishing federal agency then five years old, found himself in the midst of a full-fledged feud*

*between the agency and the General Accounting Office. During those five initial years the GAO, inspired, one was led to believe, by its then Comptroller General, a one-time secretary and subsequently a mortal enemy of the senator known as the "father" of the agency, had issued more than thirty-five hundred "exceptions" to the agency's ninety thousand paid vouchers, the total amounting to over twenty million dollars. But little research was required to establish the fact that an amazing number of these exceptions had been based on pure fantasy, their seeming purpose being to discredit the agency. At the beginning of the sixth year the agency halted its monthly, 500-mile dispatch to Washington, via truck, of newly paid vouchers. At the same time it invited the GAO to postaudit the agency's accounts at the latter's headquarters: an invitation the GAO rejected with ill-concealed scorn: not, it made clear, because it (in fact) had no accountants in its employ but because it believed its function as voucher auditor rested on an ethical plane far higher than that attained by a public-accountant's on-the-spot examination necessarily contaminated, it alleged, by contact with the auditee's employees. Further sources of friction were the agency's abandonment of GAO's prescribed system of accounts; a complete recasting of its accounts on an accrual basis; the substitution of more effective budgetary controls for an allotment ledger: and, following GAO's rejection of the audit request, the employment, without GAO consent, of a public-accounting firm to*

*examine its five years' operations as reflected in the reconstituted accounts. And, finally, a crowning insult was added to injury: of that multitude of exceptions not one had survived the accounting-firm's scrutiny. This six-month vest-pocket revolution, winding up with the auditors' unqualified certificate, left the GAO not only sputtering but wholly impotent, particularly after its vigorous but fruitless representations concerning the agency's apostasy before a joint committee of the Congress then probing the agency's affairs.*

Of course no detail of this prewar episode could be enacted today. The GAO, with its present forthright leadership, backed by an impressive array of qualified accountants, and fortified by the Budget and Accounting Procedures Act of 1950 and by its self-imposed spirit of free communication with the world at large, has long since laid aside its antebellum preoccupation of searching, with fastidious airs and seemly aloofness, for loose ends: all this without loss of face, force, dignity, and reputation for toughness as postauditor. Should some still-active survivor of the prewar era suspect a palpable anachronism in today's GAO performance, it may well be that this vision of misdoing could be more accurately described as the product of a lingering distaste for the old Adam.

Certainly the subject pamphlet of this review, complemented and informally restated by its principal draftsman, Ellsworth Morse, in *The Federal Accountant* (XV-1, Fall 1965, pp. 16-42), provides a convincing account of the admirable standards the GAO

advocates today. Both make easy reading for anyone versed in the rudiments of accounting and management; and in addition to serving as guides for the developers of accounting policies in federal agencies they suggest an accounting model that state and local governments might readily and profitably adapt for their own use, notwithstanding the absence of a spelled-out authority as wide-ranging as the BAP Act of 1950. Other uses would be in college classrooms as collateral reading for students of management and accounting, and for majors in political science and public administration who have completed a basic accounting course. Without doubt both the pamphlet and the article can be made available in quantity for those purposes.

As the GAO now manifests its major responsibilities for the accounts of federal agencies, one may observe three broad, interdependent motivations in its activities:

- The recognition of a basic need for promoting and developing the doctrine that every organization head, in his capacity as "top management" and with an abundant leeway for action, establishes, enforces, and invariably remains accountable to higher authority for the organization's financial, accounting, and other administrative controls over operations: a theme fully confirmed by the Congress in the 1950 legislation and subsequently in P.L. 84-863, as amended.
- The setting of generalized standards, rather than the provision of

detailed procedures (such as those of old Regulations 100), that should govern an agency's accounting process and internal controls as developed by agency personnel; the adoption by an agency of management and accounting practices best suited to the peculiarities of its operations, with periodic, critical GAO surveys of the resulting system.

- Postaudits, constructively critical, that involve not only reviews of the accounts but also of operations and of the practical accomplishments under management's internal controls in effect during the audit period, topped off by reports serving alike the informational requirements of the agency, other agencies, the Congress, and the general public.

More specifically, in adjusting both the scope and detail of its activities to those of the other participants in the Joint Program, the GAO indicates adherence to a number of objectives that should characterize agency accounting; these may be freely interpreted as follows:

- Full acceptance and application of accrual accounting, and a summary record that will periodically yield the balance of outstanding obligations—that is, the agency's financial commitments, if any, before the formal booking of liabilities under conventional methods of accrual accounting.
- An agency-developed classification of accounts serving all purposes: programming, budgeting,



transaction-recording, internal controls, and internal and external reporting, including that required by the Treasury (and approved by the GAO) and the Bureau of the Budget.

- Inventory and fixed-property records and controls.
- Budget-administration controls fitted to the requirements of appropriations, apportionments, reserves, allotments, and other expenditure directives and limitations established by the Congress, the Bureau of the Budget, and from within the agency itself.
- Maximization of accounting aids to management.
- Internal auditing of wide coverage.
- Continuous studies of functional costs and determinations of unit costs that lead to critical performance tests when compared with similar costs both of preceding periods and of external origin.
- Reporting standards that include: balance sheets, operating statements, and funds-flow analyses common in commercial reports; consolidated statements where two or more separately accounted-for funds have contributed to the same program; full disclosures of activity accomplishments and of causes of variances between anticipated and actual performances; condensations that eliminate unimportant detail; elements that increase usefulness

to recipients; fund status; and prompt issuance.

- Employment-training programs in accounting and management designed to benefit both the agency and the individual.

Not long after the appearance of the GAO pamphlet the Bureau-of-the-Budget's "PPB System" was announced. As originally proclaimed by the Bureau, endorsed by the President, and summarized in the 1965 report on the Joint Program (the three sources available to this reviewer), the language employed was vague and too hagridden by clichés to permit any sensible understanding and appraisal by an outsider, particularly with respect to the System's relation to the principles supported in the GAO pamphlet. Undoubtedly its esoteric expressions have by now been translated into down-to-earth meanings. One would hope, however, in putting the "system" into effect, that it be accomplished as an interpretation or at the most an extension of what now exists, not as an imposition from above having the effect of detracting from the environment that has been created since World War II by GAO's evolving standards or from the practical benefits already realized from these standards. On the surface, the proposals for projecting the short- and long-range attainables of an agency's future and the setting up of practicable performance standards offer nothing more remarkable than the substitution of new words for old. If, as is likely, the PPB "mission" concept implies a higher order of projec-

tion preceding program formulations than the look ahead to which an agency has heretofore been conditioned by the Bureau and by Congressional committees, the devising of the agency's possible "missions" might better be a Bureau undertaking that has been subjected to a critical review by the agency, with the final word, as always, left to the policy-making judgments of the Congress. Shifting the job of determining "missions" to a newly recruited "planning staff" attached and accountable to the management of an operating agency can only blur what appears to be the issue. If an agency's purpose and place, present and future, in the scheme of government cannot better be defined by those to whom it is accountable, its continued existence is open to question. Moreover, an agency in the thick of everyday activities cannot be a reliable originator of alternative, ultimate functions; left to itself it can certainly be counted on to propose expanded goals and enlarged activities. Again, many goals overlap. Certain goals, upon analysis and review, can be eliminated; perhaps, some would say, along with any agency professing them. In a word, the New Thought on "missions" deserves a supra-agency, supercoordinated treatment: an imaginative approach that only the Bureau of the Budget, sparked by the President, is in a position to supply.

This pamphlet, although issued as a self-contained document intended for general distribution, also constitutes a replacement of Chapters 1-3, Title 2, of GAO's Accounting Manual. It thus serves as a policy directive to agency administrators and agency accounting personnel and as indispen-

sable information for all students of government, whatever their present or prospective engagements may be.

### **Review by Karney A. Brasfield**

Mr. Brasfield is a partner in the public accounting firm of Touche, Ross, Bailey & Smart, and currently chairman of two committees of the American Institute of CPAs, the Committee on Relations with the Federal Government and the Committee on Federal Budgeting and Accounting. Mr. Brasfield's review was printed in the December 1966 issue of *The Journal of Accountancy*.

*Accounting Principles and Standards for Federal Agencies* by The Comptroller General of the United States, 1965.

*A unique document of unusual scope and depth embodying standards for internal management control, as well as guidance for federal agencies in the development of accounting systems in conformity with principles, standards and related requirements prescribed by the Comptroller General.*

The 1965 restatement of accounting principles and standards by the U.S. Comptroller General is unique in a number of respects. Basically, it fulfills a responsibility placed upon the Comptroller General by the Budget and Accounting Procedures Act of 1950. The Act wisely imposed the responsibility for establishing and maintaining adequate systems of accounting and internal control upon the head of each executive agency of the Federal Government. However, the agency systems must conform to the principles and standards and related requirements prescribed by the

Comptroller General who is an official in the legislative branch reporting to the Congress.

The statement is unique in that it is the responsibility of a single official or agency rather than the pronouncement of a board or committee, although the Comptroller General is charged by statute to recognize the needs of the Congress, the Treasury Department and the Bureau of the Budget as well as agency management and the public. Other unique features are the clarity and forcefulness of those portions of the statement dealing with the purposes and objectives of Federal agency accounting and standards for internal management control.

The statement first identifies the specific objectives of a satisfactory control system, for example, to promote efficiency and economy of operations and to assure the accuracy and reliability of financial, statistical and other reports. It then enumerates standards for internal management control—such as policies, organization, segregation of duties and functions, planning and qualifications of personnel.

Some idea of the broad scope of the statement can be gained by an enumeration of the section titles which include, in addition to subject matter previously mentioned, the accrual basis of accounting, fund control, account structure, assets, liabilities, investment of the U.S. Government, revenues, costs, financial reporting and Treasury Department central accounting and financial reporting.

One of the most controversial areas of Federal accounting over the years has been the application of the

accrual basis of accounting. The statement endeavors to deal with this matter forthrightly by specifically reciting the basic premise that agency systems should provide for the recording of transactions on the accrual basis.

However, as a practical matter it recognizes that the techniques of applying the accrual basis may vary from agency to agency and between components of an agency. It is doubted that this statement will in itself resolve the problem. However, the implication is clear that the disposition of agency officials in the past to rely solely upon obligation and cash expenditure data will not be persuasive in obtaining the Comptroller General's approval of their accounting systems in the absence of accrual procedures to the extent necessary to produce useful cost information and adequate accounting for property and other resources. The position of the Comptroller General with respect to the accrual basis of accounting and property accounting is in keeping with the specific mandate provided in Public Law 84-863 of 1956 that the head of each executive agency shall cause the accounts of his agency to be maintained on an accrual basis. The Act also provided for monetary property accounting.

Although the statement generally follows accepted principles of accounting for property on a cost basis, it does depart from them in providing that property transferred from one agency to another on a nonreimbursable basis shall be accounted for by the receiving agency "on the basis of estimated useful value for its operations." A somewhat similar in-

novation is provided with respect to property acquired by such means as donations or confiscation. In these cases, condition, usefulness and market value as well as what the Government would have been willing to pay are factors for consideration. The foregoing innovations may be more interesting than important but they do evidence an intent to think through problems rather than to be bound by traditional concepts which may unnecessarily restrict the usefulness of the information produced by an agency's accounting system.

A similar approach is followed with regard to depreciation and interest. Although the prescribed accounting for depreciation (or amortization of cost) leans heavily on accepted accrual practices, with appropriate emphasis on cost information, the statement recognizes that the vast activities of the Federal Government "are so varied in nature that the prescribing of a general requirement to account for depreciation of capital assets cannot be justified." The classic examples of the futility of depreciating certain types of assets which have been cited over the years in support of this view are the White House and the Washington Monument. One innovation, however, is the concept that, when depreciation is to be employed, agency accounting policy shall provide for writing off the costs of *all* capitalized assets less estimated salvage value. [Emphasis supplied.] The practice prescribed is an intended departure from commercial accounting and has particular significance with respect to land acquired for public works such as power and water resource projects. Here again,

because of the uncertainty of estimated salvage values, the innovation may be more interesting than important, but it could have an impact on the recovery of costs through the fixing of rates where service to the public is involved.

The statement contains the premise that "interest is a cost generally applicable to all Federal Government expenditures." The premise is based on the concept that funds not employed in agency operations could have been used to reduce the public debt. The statement provides that the interest cost to be recorded shall be that paid when so required unless the rate is significantly below the cost of money to the Treasury. In the latter event, the difference is to be accounted for as an additional interest cost. Similarly, where an agency performs services or sells property to outsiders to produce revenue, interest cost is to be accounted for if significant. However, such imputed interest cost is not applicable to the accumulated net income or deficit of the operation. Although a similar accounting and reporting practice is not prescribed where agencies perform services or produce products mainly for use within the Government, imputed interest is specified as a factor to be considered by management in making cost-oriented decisions, such as make-or-buy alternatives. The practical results of the application of the foregoing concepts will provide a challenging area for study at some future date when sufficient experience is available to demonstrate their validity or lack thereof.

The statement contains other innovations and advances such as the ac-

countability for grants to non-Federal agencies, accountability for costs incurred and paid by other agencies, standards of reporting and other matters not commented upon in this review for the sake of brevity but which students of government accounting will find most interesting.

In summary, the reissued statement of *Accounting Principles and Standards for Federal Agencies* is a well-organized and well-written document for the use of professional accountants; it is not a cookbook of

practices and procedures. It merits the interest of the accounting profession and is a credit to Comptroller General Joseph Campbell under whose leadership it was prepared and to the able staff of the General Accounting Office who worked on it. Accountants and financial managers preparing comparable material for private companies should find this book's scope and depth of interest. Officials in state and local governments should find it most helpful. A hearty hurrah for a job well done.

## Eulogy to Four-Letter Words

The Accountant's Magazine is the journal of the Institute of Chartered Accountants of Scotland. Their January 1967 issue did us the honor of bringing to the attention of their readers the eulogy to four-letter words which appears in our booklet "The Language of Audit Reports" by Laura Grace Hunter, published in 1957.

This booklet is a working tool of all of our staff members. But the message of this eulogy bears repeating often and we therefore reproduce it here.

### A EULOGY TO FOUR-LETTER WORDS

These simple little words  
We look upon with scorn.  
With ostentatious language.  
Our writing we adorn.  
  
"A study was *conducted*,"  
Say we in flowery style.  
"A change was then *effected*,"  
And surely all the while  
How easy to express  
The thought to be conveyed.  
In wording plain we could have said  
That both were simply *made*.

"This has been *accomplished*."  
Now wasn't it just *done*?  
A long word sounds grandiloquent,  
We scorn the shorter one.

In a letter we receive  
We say they *indicate*  
A certain thing for us to know  
When all they did was state  
The simple fact in simple words,  
But one knows very well  
Our vanity would not tolerate  
A little word like *tell*.

*Portion* we use profusely  
In our creative art.  
A little research would reveal  
The word we mean is *part*.

*Substantially all* we say,  
Or a *substantial portion*.  
Ponderous phrases such as these  
We have a funny notion

Will make a fine impression,  
Of eloquence we can boast.  
In all our language there's no word  
More eloquent than *most*.

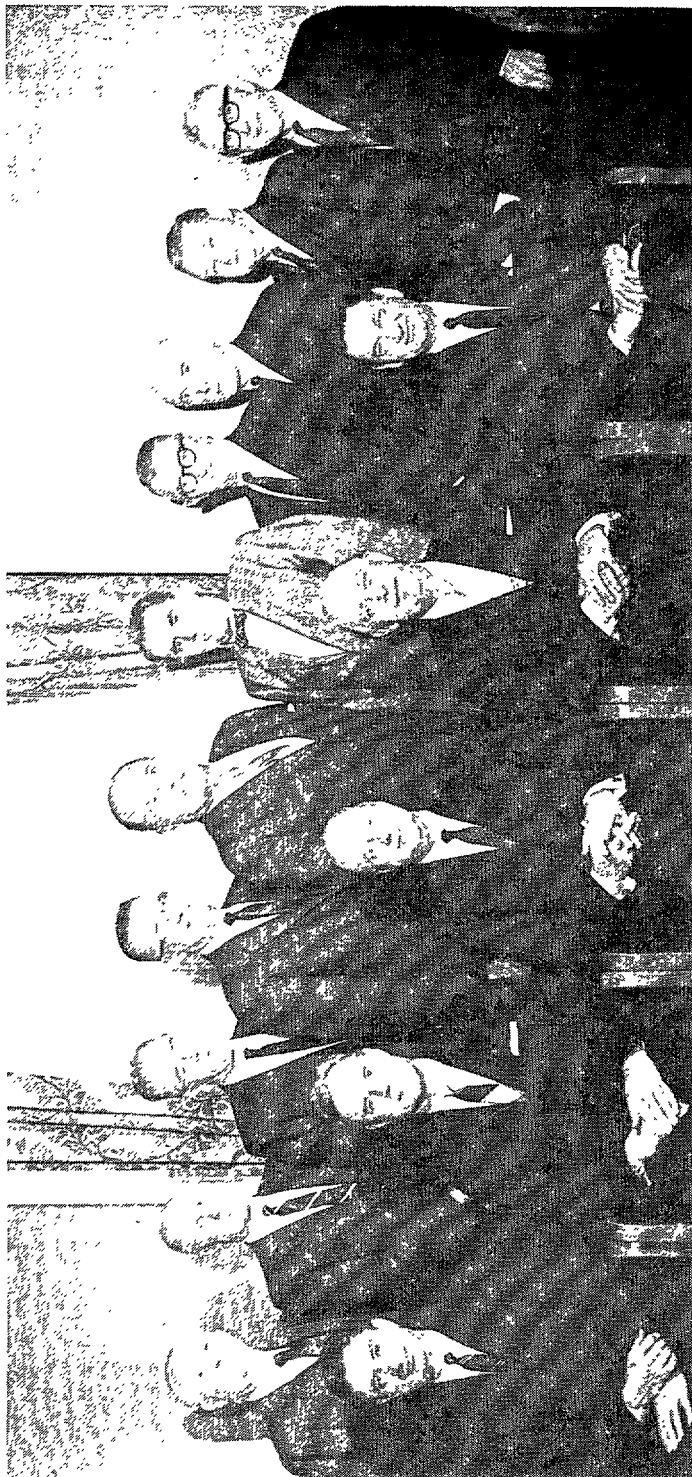
*Reflected* is a lovely word,  
A good word, too, but oh  
Why do we say *reflect* so much  
When what we mean is *show*?

The water in the lake *reflects*  
The tree that's on the shore.  
The tree's not in the lake, of course,  
So when we say that schedule four  
*Reflects* a certain figure,  
This picture let's recall,  
For if it's just *reflected*,  
It isn't there at all.

*Presently* means *shortly*, *soon*  
But few of us suspect  
When we use this word to mean *now*,  
We're using dialect.

*Approximately*—nice and long,  
Five syllables, no less.  
Oh how we overwork this word!  
And yet we must confess,  
Much as we like to use it,  
Of this there is no doubt  
It doesn't say a single thing  
Not said by plain *about*.

We use the very best of taste  
In our manners and our dress.  
Should good taste in our writing  
Be valued any less?



**THE COMPTROLLER GENERAL AND TOP WASHINGTON STAFF**

- |   |  |  |  |   |  |   |   |  |   |
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NOV 1966

## NEWS and NOTES

### *Contract Auditing*

In addressing the Seminar on Government Contracts of the Machinery and Allied Products Institute in Washington on February 28, 1967, the Comptroller General commented as follows:

During the fiscal years 1957 through 1966 we reported to the Congress many cases of excessive prices resulting from unrealistically high cost estimates submitted by prospective contractors for negotiation purposes. In other cases, contractors refused to furnish cost information and their proposed prices greatly exceeded anticipated cost plus normal rates of profit.

These findings of excessive prices and costs totaled over \$130 million and were incurred under a very small percentage of the contracts negotiated by the military departments. About \$72 million of this amount has been recovered.

GAO disclosure of this general situation was an important factor in leading the Congress to enact Public Law 87-653, the "Truth-in-Negotiations" Act in 1962—with which most of you are familiar—to require more procurement by competition instead of negotiation.

\* \* \* \* \*

Most GAO audit reports for several years concentrated on individual cases of contract management weaknesses involving actual or potential losses with recommendations for correction. These have contributed to significant

improvements in Department of Defense operations—including contracting activities—and to substantial savings in public funds.

But GAO audits can be made still more productive if more extensive inquiry is made to determine and analyze the basic causes of unsatisfactory conditions together with recommendations for improvement. Current GAO audit work is being directed increasingly in this more fundamental direction.

\* \* \* \* \*

In the area of contracting, GAO audit work must be selective. Not all contracts can be examined. In deciding on contracts for review, consideration is given to matters such as size and type, basis of award, nature of cost or pricing data furnished—or lack of such data, and to a variety of lesser factors,

Audit work at contractor locations may be undertaken:

- Pursuant to requests for information from congressional committees or from Members of the Congress;
- As a result of information coming to our attention from previous or current audit work on other matters;
- Because a contractor is participating in a new program or in a program of unusual importance;
- As the result of a contractor's particular role, such as a weapons system contractor;
- Because, in the case of subcon-



tractors, it is considered necessary to test the effectiveness of the prime contractor's management of procurement for the account of the Government; and

- Because the contractor is known to be engaged in Government work under a negotiated contract and no audit work has been done recently at that location.

\* \* \* \* \*

GAO will continue to report on individual cases where special action is warranted, directing attention particularly to possible improvements in *agency management methods*. When an important principle is involved, reports will be made to the Congress as a whole. Reports on individual cases involving less significant matters will be made either to the Secretary or to lower echelons.

\* \* \* \* \*

We recognize that the viewpoints of the General Accounting Office and industry cannot always coincide, that there will be cases where we will look at things differently and that sometimes GAO conclusions may not be acceptable to industry. We are confident, however, that we can hold these differences to a minimum through better communication between us. We both need a full and free exchange of ideas on a continuing basis. Our reports will be more acceptable if we both understand the reasons for the views of the other. Better communication is the key to that understanding.

### ***Presidential Commission To Study Federal Budget***

On March 3, 1967, the President announced the appointment of a 15-member commission to study the man-

ner in which the Federal budget is presented to the Congress and the public. The chairman of the commission will be David M. Kennedy, chairman of the board of the Constitutional Illinois National Bank & Trust Co. of Chicago.

The Comptroller General of the United States was designated as one of the members. The chairmen and ranking minority members of the Senate and House Appropriations Committees and the Secretary of the Treasury and the Director of the Bureau of the Budget are also members. The other members are private citizens.

In announcing this appointment, the President stated:

Tradition and precedent have played an important role over the years in the shaping of our budgetary rules and presentation. The fact is that today all are agreed that some of our traditional budget concepts do not adequately portray how the Federal Government's activities affect the health of the American economy and the lives of the American people.

The Federal budget is a vital document. The Federal budget is a complex document. It is vital because it affects the lives of every man, woman, and child in this Nation. It is complex because it encompasses the full scope of the Federal Government's activities. Yet, because of its complexity and scope, there are few who understand it. The study this group is to undertake should assist both public and congressional understanding of this important document.

### ***Federal Budgeting***

The Congressional Record for January 19, 1967, contains an interesting discourse on Federal spending and budget practices by Representative Mahon, Chairman of the House Appropriations Committee. Among other things, he referred to the terminology problem and the fact that

fiscal and budgetary terms used are not always clearly understood. Referring to the President's 1968 budget, he stated:

Some have asked me, "Well, what is the Congress going to do with the President's \$135 billion budget this year?"

The President has not submitted a \$135 billion appropriations budget. We do not know what the appropriation budget is. He did say in his state of the Union message that the expenditure budget, or the disbursements side of the administrative budget, as it is often called, would total about \$135 billion. But we in the Congress will not be using the expenditure budget except in an incidental way in determining what we will do this year with the appropriations budget. What we will do this year on Government spending will be related directly to the appropriations requests that are submitted. Congress acts on the appropriation or new obligational authority budget, not the expenditure budget estimate for the year.

Mr. Mahon also provided the following explanation of the existence of three kinds of Federal budgets:

We should remember that there are three kinds of budgets.

First, is the appropriation or new obligational authority budget. That is what Congress is going to be considering this year. It is based on authority to obligate the Government to pay out money.

The second budget is the one which I said is usually referred to in the headlines, the expenditure budget.

The expenditure budget is the estimate of how much the executive branch will actually disburse or pay out of the general funds of the Treasury in a given year.

Another is the so-called cash budget—often referred to as "Receipts From and Payments to the Public" it is also on an expenditure or disbursements basis, but is more encompassing. It combines the administrative budget with the trust funds for such programs as social security, highways, unemployment, and railroad and civil service retirement.

## **Foreign Aid**

The President's message of February 9, 1967, to the Congress recommending an updated approach to U.S. foreign assistance programs cited six guiding principles on which these programs must be based.

1. *Self-help*—nations develop primarily through their own efforts. Our programs can only be supplements, not substitutes. This is the overriding principle.
2. *Multilateralism*—every advanced nation has a duty to contribute its share of the cost.
3. *Regionalism*—the future of many countries depends upon sound development of resources shared with their neighbors.
4. *Agriculture, health and education*—these key sectors are the critical elements of advancement everywhere in the underdeveloped world.
5. *Balance of payments*—we cannot help others grow unless the American dollar is strong and stable.
6. *Efficient administration*—every American citizen is entitled to know that his tax dollar is spent wisely."

On the principle of self-help, the message further stated:

"Self-help is the lifeblood of economic development. No sustained progress is possible without it. Aid provided as a substitute is aid wasted.

"Waste is a luxury none of us can afford. The only obligation tied to our aid is the recipient's obligation to itself—to mobilize its own resources as efficiently as possible. I will not ask any American citizen to contribute his tax dollars to support any country which does not meet this test.

"Accordingly, *the [proposed Foreign Assistance Act of 1967] will make it clear that the development job is primarily the responsibility of the developing countries themselves. In no case will the United States undertake to do for any country what it should do for itself. Nor will we assist in any venture which we believe has received less than full support from the re-*

ipient country. The United States will insist on the general economic policies necessary to make our aid effective."

### ***The Secretary of the Interior on Financial Management***

The financial management improvement seminar of the Department of the Interior, held at Harpers Ferry, W. Va., in November 1966, was reported in the previous issue of the *Review*. In addressing the seminar, the Secretary of the Interior, Stewart L. Udall, remarked as follows:

"... we must inspire confidence that Interior management has firm policies of fiscal restraint, high employee productivity, limitation of waste, and a thorough understanding of cost effectiveness. Our financial record and reporting systems must provide us with this essential knowledge. And, when we learn of inefficiencies from our reporting systems, we must make the hard decisions necessary to eliminate them."

\* \* \* \* \*

"Carefully conceived financial records and reports will tell us the truth about our operations but it is our job, as responsible managers, to *hear* and *understand* that truth. Similarly, we must so project our image of business-like efficiency that when we present our true story those outside Interior, the Bureau of the Budget, the President and the Congress will *hear*."

### ***Accounting Support for PPB***

The accounting systems of Federal agencies must be capable of providing adequate support in the form of financial and cost information for the planning-programming-budgeting system prescribed by the President in August 1965 for executive agencies. Revisions are being made in the statement of accounting principles and standards for Federal agencies, prescribed by the Comptroller General,

to specifically provide for this requirement.

As proposed to be revised, the principles and standards will require that agency accounting systems must provide for obtaining cost information by (1) major organizational segments, (2) budget programs and activities, and (3) program categories and elements adopted under the PPB system.

### ***Responsibility Accounting in GPO***

The Government Printing Office has published a descriptive booklet on responsibility accounting as practiced in that agency. It defines responsibility accounting as the "development of information concerning expenditures for which the various levels of management must accept responsibility and exert control." Responsibility reports are described as showing costs incurred by each unit to the individual responsible for their control. Each supervisory level is charged only with the costs for which it is responsible, and over which it has control.

The booklet contains numerous illustrations of the various kinds of reports prepared.

An interesting background note is the reference to the first GAO audit completed in 1956 and the audit comment on duplication in preparing billings to Federal agencies. The subsequent GPO investigation into this matter led to the development of the responsibility accounting system. *Frank Higginbotham*, until recently Comptroller of the GPO, played a key part in developing this system. Mr. Higginbotham is now an assistant

director in the Office of Policy and Special Studies, GAO.

### ***Timing of Advance Payments***

The Treasury Department has recently revised its policy and streamlined the related procedural requirements of agencies concerning the timing of cash advances to organizations outside the Federal Government. The policy changes are incorporated in Treasury Department Circular No. 1075, Revised, and the procedural changes in Part VI, Other Fiscal Matters, of the Treasury Fiscal Requirements Manual for Guidance of Departments and Agencies, both issued on February 13, 1967.

These regulations now provide for (a) use of letters of credit for *only* advances of \$250,000 or more per year, per individual recipient, with whom there is a continuing Federal financing relationship for a year or more, (b) standard letter-of-credit and signature card forms, (c) execution of the signature card by an official of the recipient having authority to designate individuals to make withdrawals, and (d) approval of the signature cards by an official of the Federal program agency. The regulations also restrict advances by Treasury check to the minimum amounts possible—generally, to not more than one month's requirement of the recipient.

These changes are to be implemented by agencies as soon as possible but in no case later than May 1, 1967. This requires revocation and reissuance of existing letters of credit and related signature cards.

### ***Distribution of Selected Audit Reports***

The following audit report was selected for distribution to interested college and university faculty members in January 1967:

Savings Attainable in the Use and Pricing of Certain Nonperishable Foods, Department of Defense, B-146700, November 29, 1966.

This report, based on our review of certain aspects of the use and pricing of specification nonperishable foods within the Department of Defense, concludes that significant savings will be realized by the military services in the future through maximizing the use of food items packaged in large-size containers. The report also notes that significant savings will be achieved by the services if prices for food items sold to military commissary stores are based on actual cost in each size container rather than on average cost in all container sizes.

In February 1967, the following report was selected for the above distribution:

Need for Improving Administration of the Cost or Pricing Data Requirements of Public Law 87-653 in the Award of Prime Contracts and Subcontracts, Department of Defense, B-39995, January 16, 1967.

This comprehensive report was based on a review of 242 negotiated contracts awarded to 85 prime contractors and 89 subcontractors during the period November 1964 to September 1965.

A resume of our findings is as follows:

Findings	Number of procurements examined		
	Total	Prime contracts	Sub-contracts
Cost or pricing data required by Public Law 87-653 and ASPR:			
Inadequate or not submitted or identified in writing.....	165	102	63
Submitted or identified in writing and substantially adequate. ....	20	14	6
	185	116	69
Cost or pricing data not required under Public Law 87-653 and ASPR apparently because prices were considered to be based on:			
Adequate price competition.....	45	17	28
Catalog or market prices of commercial items.	12	8	4
	57	25	32
Total.....	242	141	101

The report concludes:

Our review showed that agency procurement officials and prime contractors, in awarding a substantial number of prime contracts and subcontracts, did not obtain factual or verifiable cost or pricing data in support of cost estimates although required to do so by the procurement regulations implementing Public Law 87-653.

In general, the Department of Defense agreed with most of our recommendations. In commenting on the findings, it stated:

We agree that proper documentation is appropriate incident to the administration of this law (P.L. 87-653). However, what is sufficient and useful documentation is

the problem with which we are faced.

The following report was selected for distribution in March 1967:

Survey of Reviews by the Defense Contract Audit Agency of Contractors' Price Proposals Subject to Public Law 87-653, Department of Defense, B-39995, February 15, 1967.

This report was based on a nationwide survey of DCAA's work in reviewing pricing proposals on contracts negotiated without competition. The survey showed that while DCAA is making significant progress, in order to operate more effectively with respect to the great workload, improvements were needed in four areas:

1. Need for DOD program to assist

DCAA in carrying out its responsibility for review of contractors' estimating systems.

2. Need for action to ensure adequate scope of review of contract pricing proposals.
3. Need for procurement activities to feed back information to DCAA on results of contract negotiations and on ways that audit services can be made more useful in future negotiations.
4. Need for effective means to deal with access-to-records problems.

### ***Reaction to Annual Report***

The Administrator of General Services, Lawson B. Knott, Jr., recently expressed his reaction to the Comptroller General's annual report for 1966.

"We have distributed copies of this report to all our top people. It is invaluable in calling their attention to the findings related to other Departments and agencies in order that we may avoid similar weaknesses from occurring within our organization. The report will also make them more cognizant of the significance and scope of activities of the General Accounting Office in improving Federal Government operations. Of course, our ultimate purpose in doing this is to take every opportunity to operate in the most effective and economical manner possible."

This practice is one that we can commend without reservation to all Federal agencies. Our annual report, although made to the Congress, summarizes the work of our Office each year and contains much information that is of value in the management of all agencies.

### ***Improved Service by Federal Agencies to the Public***

Last year, a program to improve service rendered by Federal agencies

to the public was launched by the President.

The General Accounting Office supported this program by including as a part of its regular audit work inquiring into actions taken by Federal offices in improving service. Reports on this work were sent to the Chairman of the Civil Service Commission who had overall responsibility for carrying out the program. In a memorandum dated December 28, 1966, John W. Macy, Jr., Chairman of the Civil Service Commission acknowledged this work and forwarded the GAO findings to the agencies concerned. The memorandum stated:

"I am enclosing for your information the GAO findings we have received so far relating to installations in your department or agency. I am sure you will find the information extremely valuable in your own efforts to make your department or agency as responsive as possible to the needs of the public.

"GAO did not attempt during its surveys to make comprehensive evaluations of the effectiveness of an installation's programs to improve service. However, its staff did observe a number of opportunities for improving communications and service which they believed should be brought to the attention of appropriate officials. The potential improvements suggested are not intended by GAO to be all inclusive; other opportunities for improvement may exist that did not come to the attention of the staff during the limited survey made at each location.

"I would appreciate your careful review and follow-up on the GAO findings. You may want to get in touch with the installation concerned where there is an indication that there has been little or no action taken and where suggestions for improvement are noted.

"I greatly appreciate your help on this important program. I appreciate, too, the help GAO is giving us. GAO will con-

tinue from time to time to include in its regular audits of installations a review of actions taken to improve service and I will send you all findings relating to your department or agency."

### ***Presidential Election Campaign Fund Act of 1966***

The Comptroller General has appointed the following members to the Presidential Election Campaign Fund Advisory Board provided for by this law. The provisions of this law were summarized in the Winter 1967 issue of the *Review*.

James A. Farley of New York, former Postmaster General and former Chairman of the Democratic National Committee.

Arthur B. Krim of New York, Chairman of the Finance Committee of the Democratic National Committee and President of United Artists Corp.

Fred C. Scribner, Jr., of Portland, Maine, former Under Secretary of the Treasury, 1957 to 1961, and now General Counsel of the Republican National Committee.

Donald R. Ross of Omaha, Nebr., former District Attorney and former Mayor of Lexington, Nebr., now Vice Chairman of the Republican National Committee.

The Advisory Board is composed of two members representing each polit-

ical party whose candidate for President received 15 million or more popular votes at the last presidential election. Members are selected and appointed by the Comptroller General from recommendations submitted by the political parties. Three additional members are then selected by the members appointed by the Comptroller General.

One of the first duties of the new board members will be to select three additional members.

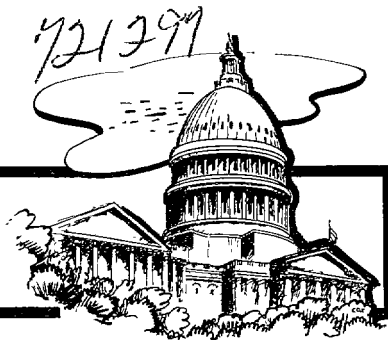
### ***Expansion of the European Branch***

The responsibilities of the European Branch of the General Accounting Office are being expanded to include India, Pakistan, and Afghanistan. Plans are being made to establish a suboffice in New Delhi about May 1967.

*Richard W. Gutmann*, associate director of the Defense Division, will become director of the expanded European Branch and will take over this assignment in July 1967. He will succeed *Joseph DiGiorgio*, who will return to the United States after completing a two-year tour as director of the European Branch.

*Michael Gasso*, currently audit manager in the European Branch, will become manager of the New Delhi suboffice.

# HEARINGS *and* LEGISLATION



By MARGARET L. MACFARLANE  
*Chief, Legal Reference Services*  
*Office of the General Counsel*

## ***Legislative Reorganization Act of 1967***

One of the first major legislative proposals enacted by the Senate was S. 355, the Legislative Reorganization Act of 1967. Senator Monroney, Co-Chairman of the Joint Committee on Organization of the Congress, summarized the provisions of the bill before the final vote was taken as follows:

Specifically, S. 355 will provide:

Committee procedures which will insure that all Members of the Senate will have maximum information on which to base their decisions in committee and on the floor.

An increased capacity for legislative review of the administration of existing legislation.

Recognition of the continuing interests of those who have served our country in time of war by the creation of a standing Committee on Veterans' Affairs.

A better division of the enormous workload among Members of this body.

Greater congressional control over the Federal budget through the provision of more budgetary information to all Senators.

Increased committee staff capability and fair provision for minority staffing when it is necessary.

A full-time legislative assistant for each Senator.

A strengthening and better supervision over the Legislative Reference Service of the Library of Congress.

A permanent Joint Committee on Congressional Operations to function in those areas of common interest between the two Houses.

An August recess unless congressional business has been completed by the end of July.

The elimination of patronage in the selection of postmasters.

Strengthening of the lobby registration laws.

Many provisions of the bill are important. For example, I believe that the information to be collected and compiled by the Comptroller General under section 206 will be particularly helpful to the Members and committees of the Congress. We have never had what amounts to an overall "scoreboard" on the status of the budget from time to time as the Congress acts on the budget because we have never had a means for bringing all of the available information together in a central location. Any scoreboard must obviously reflect action on authorization bills and appropriation bills, as well as revisions in expenditures and revenues, or estimates thereof, originating in either the executive or legislative branches.

We are not suggesting that these estimates go behind or "second guess" those



made by the appropriate committees of the Congress or the executive branch agencies. What we are seeking rather is a way to bring all available information together in a useful compilation and make it more systematically available to the Members. In other words, the intent is that the General Accounting Office will provide a compilation of existing estimates rather than make its own estimates or analyses of expenditure trends.

It is understood, of course, that the General Accounting Office will need the cooperation of the executive agencies and congressional sources of information for this service to the Congress to be fully successful.<sup>1</sup>

The bill as passed by the Senate is substantially the same as the 89th Congress bill which was discussed in the Winter 1967 issue of the *Review*. During the Senate consideration of the present bill, an amendment offered by Senator Proxmire to give all standing committees authority to request investigations and reports from GAO was adopted. Under the present law only those committees concerned with appropriations, expenditures, and revenue have specific statutory authority for requesting assistance from GAO. Following the passage by the Senate, Representative Ray Madden, Co-Chairman of the committee and manager for the bill on the part of the House, conferred with the Comptroller General on the bill as passed by the Senate. It is understood that the bill will be brought up under a rule for consideration after brief hearings by the Rules Committee of the House. This important legislation which will add to the duties and responsibilities of GAO is designed to improve the legislative process and enable Con-

gress to obtain information that is essential to its present day needs.

### **Hearings**

Representatives of GAO testified at one of the first investigative hearings in the 90th Congress conducted by the Subcommittee on Special Investigations of the House Committee on Armed Services on the subject of the Army procurement of light observation helicopters. In addition to a report by GAO, testimony was presented by *Harold H. Rubin*, associate director, Defense Division. Mr. Rubin was accompanied by *David S. Glickman*, audit manager, *Philip R. DeBaise*, supervisory accountant, *Charles F. Janku* of the Washington regional office, and *William Shanks* of the Detroit regional office.

### **Congressional use of GAO reports and decisions**

The impact of GAO reports on current legislation was highlighted during the Senate debate on the military procurement and construction authorization bill for 1967, S. 669. Senator Williams called attention to the GAO report summarizing the administration of the so-called Truth-in-Negotiations Law<sup>2</sup> by the Department of Defense.<sup>3</sup> Senator Williams told the Senate that the report "pointed up the unnecessary costs that result when contracts are negotiated" rather than awarded by competitive bid procedures. As a result the Senate adopted an amendment offered by Senator Williams to the military procurement authorization directing that the Defense Department

<sup>1</sup> 113 Cong. Rec., Mar. 7, 1967, S3289-3290.

<sup>2</sup> Public Law 87-653.

<sup>3</sup> B-39995, Jan. 16, 1967.

insofar as practicable advertise and award contracts on a competitive bid basis to the lowest responsible bidder.

This amendment was concurred in by the House when it adopted the conference report. As the bill went to the President for approval it included the Williams amendment.

When Senator McClellan introduced S. 1249, a bill to improve and strengthen the multiple dwelling housing program under the National Housing Act, he stated that the need for the legislation resulted from hearings in 1966 at which GAO testified. He quoted from the GAO findings and stated that the measure was designed to reduce mortgage amounts, windfall profits and the Government risk. The bill specifically provides that the Comptroller General will have full access to the books and records of project management, contractors, and subcontractors.<sup>4</sup>

Similarly during consideration of S. Res. 46, a bill to authorize studies of the housing programs by the Senate Committee on Banking and Currency, Senator Williams called attention to numerous GAO reports on windfall profits under the Federal Housing Administration laws.<sup>5</sup> As a result of these reports, Senator Williams urged the Committee to give special study to the problems detailed in the report and to closing the loopholes in the law and regulations.

Another GAO report called to the attention of the Congress was the report on the Commodity Credit Corporation for fiscal year 1966 submitted to the Congress on March 14, 1967. On the same day Senator Wil-

liams obtained unanimous consent to have the Comptroller General's letter outlining the findings in the report and one of the exhibits giving an analysis of the CCC deficit printed in the Congressional Record.<sup>6</sup>

A decision that received considerable comment in the daily issues of the Congressional Record concerned the legality of a proposal to ship vegetable oil to Yugoslavia under the Public Law 480 program. The decision involved an interpretation of the Findley amendment to the Agriculture Appropriation Act for 1967, which prohibited assistance to foreign countries shipping to North Vietnam. Representative Findley had reprinted in the Record his correspondence with GAO, the Departments of Agriculture and State, as well as the Comptroller General's decision of February 2, 1967. The decision rendered to the Secretary of Agriculture concluded that funds should not be used for shipments to countries whose citizens and organizations were shipping supplies and materials to North Vietnam absent a clarification of the legislative intent of the Findley proviso.<sup>7</sup>

A transportation study prepared by GAO in 1961 was called to the attention of the Senate by Senator Magnuson. Senator Magnuson in reintroducing legislation to amend section 22 of the Interstate Commerce Act to limit the use of reduced and free rates for shipments by Government agencies stated that the GAO study indicated that the Government in one year paid line-haul transportation charges total-

<sup>6</sup> B-111821; 113 Cong. Rec., Mar. 14, 1967, S3705.

<sup>7</sup> B-146820; 113 Cong. Rec., Jan. 30, 1967, H764; *id.* Feb. 6, 1967, H978-9; Feb. 16, 1967, H1434-35; Feb. 21, 1967, H1643; Cong. Rec., Feb. 27, 1967, H1761.

<sup>4</sup> 113 Cong. Rec., Mar. 10, 1967, S3482.

<sup>5</sup> 113 Cong. Rec., Feb. 20, 1967, S2216-2222.

ing \$184 million for shipments of 8 million tons of freight.<sup>8</sup>

As numerous proposals to revise the draft laws were discussed, Representative Rumsfield called attention to the GAO study indicating the misassignment of Army personnel.<sup>9</sup>

Representative Jack Brooks and Representative McClory referred to the more than 100 reports on automatic data processing equipment submitted by GAO to the Congress.<sup>10</sup>

### **Reports on bills**

By March 15, 1967, congressional committees had requested reports from GAO on some 257 bills. Among the bills on which comments have been furnished was H.R. 157, a bill introduced by Representative Chet Holifield, to establish a Commission on Government Procurement. In our report to the House Committee on Government Operations, the authority for a commission to make a broad and searching inquiry into every aspect of Government procurement was favorably endorsed. In the event such a commission should be established, the full cooperation and assistance of the GAO was professed.<sup>11</sup> Also for consideration was a preliminary compilation of suggested subjects for investigation and study. These subjects included:

1. Government policies in regard to the use of formal advertising and negotiation procedures.

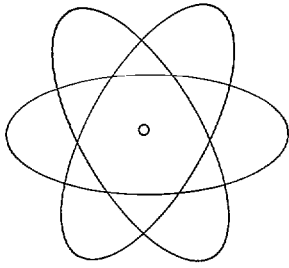
2. Methods used by procurement agencies in formulating, reviewing, and approving procurement regulations.
3. Government programs and policies in regard to (1) labor surplus area set asides, (2) small business set asides, (3) Buy American Act, (4) labor standards and minimum wage provisions, and (5) furnishing Government-owned facilities.
4. Sources of supplies and services.
5. Ways and means of facilitating procedures surrounding contract negotiation to make them less burdensome and more timely.
6. Reduction and simplification of paperwork.
7. Contractor use of Government-owned tooling and equipment on commercial production, and basis for establishing equipment rental rates.
8. Overall Government policy for sharing in contractor's independent research and development costs.
9. Patents and proprietary data.
10. Access to contractor records.
11. Public Law 87-653 ("Truth-in-negotiations" statute).
12. Minimum wage requirements as they relate to Government contracting.
13. Government debarment procedures.
14. Administrative settlement of claims under the standard disputes clause.
15. Subcontracts.

<sup>8</sup> 113 Cong. Rec., Jan. 31, 1967, S1141.

<sup>9</sup> 113 Cong. Rec., Jan. 25, 1967, H567.

<sup>10</sup> 113 Cong. Rec., Jan. 30, 1967, A729; and Mar. 2, 1967, A1009.

<sup>11</sup> B-160725, Feb. 17, 1967.



# **A**UTOMATIC **D**ATA **P**ROCESSING

## ***BOB Report on the Use and Management of Electronic Computers in the Federal Government***

On February 23, 1967, the Director of the Bureau of the Budget issued the first of a series of semiannual reports on the use of ADP in the Federal Government as required by the President's memorandum to the heads of agencies dated June 28, 1966 (see *GAO Review*, Fall 1966). The President's memorandum directed Federal agencies to seek new and better ways for using the Federal Government's computers and stressed the need to manage computer activity at the lowest possible cost.

In his message, the President directed agency heads to give priority attention to:

- establishing better and more effective procurement methods
- making fuller use of existing facilities through sharing and joint-use arrangements before acquiring additional equipment
- re-utilizing excess equipment whenever feasible
- achieving, with industry cooperation, greater compatibility of equipment

The February 23 report of the Budget Director to the President listed the following accomplishments:

- the redistribution within the Government of equipment valued at \$70 million, thereby avoiding expenditures for new equipment
- a saving of \$26 million by using time available on Government computers at locations other than where the requirement existed, rather than acquiring additional equipment
- avoidance of approximately \$200 million in annual rental costs by the selective purchase of computers, many of which were bought within the past three years and have already been amortized

The report also listed a number of accomplishments that were achieved through new applications of computers. Among the examples cited were the following:

- improvements in air travel through the more rapid and comprehensive computer analysis of aircraft accident data
- detection of previously unknown adverse health hazards which may accompany the beneficial uses of modern drugs

- improved UHF television channel assignment
- lunar picture-taking missions

Also cited were examples of savings achieved in various Government activities such as in the Census of Agriculture, the processing of dividend payments to veterans insurance policyholders, and analysis of delinquent taxpayers' accounts.

The report concluded that, while the record of accomplishments is impressive and encouraging, much more can and must be done to:

- make computer systems more effective
- improve further the utilization and methods of procurement
- achieve greater compatibility among equipment and systems
- develop appropriate standards of performance

The report also contained an announcement that the initial phases of a Government-wide information system has been designed and will become operational early in calendar year 1967.

### ***Congressional Tribute to GAO Work***

In a speech before the Financial Management Roundtable in Washington, D.C., on February 28, 1967, Congressman Jack Brooks was highly complimentary of the work of the GAO in relation to improvements in ADP management in the Federal Government.

He stated:

Four years ago, I introduced legislation to provide a coordinated, government-wide management system for government data processing equipment. In October

1965, some 18 months ago, this legislation became Public Law 89-306.

Aside from the support of the President, the most significant contribution to the enactment of Public Law 89-306 was that of the auditing staff of the General Accounting Office. In the period from 1958 through October 1965, the GAO produced 105 hardhitting, highly documented audit reports outlining costly and devastating deficiencies in the government's management of ADP. I emphasize this contribution tonight in light of the Bureau of the Budget's announcement last week that as a result of this management improvement program, savings on the order of between \$100 and \$300 million have already been achieved. The often thankless job of auditor does pay off, perhaps not in terms of fame and glory to individuals that do the work, but certainly to the benefit of the American taxpayers.

### ***The "Auditape System" of Haskins & Sells***

This accounting firm has developed a set of computer programs, or routines, that it calls its "Auditape System." This system is designed in such a way as to enable auditors to extract information stored in clients' computer systems into a format in relation to which additional instructions can be applied in carrying out audit procedures for financial records.

This development is described in the Autumn 1966 issue of "Haskins & Sells Reports," the quarterly staff magazine of this firm.

In its present form, the "Auditape System" is designed for use with IBM 1400 series tape-system computers and the system 360 with 1401 emulator. Work is in process to adapt it to other equipment.

Key features of the system are as follows:

1. It contains several program

routines which can be linked together in any sequence to perform a number of operations, such as aging accounts, extending inventory values, extracting items meeting specified criteria, computing optimum sample sizes, and randomly selecting sample items.

2. The initial edit routine converts any record format used by a client into one usable by other routines of the system. This routine also provides a footing of dollar amounts and item counts of units in a client's records, thereby supplanting a laborious audit task.
3. The audit sample routine computes and selects samples statistically. In applying this routine, the auditor must determine the reliability and precision requirements, after which the computer, working under the audit sample routine, determines the size of the sample and makes a random selection of the items necessary to obtain the precision and reliability specified.
4. Another routine can summarize detailed records, such as a file of open invoices into more condensed form.
5. A mathematical routine permits any two amounts to be added, subtracted, multiplied, or divided and a print routine will produce in written form the results of any other routine.

The published description of the system notes that the computer has become an ally of the CPA, "clearing away much of the time consuming drudgery of an audit to deliver in

usable form most of the information required by a CPA to make a considered examination of financial records."

Another observation worthy of note is that as with all computer programs, the "Auditape" is "capable of delivering only that which it is instructed to deliver. It has no judgment, is incapable of evaluation; and in no way relieves the accountant of his ultimate audit responsibility."

Of interest are the three premises cited by John Queenan, managing partner of Haskins & Sells, as underlying the development of the "Auditape System":

1. Adaptation of audit practice to new techniques useful to management without imposing significant restraints intended solely to serve audit requirements.
2. Avoiding impairment of existing standards of reliability or quality of performance.
3. Minimizing insofar as practicable the need for extensive specialized training in details of computer operations for all of the audit staff.

### ***Training of Auditors in ADP***

"Principles and Practices of Auditing in the ADP Systems Environment" is the title of the new training course to be given by the ADP Management Training Center, Office of Career Development, U.S. Civil Service Commission. The evolution of this course has been reported in previous issues of the *Review*.

The course, which is a part of the Joint Financial Management Improvement Program, will cover a 3-week

period and will be presented in a manner commensurate with most graduate school seminars. The following broad topics will be among those developed through the use of case studies, group discussions, and lectures:

- ADP in the Federal Government
- Systems concepts, analysis, and design
- ADP equipment
- Computer programming
- Data processing standards
- Internal controls and audit trails
- ADP systems development assistance, survey, and conversion requirements
- Audit techniques and their applications

The course will be taught by a professional instructional staff of Government auditors and ADP specialists assigned to the Civil Service Commission on a full-time basis by the various Federal auditing agencies. *Richard J. Pelletier* and *Earl M. Wysesong, Jr.*, supervisory accountants, Defense Division, were assigned as instructors from GAO and have reported to the Civil Service Commission. They will be detailed on this assignment for a period of 18 months.

In announcing the program, which has the endorsement of the Comptroller General, the Director of the Bureau of the Budget, the Chairman of the Civil Service Commission, the Assistant Secretary of Defense (Comptroller), and the heads of the military audit organizations, the following comments were made:

“On June 28, 1966, the President by written memorandum directed the head of every

Federal agency ‘to explore and apply all possible means to

- use the electronic computer to do a better job
- manage computer activity at the lowest possible cost.’

“The President’s directive is, of course, applicable to all Federal employees. There can be no doubt, however, that it offers a very special challenge to auditors in Government service. Automatic data processing systems have increased exponentially the complexity and difficulty of the job of the Federal auditor. Imaginative concepts of automating and integrating both accounting and management information systems require corresponding innovations in audit approaches, examination techniques, and systems evaluation procedures.

“This course, ‘Principles and Practices of Auditing in the ADP Systems Environment,’ is a part of the Joint Financial Management Improvement Program. It was designed by an interagency task force to help meet the common, fundamental needs of Federal auditors for training to understand, use, and assess ADP systems. We enthusiastically endorse the objectives of the course, and we urge the Federal audit community to take full advantage of this opportunity to enhance its audit capability.”

### ***Annual ADP Conference of American Management Association***

This association’s 13th annual conference on automatic data processing was held in New York City on March 6–8, 1967, and was conducted under the overall theme of “Breakthroughs in Management Systems.” The following brief resume of the proceedings is provided by *Edward J. Mahoney*, associate director, OPSS, who attended.

The conference was concerned with evolving third-generation management systems as related to recent advances being made in the development of computer-based systems for use in

management planning and control activities. Sessions were devoted to current thinking of industry management with regard to organizing systems for planning, allocating resources, and controlling operations. The distinction was made at the outset of the conference between "Administrative Information Systems" and "Management Information Systems." This distinction prevailed throughout the entire conference and it represented an extreme contrast to early AMA ADP conferences which tended to concentrate on computer applications of the administrative variety, that is, operations covering mass data processing of a routine, repetitive nature such as handling of orders, invoices, paychecks, etc.

Current sessions stressed the breakthroughs in information technology and the application of the new technology to the processes that are involved in the management planning and control environment and those involved in the development of methods to consider alternative approaches, along with techniques for the development of strategic management information systems required to satisfy top-level management information needs.

Throughout the sessions, the dominating theme was the concept of a computer-based, corporate control system and the use of a control planning organization at the headquarters level to develop, monitor, and provide high-level systems support to guide overall corporate efforts in the development of comprehensive management contract systems. The point was made quite often that this did not mean that all planning or all parts of

the management information system should be centralized. To the contrary, many of the illustrations of developments or applications of management information systems for planning indicated that only those portions of the administrative and local control systems that could provide useful summarized data were, in fact, being dominated by central planning organizations.

The use of mathematic models and other scientific management techniques were discussed extensively and illustrated through presentations of specific applications that are in use in existing management information systems.

The use of communication networks in conjunction with computer systems providing computer utility-type applications and real-time operating systems was also discussed at some length.

Presentations were also made covering the use of ADP in several functional management information system areas such as planning and controlling production functions, application of data processing to transportation and distribution, and banking, aerospace industry, and airline industry applications.

Separate sessions were held on such subjects as third-generation software, hardware and software standardization, new developments in computer graphics and display, telecommunications, and educating managers to use the computer as a decisionmaking tool.

During the discussions on the need to develop management information systems for planning and control, much emphasis was placed on the



point that all large organizations are heavily burdened by an avalanche of data and that, while the processing of voluminous files and records by ADP has been productive, the outputs of these systems in terms of raw information are not enough. It was stated that the emphasis in data processing has now shifted from such accelerated volume recordkeeping to planned systems of business intelligence. For example, very strong statements were made during the conference stressing that third-generation managers need to map corporate planning strategy based on what was termed "superior information." The superior data should be supplied by a management information system which selects, rejects, edits, and headlines business information in such a way that managers are relieved of the burden of hunting through what was termed "a haystack of irrelevant information for the needle of pertinent fact."

At one of the sessions, a specific example of the use of a computer terminal on a computer utility-type system was described in detail. This application was in the financial management area. It involved the use of a model of the financial system that was placed in the computer system in such a way that a financial manager could, by revising certain factors, obtain projected data of the effect of the changes on the model. Thereby, he could consider various alternative approaches toward suboptimizing by getting revised financial and budgetary data returned to the computer terminal almost instantaneously. This application provides a man-machine interplay in the planning process. Several other examples of

systems innovations that were presented involved financial management applications.

A copy of the conference proceedings will be received at a later date and will be available in the GAO for use by staff members who are interested in inquiring further into the various matters covered at the conference.

### ***Patentability of Computer Programs***

The recently released Report of the President's Commission on the Patent System has recommended that computer programs shall not be patentable under existing law. The report states that:

A series of instructions which control or condition the operation of a data processing machine, generally referred to as a "program," shall not be considered patentable regardless of whether the program is claimed as: (a) an article, (b) a process described in terms of the operation performed by a machine pursuant to a program, or (c) one or more machine configurations established by a program.

This recommendation, if adopted, would eliminate whatever possibility exists under the present statute for directly or indirectly obtaining a patent covering a program or a patent covering the operation of a data processing machine pursuant to a program. The report also states:

Uncertainty now exists as to whether the statute permits a valid patent to be granted on programs. Direct attempts to patent programs have been rejected on the ground of nonstatutory subject matter. Indirect attempts to obtain patents and avoid the rejection, by drafting claims as a process, or a machine or components thereof programmed in a given manner, rather than as

a program itself, have confused the issue further and should not be permitted.

The Patent Office now cannot examine applications for programs because of the lack of a classification technique and the requisite search files. Even if these were available, reliable searches would not be feasible or economic because of the tremendous volume of prior art being generated. Without this search, the patenting of programs would be tantamount to mere registration and the presumption of validity would be all but nonexistent.

It is noted that the creation of programs has undergone substantial and satisfactory growth in the absence of patent protection and that copyright protection for programs is presently available.

### ***Magnetic Tape***

Magnetic tape is one of the principal data storage devices used in modern computer systems. The following information about this important material has been provided by *Leonard J. Koczur*, staff assistant in the Office of Policy and Special Studies.

A magnetic tape is ideally suited to the batch-processing, sequential operations that are currently being employed in most present-day computer systems. It is also used extensively as a storage media for the master files of data used in these computer systems. Compared to punched cards, magnetic tape occupies less storage space and is subject to less deterioration. Data can be processed faster by using magnetic tape than by using punched cards, making it more economical. GSA estimates that the Federal Government owns over 6 million reels of magnetic tape, representing an investment in excess of \$120 million.

Just what is magnetic tape? Typically, it is a strip of material  $\frac{1}{2}$ -inch wide and  $\frac{1}{2}$ -mile long, consisting of 2 parts—a base and an oxide coat-

ing—and currently costing \$15 to \$40 a reel. Data can be recorded on this oxide coating by means of magnetically polarized spots. This  $\frac{1}{2}$ -mile-long tape is wound on a reel for handling, storing, and processing.

The amount of data that can be stored on a given reel of tape varies according to the circumstances. Modern nine-track tape, with a capacity of 1,600 bits of storage per inch, can contain about 415 million separate and distinct bits of information. Assuming an average length per English word of seven letters or bits, about 6.5 million words can be stored on a single tape. The average reel of magnetic tape in use today, however, does not contain even 50 percent (3.25 million words) of its potential capacity. This is due primarily to the requirement for physically starting and stopping the tape during processing operations, which results in the creation of blank spaces on the tape during these operations.

In addition to the large storage capacity of magnetic tape, new, larger, faster access storage devices are currently being developed. Magnetic drums, discs, and cores are used internally in computers because of their large storage capacities, direct access capabilities, and increased processing speeds. Data cells, more compact and with larger storage capacities than magnetic tape, seem to be particularly well suited for use with the third-generation computers. In the future, probably the greatest advance in storage devices will be provided by the use of laser beams.

Most major computer manufacturers and many smaller firms are doing research in the area of laser-beam-

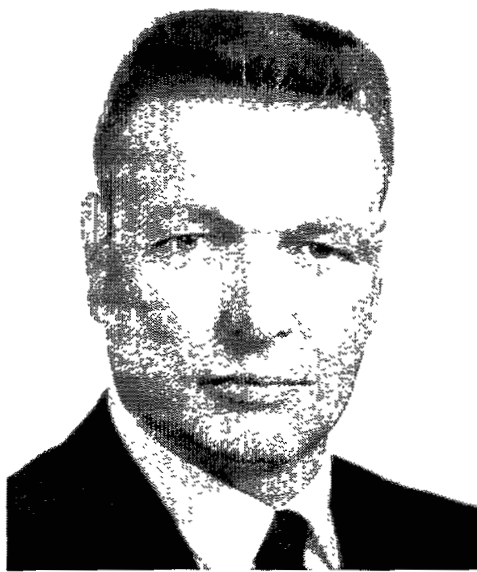
produced storage devices. The Precision Instrument Company has recently constructed a laboratory model of a laser-recorded digital mass memory process. Called UNICON (Unidensity Coherent Light Recording), this process can pack 645 million bits of data on a square inch of tape. Laser beams are employed to imprint holes in an opaque layer on specially coated recording tape, allowing light to pass through the tape. As with punched paper tape, the presence or absence of a hole provides the logical "bit." The size of these laser-beam-produced holes is 39 millionths of an inch, allowing a tremendous number of holes to be provided per inch. The Company estimates that a standard 2,400-foot reel of unidensity tape could store the data presently stored

on 47,500 reels of modern magnetic tape.

In large data-handling systems, the practical implications of this unidensity tape are tremendous. For example, it has been estimated that the Social Security Administration has an inventory of about 47,000 reels of magnetic tape. Therefore, it is quite conceivable that one reel of unidensity tape could replace the entire magnetic tape inventory of the Social Security Administration.

Further information concerning the Government's management of magnetic tape may be obtained from the report dated September 1, 1966, entitled "Magnetic Computer Tape" prepared by the General Services Administration.

## Recent Staff Designations



**Gregory J. Ahart**

The Comptroller General has designated Gregory J. Ahart as deputy director, Civil Division. Mr. Ahart succeeds Arthur Schoenhaut who recently became deputy controller of the U.S. Atomic Energy Commission.

Mr. Ahart joined the General Accounting Office in 1957 and has had extensive experience in managing accounting and auditing assignments including long-range planning and determination of program priorities.

Mr. Ahart holds a Bachelor of Science degree from Creighton University, Omaha, Nebraska, and a Bachelor of Laws degree from Georgetown University. He is a certified public accountant of Nebraska, and a member of the bar of Virginia.



**Forrest R. Browne**

Forrest R. Browne was designated deputy director of the Field Operations Division, effective December 18, 1966.

Mr. Browne joined the General Accounting Office in 1953, and was assigned to the Kansas City regional office. He was appointed regional manager of that office in 1954 and served in this capacity until his appointment as deputy director.

Mr. Browne is a certified public accountant of Oklahoma and New Mexico and is a member of the American Institute of Certified Public Accountants and the Federal Government Accountants Association. He is a graduate of New York University with a Bachelor of Science degree. In 1962 he completed the Executive Development Program at Stanford University Graduate School of Business.

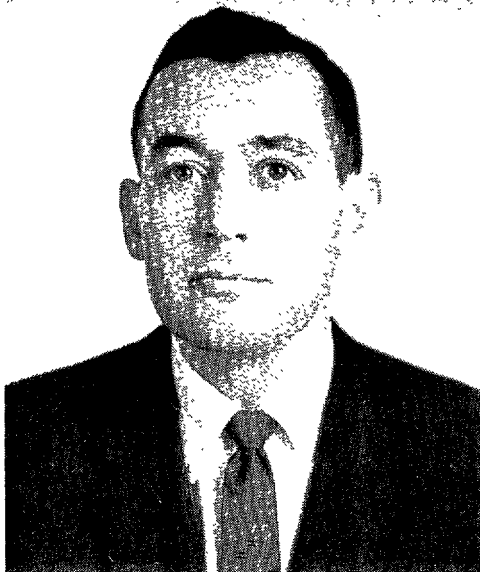


**Henry Eschwege**

Henry Eschwege was designated as associate director, Civil Division, effective February 26, 1967. He is responsible for the planning and direction of GAO work in the Department of Agriculture and Farm Credit Administration.

Mr. Eschwege was associated with a CPA firm in New York City before joining GAO in 1956. He served in the United States Army from April 1944 to June 1946.

Mr. Eschwege received a Bachelor of Science degree from New York University in 1949, graduating magna cum laude, and attended the Program for Management Development at the Harvard University Graduate School of Business Administration in 1962. He is a certified public accountant in New York, and is a member of the New York State Society of Certified Public Accountants and of Beta Gamma Sigma, national honor society.

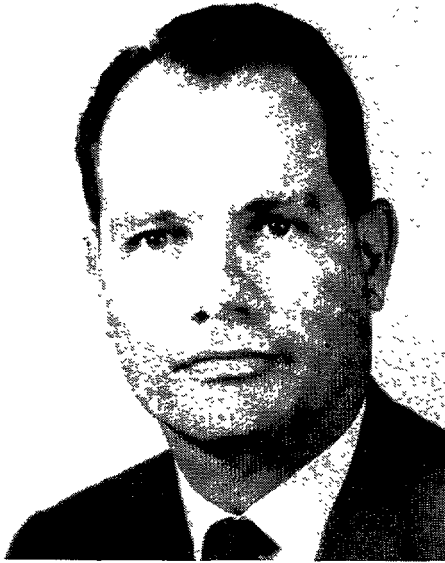


**Paul M. Foley**

Paul M. Foley was designated as assistant manager of the Boston regional office, effective February 26, 1967.

Mr. Foley graduated from Boston College in 1950, attended the Program for Management Development at the Harvard University Graduate School of Business Administration in 1962, and has attended Babson Institute of Business Administration.

Prior to joining the GAO in 1952, he was employed in public accounting in Boston. He served in the United States Navy during 1945 and 1946. He is a certified public accountant in Massachusetts.



**James T. Hall**

James T. Hall was designated as an associate director in the Civil Division, effective February 26, 1967. He is responsible for the planning and direction of GAO work in the Department of the Interior, including the water and power agencies.

Mr. Hall holds a degree of Bachelor of Science in Accounting from the University of Southern California at Los Angeles. He also attended the University of Idaho. In 1962, he completed the Executive Development Program at Stanford University. He is a CPA in the State of California and a member of the California Society of CPAs.

Mr. Hall joined the Washington staff of GAO in 1963 after serving with the San Francisco regional office from 1952.





**Frank Higginbotham**

Frank Higginbotham was appointed on January 29, 1967, as assistant director of the Office of Policy and Special Studies. He comes to us from the Government Printing Office where he served as Comptroller. From 1955 to 1959 he was on the professional accounting and auditing staff of the General Accounting Office in Washington.

He is a CPA (Indiana, Illinois) and holds the Bachelor of Science and Master of Science degrees from the University of Illinois. He has served in various capacities at the University of North Dakota, University of Illinois, Indiana University, and Northwestern University and is presently a professorial lecturer of accounting at The George Washington University.

Mr. Higginbotham has also held responsible positions in public accounting, management consulting, and industry. He has written or participated in writing various articles and books on accounting. He is a member of the American Institute of Certified Public Accountants, Federal Government Accountants Association, and the American Accounting Association.



**Max Hirschhorn**

Max Hirschhorn was designated as an associate director in the Civil Division, effective February 26, 1967. He is responsible for the planning and direction of GAO work relating to the Department of Housing and Urban Development and the Department of Justice.

Mr. Hirschhorn received the degree of Bachelor of Business Administration from the City College of New York in 1942 and served in the U.S. Army from 1943 to 1946. He completed the Executive Development Program at the Stanford University Graduate School of Business in 1962.

He is a certified public accountant in New York, a member of the American Institute of Certified Public Accountants and the Federal Government Accountants Association. He is also a member of the faculty of the Graduate School, U.S. Department of Agriculture. Prior to joining GAO in 1952, Mr. Hirschhorn was associated with independent CPA firms in New York City.



**J. Philip Horan**

J. Philip Horan was designated as assistant manager of the Denver regional office, effective February 26, 1967.

Mr. Horan received the LL.B. degree from the Washington College of Law. During World War II he served in the Contract Audit Division of the Air Corps.

Mr. Horan joined the General Accounting Office in 1935. He was regional manager of the Albuquerque regional office from April 1952 to July 1954. He is a member of the bar of the District of Columbia and of the Federal Government Accountants Association.



**Charles E. Hughes**

Charles E. Hughes was designated an assistant director in the International Division, effective January 29, 1967. He is being assigned to the Far East Branch and will be in charge of the field office in Saigon.

Mr. Hughes received a Bachelor of Science in Business Administration degree from the University of Denver in 1947. He is a certified public accountant in Colorado and a member of the American Institute of Certified Public Accountants. He served with the U.S. Army from 1941 to 1945 and from 1951 to 1956.

Before joining the General Accounting Office in 1956, Mr. Hughes was with a national firm of public accountants.



**Fred E. Lyons**

Fred E. Lyons of the International Division was named manager of the Manila sub-office, Far East Branch, effective March 1, 1967.

Mr. Lyons served in the U.S. Navy from 1944 to 1946. He received his B.C.S. and M.C.S. degrees from Southeastern University in 1951 and 1952, respectively.

Since joining the General Accounting Office in 1952, he has served in the Dallas office of the Field Operations Division and in the overseas branch offices of the International Division in Tokyo and Honolulu.

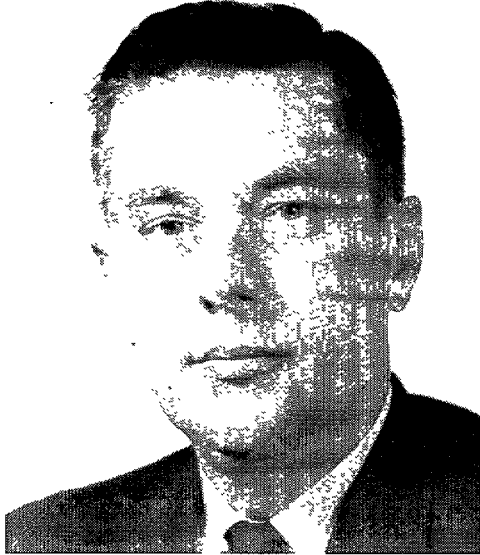


**Andrew B. McConnell**

Andrew B. McConnell, of the manpower group, Defense Division, was designated as assistant director, effective January 1, 1967.

Mr. McConnell served in the U.S. Navy from 1943 to 1946. He was graduated from the University of Southern California in 1950 with a Bachelor of Science degree. Mr. McConnell is a certified public accountant in California and a member of the California Society of Certified Public Accountants and the American Institute of CPAs.

Before joining the General Accounting Office in 1957, Mr. McConnell was employed by a large independent CPA firm and later by a national CPA firm in Los Angeles. Subsequently, he was comptroller of a private corporation in Canada. At this time he became a chartered accountant (Ontario) and a member of the Canadian Institute of Chartered Accountants.



**Clerio P. Pin**

Clerio P. Pin was designated as an associate director in the Civil Division, effective February 26, 1967. He is responsible for the planning and direction of GAO work in the National Aeronautics and Space Administration and the Atomic Energy Commission.

Mr. Pin graduated from the University of Scranton, where he received a Bachelor of Science degree in accounting. He served with the U.S. Navy during World War II.

Mr. Pin joined the staff of the General Accounting Office upon his graduation from college in 1951. He completed the Advanced Management Program at the Harvard University Graduate School of Business Administration in 1965.



**Lloyd G. Smith**

Lloyd G. Smith was designated as associate director in the Civil Division, effective March 12, 1967. He is responsible for the planning and direction of GAO work in the Post Office Department, the District of Columbia Government, and seven Federal regulatory agencies.

Mr. Smith graduated with honors from the University of California at Los Angeles in 1939, with a Bachelor of Science degree in business administration. From 1941 to 1945 he served in the U.S. Navy, as a flight instructor and as a transport pilot. Before joining the General Accounting Office in 1953, Mr. Smith served as a staff member of a public accounting firm in Beverly Hills, Calif., and as controller of a manufacturing company. With the General Accounting Office, Mr. Smith has served as an audit manager in the Los Angeles regional office, as manager of the Frankfurt, Germany, office, as director of the European Branch, and as an assistant director in the Civil Division. In 1963 he completed the Advanced Management Program at the Harvard University Graduate School of Business Administration.

Mr. Smith is a CPA (California) and a member of the American Institute of CPAs. He is a member of the Federal Government Accountants Association and is a former president of the Frankfurt, Germany, chapter of that organization.





**David P. Sorando**

David P. Sorando was designated as regional manager of the Cincinnati regional office, effective January 1, 1967.

Mr. Sorando served in the U.S. Navy from 1945 to 1946 and in the United States Army from 1950 to 1952. He graduated from Fordham University in 1953 with a Bachelor of Science degree in accountancy and attended the Program for Management Development at the Harvard University Graduate School of Business Administration in 1962.

After joining the GAO in 1953, Mr. Sorando worked as a staff member of the New York regional office. He served as auditor-in-charge of the GAO staff in Syracuse, N.Y., from August 1960 until July 1964 when he was transferred to the Cincinnati regional office.



**Jerome H. Stolarow**

Jerome H. Stolarow was designated as an assistant director in the Defense Division, effective February 26, 1967.

Mr. Stolarow received a B.B.A. degree from the University of Oklahoma in 1951, and an LL.B. degree from Georgetown University Law School in 1955. He is a certified public accountant of Oklahoma and the District of Columbia, a member of the bar of the District of Columbia, and a member of the American Institute of Certified Public Accountants. Mr. Stolarow attended the Program for Management Development at the Harvard University Graduate School of Business Administration in 1964.

Before joining the staff of the General Accounting Office in 1958, Mr. Stolarow was associated with public accounting firms in Oklahoma and the District of Columbia, and served in the U.S. Army from 1951 to 1953.



**Kenneth L. Weary, Jr.**

Kenneth L. Weary, Jr., was designated regional manager of the Kansas City regional office as of January 1, 1967.

Mr. Weary is a certified public accountant in Missouri and is a member of the American Institute of Certified Public Accountants and the Ohio Society of Certified Public Accountants. Prior to joining the GAO, he had extensive experience in business and in public accounting as a senior staff member for a public accounting firm. He served in the U.S. Army from 1942 to 1945.

Since becoming associated with the General Accounting Office in December 1952, Mr. Weary has worked in the Kansas City, Denver, and Cincinnati regional offices. He was manager of the Cincinnati regional office from the time it was established in January 1958 until his reappointment.

## Professional Activities

### **Office of the Comptroller General**

The Comptroller General, *Elmer B. Staats*, spoke to or participated in meetings with the following groups in recent months:

The American Economic Association's Policy Roundtable on Research and Development, in San Francisco, on December 27, 1966.

"Institute of the States" conference on February 15, in Chapel Hill, N.C.

North Alabama chapter, American Society for Public Administration, in Huntsville, Alabama, on February 17. Mr. Staats spoke on "The General Accounting Office—How Its Activities Support Better Management of Federal Programs." This speech is printed in this issue of the *Review*.

Machinery & Allied Products Institute's Seminar on Government Contracts on February 28. His topic was "The Current Approach of the General Accounting Office to Military Contract Audits."

Legislative Conference of the Consulting Engineers Council of America on March 7. Mr. Staats informally discussed GAO's review of the procurement of architect-engineer services by the Federal Government.

A joint meeting of the San Francisco chapter of the Federal Government Accountants Association and the Federal Executive Board on March 30 in San Francisco. Mr. Staats' subject was "New Directions in Pro-

gram Evaluation and Financial Administration."

The Assistant Comptroller General, *Frank H. Weitzel*, addressed five different study groups of the Brookings Institution during the months of January, February, and March 1967. He spoke on the role of the General Accounting Office.

On January 23, 1967, Mr. Weitzel and *Charles D. Hylander*, deputy director, International Division, met with five members of the Venezuelan Congressional Budgetary Committee. They discussed U.S. controls over public funds, particularly the extent to which the Congress through independent post-audit of expenditures exercises sufficient control without requiring individual advance approval of major expenditures.

Mr. Weitzel also addressed the following groups:

The Civil Service Executive Seminar at King's Point, New York, on January 25, 1967. He spoke on GAO assistance to the Congress and financial management services.

The Financial Management Institute for State Fiscal Officers, Bureau of Employment Security, Department of Labor, on February 5, 1967, at Airlie House, Warrenton, Va.

### **Office of the General Counsel**

*Robert F. Keller*, general counsel, participated on January 26 and 27,

1967, in a panel discussion of the Midwinter Institute of the Committee on Fidelity and Surety Law of the American Bar Association. He spoke on "Construction and Fidelity Bond Dilemmas."

*J. Edward Welch*, deputy general counsel, spoke at the FBA-BNA Philadelphia Conference on March 1 on "GAO Jurisdiction to Review Disputes Clause Decisions," and on March 3 on "Allowability of Rental Costs under Long-Term Leases."

On March 10, Mr. Welch lectured at the Defense advanced procurement management course, Fort Lee, Va.

*Stephen P. Haycock*, assistant general counsel, spoke at the FBA-BNA Philadelphia Conference on March 2 on the "Truth in Negotiations" Act (Pub. L. 87-653).

*Melvin E. Miller*, assistant general counsel, lectured at the Defense advanced procurement management course, Fort Lee, Va., on January 31.

*Paul Shnitzer*, attorney, lectured at the procurement law course at the Judge Advocate General's School, Charlottesville, Va., on January 30 and at the Department of Agriculture Graduate School on "GAO Access to Records Problem" on March 1.

On February 9 and 10, Mr. Shnitzer participated in a panel discussion on Public Law 87-653 before the Dayton Chapter of the National Contract Management Association.

### **Office of Policy and Special Studies**

*E. H. Morse, Jr.*, director, addressed the following groups:

The Accountants' Forum at the Brookings Institution on January 26, 1967, on "Current Accounting Prob-

lems Encountered by the General Accounting Office."

The Seminar on Education, Recruitment, and Training of Auditors sponsored by the Washington Chapter, The Institute of Internal Auditors, on March 20, 1967.

The Financial Management Roundtable in Washington on April 4 on "The GAO Today."

Seminar on Accounting under Program Budgeting sponsored by the State Governmental Accountants Association of Michigan, the Michigan Departments of Administration and Civil Service, and Michigan State University, East Lansing, Mich., on April 6, 1967.

*Management Accounting*, the monthly magazine of the National Association of Accountants, carries in its February 1967 issue an article by Mr. Morse entitled "Management Accounting in the Federal Government."

On February 17, 1967, the Steering Committee of the Joint Financial Management Improvement Program met with the Committee on Federal Budgeting and Accounting of the American Institute of CPAs. *Fred-eric H. Smith*, deputy director, is the GAO member of the Steering Committee. These meetings have been held annually for several years and provide the accounting profession an opportunity to be informed about financial management improvement work going on in the Federal Government.

At this year's meeting, the Steering Committee presented a summary of current activities related to financial management improvement efforts in the Federal agencies, the status of

GAO review and approval of accounting systems, and the Civil Service Commission's activities relating to the recruiting and training of financial management personnel. A representative of the Bureau of the Budget presented an explanation of the status and developments in establishing planning-programming-budgeting systems in the Federal agencies.

Mr. Smith addressed the Civil Service Commission Institute on Financial Management for Operating Executives on March 3, 1967. His subject was "Congressional Control through the General Accounting Office."

*E. J. Mahoney*, associate director, addressed the University of Pennsylvania Law School seminar on "The Computer, Data Processing, and the Law" on February 16, 1967. He spoke on "ADP Federal Procurement and Operating Policy." Mr. Mahoney also participated as a panelist on March 31, 1967, in the Civil Service Commission "Advanced Seminar in ADP and Financial Management."

*Allen R. Voss*, assistant director, spoke on the functions of the General Accounting Office, to political science and business administration majors of the American University on February 20, 1967.

*Frank Higginbotham*, assistant director, spoke on "Performance Reporting for Management" at the Financial Management Institute for State Fiscal Officers, sponsored by the Bureau of Employment Security, Department of Labor, at Airlie House, Warrenton, Virginia, February 15, 1967.

*Walter C. DeVaughn* is serving on

the Taxation Committee of the District of Columbia Bar Association.

### ***Staff Development***

During the first quarter of the year, *Leo Herbert*, deputy director for staff development, visited with faculty members; gave talks before accountancy classes, organizations and small groups of students; and recruited at several colleges and universities in the South and Southwest.

During the months of February and March 1967, five 2-day faculty programs were conducted during which 45 faculty members and 2 placement officers from as many different colleges and universities visited our offices to become acquainted with our accounting and auditing operations. The following offices hosted these programs: Washington headquarters, Boston, Cincinnati, Dallas, and Los Angeles.

Based upon the favorable reaction to the two 2-day pilot programs for college students of accounting held last fall, five 2-day programs and one 3-day program for college students of accounting were conducted during February and March, during which 67 students from as many different colleges and universities visited our offices, in order to acquaint the college students of accounting with the professional activities of the Office. The following offices conducted these programs: Washington headquarters, Chicago, Detroit, Kansas City, Norfolk, and San Francisco.

Mr. Herbert and *Thomas Flynn*, director of personnel, held three meetings with the regional managers and directors of the operating divisions to discuss policies and procedures for

recruiting college graduates other than majors in accounting. The meetings were held in Washington on January 25; in San Francisco on January 27; and in Kansas City on January 30.

A Staff Development Manual is being prepared which will be distributed to all staff members when completed. The objective of this manual is to inform professional staff members at all grade levels of the policies and procedures of the Office with respect to recruiting, staff utilization, rotation and professional development as well as the personal responsibility of each individual for his continuing professional development.

### ***Defense Division***

*Jerome H. Stolarow*, assistant director, supply management staff, spoke on March 17, 1967, to the Army supply management class at the Army Logistics Management Center, Fort Lee, Va. His talk covered recent reviews performed by the General Accounting Office in the area of Army logistics.

### ***Field Operations Division***

*Donald Lyons*, supervisory auditor in the New York regional office,

talked on the role of the GAO to representatives of Kenya, Uganda, Liberia, Tanzania and the Sudan who are currently in the United States to study purchasing and auditing. The talk was given on February 7, 1967, in the Afro-American Purchasing Center in New York City at the request of Dr. Rene V. LaMarre, Director of Educational Services for the Center.

### ***Transportation Division***

*T. E. Sullivan*, director, and *T. C. McNeill*, assistant to the director, attended the spring meeting of the Freight Revenue Committee of the Association of American Railroads in Cincinnati, Ohio, March 15 through 17, 1967. Mr. Sullivan and Mr. McNeill addressed the committee and met with individual carriers' representatives on various rate questions and procedural problems that have delayed rail carriers' billings and the final settlement of paid bills.

*E. B. Eberhart*, acting chief of the passenger branch, participated in the meeting of the Passenger Revenue Committee on the same dates in Cincinnati to discuss passenger billing problems with individual carriers' representatives and the full committee.

## Successful Candidates—November 1966 CPA Examination

Listed below are the employees who passed the November 1966 CPA Examination:

<i>Name</i>	<i>Regional Office</i>	<i>State</i>
Irvin G. Blevins.....	Los Angeles.....	California.
Edwin O. Boothe, Jr.....	Kansas City.....	Oklahoma.
Philippe L. Crapez.....	San Francisco.....	California.
Walter S. Dunbar, Jr.....	Boston.....	Massachusetts.
Edward E. Dutcher.....	Denver.....	Colorado.
George H. Foster, Jr.....	Los Angeles.....	California.
Roy S. Fox.....	Boston.....	Massachusetts.
Edward D. Gutknecht.....	Seattle.....	Oregon.
Fred L. Hayes.....	Denver.....	Colorado.
Harry J. Hedrick.....	Los Angeles.....	California.
Leonard E. Hurst.....	Atlanta.....	Tennessee.
Roy R. Jones.....	Detroit.....	Ohio.
Daniel V. Loesch.....	Cincinnati.....	Ohio.
Charles W. Thompson.....	San Francisco.....	California.
Wenzel S. Videen.....	Chicago.....	Minnesota.
Richard D. Wolf.....	Chicago.....	Minnesota.
<i>Division</i>		
Joseph D. Warren.....	Civil Division.....	Texas.

### Summary of Successful GAO Candidates

	1966		
	Regional Office	Washington	Total
May.....	10	9	19
November.....	16	1	17
<b>Totals.....</b>	<b>26</b>	<b>10</b>	<b>36</b>

In addition, one certificate of examination was awarded to a successful candidate in Michigan.



## New Staff Members

The following professional staff members joined the accounting and auditing divisions and reported for work during the period December 16, 1966, through March 15, 1967.

<b>Civil Division</b>	Dantzer, Elvin H. Dziekiewicz, Robert J. Gibson, Dewey G. Gustafson, Thomas J. Kingsbury, George V. Madara, James K.	University of South Carolina University of Rhode Island Concord College Gannon College Westminster College Bloomsburg State College
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<b>Defense Division</b>	Dunham, Raymond	Wichita State University
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<b>International Division Washington</b>	Headrick, Kathleen B. (Mrs.)	University of Hawaii
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<b>Far East Branch</b>	Gillentine, Sammie W. Nakamoto, Edwin M.	Humboldt State College University of Hawaii
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### REGIONAL OFFICES

<b>Atlanta</b>	Brown, P. Athena (Miss) Erwin, Henry A., Jr. Gist, Edward L.	Western Carolina College Florence State College Florence State College
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<b>Dallas</b>	Crow, Larry M. Haskin, Edgerton R., Jr. Holley, Harry L. Howell, Fred C., Jr. Nelson, Marina F. (Miss) Roy, Raymond G. Ward, Thomas F.	Texas Technological College Texas Technological College Midwestern University Midwestern University Arlington State College West Texas State University Stephen F. Austin State College
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<b>Kansas City</b>	LaBelle, Edward H. Pegg, Larry R.	Central State College Southwestern Missouri State College
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<b>Los Angeles</b>	Horsky, Nicholas W. Leach, Virginia E. (Miss) Moses, James D. Oelschlager, Eric L.	California State College at Long Beach California State College at Fullerton Southern University San Fernando Valley State College
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<b><i>New Orleans</i></b>	Kelley, Charles A.	University of Southwestern Louisiana
<b><i>New York</i></b>	Bandino, John A. Shumer, Neil I. Stringfellow, James E. Walsh, Clifford E.	New York Institute of Technology New York Institute of Technology Southern University Rider College
<b><i>San Francisco</i></b>	Hartmann, William G. Hew, Way S. Kennedy, John P. Lum, Roy Noble, Mary P. (Miss) Prentiss, William D. Virbick, Steven C.	University of California Golden Gate College University of San Francisco San Jose State College University of Toledo Armstrong College University of Denver
<b><i>Seattle</i></b>	Heiser, Floyd B.	University of Idaho
<b><i>Washington</i></b>	Bryant, David E., Jr. Davis, Betty C. (Mrs.) Scherr, Anita T. (Mrs.)	George Washington University Madison College Washington University

## Recommended Reading

The reviews of books, articles, and other documents in the *Recommended Reading* 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. The items reviewed are those which the reviewers recommend for reading by the professional staff.

### *In the Name of Science*

By H. L. Nieburg; Quadrangle Books, Inc., Chicago, Ill., 1966.

This book discusses the relationship between industry and the Government over the past 20 years. The book deals basically with the premise that the scope of Government contracting for research and development (R&D) has resulted in the establishment of the Government contractor as the predominant influence in the American economy. The author expresses many views which, in my opinion, are of significant interest in connection with our work in the General Accounting Office on governmental R&D activities.

The book covers the period since World War II, and discusses at some length the 1965 congressional hearings on GAO audits of defense contractors. The book generally is favorable towards Secretary of Defense McNamara and the General Accounting Office, but is highly critical of practically all other governmental activities.

The first nine chapters of the book deal with general philosophical mat-

ters such as the political implications of the space race, innovation and economic growth, and the general stature of scientists. Beginning with chapter X, the book deals with matters of more direct concern to the General Accounting Office.

### *Chapter X, The Contract State*

This chapter discusses the change in the relationship between the Government and the Government contractor. The author points out that the Air Force, in order to overcome its handicap of not having an arsenal system such as the Army, turned to private contractors for such capability and delegated significant Government responsibilities to them. This not only resulted in expanding the capability available to the Air Force but permitted the Air Force to keep its personnel levels down while expanding its activities tremendously. At the same time, it resulted in the establishment of an enormous industrial and congressional constituency with a stake in maintaining large-scale funding of new weapons systems.

The Air Force's success established a magic formula soon followed by

other Federal agencies. The increase in contracting out led to a reduction in Government's in-house management, engineering, and R&D capability; inflated the costs of R&D through contests for supremacy among contractors financed by contract funds; and, as a result, reduced the scientific and engineering resources available to the civilian economy and to the universities.

The chapter outlines several examples of this situation and points out that state governments also are beginning to follow the practice of the Federal Government of delegating so much responsibility to contractors. Thus, according to the author, we are moving from a free enterprise system to a Government subsidized private profit system.

#### *Chapter XI, The Ramo-Wooldridge Story*

This chapter traces the growth of Ramo-Wooldridge (R-W) from its letter contract in May 1954 to assist a committee studying the Air Force Ballistic Missile Program to its current status as one of the major industrial concerns of the country namely, Thompson - Ramo - Wooldridge (TRW). R-W had started in 1953 "with a desk, a telephone, and three or four good people." Its role as assistant to the advisory group led to its selection to direct the program for the Air Force and eventually led to its separation from that program in order to capitalize on production. As a result, an investment by Ramo and Wooldridge each of \$6,750 led to profits for each of them of over \$3 million within a short space of time.

The chapter discusses the conflict of interest situations that arose lead-

ing to the issuance of the so-called Bell Report in 1962 to resolve these problems. This report is discussed in greater detail in chapter XVII.

#### *Chapter XII, Throwing Away the Yardstick*

The author points out that the traditional arsenal system conducted by the Government in the past is now practically dead. This arsenal system served as a yardstick as a measure of the efficiency and performance of private contractors. By delegating many of these functions to private contractors there has been a reduction in reliance on the Government arsenal and many of the Government personnel have been hired by contractors. As examples of instances where the Government's yardstick no longer exists, the chapter discusses the Redstone Arsenal story and the Jet Propulsion Laboratory story where in capability to actually perform in-house has now been transferred to industry.

#### *Chapter XIII, The New Braintrusts*

This chapter deals with the growth of the nonprofit companies, such as RAND, Institute of Defense Analysis, Systems Development Corp., Aerospace Corp., Research Analysis Corp., MITRE Corp., and Argonne National Laboratory.

This chapter points out that RAND originally was established at Douglas Aircraft but because of objections by Douglas' competitors RAND was set up under a board of trustees composed of top officials of the big four of the aircraft industry. This eliminated any question of RAND's objectivity in relation to the major aircraft companies. The author notes that it

does not provide objectivity in protecting other constituencies, including smaller companies, civilian industries, geographical regions, other Federal agencies, or the general public.

The chapter also discusses other aspects of objectivity in having Government work done by contractors. In addition, the chapter discusses some of the expensive practices noted in the activities of the nonprofit companies, such as high salaries and public relations activities. Much of this material is taken from the hearings on the Aerospace Corp. in which the General Accounting Office participated in 1965. The chapter also discusses NASA and its relationships with Bellcomm, a subsidiary of A.T. & T. organized to provide systems engineering support to NASA's manned space-flight programs.

#### *Chapter XIV, "The Sporty Course": Waste and Profit*

This chapter deals basically with the many cases of contract overpricing covered in various GAO reports and includes a "Sample Catalog of Atrocities." The chapter also comments on the quality of contractor management in specific cases.

#### *Chapter XV, Patents and Power*

This chapter discusses the change in the derivation of patents which originally came from individual innovation but now are products of organized and regular channels. The controversy as to whether the Government should obtain titles or license rights in Government-financed research is discussed. The author takes the position that patents are no longer as important as they formerly were

because industry is now more willing to go for secrecy and nonreporting of patentable innovations and to claim proprietary information rather than go through the patent route. The chapter cites GAO reports covering failures by contractors to disclose inventions as evidence of contractors' desires to retain secrecy for inventions.

#### *Chapter XVI, The Economics of Ambiguity: Comsat and SST*

This chapter discusses the Communications Satellite Corp. which originally was intended to be a privately sponsored organization but is now basically Government funded through participation in Government contracts.

The chapter also points out that commercial aircraft generally resulted from developments made for military planes thereby reducing the commercial costs. Phasing out of strategic aircraft caused by the rise of missiles led to a crisis in further development of commercial planes since the airframe fabricators were unaccustomed to funding advanced development for the commercial market. Consequently, it was proposed that the supersonic transport (SST) be developed commercially with the Government funding 75 percent of the first billion dollars in R&D costs. However, recent developments have led to an increase in the requested amount of Government participation in the program to a 90/10 ratio. Meanwhile, the Government continues to fund R&D in this effort. Thus, as with Comsat, the program is not a "free enterprise" but instead is a public subsidy.

*Chapter XVII, The Bell Report: Rationality and Reaction*

In his first year in office, President Kennedy sought a means to control the abuses of Federal contracting. He appointed a top level committee under his Budget Director, David E. Bell, to study Federal contracting and procurement with special attention to R&D, the nonprofit companies, and Government or management capability. The Bell Report called for recommendations in five general areas—improving the salary scale for Federal management and technical personnel, enhancing the atmosphere in Government laboratories by giving them a more flexible creative role, experimenting with new kinds of governmental R&D institutions, revising and tightening the contract instrument for defining the role and terms of work of private industry, and finally, integrating and coordinating all executive policy making and implementation in the conduct of the Nation's scientific business. According to the author, there has been little progress made towards implementing the Bell Report and, as a result, another committee was appointed in 1964 to study the same problems and to add to the mounting pile of such studies whose cumulative effect has been to defer rather than to facilitate reform. The author stresses the need for establishing in-house capability and suggests experimental creation of a quasi independent governmental corporation—a sort of TVA for R&D.

*Chapter XVIII, The Battle of McNamara*

This chapter discusses the attempt made by Secretary McNamara to con-

trol the problem. The author is highly complimentary as to McNamara's activities in the field of cost effectiveness and phased programing, establishment of a new code of ethics, actions taken to rebuild in-house competence, and strengthening of contract management. The author contrasts the activities of the Department of Defense with those of NASA and indicates that NASA has been much more lenient in dealing with contractors. This chapter also has a section dealing with the Congress and the General Accounting Office, discussing at some length the 1965 hearings last year on defense contract audits.

*Chapter XIX, Who Will Choose?*

This chapter summarizes the book, reiterating the need to establish appropriate controls to avoid abdicating major decisions to the "contract state."

*Harold H. Rubin,*  
ASSOCIATE DIRECTOR,  
DEFENSE DIVISION.

***How to Manage Your Time—Everybody's No. 1 Problem***

By Peter F. Drucker; Harper's Magazine, December 1966.

The author states that most businessmen actually control less than 25 percent of their working hours and suggests an effective way to increase "discretionary time" and make better use of it. His plan is supposed to work equally well for housewives. He has written "Managing for Results" and other well known books in this field and as management consultant and teacher frequently conducts seminars with business and government officials both here and abroad.

Mr. Drucker contends that whenever a senior executive—whether in business, Government, or the academic world—tells him he controls more than half of his work hours, he is reasonably certain the executive actually has no idea where his time goes. He holds that the higher up in an organization an executive is, the larger the share of his time which is not under control. He says most executives don't know this and cites a case where an executive was absolutely certain he divided his working time into approximately three parts—one-third with senior officers, another with important customers, and the rest devoted to community activities. When his secretary's log of 6 weeks' activities showed he actually spent little time in these areas (he actually was an order dispatcher but didn't realize it) he was inclined to call his secretary a liar. The executive became convinced, however, when a second test period confirmed the earlier results.

The author has found that a good many executives log their time and examine it critically each month, but 6 months later drift, once again, into wasting more time than they had realized. However, recording his workday time is a good executive's first step. The second step is for the executive to ask himself a series of diagnostic questions such as (a) "What am I doing that really does not need to be done at all—by me or anyone else?" (b) "Which of the activities on my time log could be handled by someone else just as well, if not better?" and (c) "What do I do that wastes the time of others?" Examples are given illustrating the prob-

lems posed in each question with suggested solutions.

For example, one executive found he was not really missed at several dinners of a so-called "official function" nature and delegated the job to one of his subordinates. Another found that, too often, meetings he called were attended by as many as two dozen persons when only a handful was really required. He solved the problem by selecting those he thought should attend, 3 or 4, and sending a memorandum to the others advising them of the meeting and their option of either attending it or receiving a full summary soon after its conclusion. Most chose not to attend.

Still another the author considers "One of the most accomplished time managers I ever met—" would budget one hour and a half for monthly appointments he had with him, and only one topic would be on the agenda. When asked to explain his reasons for this the executive answered, "That's easy. I have found that my attention span is about an hour and a half. If I work on any one topic longer than this, I begin to repeat myself. But I have also found that nothing of importance can really be tackled in much less time."

The article concludes by stating that the executives who really get things done don't start with their work. They start with their time. Executives are also forever being urged to acquire new skills and to work on developing themselves, their knowledge, and their methods. But the executives who show the most startling growth in effectiveness are the ones who work on acquiring a little more discretionary time. Time

management takes perseverance and self-discipline. But no other investment on the market pays higher dividends in terms of achievement and performance.

While we might not entirely agree with Mr. Drucker, his ideas on problems which have plagued the busy executive are thought-provoking and merit consideration.

*William A. Calafura,*  
SUPERVISORY ACCOUNTANT,  
DEFENSE DIVISION.

***Horizons For A Profession:  
The Common Body of Knowledge  
for CPAs***

By Robert H. Ray and James H. MacNeill; The Journal of Accountancy, September 1966.

Reprints of the summary of this 3-year study, sponsored jointly by the Carnegie Corporation and the American Institute of CPAs, were distributed on February 1967 to all members of the GAO professional accounting and auditing staff.

Although the study is aimed specifically at what the beginning CPA should know, the body of knowledge

discussed is also of direct concern to all GAO accountants and auditors. The summary is therefore recommended for reading and study by all staff members.

The complete report will be published by the AICPA in 1967.

***Accounting Legislation  
of the Future***

By John L. Carey; The Journal of Accountancy, January 1967.

This article, by the Executive Director of the American Institute of CPAs, provides a thought-provoking analysis of the need for a thorough-going re-examination of existing state regulatory legislation for accounting. Because of the direct concern of the General Accounting Office with, and its interest in the future of, the accounting profession, the article is recommended for reading by all members of the GAO professional accounting and auditing staff. For this purpose, copies were distributed to all members of the staff in February, 1967.

*E. H. Morse, Jr.,*  
DIRECTOR, OFFICE OF POLICY  
AND SPECIAL STUDIES.



## **STATEMENT OF EDITORIAL POLICIES**

1. This publication is prepared for use by the professional staff members of the General Accounting Office.
2. Except where otherwise indicated, the articles and other submissions generally express the views of the authors, and they do not necessarily reflect an official position of the General Accounting Office.
3. Articles, technical memoranda, and other information may be submitted for publication by any professional staff member. Submissions may be made directly to liaison staff members who are responsible for representing their offices in obtaining and screening contributions to this publication.
4. Articles submitted for publication should be typed (double spaced) and range in length between 5 and 14 pages. The subject matter of articles appropriate for publication is not restricted but should be determined on the basis of presumed interest to GAO professional staff members. Articles may be submitted on subjects that are highly technical in nature or on subjects of a more general nature.

## THE GAO REVIEW

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