# The GAO Review

SPRING 1968

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# THE GAO REVIEW

## SPRING 1968

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# The Role of the General Accounting Office in Business-Government Relationships

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

**This article is based on an address made by Mr. Staats at ceremonies marking Dean's Day, New York University, New York, N.Y., December 2, 1967.**

A few months ago I put my signature—as Comptroller General of the United States—to a letter that led to saving the U.S. Government many millions of dollars. This letter was a ruling in a case involving the protest by a manufacturer against the selection of a competitor to supply the Air Force with advanced computer equipment at a proposed cost of over $114 million.

One of my responsibilities, as Comptroller General, is to review the legal grounds of such a protest. As in similar cases, the letter became the instrument to communicate our ruling to all parties concerned and it will be published with other 1967 decisions of the Comptroller General. This action—important as it may be to business and taxpayers generally—is but one of many services by an organization too little known, yet playing a vital part in business-government relationships: The U.S. General Accounting Office.

## *The GAO as Ombudsman*

The letter to which I refer was the final act in a drama that followed weeks of analysis and review by, and conferences among, GAO, Air Force, and corporation representatives.

The manufacturer making the protest was Honeywell, Inc., of Minneapolis, whose offer to the Air Force was approximately one-half that of the successful competitor—International Business Machines, Inc. Honeywell was one of three companies not selected after the Air Force determined, on the basis of equipment tests and other considerations, that IBM was the only one of the four to meet all requirements.

After the equipment tests, the three losers were not considered further by the Air Force. But Honeywell, reviewing its equipment following IBM's selection, concluded that it could meet the Air Force requirements within a short time by certain modifications at relatively little additional increase over its original price.

Honeywell asserted to the GAO that the action of the Air Force in refusing to conduct further oral or written negotiations with it after the equipment tests had proceeded contrary to law.

We held that Honeywell should have been considered by the Air Force

as being within a competitive range. The term "competitive range" includes technical capacity as well as price. Therefore, under the law, the Air Force was required to hold further negotiations with Honeywell before making the final selection.

Soon after our decision, the Air Force announced that it would reopen the negotiations.[1]

The review of law that we made for Honeywell is similar to that which we would do for any company having such a problem. This part of our work is sometimes referred to as an ombudsman's function. We make about 400 decisions each year on protests from losing bidders for Government contracts, principally smaller companies.

The review of bid protests is one of the important, but not well-known, functions of the General Accounting Office of direct concern to taxpayers generally and to business in particular.

### *The Functions of the General Accounting Office*

The General Accounting Office is a nonpolitical, nonpartisan agency created by the Congress to act in its behalf to help bring about increased economy and efficiency in the Federal departments and agencies. GAO has provided various types of auditing and accounting services for nearly 50 years. In doing so, it has been able to bring about savings estimated at many billions of dollars. In the last 5 years alone, savings of over a billion dollars have resulted from improvements in Federal agency operations based on GAO findings and recommendations.

As the Government has grown and expanded, so have the responsibilities of the GAO. It is now a worldwide organization. Our staff now totals approximately 4,300. We carry on our operations at more than 40 locations in the departments and agencies in Washington, through 16 regional offices in the continental United States and in five overseas branches. We are concerned with the effectiveness of Government operations; we must therefore go wherever the action is.

The General Accounting Office must be adequately staffed to serve the Congress and the public in reviewing the everexpanding activities of the Federal agencies. We all, I believe, recognize the demands forcing this growth, such as:

—Federal expenditures now running at the rate of more than $150 billion a year—about twice what it was 10 years ago.

—A space program of more than $4½ billion a year, approximately 90 percent of which is spent under contracts for goods and services.

—A supersonic transport plane, with 90 percent Federal financing, costing $1.3 billion.

—Demands for more and more public services for recreation, airport growth and safety, highway developments, and similar services.

—Federal financial assistance to State and local governments at about $15 billion yearly for the new, massive social welfare programs. This assistance, which may top $17 billion this fiscal

[1] In December 1967, the Air Force announced the selection of Burroughs Corporation as the successful bidder on the second round of bidding and negotiation. The revised award was for a price $54 million less than that offered by the original successful bidder.

year, is expected to be about $60 billion by 1975.

I think we can expect this growth to continue.

These programs make the Federal Government the principal purchaser of the products of the aircraft industry, the shipbuilding industry, the electronics industry, and the basic metal industries. The Government is a major purchaser, also, of the output of several other important industries. In fact, procurement contracts for goods and services constitute about one-third of our Federal budget.

Increasingly our economy is one in which both Government and industry must play key and closely related roles. While there will always be fundamental differences between business and Government, by the very nature of their foundations, there has developed in the United States an economic system based upon cooperation and a blending of these two great forces—democratic government and private ownership and initiative.

Let me make the above point concrete.

Each of five private corporations in a recent year spent more than 1 billion Federal tax dollars through Government contracts—more than was spent by any one of five of the Federal cabinet departments. Further, in that year the 100 private corporations having the largest net value of prime military contracts spent more in Federal tax dollars than did all the civil agencies in the executive branch, leaving out interest on the national debt.

Perhaps equally significant is that, in carrying out these programs, the Government in a number of cases has contracted with private corporations for the planning, research, and technical direction of entire systems. It has even created several corporations, such as the Rand Corp.—supported largely by Federal funds—that are carrying on functions similar, if not identical, to programs carried on directly by Government agencies in other instances.

I am not criticizing what has been done. What I am suggesting is that the old relationship between Government and private industry has undergone a radical change in what has been aptly characterized as a "blurring of the line between public and private enterprise."

I am also suggesting that the issues on Government spending have shifted in many respects from the role that the Government should play and the level of Government spending. The emphasis has shifted considerably to one of contract administration and governmental controls—how the money is to be spent and where it is to be spent—matters of special and direct concern to us in the General Accounting Office.

I therefore welcome this opportunity to tell you, briefly, how we carry out our job and what we see as our responsibilities in the future.

GAO examines into the economy and effectiveness with which nearly all U.S. Government departments and agencies conduct their operations. Our Office is responsible, with limited exceptions, for auditing all programs, activities, operations, and financial transactions of the Federal Government. Of course we have to do this on a selective basis.

We report throughout the year our findings on matters that need attention

of the Congress or correction by the administrative agencies. We are concerned that programs be carried out within the law and as intended by the Congress. We recommend, in our reports to the Congress or to the agencies concerned, ways in which the executive departments and agencies can carry out programs and projects more efficiently and effectively. In assisting the Congress in carrying out its oversight responsibilities, GAO has become an important part of what might be considered a management information system of the Congress.

We assist the Congress by drafting legislation, making factual investigations for congressional committees, testifying before committees, and handling numerous inquiries from the Members as well as from committees.

Through its experience over the years, GAO has become skilled in reviewing management performance. It has been our longstanding policy to place particular audit emphasis on agency operations believed to require correction or improvement and on means of effecting the needed corrections.

### *Contracting for Goods*

An important example of our work is in the area of negotiated contracts.

The departments and agencies of the Federal Government will spend approximately $50 billion this year to procure, by contract, property and services for use in their programs and activities. For weapons systems and related equipment and supplies alone, the Department of Defense is awarding contracts at the rate of over $25 billion.

Nearly 90 percent of the dollar value of defense procurement is currently being made by negotiated contracts. Procurement by negotiation is designed for situations—specified by law—in which procurement on the basis of advertised bid and award procedures is either impracticable or inappropriate.

While control features are always essential to insure efficient, economical, and effective procurement of goods and services by contract, these are emphatically necessary for negotiated contracts.

Contracts awarded under formal advertising procedures are normally of the firm fixed-priced type.

The primary control over pricing of these contracts is effective competition.

Negotiated contracts, on the other hand, can be made under a variety of arrangements. Appropriate controls over these types of contracts, therefore, are critical to fair pricing.

For years we reviewed the procedures followed in negotiated contracts and sent many critical reports to the Congress. These led to the passage in 1962 of the "Truth-in-Negotiations Act"—a law requiring companies entering into negotiated contracts with the Department of Defense to furnish adequate records and certifications of the costs and prices on which they based their proposed contract price.

The law was designed to safeguard the Government against inflated cost estimates in negotiated contracts and subcontracts where protection provided by effective competition is lacking. With certain exceptions it requires contractors to supply contracting officials with cost or pricing data in support of their estimates and to

certify that the data are accurate, complete, and current.

This law requires the contractor to agree to a refund if any increase in his price results from defective cost or pricing data. Such data are subject to review by contract audit organizations of the agency letting the contract and by the General Accounting Office.

Our concern did not stop with the enactment of the legislation. We closely followed its application and administration and issued three reports to the Congress within the past year reviewing the effectiveness of the administration of the law.

As we pointed out problems or deficiencies in administration of the law, Department of Defense officials agreed to take steps to ensure improvements. The Joint Economic Committee and the House Armed Services Committee of the Congress have shown keen interest in our followup reviews.

As a result, progress has been made in obtaining fairer pricing in negotiated contracts, although more understanding and safeguards are still needed by Government contracting officers and by private companies to make the law fully effective.

***Contracting for Personal Services***

Another important area of government-industry relationships, with which the General Accounting Office has become increasingly concerned, is the expanding area of contracting for personal services. Under what conditions should the Government supply directly products and services for its needs? When should these products and services be acquired from private industry? These questions have come very much to the fore in recent months. Strong views are held by the proponents of each method.

Earlier this year GAO sent a report to the Congress on services obtained under contract at two space flight centers of the National Aeronautics and Space Administration—Goddard and Marshall. We reviewed nine contracts with private companies for the providing of what are called, technically, support services; that is, engineering and related technical services through the use of contractors' employees.

We estimated that annual savings of as much as $5.3 million could be achieved at the two space flight centers alone if the services provided by contractors were performed by civil service employees. The savings indicated were attributable, for the most part, to elimination of many contractor supervisory and administrative personnel which would result from a conversion to civil service staffing and the elimination of fees paid to the contractors.

Direct cost comparisons, while important, may not be the determining factor in all decisions as to whether or not an agency should use support contracts. The Government agency must be concerned with operational requirements; it must take into account legal and cost considerations as well as the Government's policy on avoiding competition with private industry. You can see, therefore, that it is not easy to lay down rigid ground rules. Undoubtedly, you will be hearing more about this question of "contracting out"—as we describe it in Washington—for various types of services.

### *Range of GAO Reviews*

I have talked at some length about Government contracting for goods and services because of the close relationship of the Government to business in this area. As I have indicated earlier, these are but two of many problem areas in which the General Accounting Office is more or less continuously involved. I hope that my quick review has given you a glimpse of the purpose of our operations. In the course of a single speech it would be impossible to discuss meaningfully all the activities of the Federal agencies which the GAO reviews in a single year.

To give you some idea of the range of our reviews, let me mention a few of the subjects on which either we are making reviews for the Congress or we have recently reported. We have completed three important reports concerned with Vietnam: the $1.3 billion construction program, the commercial import program, and the number and scope of internal audits conducted by Government agencies there. We recently also made a special report to a congressional committee on the refugee program in Vietnam. And I should add that we are making several more reviews of activities in Vietnam right now for various congressional committees concerning foreign aid, administration of refugee programs, and defense supply management.

We recently completed several reports on the supply system of the military services. These included reports on a large backlog of unfilled orders in the Air Force, the Navy's inventory system for $2 billion worth of spare parts and equipment, and the transfer of $65 million worth of handtool and paint stocks from the Department of Defense to the General Services Administration.

And to cite further examples:

—We have just issued an important report on the need for improving controls over, and the utilization of, Government-owned equipment in contractors' plants, including commercial uses.

—We have completed, and are continuing to make, reviews in several countries which lead to overall reports on the foreign aid program.

—We have developed recommendations on the organization of postal services where we feel that important savings can be made.

—We are making studies of the effectiveness of Federal agencies' cost reduction programs.

—We have recently submitted an important report summarizing GAO recommendations designed to alleviate our balance-of-payments problems, including greater utilization of excess foreign currencies and the maintenance of value of U.S.-owned foreign currencies.

—We are undertaking, at the direction of the Congress, a comprehensive evaluation of the administration, as well as the effectiveness of the programs, of the Office of Economic Opportunity.

—We have recently submitted a report to the Congress recommending improved controls in the handling of nuclear materials made available to private industry by the Atomic Energy Commission, designed to insure full

accountability for this highly valuable and potentially dangerous material.

—We are making continual reviews of various aspects of the programs of the Health, Education, and Welfare Department, such as our review of policies and procedures governing Federal participation in costs incurred by State governments for nursing home care.

The list of subjects could be extended to the nearly 600 reports made by our Office last year. Obviously they varied greatly as to difficulty and significance.

### *Importance of Management Reviews*

Like any other organization, the General Accounting Office in its 46 years of service has gone through transitions. After World War II, GAO began to undertake more comprehensive audits, the Congress having placed much of the detailed auditing of Government bills upon the departments and agencies themselves.

It became our auditing policy to place particular emphasis on areas of agency management operations thought to require correction or improvement. Most of our reports in recent years have concentrated on individual agency management problems involving actual or potential losses and on making recommendations for their correction. This emphasis has resulted in substantial savings in public funds and has contributed to significant improvements in Federal operations.

This work has not often been popular in Washington. None of us like to be evaluated by an outsider, whether we work in Government or in private enterprise. But the General Accounting Office is a public-evaluation organization. GAO reports to the Congress are public reports. The Government should not—and ordinarily does not for very long—bury its mistakes. We do make, I should say parenthetically, many reports each year at the specific request of congressional committees, and these reports are not made public unless the committees wish. But our reports to the Congress, as a whole, are public documents.

We believe that our management audit work can be more productive as we make more extensive inquiries into basic causes of the unsatisfactory conditions we find and as we include in our reports clear explanations of those causes and realistic recommendations for improvement.

This means that financial auditing in the Government becomes increasingly an internal audit function of the operating agencies—and let me say here that GAO is doing all it can to strengthen internal auditing in the departments and agencies. I believe that the work of the General Accounting Office will give increasing emphasis in the future to management audits and program evaluations.

This work will require better trained people—people trained in management skills, in the use of computers, and in systems analysis.

Where are we going to get them? In large part, at least, from the same sources that business gets them; namely, the business schools. And herein lies a tremendous challenge for these schools.



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### *Four Suggestions*

Our business and other professional schools have a key responsibility in providing these skills. To this end, I should like to make four suggestions:

1. More basic training is needed in our graduate schools and our business and professional schools on public issues and in the working of democratic institutions. In one professional area alone, it has been estimated that more than one-third of this year's graduates of our medical schools will be employed by government at Federal, State, or local level. To some extent the same general point can be made with respect to the output of many other professional schools—engineering, law, public health, forestry, and others.

But all too many of these graduates will undertake their duties with an inadequate basic understanding of the working of the Government which they will be called upon to serve and where they will earn their livelihood in the years ahead. This situation is neither good for them nor for the Government.

We must find some way—perhaps working through the national professional organizations—to see that basic courses in government, economics, and political institutions are a part of the curricula of all of these professional schools. We need to develop and use practical case studies on industry-government issues in these schools. The General Accounting Office would be glad to supply material for such case studies.

2. The business schools may need to take a new and bold look at their curricula in terms of management needs of the future. Dr. E. W. Engstrom, chairman of the executive committee of the Radio Corp. of America, stated the point well earlier this year in the *Advanced Management Review:*

> The broad technological advances of the past decade, particularly in electronics and communications have radically altered the function and character of leadership. New skills, new techniques, and entirely new disciplines have evolved which demand a type of knowledge that has never before been regarded generally as part of a manager's training.

Undoubtedly, this is true of all the subjects that are involved in a school of business. And a knowledge of all of these new subjects—such as systems analysis, operations research, automatic data processing—is necessary for an individual to understand the role of the manager or the role of the auditor in business and Government operations from now on.

At the General Accounting Office we have recognized more and more the need for a variety of skills in order to increase our capacity to meet today's many-faceted demands. We have recently extended our recruiting policy beyond just accounting majors to include college graduates with majors in economics, industrial management, engineering, public and business administration, mathematics, and other fields having management potentials.

Similarly, we are aiding our present professional staff in diversifying their background by intensifying training in advanced data processing, auditing methods and techniques, and systems analysis and development concepts.

3. The business schools can play an important role in encouraging more direct participation by top industrial managers in governmental affairs. I

should think that an integral part of any effective industrial development program should be involvement of the potential top leaders of industry in public matters. Such exposure not only will make for a broader gauged and wiser business executive, but also should lay a good groundwork for the certain future growth of business involvement in governmental affairs.

We need to remove the obstacles to greater participation by experienced business personnel in governmental positions, both advisory and executive. Much has been done to remove obstacles created by potential conflicts of interest, but more can and should be done to remove the uncertainties and doubts which a businessman faces when he is called upon to serve in government. There must be greater willingness on the part of top leaders in private industry, for example, to remove some of the risk that a junior executive will lose his place in the promotion line in his company when he takes a post in the government.

4. Business must play an ever increasing role in dealing with economic and social problems of these changing times. Our business schools must take more leadership in finding ways for business to use its influence more effectively. An obvious point is that, if today's and tomorrow's business managers do not find ways to participate in providing essential needs, many of these needs will be met by the Government without its advice or help. Business has to decide whether it is worth its while to get involved more directly in shaping these programs.

More and more, business is recognizing that its interests are served by taking leadership in dealing with issues which a few years ago would have been reserved almost exclusively for governmental action. A recent decision of 348 insurance companies to provide $1 billion in financing low-cost housing in our urban ghetto areas is a notable example.

Only a few weeks ago your own Mayor Lindsay stated before the Senate Finance Committee that the poverty problem of New York City was beyond the capability of being met by the public resources of the city and State of New York—or for that matter, by the resources of the Federal Government as well. For this reason he has taken the leadership in organizing the Urban Coalition, consisting of business, labor, and civil rights leaders of the area, to assume major responsibility for job training, urban rehabilitation, and the development of employment opportunities.

### *Conclusion*

Most of us have read *The Education of Henry Adams* and have profited greatly by the autobiography of this marvelously curious American, challenged by his desire for new knowledge and by the forces of change he saw about him. When Henry Adams was 60 years old he attended the Paris Exposition—I suppose today we would call it "Expo 1900"—and was challenged by the great "Gallery of Machines."

After studying the remarkable changes brought about by technological change, he enunciated a concept of "constant acceleration"; that is, changes brought about changes in geometric ratio, not only growing more important but occurring more

frequently as they moved forward in time.

Many evidences might be cited today to support his thesis:

—Half of all the energy consumed in the world in the past 2,000 years has been consumed in the past 100 years.

—Twenty-five percent of all the people who ever lived are alive today, in part because of improved health and increased standards of living.

—Ninety percent of all the scientists who ever lived are alive today.

—The amount of technological information has been doubling every 10 years.

We cite these facts without emotion or even without great awe because we have become accustomed to them. Yet few of us fully realize that we are oriented more to the past than to the future. We are tied to the past by history, by ancestry, by music, by literature, and by other aspects of culture which have been passed down from generation to generation. Sometimes we act as if it is the *past* which can be changed rather than the *future*. To be sure the past must be understood if we are to recognize the forces of change about us.

What I am attempting to say is that all of us—in Government, universities, or business—run the risk of being tied too much to the past. We tend to do things in traditional ways. We fail to question why they cannot be done better, or we may fail to realize that situations have changed which call for new solutions or new ideas. But, above all, the challenge is to do our jobs better, to find ways of improving our own capabilities.

Innovation, change, education—these are familiar words describing our reaction to this changing environment. We cannot avoid change, nor would we want to if we could. But, just as nuclear energy must be controlled and carefully channeled to be useful, so must change be guided through social institutions and organizations to meet the goals and objectives which history and past experience dictate as meeting the moral and ethical needs of society.

Writing on "The Era of Radical Change" in *Fortune* magazine Max Ways said:

> Within a decade or two it will be generally understood that the main challenge to U.S. society will turn not around the production of goods but around the difficulties and opportunities involved in a world of accelerating change and ever-widening choices.

Continuing this thought he went on to say:

> Change has always been a part of the human condition. What is different now is the pace of change, and the prospect that it will come faster and faster, affecting every part of life, including personal values, morality, and religions, which seem most remote from technology.

721306

# Much Ado About Postmarks

By Lloyd G. Smith

**The author summarizes a recent GAO report to the Congress in which fundamental changes in the management and operation of post offices were recommended to the Congress and the Postmaster General. The report pointed out that mail-processing operations in most of the Nation's post offices are being performed today much as they were during the 19th century. This situation is likely to continue so long as operations are fragmented among some 33,000 independent post offices, only a few hundred of which handle a sufficient volume of mail to justify the use of sophisticated mail-processing equipment which is now available or under development.**

**The report concluded that the consolidation of mail-processing operations and administrative and financial functions into about 550 large post offices would result in substantial economies and improvements in service. Because it would not be practicable, under this concept of operation, to continue the use of 33,000 separate postmarks, the report recommended the elimination of city or community names from postmarks. Although the report's primary recommendations involved the consolidation of operations, the secondary recommendation involving postmarks received most of the publicity when the report was issued and resulted in a spate of editorials and letters, as discussed by the author in the following article.**

We anticipated that our report to the Congress on potential economies and improvements in service through modernization of the postal field service (B–114874, Dec. 7, 1967) would receive considerable publicity, and we were fairly sure that much of the publicity would be unfavorable. After all, we were dealing with an extremely sensitive subject—the closing of independent post offices and the conversion of independent post offices to stations and branches of larger post offices.

Few actions by a Government

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**Mr. Smith is associate director of the Civil Division, in charge of GAO accounting, auditing, and investigative work at the Post Office Department. A graduate of the University of California at Los Angeles, Mr. Smith has been with GAO since 1953 where he has served as an audit manager in the Los Angeles regional office; manager of the Frankfurt, Germany, office; director of the European Branch; and assistant director in the Civil Division.**

agency will start people writing to their congressmen faster than an announcement that their local post office is about to be eliminated or reduced to a branch of another post office. Postal employees write out of fear of losing their jobs or of having to move to another city. Postal patrons write because of fears that postal service will deteriorate or that the community will lose an intangible something called "community identity."

We knew about these fears, and we did our best in the report to allay them by pointing out that they were largely groundless and that our recommendations would result in improved service and reduced costs with very little adverse effect on employees. Having done our best on that score, we processed the final report and sat back to await public reaction.

### *Public Reaction to Report*

We did not have long to wait, and we were not surprised that the reaction was generally negative. What did surprise us was the direction that the opposition took. Instead of attacking our recommendation to consolidate mail processing and administrative functions in a relatively few large postal facilities, most of the news stories focused on our secondary, but important, recommendation to eliminate community and city names from postmarks.

Not all newspapers, to be sure, made this mistake. Of the two leading Washington newspapers, one presented a story which accurately reported the basic message of our report without even mentioning postmarks; the other devoted its headline and its news story to the impending disappearance of city names from postmarks, with only incidental mention of the other recommendations in our report. The leading Baltimore newspaper devoted 12 paragraphs to our report, only two of which mentioned the postmark—just about the emphasis that we thought it deserved.

Nevertheless, it was the news story featuring our recommendation on postmarks which received the widest circulation, through a nationwide syndicate. It appeared in newspapers throughout the country, in large cities and small, and soon the flow of letters into Washington began. Some were addressed directly to the Comptroller General; others were forwarded to him by the White House or by individual congressmen to whom they were addressed.

An 11-year-old girl in Colorado wrote to President Johnson in opposition to our recommendation because it would spoil her hobby of saving postmarks.

A superpatriot in Florida saw in our recommendation a socialistic and possibly subversive scheme and accused us of joining "with police-state planners and statehood defectors, even if unintendedly, in derogating hometown culture."

One woman wrote that the postmark was an invaluable aid to postal inspectors in tracing lost mail. She failed to explain, however, just how the inspectors would be able to read the postmarks on the lost mail they were looking for.

### *"Go to 48169"*

We had recognized the need for retaining in the postmark some indication of the source of a letter and had suggested the name of the State and/or the ZIP Code of the sectional

center (the major post office where the mail processing would be done) as a substitute for the city or community name in the postmark. This suggestion proved to be a red flag to the "cipher phobes," those nonmathematicians who view the computer with suspicion and look upon every new substitution of a number for a name as an attempt to reduce people to faceless cogs in the machinery of society. One of them wrote an editorial which decried our attempt to convert the Nation into a "cipher society" and closed with the impolite suggestion that GAO could go to 48169. We were not too surprised, when we looked that one up, to learn that it was the ZIP Code of Hell, Mich.

Another editorial lamented that, if our recommendation were put into effect, "No longer would the recipient of a letter be able to glance at the postmark and say: 'We have a letter from Aunt Hazel in South Colton.' There would be only a ZIP Code * * *." We strongly suspect that the writer of the editorial usually recognizes the origin of the letter from Aunt Hazel by her handwriting or by her return address on the envelope, without even a glance at the postmark.

All letter writers, including the superpatriot and the 11-year-old girl, received courteous replies and copies of the report so that they could read for themselves what it was all about. We also sent a copy to each Congressman who had forwarded letters from constituents or copies of news stories and, where appropriate, we furnished additional copies of the report for the constituents or editors. Looked upon from that standpoint, perhaps the distorted news stories were blessings in disguise since they created a lot of interest in the report and gave us the opportunity to get copies into the hands of postal patrons and public officials who had been interested enough in the subject to write us.

Actually, we had, at one time during the review, considered leaving out of the report entirely any recommendation to change present postmarking practices, on the basis that, once our other recommendations were implemented, the need to eliminate community and city names from postmarks would be so obvious that it would follow naturally. We decided, however, that we would not be telling the complete story if we ignored a step that we knew to be essential to accomplishing fully the objectives of our report.

### *Need to Modernize Postal Operations*

The basic message of the report is that the present concept of operation of post offices needs to be modernized, through consolidation of mail-processing operations, if satisfactory mail service is to be provided economically to the Nation in an era of growing as well as shifting population, rapidly expanding mail volume, swifter methods of transportation, and increasing availability of sophisticated machines adaptable to speedy processing of mail in mass volumes.

The present organization of the postal field service consists of approximately 33,000 independent post offices which, with few exceptions, collect, postmark, sort, and dispatch their own mail. This fragmented operation precludes the Post Office Department from realizing the full economic and service benefits of mechanization processes that are now

available or under development and that require large volumes of mail for efficient and economical operation.

Postmarking and sorting mail at each individual post office results in mail's being processed manually or on less efficient machines than could be used if the operations were centralized in large mail-processing facilities. Most mechanization processes have the dual purpose of reducing costs and expediting delivery of the mail.

### *19th Century Concept*

The present postal organization is based generally on the 19th century concept of an independent post office in each city, town, or village. This concept may have worked well a century ago when transportation was relatively slow, when the population was largely rural, when most cities were individual clusters of population separated by rural areas, when mail volume was only a small fraction of what it is today, and when all sorting and postmarking of mail was done by hand. The concept is completely outmoded, however, in today's high-speed mechanized society.

The Department has recognized the need to modernize its organization and operations and, in spite of tremendous pressures to maintain the status quo, it has been edging away from the independent post office concept through several programs.

Several years ago the Department established the sectional center concept under which the country is divided into about 550 sectional center areas, one large post office in each area being designated as the sectional center. The sectional center serves as the focal point for mail entering and leaving the area and for mail moving between points in the area. All other independent post offices in the sectional center area are known as associate post offices. Although the sectional center concept has resulted in improved efficiency in the sorting and routing of mail, most of the sorting is still being performed at each individual post office.

For many years the Department has also carried out a program for discontinuing or converting independent post offices where equal or better service could be provided more economically by an alternate means. When a post office is discontinued or converted, postal services are generally provided either by establishing a branch or station at the same location or in the vicinity of the discontinued office or by extending rural delivery service or city delivery service from a nearby post office to the patrons of the discontinued office. When a discontinued office is replaced by rural or city delivery service, many patrons who previously had to go to the post office for their mail, thereafter receive delivery of mail to their homes. Except in unusual circumstances the services required by postal patrons can be provided just as well, in our opinion, by a branch or station as by an independent post office.

Under the Department's program the number of independent post offices has declined from a high of about 77,000 at the turn of the century to the present 33,000. In view of the tremendous progress that has been made in most other industries during this 67-year period and in view of the similarity between mail-processing operations in 1900 and operations in most post offices today, however, we

feel that the Department can take little pride in this accomplishment.

***Community Resistance to Change***

In all fairness, it must be admitted that the fault is not entirely the Department's. The Department follows a general policy of not discontinuing or converting an independent post office unless there is a vacancy in the position of postmaster. Even when vacancies have existed, however, strong community pressures expressed by postal patrons and employees, both directly to the Department and through their elected representatives, have often caused the Department to continue the independent status of post offices in spite of well-supported recommendations to the contrary by regional officials and postal inspectors. In some cases, community resistance to change has caused the Department to reverse decisions previously made and publicly announced.

One of the reasons for our decision to recommend elimination of city and community names from postmarks was the knowledge that in many cases the Department, in order to obtain community acceptance of the conversion of a post office into a branch, had agreed to continue the local postmark under the branch operation. Such compromises would be unacceptable under the operational concept that we envisioned, which would involve almost complete consolidation of all mail-processing operations into about 550 sectional centers.

Many of the cost and service benefits of consolidated operations would be lost if each piece of mail had to be routed through one of the 33,000 independent post offices for postmarking before being transported to one of the 550 sectional centers for further processing, or if each sectional center had to maintain the postmarks of as many as 200 post offices and keep the mail segregated by point of origin until after postmarking.

Another reason for our recommendation was that one of the most effective and efficient pieces of machinery available to the Department is the Mark II facer-canceler. The Mark II accepts random or unfaced mail, locates the stamp on each letter by electronic scanning, postmarks each letter, and stacks the mail with all the addresses facing in the same direction and the stamps in the same position. The Mark II can face and cancel mail at the rate of 30,000 letters an hour.

As might be expected of such a sophisticated piece of electronic equipment, the Mark II facer-canceler is quite expensive to procure and to maintain. It pays big dividends, in terms of time and manpower savings, in post offices with large volumes of letter mail to be canceled. However, not more than a few hundred of the 33,000 post offices in the Nation handle a sufficient volume of mail to justify the investment in a Mark II.

Many post offices that do not have sufficient volumes of mail to justify the Mark II use another piece of equipment called a "Flyer" to cancel mail. The Flyer cancels mail at about the same speed as the Mark II but requires that the mail first be faced by hand—that is, positioned with the addresses facing in the same direction and the stamps in the same position on each letter—before being fed into the machine. In post offices that are too small to justify a Flyer, canceling may be done on a hand-cranked canceling



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Photo by Post Office Department

**Hand sorting of mail by distribution clerks. For a 19-hole distribution case, letters are normally sorted at a rate of about 1,800 an hour.**

machine or, in the smallest post offices, by a primitive, one-at-a-time hand stamping operation.

### *Methods of Sorting Mail— Ancient and Modern*

The facing and canceling of letters is a relatively small part of the total mail processing operation, however. The larger part—the part which offers the greatest potential for savings through mechanization—is the sorting of mail by destination, or "distribution" as this operation is technically called in the postal service. In all but the largest post offices, the sorting is done by hand, by distribution clerks, in what is sometimes referred to as a "peek and poke" operation. The clerk glances at the address on each letter and then pokes it into one of the pigeon holes in a distribution case which generally contains between 49 and 84 such holes.

The origin of the distribution case is lost in antiquity, but rumor has it that one of the first pieces of furniture ordered by Benjamin Franklin after being appointed Postmaster General by the Continental Congress was a distribution case. Whether or not that rumor is true, it is fairly certain that a distribution clerk from the 19th century would feel right at home in the workrooms of most post offices today.

In a few of the largest post offices there has been a very noticeable change in the method of sorting letters. These post offices are equipped with letter-sorting machines (LSMs). Distribution clerks seated at the consoles of an LSM seldom touch the mail but sort it by pressing the keys on a keyboard as each letter is passed in front of them mechanically.

The LSM not only sorts the mail faster than a manual operation but also reduces the number of mail handlings because of the greater number of separations accomplished in each sort. For example, sorting of outgoing mail is normally accomplished on a 49-hole distribution case at a rate of about 30 letters a minute, whereas the LSM allows as many as 300 separations at a rate of about 60 letters a minute for each operator.

The most spectacular breakthrough in mechanization of the sorting operation is now in the final stages of development and is expected to be operational in the near future. An automatic electronic address reader (optical scanner) for use in conjunction with the LSM has been tested in one post office, and operational models have been ordered for several other large post offices. An LSM equipped with optical scanners is expected to sort 36,000 letters an hour, or at a rate of 300 letters a minute for each of the two operators.

The Department has various other types of equipment, such as parcel sorting machines and edger-stackers, which require concentrations of fairly large volumes of mail for efficient operation.

### *Advantages of Consolidated Operations*

Because most mail originating in a sectional center area passes through the sectional center post office, either before or after being postmarked and sorted, it seems rather obvious that savings of both time and manpower could be achieved by taking the mail directly to the sectional center from the various collection boxes throughout the area, thus bypassing the local

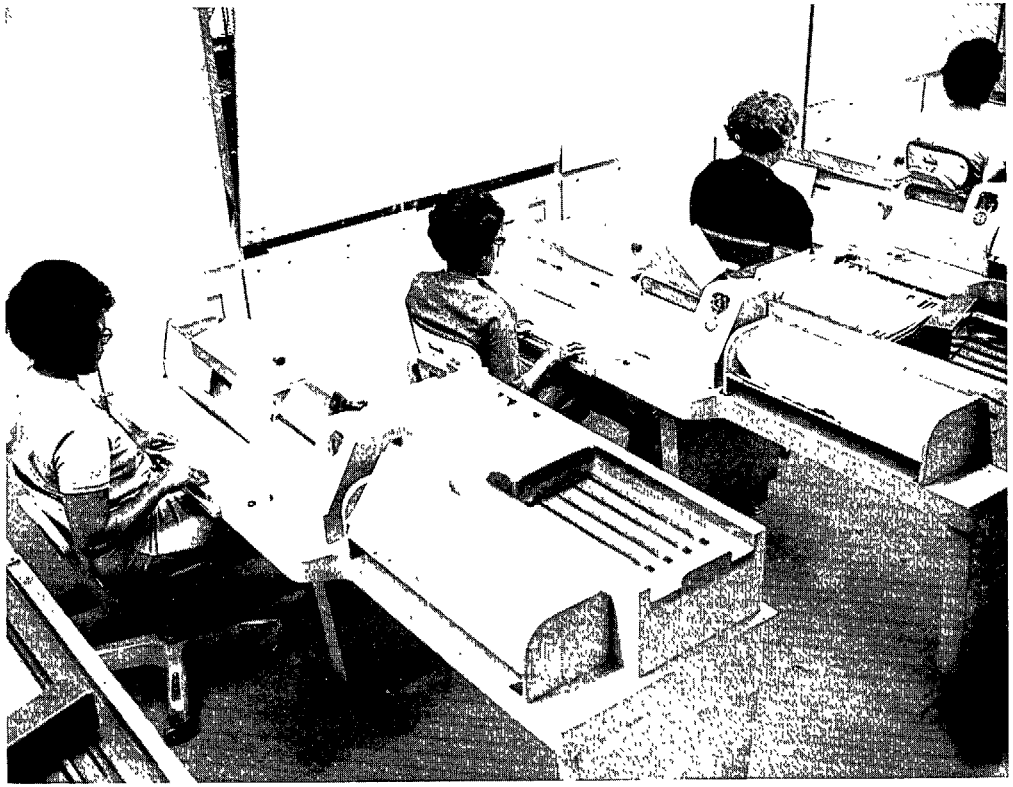

Photo by Post Office Department

**Letter-sorting machines with operators. These machines make possible sorting to up to 300 separations at a rate of about 3,600 letters an hour per operator.**

post office and concentrating the canceling and sorting operations at the point where maximum use can be made of mechanization processes.

To obtain some idea of the savings that might be realized through consolidation of mail processing in sectional centers, we made a study of one large, highly mechanized, sectional center post office and the 25 associate post offices within a 20-mile radius. We estimated that annual savings of about $500,000 could be realized if the mail then being processed in the 25 associate offices were consolidated in the sectional center for processing.

This estimate represents only the manpower-cost savings that could result from conversion from a manual to a mechanized operation. Additional savings could be realized from reductions in supervisory, administrative, or facility costs, and from more efficient alignment of collection and delivery carrier routes.

### *Savings from Conversion or Discontinuance of Small Post Offices*

We also cited several examples of actual savings realized by the Department from the conversion or discontinuance of small post offices. One third-class post office was converted to a contract rural branch, which provided essentially the same service to patrons. The annual cost of the branch is about $1,500, compared with an annual cost of $7,860 for the third-class post office. Another third-class post office, which had cost about $7,500 a year to operate, was discontinued and service was thereafter provided by extending rural delivery service to the community at a cost of only $60 a year. (That's right—only $60 a year!) The rural carrier sells stamps and accepts parcel post and applications for money orders and thus provides about the same service as that offered by the former post office. Moreover, home delivery is provided to some patrons who formerly had to go to the post office for their mail.

Though the savings realized from the conversion or discontinuance of each small post office is relatively minor by itself, we believe that there are similar opportunities for economies and improvements in service at many of the 13,000 third-class post offices (annual receipts from about $2,200 to about $11,700 each) and the 8,400 fourth-class post offices (annual receipts of about $2,200 or less each).

### *Recommendations*

To eliminate some of the restrictions that have hampered the Department's attempts to streamline its organization, and to accomplish the consolidation of mail processing operations that we believed to be essential to obtaining the full benefits of mechanization, we made recommendations to both the Congress and the Postmaster General.

We recommended that the Congress consider amending present statutes to (1) provide that the primary criteria for the establishment, discontinuance, or consolidation of post offices be efficiency of service and economy of operations and (2) eliminate existing restrictions against discontinuing post offices at county seats and against establishing stations or branches more than 20 miles from the city or town in which the principal office is located.

We recommended that the Postmaster General (1) take actions leading

Photo by Post Office Department

**Letter-sorting machine with optical scanners. This system is designed to read and sort incoming and outgoing machine-printed ZIP Coded mail to 279 separations at a rate of 18,000 letters an hour per operator.**

toward the complete consolidation in sectional centers of the mail processing and administrative functions of post offices, (2) eliminate city and community names from postmarks, and (3) discontinue the policy of considering the consolidation or discontinuance of a post office only when there is a postmaster vacancy.

Actually, the Post Office Department probably could accomplish nearly all of the objectives suggested in our report under its present legal authority, without passage of any new legislation by the Congress. We recognized, however, that it would not be practicable, and probably not desirable, for the Department to undertake such major changes in organization and methods of operation without some general assurance of the support of the Congress.

One thing that we did not do in the report was recommend that the Department make any change that would impair service in order to achieve economies. We noted with approval that the Department's policy was to change the status of an independent post office only when equal or better service could be provided more economically by alternative means, and we suggested no change in that policy. Therefore, our feelings were more than a little hurt when one major newspaper referred to us as "the penny-pinching General Accounting Office" and implied that we were out to save costs at all costs.

### *That Intangible Something Called "Community Identity"*

Perhaps this newspaper's attitude merely reflects the typical reaction of the average community when it learns that its independent post office is about to be converted to a branch of another post office. It turns a deaf ear to the Department's protestations that service will not be adversely affected or may even be improved. The community can only see that, in order to save a few dollars, the Post Office Department is taking away its community identity and that thereafter its mail will bear the postmark of a rival community, and it is sure that postal service provided by a branch will not be as good as that provided by a post office.

In order to give recognition to these strong emotions about community identity, without sacrificing efficiency in the postal service, we suggested that each sectional center be identified with a general area name rather than the name of a specific city and that each postal facility offering service to the public be designated as a post office and bear the name of the local community, even though it would operate, in effect, as a branch of the sectional center. Under this concept the functions of the sectional center would be sorting and dispatching the mail and performing the administrative and financial functions of the post offices in the area, and the function of a post office would be providing direct services to the public, such as window and lockbox service and delivery of mail.

If providing community identity is a proper function of the Post Office Department (we said in the report that it should not be), the above concept would perform this function adequately and, we believe, more equitably than the present concept. The name of the local community would continue to appear in the ad-

dress on incoming mail and in the return address on outgoing mail. The subordinate designations of branch and station would no longer appear on postal facilities, and all communities would be treated the same with regard to postmarks, which would show only the name of the State and the identification of the sectional center. (We had suggested the ZIP Code, but perhaps the area name would be less offensive to those to whom numbers are anathema.)

### *Inequity of Present System*

If it should be a function of a post office to provide community identity, then the present system of independent post offices, stations, and branches is quite inconsistent and is inequitable to many communities. Many relatively large communities are now served by branches of larger post offices and have most of their mail postmarked with the name of the nearby large city, while other smaller communities that are situated beyond the 20-mile legal limit for branches and stations have independent post offices and their own postmarks.

Most people do not realize how little the postmark actually means as an indicator of the point of origin of a letter. In many cases the postmark does not accurately identify even the State in which a letter was mailed.

In many communities whose post offices are in operation only during the daytime hours on weekdays, the mail collected during those hours is postmarked with the local community name, while mail collected on Sundays and holidays is taken to the sectional center, or to another large nearby post office, where it is postmarked and dispatched to avoid delay. Many sectional center post offices serve sectional center areas in adjacent States, and the postmark in such cases shows a State other than the one in which the letter was actually mailed.

In a few sectional centers where a program of maximum consolidation of outgoing mail has been established, all mail collected in the associate post offices after about midafternoon is taken directly to the sectional center to be postmarked, sorted, and dispatched. Since the largest volume of mail is normally deposited in the late afternoon hours, the majority of the mail originating in those sectional center areas bears the postmark of the sectional center post office rather than the postmark of one of the associate offices.

There are a few cases in which a post office has a branch in an adjacent State, and mail deposited in the branch area at any time is postmarked with the name of the city and State where the principal post office is located. The Washington, D.C., post office has about 20 branches in nearby Virginia and Maryland.

The Post Office Department almost never receives a complaint about the postmarks on letters in the above cases, which indicates that most postal patrons are hardly aware of the postmarks that go on their letters—hardly, that is, until public announcement is made that their post office is to be converted to a branch and the postmark discontinued. Then they start writing letters, in earnest!

### *Sentiment vs. Efficiency*

There is undoubtedly considerable sentiment attached to certain unusual postmarks, such as Santa Claus, Ind.; Hell, Mich.; and Paradise, Calif. And,

to a longtime resident of a community, there may be considerable sentiment attached to his postmark, whether it be Centerville, Leavenworth, or Brooklyn.

We have no objection to sentiment—provided its cost is reasonable in relation to its value. We believe, however, that if the American people were fully aware of the price that they are paying for community postmarks, in terms of higher costs and slower service, the overwhelming majority would decide that they could do without this bit of sentiment very nicely. We hope that ultimately the Post Office Department and the Congress will agree with us.



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# An Appraisal of Planning-Programming-Budgeting

By Keith E. Marvin

**The author recognizes the difficulties of installing a PPB system but demonstrates that the system can greatly improve the basis for major decisions.**

Progress toward fully implementing a planning - programming - budgeting system has varied widely in the various executive agencies since the President's 1965 directive. Although the problems of implementation vary because of inherent differences in the agencies, there are, nevertheless, certain requirements which are common to all PPB systems. Therefore it is possible to provide some implementation guidelines which should be useful. One purpose of this article is to propose such guidelines.

In addition to there having been procedural problems, there has been considerable skepticism and debate over the intrinsic value of PPB. Another purpose of this article is to put the value of systematic aids to decisionmakers, such as PPB, in better perspective by reviewing the actual history of a case which occurred in the Department of Defense in the early 1950's.

## *THE CONCEPTUAL DEBATE*

A considerable body of literature which discusses PPB concepts already exists, and much of this has appeared within the past 2 years. At one extreme in the discussions is the technical viewpoint which treats the subject as just another problem to be solved by the rational approaches human beings have found so useful in other professional work. The other extreme treats the budgetary process as a political process, unlikely to be changed very much by PPB. These divergent viewpoints will stimulate adaptation of the general concepts to the peculiar needs of each agency. The result of agency adaptation should be a most fruitful blending of scientific method with the give and take of each agency's peculiar political and budgetary process.

If the Congress should establish similar systematic aids for its use, still further adaptation of the concepts developed for the executive branch may be required to conform agencies' concepts to the objectives of congressional review of Federal programs. For example, because the visibility of interagency program relationships and of the combined program impacts in specific districts may be relatively more important to the Congress than to individual agencies, the concepts appropriate from the congressional view-

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point may be different from the agency concepts.

In spite of the variations in PPB systems that may be necessary, the procedural tieing together of future year programs and future budget requirements and current programs and current budget requirements should be a common characteristic, and this characteristic makes the systems intrinsically more informative than an annual budget by itself. Therefore, decisionmakers at all levels and branches of Government, regardless of varying strategies, should be able to obtain insights from their systems which will be of use to them, although they always will be constrained by particular fact-of-life situations.

PPB does intensify the debate over policy. That is exactly what it is designed to do by requiring that comparisons of dollars to objectives be made. In other words, PPB asks, What are we trying to do? and, How can we best allocate scarce dollars among all the things we would like to do? There is no reason, however, why policies must change frequently or become unstable just because each year's decision cycle may require a reconsideration of policies. For example, this Nation has had, for many years, a policy of assured destruction as the main deterrent to global war. This policy has not changed because of PPB, but the rationale for deciding the force sizes and mixes which represent assured destruction has been affected rather drastically.

## *GENERAL RELATIONSHIP OF PPB TO BUDGETING*

PPB provides distinct advantages over the more subjective arguments which would surely go on if only the next year's budget were the primary consideration. This is particularly true when major changes in policy or strategy result in decisions which have their greatest impact in years beyond the budget year. For example, the decision announced in September 1967 to deploy a limited antiballistic missile (ABM) system was preceded by the same sort of intense analysis as that devoted to the assured-destruction forces already in being.

The application of the program planning part of PPB is the same whether one is talking about a new system or an existing system. For planning purposes, alternative deployment schedules and time-phased resource requirements are evaluated, generally for a 5- or a 10-year period into the future. The budget portion of PPB is different for new and existing systems because a different increment of the total program appears in current budget estimates, e.g., in the fiscal year 1969 budget, the Department of Defense provided estimates for the second year of ABM and the ninth year of the Minuteman missile.

For planning purposes beyond the budget year, the estimated dollar budget requirements are only approximations of the amounts which would actually be needed in the budget for any one of those years. Planning requires the use of techniques and procedures which can give a quick response, thus, necessitating the use of approximations. Highly detailed and accurate information may be of little assistance if it cannot be generated quickly. Thus, the estimates generated are usually only approximations of the actual annual budget increments, whether the program is in being, par-

tially deployed, or just entering engineering development. This is the current status of PPB. In the future, there may be somewhat closer agreement in details supporting both the planning and budgeting of programs in operation. The value of this will be in the improved ability to relate actual allotments of funds, i.e., program execution, more closely to the program objectives on which plans were based.

The key difference in budgetary work, with or without PPB, is evident when major decisions are made. With this aid, alternative time-phased funding estimates, including the budget-year requirements, are generated for use in the analysis preceding a major decision. This creates widespread awareness of fiscal year implications for the years beyond the budget year. Without PPB and the associated analysis, the traditional budget process looks at the fiscal requirements for only the next year, and the process of comparing annual increments receives severe shocks during the rapid buildup of new major programs.

The long-term impact of PPB on traditional budgeting will be shown specifically by reviewing an example of the Department of Defense decisionmaking process 15 years ago. Then the improvement made possible by more systematic procedures will be illustrated by a hypothetical example.

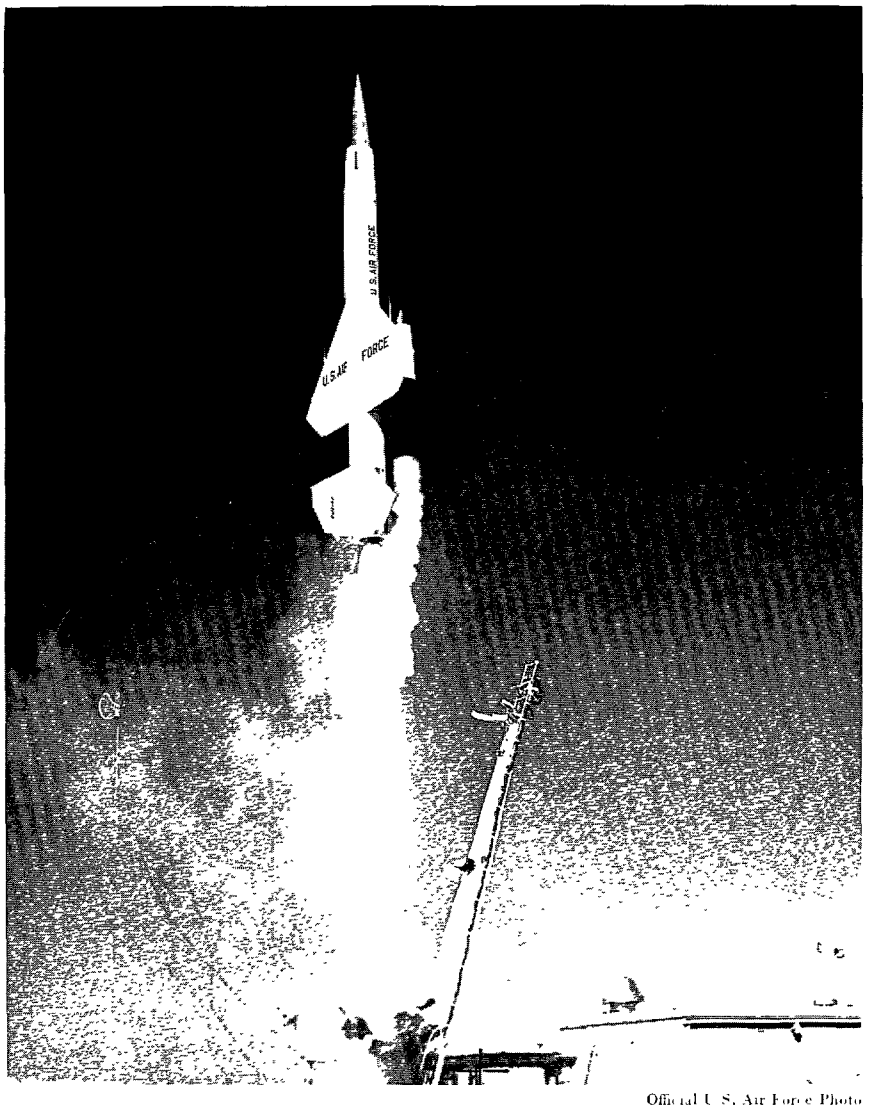
## *THE BOMARC PROGRAM*

The Bomarc interceptor missile program is a classical example of the weakness of a decisionmaking process which is based upon annual increments. The Bomarc is a missile designed to intercept high-performance aircraft hundreds of miles from the missile launch complex. The launch control information is provided through communications links to the ground radar and direction centers of the Continental Air Defense System. Once launched, the missile proceeds according to commands transmitted from the ground until it reaches the vicinity of the target. During this time, both missile and target are tracked from the ground. The missile switches to a radar-homing mode and guides itself during the final dive to the target. The system was deployed 10–12 years ago and is now being phased out.

Exhibit 1 illustrates the launching of a Bomarc missile and shows clearly the design of the missile. It has an airframe very similar to a supersonic aircraft. The initial boost is powered by a solid-propellant rocket motor at the back of the tail section. Once launched, the missile is powered during the midcourse and final flight by two ramjet engines.

Exhibit 2 is an artist's sketch showing a typical Bomarc flight path. In this particular test, the firing from Cape Canaveral, Fla., and the ground control during flight were both accomplished by air defense equipment located 1,500 miles away, at Kingston, N.Y.

The reports generated early in the Bomarc program are declassified, so the initial decision process can be discussed freely. Imagine yourself in a strategic decisionmaking position in the Air Force in 1950. The Korean war was just beginning to exert pressure for funds. Russia had "the bomb" and was building bombers to deliver it. Bomarc was presented as an equally effective alternative to




Official U. S. Air Force Photo

**Exhibit 1. Bomarc interceptor missile, being launched at Cape Canaveral Missile Test Annex, Fla., December 1958**

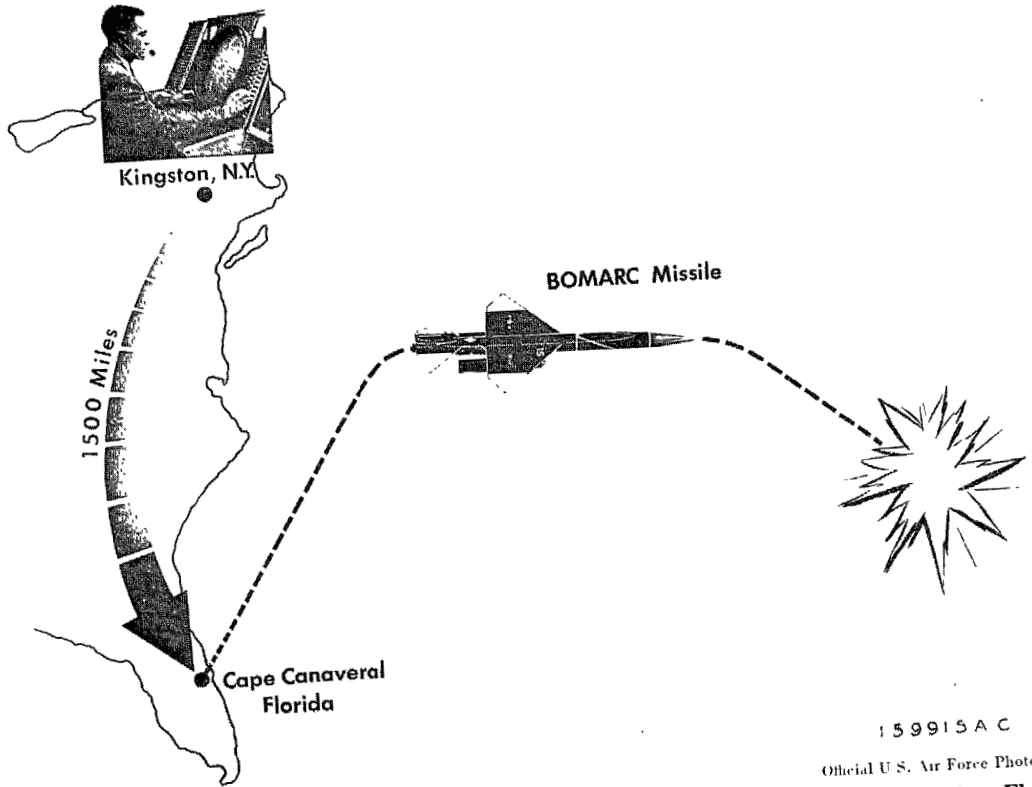



**Exhibit 2. Artist's sketch showing a typical Bomarc flight path. In this particular case, the missile located in Florida was fired from New York (August 1958).**

manned interceptors at a cost less than half as much. The estimated total costs of a Bomarc system were low, and first year's fund requirements in a tight fund situation were less than 1 percent of the total system costs.

### *June 1950*

| | For equal bomber attrition | |
|---|---|---|
| | Interceptor aircraft | Bomarc missiles |
| Force | 3,900 | 3,700 |
| Costs (millions): | | |
| R & D (note a) | | $40 |
| Investment | | 330 |
| Total cost estimate | $1,700 | $370 |
| Annual costs | $225 | $90 |

[a] Research and development.

*Decision: Obligate less than $1½ million fiscal 1950 funds for a 6-month preliminary design.*

It is interesting that the total cost estimate shown above, including research and development and investment and operations, was available when the go-ahead was given for the preliminary design of the Bomarc missile. Probably most major decisions of the Bomarc type were made at that time without the benefit of such estimates. However, the Bomarc estimates may have been little better than none. Now the situation can be reviewed as it appeared on a year-by-year basis 6 months later, in December 1950 (see exhibit 3).

### *December 1950—6 months later*

Production was scheduled to start in 1954. Although the R. & D. was now estimated on a year-by-year basis, no multiyear program estimate was available for costs of production and operation of the missile. The impact on the fiscal 1952 congressional budget submission, then in preparation by the Air Force, was not very significant.

*Decisions: Issue letter contracts and obligate fiscal year 1951 funds.*

It is interesting that there were time-phased estimates of R. & D. fund requirements, but there was no way to adequately evaluate them. It is doubtful that the program estimates for fiscal years 1953 through 1956 or the total R. & D. estimates were ever reviewed by a budget office or that they ever reached Department of Defense headquarters. Even if they did reach top levels, there was little reason for alarm at that time, as there was later. As it turned out later, this case illustrates why a multiyear financial plan,

*Exhibit 3*

**Bomarc missile system fiscal year R. & D. fund requirements**

[in millions]

| Date of estimate | 1951 | 1952 | 1953 | 1954 | 1955 | 1956 | |
|---|---|---|---|---|---|---|---|
| | Current | Budget | Program | | | | Total |
| December 1950 | $2 | $10 | $10 | $8 | $6 | $4 | $40 |
| End of fiscal year 1951 | 5 | 17 | 23 | 20 | 15 | 10 | 90 |
| | Prior | Current | Budget | Program | | | Total |
| End of fiscal year 1952 | 5 | 20 | 45 | 80 | 45 | 30 | 225 |

of itself, is not going to insure that better judgments will be made. Unless the procedures are accompanied by a high level of capability for generating adequate program cost estimates, the result may be misleading.

### *End fiscal year 1951—6 months later*

By the end of fiscal year 1951, the technical problems requiring solution in order to achieve the specified Bomarc performance were beginning to be reflected in the fund requirements (see exhibit 3).

*Decisions: Establish additional development tasks to solve problems and to provide backup design alternatives, and provide increased funds in current and budget years.*

Notice that these time-phased estimates (fiscal years 1952 through 1956) were little more than the current (end fiscal 1951) rate of expenditure projected to the time when R. & D. was scheduled to be complete.

It was not until the end of fiscal 1952, or 2 years after go-ahead, before a realistic approximation of R. & D. cost finally began to appear in the records. By that time, specific R. & D. hardware and test requirements were being defined. There were no systems analysis and projection techniques in use in 1950, as there are today, to estimate these requirements and the related costs in advance of the preliminary design phase (referred to as "contract definition" in current practice). Perhaps worse, there was no organized system for using R. & D. experience to revise the original investment and operating cost estimates. Such R. & D. experience was available by the end of fiscal 1952. The impact of this experience on estimated R. & D. fund requirements can be seen (see exhibit 3).

### *End fiscal year 1952—1 year later*

In 2 years, the estimated total R. & D. cost had increased by more than five times. By this time, the doubled fiscal 1953 requirement and the Air Force's budgetary review of fiscal 1954 requirements must have caused a stir. It was about 1956 before the full impact of the Bomarc situation was felt at top levels. The scheduling of initial production slipped about 2 years, thus delaying further the full impact of cost increases in the procurement budgeting process. If PPB and today's cost reporting and projection techniques had been in effect, revised program estimates would have shown no later than 1953 the approximate final outcome of the program. The final outcome and the original June 1950 estimates were as follows:

| | Number of Bomarc missiles | Cost (in *millions*) |
|---|---|---|
| 1950 estimated R. & D. and investment | 3,700 | $370 |
| Actual: | | |
| R. & D. | | 300 |
| Investment | 700 | 1,400 |

As this summary shows, R. & D. alone cost nearly as much as the original estimate of $370 million for both R. & D. and investment. Whereas investment cost of 3,700 missiles was originally estimated at $330 million, the actual procurement was only 700 at $1.4 billion.

## *RECAPITULATION—WHAT WAS WRONG WITH THE BUDGETARY PROCESS?*

There were several major things that were wrong with the Bomarc budgetary decision process.

First, there was no procedure or technique for evaluating the original system cost estimates.

Second, system cost estimates were not updated as major design changes became known.

Third, there was no organized process for reevaluating the revised cost versus effectiveness. It seems at least possible that the program might have been canceled if, after about 1 or 2 years of development had revealed the complexity of the mission, final system costs could have been estimated approximately during the period of early development.

## *WHY THE BUDGETARY PROCESS IS BETTER TODAY*

The reasons for the Bomarc problem are now apparent. Today such performance would be inexcusable. Such things should not happen if use is made of the PPB approach, including repeated analysis of total program costs. Initial program cost estimates still appear today that are not much better than the quality of the original Bomarc estimates. The periodic total program review which is inherent in the PPB process is usually sufficient to catch these. An "initial" estimate, even after review, still may miss the mark substantially, but a repeat of the Bomarc-type problem is unlikely. Considering the growth in weapons systems complexity over the past 10 years, it is inconceivable that the Department of Defense could get along today with the budgetary methods used prior to 1950. Major reasons why the Department's budgetary process is better today can be summarized as follows:

First, some of those who were "burned" over 15 years ago began organized research to develop better techniques.

Second, literature describing the results of this research is widely available. Some of the results are described in professional periodicals. Governmental entities such as the Defense Documentation Center and the Clearing House for Federal Scientific and Technical Information make extensive distributions of the findings of Government-sponsored research.

Third, and very important, the results of research are being utilized. An excellent description of techniques commonly used in the Department of Defense is provided in a Rand Corp. publication, "Cost Analysis for Planning - Programming - Budgeting," by James McCullough. The basic approach and procedures outlined therein can be adapted to fit the programs of other agencies. PPB procedures which are useful to other agencies or to the Congress will surely differ in detail from those used in the Department of Defense although they can start from a common conceptual basis. The fundamental requirement to relate effectiveness to



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total resource requirements is common to all these techniques and procedures.

There will always be peculiar problems in each agency for which there are no applicable techniques available. For this reason, specialized techniques and procedures are continually under development in the Department of Defense because of differences among various systems, e.g., different subsystem characteristics of missiles and aircraft.

Fourth, the Department of Defense budgetary process is better today in that training programs have made available a large number of individuals with the necessary appreciation and, to a lesser extent, the necessary analytical ability.

Fifth, a significant number of individuals who assisted in PPB technique development or who have used the techniques are now in positions of responsibility throughout the armed services.

## *GUIDELINES FOR DESIGN OF PPB SYSTEMS*

Some specific guidelines of help in designing a PPB system for any agency can be enumerated.

### *Appropriations must be relatable to program elements*

The budget appropriations of the agency that are associated with each proposed PPB program element, e.g., the Bomarc missile system, should be determined. It seems likely that more systematic analysis of Government programs will eventually result in reorganization of appropriation structures, but, until then, the new systems must be relatable to existing appropriation structures. A major reason for the usefulness of the Department of Defense programming system is that it required this integration or "crosswalk" in the very beginning.

A breakdown of program funds by appropriation was accomplished through the use of the breakdown in the Program Element Change Detail form. Exhibit 4 shows, for the hypothetical missile system "Glad III," the financial data which must be submitted by the services for each program element, to update the services' Program and Financial Plan—the document which shows the impact of current decisions on future years. The changes, e.g., in the missile procurement appropriation within the investment cost category, are classified in the same way that these appropriations were classified in the previously approved Program and Financial Plan. Various changes in Department of Defense procedures have occurred over the years, but the integration of program elements with appropriations remains.

The budget programs and activities must also be considered when PPB program elements are established. In the Department of Defense some budget programs within the procurement appropriations relate quite well to specific program elements, but other budget programs, e.g., Army procurements of small arms, support vehicles, and some armored vehicles, are common to several program elements.

The Operations and Maintenance appropriation has generally been broken down into functional activities, such as base maintenance, and into object classes, such as supplies, rather than into program elements. Translation of these into program ele-

*Exhibit 4*

| PROGRAM ELEMENT CHANGE DETAIL | PROGRAM CHANGE REQUEST NUMBER F-7-777 | PROGRAM ELEMENT NO. 12346F |
|---|---|---|
| DECISION DATA | | (Glad III) |

APPROVED PROGRAM - BY FISCAL YEAR

| FORCES | FY 68 | FY 69 | FY 70 | FY 71 | FY 72 | FY 73 | FY 74 | FY 75 | FY 76 |
|---|---|---|---|---|---|---|---|---|---|
| PREVIOUS APPROVED | -- | -- | -- | -- | -- | -- | -- | -- | -- |
| DECISION | -- | -- | -- | 20 | 40 | 60 | 80 | 100 | 120 |
| NET CHANGE | -- | -- | -- | +20 | +40 | +60 | +80 | +100 | +120 |

COST SUMMARY *(TOA in thousands)*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PREVIOUS APPROVED | -- | -- | -- | -- | -- | -- | | | |
| DECISION | 3,000 | 10,000 | 10,000 | 15,000 | 10,000 | 5,000 | | | |
| NET CHANGE | +3,000 | +10.000 | +10,000 | +15,000 | +10,000 | +5,000 | | | |

TOTAL OBLIGATIONAL AUTHORITY *(In thousand of dollars)*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| RESEARCH AND DEVELOPMENT RDT AND E | -- | +5,000 | +5,000 | +5,000 | +3,000 | -- | | | |
| MILITARY CONSTRUCTION | -- | -- | -- | -- | -- | -- | | | |
| *TOTAL RESEARCH & DEV* | -- | +5,000 | +5,000 | +5,000 | +3,000 | -- | | | |
| INVESTMENT | | | | | | | | | |
| Missile Procurement | +3,000 | +5,000 | +5,000 | +7,000 | +5,000 | -- | | | |
| Other Procurement | -- | -- | -- | -- | -- | -- | | | |
| | | | | | | | | | |
| MILITARY CONSTRUCTION | | | | | | | | | |
| *TOTAL INVESTMENT* | +3,000 | +5,000 | +5,000 | +7,000 | +5,000 | -- | | | |
| OPERATIONS, ACTIVE FORCE | | | | +3,000 | +2,000 | +5,000 | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| | | | | | | | | | |
| *TOTAL OPERATIONS* | -- | -- | -- | +3,000 | +2,000 | +5,000 | | | |
| TOTAL OBLIGATIONAL AUTH | +3,000 | +10,000 | +10,000 | +15,000 | +10,000 | +5,000 | | | |

MANPOWER *(In units)*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| MILITARY | | | | | | | | | |
| OFFICER | | | | | | | | | |
| ENLISTED | | | | | | | | | |
| CIVILIAN | No change in Manpower involved. | | | | | | | | |
| DIRECT HIRE | | | | | | | | | |
| CONTRACT FOREIGN NAT'L | | | | | | | | | |

BUY PROGRAM *(Quantity)*

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| PREVIOUS APPROVED | -- | -- | -- | -- | -- | -- | | | |
| DECISION | 20 | 25 | 25 | 25 | 25 | -- | | | |
| NET CHANGE | +20 | +25 | +25 | +25 | +25 | -- | | | |

BASIS FOR CHANGES

Results of recommendation of a special Missile Board Study conducted at the request of the Secretary of Defense during June 1967.

DOWNGRADING STAMP

**SOURCE: Department of Defense Instruction 7045.7**

ments of the PPB system can be made only by the use of allocations. Rough allocations are made to determine future fiscal year fund requirements for long-range program element planning, but these allocations are considered to be too inexact to be used as a current operating budget for a single program element. Accounting changes are now underway,[1] which are designed to solve this problem and to provide a management accounting system to relate expenses to the budgets for each Department of Defense program element.

### *PPB system must be compatible with budget practices*

Budget regulations for the agency should be reviewed carefully during the PPB system design. The chances are that these regulations have been reasonably stable over the years for any particular agency and that they are not likely to change very soon. If the PPB system is to be realistically related to an agency's budget, it must be meshed with the practices that exist in the agency rather than based on a theoretical ideal.

This meshing may lead to the creation of some program elements for activities. which have a peculiar funding impact. For example. there are several maintenance and service (M. & S.) program elements in the Department of Defense in which the revenues from and the costs of industrially funded activities are classified. Normally, the weapons systems cost/effectiveness analyst need not be involved with these particular program elements which show actual costs because the weapons systems program elements, with which he is primarily concerned, show reasonable M. & S. cost estimates. However, the system designer must be concerned about the maintenance and service program elements, and the weapons systems cost/effectiveness analyst is wise to determine the reason for any significant differences between the total actual costs of M. & S. program elements and the originally estimated total M. & S. costs.

### *Cost categories must relate to budget categories*

If the PPB system is to be relatable to the budget, the cost categories within program elements must be broken down so as to be relatable to items which have unique funding sources within the elements. This should be a two-way street. If sensible cost categories are established prior to go-ahead for new programs, it should be possible to establish funding rules which are consistent with these categories. The point is that PPB must work first with what exists.

### *Cost categories must provide for lead time distribution*

A specific part of cost category structuring requires consideration of a lead time for each category. This is necessary, first, to relate programs to the budget and, second, to extend the completion of program fund requirements to the years beyond the budget.

This time-phasing criteria can be illustrated with a hypothetical missile system program, for which R. & D. starts in the budget year. (See exhibit 5.) The program element in this case is a type of missile system. The objective is a one-squadron capability

[1] See "Implementation of Defense Project Prime," *GAO Review*, Winter 1967, p. 81.

5 years beyond the budget year and a 250-missile, five-squadron force 2 years later.

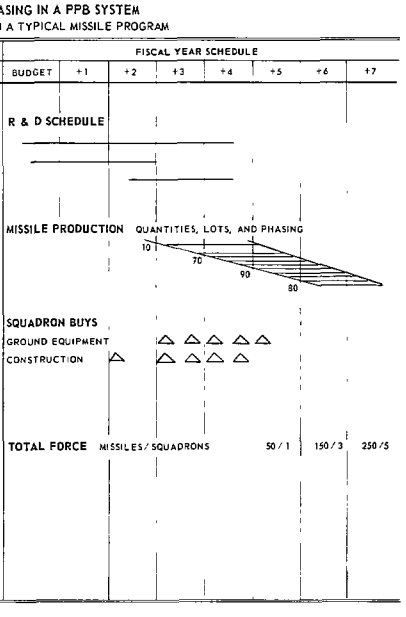
It is understood generally that separate cost categories for this program element are required for R. & D., investment and operating costs, as shown in the exhibit. Within these categories, further refinement must be made. The further refinement should provide categories for which estimating of total cost is feasible. This refinement should provide also the additional categories for which time-phasing is substantially different, e.g., system engineering, R. & D. hardware production and flight-testing. The horizontal lines and triangles on the various sections to the right of exhibit 5 give an indication of how time-phasing can vary. A percent time-percent completion curve might be used for time-phasing the R. & D. costs, because funds for R. & D. are normally provided as required (incrementally) and will therefore follow the expenditures fairly closely.

Investment cost categories must be established for ground control equipment and for launch facility construction as well as for the missiles themselves. Assuming full funding of each major item, missiles will be funded in the year production start is required, as indicated by the beginning of the horizontal lines (which show the time from start to completion of each lot) in the missile production section of exhibit 5, or about 12 to 18 months before delivery on site. Several lots may be scheduled to start in any particular year and hence are included in the buy for that year. Ground equipment normally will be fully funded by squadron or battery. Lead time may be 18 to 24 months, to allow for assembly on site ahead of missile deliveries. Construction is funded also by squadron or battery and may require 3 years' lead time

*Exhibit 5*

EXAMPLE OF TIME PHASING IN A PPB SYSTEM
BUDGET YEAR GO – AHEAD ON A TYPICAL MISSILE PROGRAM

| | FISCAL YEAR FUNDS | | | | | |
|---|---|---|---|---|---|---|
| | BUDGET | +1 | +2 | +3 | +4 | +5 |
| | (000,000 OMITTED) | | | | | |
| R & D | | | | | | |
| ENGINEERING | $40 | $50 | $25 | $20 | $ 5 | |
| TEST HARDWARE | 10 | 50 | 25 | – | – | |
| TESTS | – | – | 25 | 30 | 5 | |
| | 50 | 100 | 75 | 50 | 10 | |
| INVESTMENT | | | | | | |
| MISSILES | | | | 10 | | |
| | | | | | 65 | |
| | | | | | | $70 |
| GROUND EQUIPMENT | | | 10 | 40 | 30 | 10 |
| CONSTRUCTION | | | 20 | 40 | 40 | 0 |
| OTHER (*Training facilities, initial spares, etc.*) | | | 5 | 10 | 20 | 20 |
| | | | 35 | 100 | 155 | 100 |
| OPERATING | | | | | | |
| MILITARY PERSONNEL | | | | 2 | 4 | 10 |
| CIVILAN PERSONNEL | | | | 1 | 2 | 5 |
| REPLACEMENT SPARES | | | | – | 3 | 9 |
| CIVILAN PERSONNEL | | | | – | – | 2 |
| | | | | 3 | 9 | 26 |
| TOTAL PROGRAM | $50 | $100 | $105 | $153 | $174 | $126 |



for site preparation and completion in time for system assembly. Construction of operational sites may begin long before R. & D. hardware tests are complete.

The operating cost categories normally will identify personnel, maintenance, replenishment spares, etc. As training and the procurement of replenishment spares begin, these fund requirements will build up in advance of the deployment but will not have reached a level-off condition by the 5th year after the initial program budget year.

As the above discussion illustrates, it is a straightforward process to time-phase program costs for determination of multiyear fund requirements. The process may become very complex, and, normally, a computer operation will be necessary to make this process economical for analysis of several alternative forces. With such aids available, as they are in the Department of Defense, another surprise like Bomarc seems unlikely. No longer are program R. & D. estimates essentially level rate of expenditure projections. No longer do cost analysts wait from 4 to 6 years after program go-ahead to revise original estimates or production and operating costs.

### *Indirect operating costs should be included*

Much work remains to be done on better definition of categories and better procedures for the operating cost categories. Satisfactory estimating techniques for operating costs may expand the number of categories. Such expansion will further complicate the time-phasing to determine multiyear fund requirements.

A particularly difficult problem is the relating of indirect operating costs of program elements to the budget for these costs. These indirect costs are the incremental impacts of particular force structure changes upon costs of activities which support several program elements. Allocations of these costs to program element costs are required to support a meaningful analysis of alternative program costs. However, the budget review normally deals with the total cost of each indirect activity. The budget review may involve the relation of costs to activity outputs, or it may be based upon comparison with prior year funds. Satisfactory allocation of these costs to program elements requires relationships to activity outputs and information about the demand for these outputs by the program elements. These output bases may be numerous, and, hence, an explicit relationship to activity costs and to programs is numerically complex. Better accounting systems will provide data for research. It will take time to solve the problems of relating estimated indirect cost impacts to the budget submissions for the indirect activities.

### *Instructions are required*

Implementation of PPB requires the preparation of internal instructions. General rather than detailed guidelines can start the program moving. This may allow time for study of the program-structuring criteria. Comprehensive instructions must follow as quickly as possible. These must provide formats and explanations for submission of program descriptions and fund requirements. Some agencies may wish to start an ADP effort to mechanize these inputs.

### *PPB requires analysis Capability and data*

It is very important to start building a cost analysis capability and a supporting data bank. Unless this is done well, the system will probably generate nothing more than an unsupportable extension of numbers into future years similar to the December 1950 estimates of Bomarc R. & D. costs. The real opportunity of PPB is to capitalize on its visibility of total programs with techniques designed to improve the cost estimates for those programs.

### *Councils or steering groups can assist*

It is helpful to set up PPB councils or steering groups representing both the users of effectiveness analysis or benefit analysis, and the feeders, i.e., the activities which must submit the required data. Such groups cannot make final decisions on the system design, but they can help to avoid costly mistakes, omissions, or infeasible requirements.

## *CONCLUSION*

There is a significant body of opinion that PPB has been oversold. I recognize that some of the system advocates may have underestimated both the human and the procedural implementation problems. However, as the Bomarc experience illustrates, the PPB multiyear total program visibility, illustrated in exhibit 5, can provide significant improvements in the basis for major program decisions. The validity of this improved basis depends upon the underlying information and analysis. There remain difficult analytical and procedural problems which need to be solved by continued research.

# Research and Development—and the Congress

By S. S. Podnos

**The research and development area is an important audit responsibility of the GAO. The GAO's emphasis in this area since mid-1966 corresponds to an increased emphasis by the Congress. This article describes the increasing concern of the Congress in this area from the First Congress to the Congress of today.**

The Constitution vested in the Congress the power "to promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries." All other references in the Constitution to science and its process of research and development must be inferred.

### *Research and Development Heritage*

The First Congress convened in 1789 and within 1 year, in 1790, enacted the first patent law. Probably the most notable patent issued under this law was received by Mr. Eli Whitney for a cotton gin in 1794. This invention served as an important stimulus to the economy of our new Nation. Four years later, in 1798, Mr. Whitney, with an assist from the Congress, received a contract from the War Department to develop for manufacture and produce a firearm comprising interchangeable parts. With this contribution Mr. Whitney earned the right to be called the father of mass production.

At the turn of the century, the Congress was too occupied with more pressing matters to give much attention to research and development. This area was conducted almost exclusively under private auspices until 1838–40, when the Congress learned its first lesson in the administration of science.

The Joint Library Committee, in attempting to arrange for publication of the scientific results of the Wilkes Expedition, demonstrated the inappropriateness of any congressional attempt to oversee a scientific enterprise directly and in every technical detail. The Wilkes Expedition was the first major Federal effort in the professional use of scientists; in this case, an effort devoted to the exploration of polar regions. In the interim a general revision of the patent laws and a reorganization of the Patent Office was enacted in 1836.

The next notable congressional enactment, in 1846, established the

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**Mr. Podnos is an assistant director in the research and development group of the Defense Division.** **See biographical data on page 93.**

Smithsonian Institution which was given the objective of increasing knowledge by performing research; publishing results of studies, explorations, and investigations; and exchanging research information with other countries. The next enacted legislation relating to these areas established the National Academy of Sciences. This law was approved by President Lincoln in 1863 during the War Between the States. The congressional charter of this nongovernmental agency specified that the Academy would, whenever called upon by any department of the Government, investigate, examine, experiment, and report upon any subject of science.

### *Formative Period*

In 1879, the Congress established the Geological Survey and thereby resolved a problem of overlapping Federal scientific jurisdictions. Chemical and physical research were recognized as essential parts of the investigations and studies authorized by the organic act. Where larger appropriations for the scientific work of the Government were not forthcoming after 1865, they were not withheld because of any doubts about the propriety of Federal support. The whole subject was amply aired by the congressional Allison commission between 1884 and 1886. In a century in which our history was particularly conscious of the sphere of action of local institutions, both public and private, the Congress saw the need for research and attempted to meet that need.

By now, the Congress was becoming increasingly aware that the Government had a need for research institutions to carry out its many functions. In 1901 the Congress met the constitutional demand for standards of weights and measures by establishing the National Bureau of Standards. The charter of this new institution was broad and flexible enough to give it a place among the national physical laboratories of the world and to enable it to cope successfully with rapidly changing scientific and technological developments.

### *Buildup*

Concurrently, our institutions of higher education began to bear scientific fruit enriched by the learning of many of our scientific and engineering educators. Much of this learning had been acquired in Europe during previous generations. One result was the availability of qualified personnel to man the research and development effort. An impressive Federal scientific establishment with its own laboratories and highly educated personnel was in existence by 1916. It was responsive to both public and private interests in providing for the general welfare. Efforts on behalf of agriculture and public health were typical of its responsive work. It was no longer difficult to establish before the Congress the obvious connection between scientific research and practical interests of the common man.

Congressional legislation created the Federal research establishment over an extensive period of time and in response to many different needs. This provided an important background for the constitutional position of science within the Government. Among the founding fathers, the advancement of science was considered to be closely related to the advance



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of representative Government and political freedom. The power to conduct research and development in furtherance of Government missions was established by the time of World War I.

### *Period Between the Two World Wars*

Between the wars, the Congress continued to build through legislation the many-rooted statutory structure upholding the Government's research and development operation. During this period, the American universities clearly emerged as the home of basic research. Concurrently, the spread of industrial research and development laboratories among the corporations of the United States was striking. Large private foundations also assumed their role in scientific endeavor in this timespan. And World War II fused the overall research and development effort and gave it impetus toward a directed goal.

The major portion of this fusion was developed under the Office of Scientific Research and Development (OSRD) created by Executive order in 1941. The OSRD was placed under the direction of Dr. Vannevar Bush who did his own liaison work—and prolific it was—with the Congress. OSRD welded together the Government-university-industry research and development effort. This was done on the basis of a carte blanche method of operation. Most of the supervision came from the ranks of university professors in the basic research area. The oddity was that, as the war progressed, these same people deemphasized basic research and emphasized end-item development.

### *Effects of World War II Research and Development*

Late in the war, as a result of voluminous hearings from 1942 through 1945 by the Kilgore subcommittee of the Senate Committee on Military tary Affairs, the Congress attempted to create a permanent, central, and scientific governmental body upon the framework of the OSRD but with peacetime controls. In defense of this, Senator Kilgore stated:

> Science is a national resource of the greatest importance for our whole national life. Scientific skills and scientific know-how have enabled us to win rapid and decisive victory on the war fronts. The same skills and know-how must now be converted and expanded to meet the needs of peace—the improvement of our national health, the security of our national defense, the promotion of our prosperity.

Science had now come into its own as a political force. But scientists would not accept the controls in the proposed legislation. Finally, compromise legislation (on the side of too little controls) was passed by the Congress in 1947, as the National Science Foundation bill, but was promptly vetoed by the President.

While this proposed science legislation was being formulated, the same issues were being drawn on the proposed atomic energy legislation. Here the opposing camps were represented by the May-Johnson bill and the MacMahon bill. However, a compromise was made in this area due to the urgency of the matter and the Atomic Energy Act of 1946 was passed. A student of this legislation noted with respect to it that:

> * * * many thousands of Americans had expended millions of words in public debate * * *. The final bill was not what any

single one of them would have written. Yet, it was probably better than any individual could have produced. In this fact, perhaps, lay the secret vitality of American democracy.

### *Post-World War II Period*

The period 1945 to 1950 saw the forging of a Government-university alliance in research and development. As the OSRD was being phased out of existence, current and new governmental agencies assumed jurisdiction of its scientific work. Finally, the National Science Foundation was established in 1950 by congressional enactment. However, the new act covered only basic research—not applied research nor development. It was this deletion of responsibilities that made possible the enactment and approval of compromise legislation. It is noteworthy, also, that the total Government budget for research and development in 1950 was close to $1 billion.

By the end of the Korean war, 1950–53, the research and development portion of the Federal budget had risen to approximately $3 billion; it remained in this range through 1956. During this period, science policy as such did not have a high priority among the general issues on which all Members of the Congress had to be informed. Scientists were often confused by the combination of a poor understanding of science by the Congress as a whole and an intimate knowledge of the workings of the system on the part of a few Congressmen.

In this timespan, however, the pertinent congressional committees overseeing assigned operations of the Government (Military Affairs, Commerce, Agriculture, etc.) began to sharpen their interest in research and development. And the Joint Atomic Energy Committee and the Senate and House Committees on Government Operations took an even greater interest. Because of repeated and pointed questioning on their part, the Committees on Government Operations became the natural focal points for congressional interest in science.

### *Reaction to the U.S.S.R.*

With the event of Sputnik I in 1957, millions of people who had not previously thought about the Government's science policy suddenly developed strong feelings about it, including all Members of the Congress. Reacting to the supposed threat of Soviet scientific superiority, the President set up numerous additional scientific committees and councils, as well as a few special posts. Congressional leaders took the initiative in rapidly enacting legislation establishing the National Aeronautics and Space Administration and the National Aeronautics and Space Council.

The Congress also strengthened markedly the National Science Foundation and passed the National Defense Education Act of 1958. It also realigned its committee system by creating two new standing committees—Aeronautical and Space Sciences in the Senate and Science and Astronautics in the House. Of these two, the House committee projected the broader role. There was some congressional feeling for a department of science and technology in the executive branch, but it "died on the vine" for lack of enough support. One Senator stated in this respect that:

> The scientific program of this government is no better than the knowledge of Congress about it, because we can either

make it or break it either through our lack of knowledge or of enlightenment on the problems involved.

### *Move for More Accountability*

On the basis of a proposal by the Senate Committee on Government Operations, President Kennedy in 1962 moved his science policy advisors out of the White House and into the Executive Office of the President, a move that allowed these individuals to appear before congressional committees. Thus the Congress gained a regular channel of communication to the fourfold structure within the executive branch which was concerned with overall science policy—the Special Assistant for Science and Technology, the President's Science Advisory Committee, the Federal Council for Science and Technology, and the Office of Science and Technology.

Budgeted expenditures for the fiscal year 1964 for Federal research and development, which had risen sharply and continuously from 1956 on, were $14.7 billion compared with $1 billion in 1950. This represented 15 percent of the entire Federal budget, and both the Congress and the executive branch decided to pause. Some scientists were pushing for more emphasis on basic research, other scientists for more emphasis on applied science, and so on. It was always more money, more personnel, and less control in answer to any plea for greater effectiveness. Moreover, by then the entire Federal management terminology for science and its research and development was an overlapping, misleading, and misinterpreted semantic quagmire.

### *Increase in Congressional Oversight*

This state of affairs prompted the House to set up the Select Committee on Government Research in September 1963 to encompass the entire range of the research-development-engineering functions. Concurrently, the House Committee on Science and Astronautics modified its subcommittee structure and in so doing established a Subcommittee on Science, Research, and Development with corresponding duties. Both the select committee and the subcommittee established eminent advisory groups and conducted voluminous hearings. The select committee selected 10 areas of inquiry and directed a series of 21 questions in each of these. The magnitude of this self-imposed task was immense. The select committee's output was a report published prior to its disbandment.

During the fiscal years 1964–67, congressional control over Federal research and development largely comprised the limiting of appropriations to effect a much slower rate of growth. In fiscal years 1967 and 1968, budgeted expenditures leveled off to $16.7 and $16.5 billion, respectively. For the 1969 fiscal year, the research and development budget is $17.3 billion, an amount not too dissimilar to that expended during the 1967–68 fiscal years.

The Congress is now taking a more searching, complete, and continuous look at Federal research and development toward better exerting its oversight responsibilities. This trend places more emphasis on the analysis of current and future operations to increase management effectiveness.

Participating in this are both the substantive and the appropriation committees of the Congress, all of which have investigative functions. Even those substantive committees that formerly exhibited a rather protective attitude toward their executive branch research and development areas of oversight responsibility are now taking a more constructively critical look. The impact of the appropriate committees' processes on the Federal research and development budget, which resulted in a plateau starting in fiscal year 1967, is continuing.

Further, the Committees on Government Operations of the Congress, particularly on the House side, have become increasingly active in examining Federal research and development. For example, at least three of the subcommittees under the House Committee on Government Operations are currently engaged in such effort. The portent of the future is for even greater attention on the part of the Congress to Federal research and development.

### *Contributions of the GAO*

The GAO, as an agency of the Congress, also is placing more emphasis on examinations of Federal research and development. The mid-1966 reorganization of the Defense Division into functional staffs—including one for research and development—has served to implement this emphasis. The wisdom of this move has already proven itself.

Some of the work of this Research and Development Staff is embodied in the following issued reports:

- B–133386, March 17, 1967, on bidding costs and related technical effort charged to Government contracts.
- B–160140, June 19, 1967, on methods and controls employed by selected Federal research laboratories in managing laboratory equipment.
- B–161176, July 18, 1967, on utilization of automatic data processing systems at service-supported operations control centers.
- B–163058, Dec. 15, 1967, on a major imbalance between a tank-weapon system and its conventional development ammunition, resulting in materiel deployment delays.
- B–133209, March 25, 1968, on administration by the Office of Civil Defense of research study contracts awarded to Hudson Institute, Inc.

In addition—and these are only representative samples—the Research and Development Staff is currently performing audit work on:

- The inadequate correlation of materiel performance requirements between the developing agency and the user on a major missile system.
- The need for materiel management improvement in the research and development operations of an arsenal on conventional ammunition.
- The need for reevaluating and updating space systems facilities requirements, in balance with space systems developments, prior to facilities acquisition.
- The better utilization of management controls used for develop-

mental materiel decisionmaking by a major service command.

- The fees of nonprofit organizations under contract to the Atomic Energy Commission, the National Aeronautics and Space Administration, and the Department of Defense.

The increasing emphasis on the management effectiveness of an agency's research and development operations can be noted in this work.

The Civil Division also is engaged in examination of Federal research and development. Such examinations have and are being conducted in many Federal agencies, including the Department of Health, Education, and Welfare; the National Aeronautics and Space Administration; and the Atomic Energy Commission. A representative example of the Civil Division's audit work in the research and development area is its report on the Nimbus spacecraft (B–133394, Oct. 31, 1966).

### *Future Trend*

In line with the greater emphasis that the Congress and the GAO has placed on the management analysis of Federal research and development, there is a corresponding trend with respect to the "scientific fraternity." This trend—albeit a very gradual one—is resulting in the incremental acceptance by our scientific colleagues of oversight and the usual management controls as a necessary element of responsible and effective governmental operations. This is as it should be. As stated by the Chairman of the House Select Committee on Government Research in 1964:

> The Federal Government's marriage to research and development has been marked by an amazingly long and luxurious honeymoon. Some say the honeymoon is over. Be that as it may, it is certain that the marriage will endure.

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# Using Preliminary Reviews and Workshops Prior to Undertaking Multisite Audits

By Joseph J. Kline

**This article discusses a useful combination of techniques in making a detailed examination at multiple locations of a functional area for which prior audit experience was lacking.**

There are many problems associated with planning and programming multisite audits. Although no one has found a panacea for these problems, experience has shown that there are several techniques that can be employed to keep such problems to a minimum.

This article describes our experience with two techniques that we recently used in planning and programming a large, multisite audit. These techniques were the *preliminary review* and the *workshop*. We were not the first to use these techniques, for preliminary reviews and workshops have, on occasion, been used in prior GAO audits. However, because our experience with these techniques was good, I believe that members of our professional staff may find this article helpful in deciding when preliminary reviews and workshops would be beneficial to them in planning and programming multisite audits.

Before discussing our use of the preliminary review and workshop techniques, the reader should be aware of the nature of the assignment in which these techniques were used.

### *Identifying and Initiating the Assignment*

A principal tool used by each military service to manage its personnel resources is the personnel reporting system. These systems, utilizing electronic computers and accounting machines, serve a dual purpose: (1) To store a multitude of personnel data on each officer and enlisted man and (2) to use these data to produce the reports needed by the services to economically and effectively manage their personnel resources.

During an earlier review of the management and utilization of personnel in one of the military services, we used several of the reports produced by the service's personnel reporting system. In using the reports,

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we observed that they contained erroneous data. Also, we observed instances where service personnel considered as suspect the data in the reports, because at some earlier time, they had found that the reports were not wholly reliable. Because of these observations, we decided to make a preliminary survey and review of the service's personnel reporting system to be followed by a detailed review of the system if the information obtained indicated that such action was warranted.

Although there is no need to discuss the actual conduct of the survey, for the purposes of this article the reader should have an understanding of how the system operates.

### *The System*

The service's personnel reporting system is an integrated one, in that all three levels of command—i.e., headquarters, major commands, and bases—participate in its operation. The system provides for the bases to retain, on punch cards, 113 items of personnel information on each officer and 69 items of information on each enlisted man. With few exceptions, these same data are maintained on electronic computers at the headquarters and major commands. The types of information maintained on each individual include both personal background data, such as name and date of birth, and military and training data, such as current assignment and service schools attended.

Although personnel data can enter the system at any one of the three command levels, data usually enter at the base level and are transmitted to the other command levels on a high-speed communications network. The sources of most of the data recorded in the system are personnel action notices and personnel records which are retained at the base level in the personnel folders of the individual servicemen.

The data maintained in the system are used to produce several hundred reports which service officials rely upon to make management decisions affecting the service's personnel resources. In addition, the system can produce individual printouts showing the information items recorded in the system for each service member—the 113 items for each officer and the 69 items for each enlisted man. These printouts are known as *soft-copy records.*

### *The Preliminary Review*

In performing the preliminary survey, we directed our principal effort to obtaining an understanding of how the system operates. We also reviewed the soft-copy records of several servicemen and found that some of the information items on these records were in error. However, because of the limited number of records reviewed, we believed that our observations were not sufficiently conclusive to warrant our committing a sizable amount of staff time for a multisite audit without first obtaining additional information. To acquire this additional information, we decided to conduct a preliminary review.

For this purpose, we selected a base that we believed would be representative of those we would select for audit. Also, we set three objectives that we wanted to accomplish during the preliminary review. These were:

1. To determine the rate and pattern of errors we might expect to

find in a multisite audit of the reliability of data in the personnel reporting system.

2. To determine how to use the several multivolume manuals the service had issued to its personnel specialists for guidance in operating and managing the system.
3. To determine the audit steps that would have to be included in a detailed audit program.

The preliminary review was conducted over a period of 3 weeks and involved the expenditure of about 50 man-days of staff time. In performing this review, the staff verified the accuracy of the information items on the soft-copy records of 46 officers and enlisted men with the supporting documentation in the applicable personnel folders. Additionally, the information items on these records were compared with the data maintained at headquarters and at the parent major command to determine compatibility.

Even with the assistance and cooperation provided to us by service personnel, we nevertheless found the conduct of the preliminary review work to be a complex matter. Verification of the information items on the soft-copy records was a hit-and-miss proposition during the first few days. For example, what initially appeared to be the proper source document or codification for a particular information item was later found to be inapplicable to the item. Similarly, staff members had to spend considerable time researching manuals to determine the proper codification for particular items. As time passed, however, the staff became more familiar with the records, and, by the end of the third week, the individual staff members were able to audit from three to five soft-copy records a day.

The three objectives of the preliminary review work were accomplished. We found an average error rate of about 6 percent in the data reviewed, but more importantly, we found that certain information items were in error over 25 percent of the time. Also, we found that using the manuals was often a difficult task, because determining the proper codification for certain information items sometimes required referring to and correlating instructions in two or more sources in each of several manuals. Finally, having actually audited a number of soft-copy records, we had a good idea of the steps that would have to be provided for in the audit program.

Aside from the above, however, we learned much more from the preliminary review that would have to be considered during the detailed examination work. For example:

1. The field staffs participating in the audit work would be faced with a protracted learning-curve problem. In this respect, we learned from the preliminary review that these staffs, because of their unfamiliarity with the personnel reporting system, would have to spend several weeks acquainting themselves with the types, locations, and uses made of the many manuals, records, and reports in the system.
2. Statistical sampling techniques would have to be employed in the audit of the system to permit any realistic servicewide projections to be made on the basis of



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our findings at the selected audit sites.

3. The service had not prescribed, in its manuals or otherwise, sufficient criteria for recording certain data in the system. This would cause the audit staffs problems in verifying particular information items.

After evaluating the results of the preliminary review, we concluded that a multisite audit was warranted and that its principal objective should be to review and evaluate the reliability of the data recorded in the personnel reporting system. Moreover, having been forewarned by the preliminary review of many of the problems to be faced during the audit, we were able to make provision for coping with them in the audit program.

### *The Workshop*

The audit program, however, could not in itself overcome two major problems. One was the problem relating to the protracted learning time which the preliminary review showed would be experienced by the audit staffs. The second was the problem we often encounter in multisite audits; i.e., maintaining uniformity in the work accomplished and the information obtained at the audit sites.

To deal with these problems, we decided that, during the week preceding the scheduled beginning of the audit, we would conduct a workshop to familiarize the seniors in charge of the sites selected for audit with those aspects of the system to be audited; with the audit program; and, most importantly, with the audit techniques to be used.

We recognized that, to be effective, the workshop would have to be oriented toward the principal objective of the audit, which was to evaluate the reliability of the data in the personnel reporting system. Accordingly, we decided that, during the workshop, the attendees should be instructed in how to audit soft-copy records.

To conduct the workshop in this manner, two things were needed:

1. A workshop instructor with expertise in auditing soft-copy records.
2. Workshop material that would permit the workshop to be conducted on a case-study basis.

Fortunately, a qualified instructor was available. The site supervisor of the preliminary review had acquired the know-how needed to instruct the workshop attendees in the audit of soft-copy records.

Obtaining the needed workshop material, however, was another matter. It was necessary to prepare for each workshop attendee a workset containing copies of the soft-copy records of an officer and an enlisted man, facsimile copies of their personnel folders, and copies of the coding sheets which prescribe the alpha and numeric codes used to enter data into the personnel reporting system. Additionally, we had to obtain from the service the manuals and regulations which govern the operation and management of the system and which the field staffs would be using at the audit sites.

The workshop was conducted over a 3-day period. Although the first few hours of the workshop were used to familiarize the attendees with the personnel reporting system and audit program, the remainder of the time

(approximately 20 hours) was spent in auditing the two soft-copy records included in the workset. During this phase of the workshop, following the audit program step by step, the attendees were instructed in how to audit each information item on the soft-copy records. This involved instruction in the use of personnel folders, manuals, and regulations. Also, where applicable, alternate audit steps were discussed and applied.

### *Conclusion*

As of this writing, our audit of the personnel reporting system has been completed with very successful results and a report to the Congress on our findings is being prepared. Those of us who participated in the assignment are satisfied that the preliminary review and workshop played an important role in our achieving this end. Their use enabled us to reduce many of the problems that had to be faced during the audit and to more effectively deal with those that did arise. Moreover, we were gratified to learn from several of the site supervisors that, in their opinion, the workshop substantially reduced the onsite learning time that otherwise would have been encountered.

I believe that the greatest success can be achieved from a preliminary review and workshop if the following prerequisites are met:

1. *Define the objectives* of the preliminary review before it begins, and be certain that the review is accomplished in a manner that will achieve these objectives.
2. *Adequately plan* for the workshop. This includes preparation of needed worksets, accumulation of reference material, and selection of a qualified instructor.

721310

# Audit Tools Are Available in the Data Processing Department—Are We Using Them?

By Lawrence Davis

**This article suggests how to identify data processing documents that may be helpful in providing useful sources of information for audit work. These sources may save the auditor from performing unnecessary work and thus free additional time for work in other audit areas.**

The importance of the electronic computer and its output is demonstrated by the phenomenal increase in recent years in computer utilization by Federal agencies. According to the "Inventory of Automatic Data Processing Equipment in the Federal Government," published by the Bureau of the Budget, the number of computers in the Government inventory has increased from 403 in 1959 to about 2,600 as of June 30, 1967. The average number of hours a computer is in service per month ranges from 248 hours for the small, low-cost computer to 495 hours for the largest and most expensive computer. This growth in computer utilization increases the probability that information we need in our audits is already in the data processing system. Our problem is to identify this data in the system, and plan for its use.

A modern data processing department should maintain certain records that would be of use to us in obtaining information about an area we wish to review. These records are (1) listings of reports prepared, (2) daily workload schedules and computer utilization logs, (3) computer program documentation, and (4) requests for special reports.

### *Listing of Reports*

In most cases, a listing of reports prepared by the data processing department is available. This listing would be the first record to examine. There is no set format for such listings, but usually, in addition to giving the name of a report, they show the frequency of the report and the name of the department or office for which prepared.

Titles of reports should give some idea as to whether particular reports may contain information about the areas we are reviewing. For example, an installation may prepare various equipment utilization and maintenance reports. Such reports would

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be a good source of information for obtaining maintenance data applicable to component or system failures, downtime for individual equipment, and data on components causing downtime. Some of these reports would show which item within a component failed and what probably caused the failure.

If we make it part of our planning to determine through the data processing department what reports it prepares and find that the information we need has already been compiled, we can avoid extracting the data from the original documents and thereby conserve audit time.

The complete listing of reports prepared by the data processing department can be helpful not only in providing information about the area currently being reviewed but also in providing information for use in future audits. Therefore, a copy of this listing should be made a part of the auditor's permanent file, for use in future assignments.

### *Daily Workload Schedule and Computer Utilization Log*

Because of the increase in demand for data processing services, the data processing function is usually performed by a separate department. This upgrading has resulted in more complete information being kept about the data processing workload.

If for some reason a listing of reports prepared is not available, the data processing department may still be a valuable source of information about the review area with which we are concerned. The time for work performed for other departments is generally accumulated by machine hour. To do this, each department's work is assigned a series of job numbers. We can determine from the data processing department which job numbers pertain to the various departments. By scanning the daily workload schedule, we can identify those jobs applicable to the department with which we are concerned.

The job number itself will not identify what kind of information is contained in a report. We must get this information by other means. Probably the best way to do this is to talk with the chief programmer or chief system analyst about the job number. Sometimes a system analyst may be assigned to the department about which we want information. If so, he will be the person to talk with. In the larger installations, one or more system analysts are usually assigned to each department. Their explanation as to the general type of information contained in the reports associated with the job numbers will probably eliminate most of the reports from further consideration by us. For those reports in which we are still interested, detailed information can be obtained by examining them.

If the workload schedule does not provide the information needed to identify the job number, then a reveiw of computer utilization logs may be helpful. The computer log is maintained by the computer operator who enters the job number on the log when the job is started. However, it is more difficult to work with the computer logs than with the workload schedule. This difficulty is due to the fact that computer logs contain more detail and show each operating sequence, such as sorting, merging, and editing, performed in completing a job.

After obtaining from the log those job numbers that are applicable to the department in which our review is being conducted, we should discuss the job numbers and associated reports with the system analyst to ascertain the kind of information in the reports.

### *Computer Program Documentation*

There will be times when the information we need is not contained in a printed report. However, it may appear that the information was obtained in preparing the report. For example, if a report shows the total cost of inventory on hand, we can expect that more detailed data, such as unit costs for individual inventory items. must already be available in the data system. We can determine whether this is so from the data processing department's file for this job. Such a file should be maintained for each regularly prepared job. It usually contains documentation, such as (1) coded programs, (2) flow-charts, (3) input/output formats, (4) brief narratives explaining the programs. and (5) instructions for the computer operator in running the programs.

Two of these items can be helpful to us. They are the flow-charts and input/output formats. The flow-charts will identify each run, and input/output formats will identify the input and output data for each run. Usually, a report is prepared from a series of machine runs. The output of one run becomes the input for a subsequent run. If we find that the information we need is contained in one of the intermediate outputs, then we know that the information we need is already in the system and we can request the data processing department to prepare a printout of this run.

### *Special Reports*

Special or one-time reports are additional sources of information that we may be able to utilize. These reports are not regularly scheduled, but are prepared only on request. These requests are usually submitted in writing to the data processing department. By scanning the file of approved one-time reports, we may find that a report containing information related to our review area has been previously prepared.

### *Conclusion*

In summary. we should first attempt to obtain a copy of a listing showing all reports prepared by the data processing department. If such is not available. we should then, and only then, attempt to identify these reports by other means.

It should be kept in mind that the data processing department can be a good source of information about any department within an activity. In planning our assignments, we should make certain that we take full advantage of all reports and information already in the data processing system.

721311

# A New Species of Octopus

By Frank B. Graves

**A description of the giant computer system at AEC's Lawrence Radiation Laboratory and some implications for GAO auditors.**

Recently, while on a review of data processing facilities in the San Francisco Bay area, I came across what could best be described as an Octopus and, in fact, that is just what its designers have called it.

The Octopus was developed at Livermore, Calif., by the University of California's Lawrence Radiation Laboratory (LRL), an Atomic Energy Commission contractor, to provide almost instantaneous access to a giant computation center for up to 1,000 scientists without their having to leave their desks. This is commonly known as computer time-sharing, a computing technique which allows numerous teletypewriters and other devices to be connected to a central computer facility and used concurrently.

### *Pioneering Days—15 Years Ago*

Back in the early days of computers, the machines were slow enough so that a scientist sitting at the computer console could keep up with the various steps of the calculation by watching the flashing lights. He knew what he had programmed the computer to do and could detect, at any instant in time, whether the machine was proceeding properly. He could stop the operation and obtain intermediate results on the console typewriter; he could add, delete, or modify data and instructions. Thus the man had a very close relationship with the machine; in a sense he was "on line" with it.

Often, the computer was idle while some changes were being made by means of punched cards, paper tape, or magnetic tape. The development of faster computers resulted in an intolerable situation in which the man was no longer able to interact with the computer on a timely basis.

To utilize every possible unit of available time, batch processing systems were designed and problems were grouped together for efficient machine operation. The user was thrown "off line." He had to prepare punched cards which, when they left his hands, concluded his interaction with the machine. This was undesirable, especially when the system workload became so great that the user had to wait long periods of time to obtain the results to his problems.

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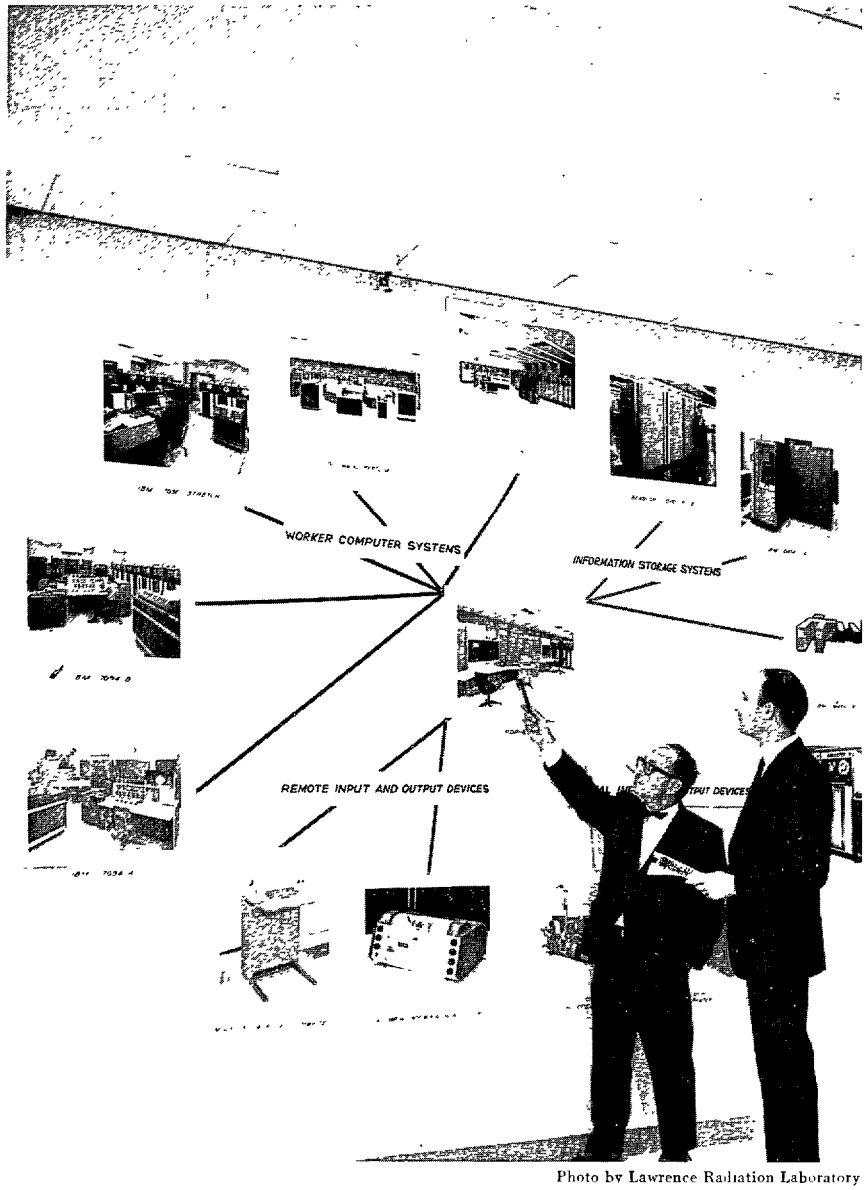


Photo by Lawrence Radiation Laboratory

**Dr. Sidney Fernbach (left), Head of the Computation Division at the Lawrence Radiation Laboratory in Livermore, Calif., explains to the author a photographic layout of the Laboratory's giant computation center.**

### *Pioneering Days—Today*

With Octopus, the user has again moved back into the more natural on-line relationship with the computer. This has come about because of the development of time-sharing techniques and the ability of very large and fast computers to run several jobs simultaneously. Time-sharing is not unique to LRL; in fact, many Government and commercial organizations are using this method to meet their data processing requirements. What is different about Octopus. however, is its size and capability, it being many times larger than other time-sharing systems in existence today.

Indeed, Octopus could well be the forerunner of huge computer utilities. The word "utility," of course, has the same connotation as it does in the more familiar areas of electric and telephone utilities and connotes a service that is shared among many users, with each user bearing only a small fraction of the total cost of the operation.

With a computer utility, however, the services provided to each user will be infinitely more numerous and complex than those of today's existing utilities. It will include the collection, processing, storage, and distribution of a variety of information for a multitude of customers. Some functions and data files will be integrated, but much will be unrelated.

### *What Octopus Is*

At the center of LRL's Octopus are two Digital Equipment Corporation PDP–6 computers that share between them 256,000 37-bit words (9,472,-000 bits) of core storage. These units serve as the communications controller of the Octopus network. When a user transmits a job to the computation center by means of his teletypewriter, the controller receives the instructions and allocates them to the appropriate working computer for processing. If the job requires certain data that is kept on file in the information storage system, the controller retrieves the necessary data and transfers it into the working computer.

After the processing is completed, the working computer sends the output data back to the controller which disposes of the data according to user instructions. The output may be placed in mass storage (discussed below); recorded on magnetic tape; punched out on cards; plotted into graphs and charts; or. if not excessively long, typed out remotely on the user's teletypewriter.

Thus the controller is the intermediary to all elements of the Octopus: the worker computer systems, the information storage systems, the input/output devices located at the computation center, and the remote input/output devices located throughout the laboratory. Furthermore, the controller is so fast that it allows many users to make similar requests of the computer system at the same time, with each user thinking that the computer is his alone by virtue of its almost instantaneous action on his problem.

The processing functions of Octopus are done by an impressive array of worker computers. On line to the controller are seven computers, three Control Data Corporation (CDC) 6600's, one CDC 3600, two International Business Machines Corporation 7094's. and one IBM 7030 STRETCH. On a typical mix of

scientific/research problems, each IBM 7094 can perform about 175,900 operations a second, the CDC 3600 can perform about 315,900 operations a second. and the IBM 7030 can perform about 371,700 operations a second.

The three CDC 6600's are in a class by themselves, each being able to perform over 7 million operations a second. The central processing unit of a 6600 is divided into 10 functional units, each of which operates in parallel, so that up to 10 operations can be processed concurrently. The central processing unit is so fast that its designers have built into the computer 10 smaller and somewhat slower computers called peripheral processing units. These units enable the central processor to work at full speed by monitoring the activity of the main processor, feeding new information and jobs to it, and accepting the output.

Very large batch-type problems of low priority are also available to the worker computers and are processed when the controller does not receive a sufficient number of problems from the remote teletypewriters to keep the equipment busy.

### *Output and Storage*

As can be well imagined. the output of so many powerful computers is enormous, and LRL has a variety of ways to store and/or print out the information. If relatively little data is involved, the controller will send it back to the user by means of the teletypewriter. Long printouts are done at the computation center on its high-speed printer, a specially constructed machine which prints at the fantastic rate of 30,000 lines a minute.

Information that needs to be stored for later retrieval and computer use is placed in one of the information storage systems, either an IBM data cell or the IBM Mass Store. The data cell stores a great deal of information—about 3.6 billion bits—but, when compared to the Mass Store, it is small indeed! The Mass Store's 1 trillion-bit capacity is over 27 times larger; it can store as much information as a stack of magnetic tapes 1,000 feet high or a stack of cards 31 miles high.

Two methods of storage are used, rather than one, because of the longer length of time that it takes to acquire information from the larger device. Whereas the data cell can be accessed in 175 to 600 milliseconds. the Mass Store requires 3 to 5 seconds. A large Librascope disk file with a capacity of 880 million bits is used as an intermediate storage device between the controller and the Mass Store. All told, the Octopus computers and storage systems have a storage capacity of over 1,008 billion bits.

The ability to store large quantities of information and to have relatively fast access to that data is probably the most important and critical aspect of Octopus. LRL normally accumulates about 12 trillion bits of information annually, and, while it is not necessary to retain much of the information, a significant portion must be stored to avoid running the same problems again at a later time.

LRL obtained its first computer, a Univac I. about 15 years ago. This machine had a multiply time of 2 milliseconds. a high-speed storage of 1,000 words. 10 tape units, and a typewriter. It may seem remarkable to us

now, but it was commonly believed at the time that a few computers of this power and speed could compute all the problems in the world. It wasn't long, though, before it was discovered that reasonably posed scientific problems could easily take 100 hours and more of this computer's time.

Advances in computer technology soon provided faster machines to solve these problems, but with the increased computer power came still bigger, more sophisticated problems to solve. While the Octopus worker computers may appear at first glance to be big enough to solve problems of any size, such is not the case, and 100-hour problems still exist for which larger and faster machines must be built.

### *Pioneering Days—Future*

The Laboratory now has on order two computers, each of which is four times faster than a 6600, and studies are being made to determine the feasibility of obtaining even more potent machines.

Octopus is one of several utility-type systems now being developed to serve many users and to realize the economies of scale. Generally, computers at twice the cost provide four times the computing power; hence, a computer utility, with its large general-purpose computers available to many users, will offer a variety of data processing services at such a low cost that it will be uneconomical for many organizations to operate their own ADP facilities.

### *General Audit Implications*

Increased use of real-time techniques of managing information should reduce the amount of paper floating through offices. Auditors normally have relied on this paper in their work. Its absence will mean the auditors will have to explore, develop, and use other means of doing their jobs. These other means obviously will require the auditors' thorough knowledge of the system.

Recognition of the significant changes in prospect has already resulted in extensive ADP training programs in the Government, some offered by the Civil Service Commission for all agencies and some developed for individual agency use. On the basis of my own chary experience with Octopus, I would suggest that anyone wishing to survive and progress in the auditing field had better do some self-programming to learn as much as possible as soon as possible.

### *Implications for GAO*

1. Centralized computer facilities and more sophisticated, real-time applications will reduce the documentation available to auditors.
2. Real-time management information systems utilizing remote computer centers will require increased emphasis on systems audits.
3. GAO auditors will have to upgrade their knowledge of ADP.

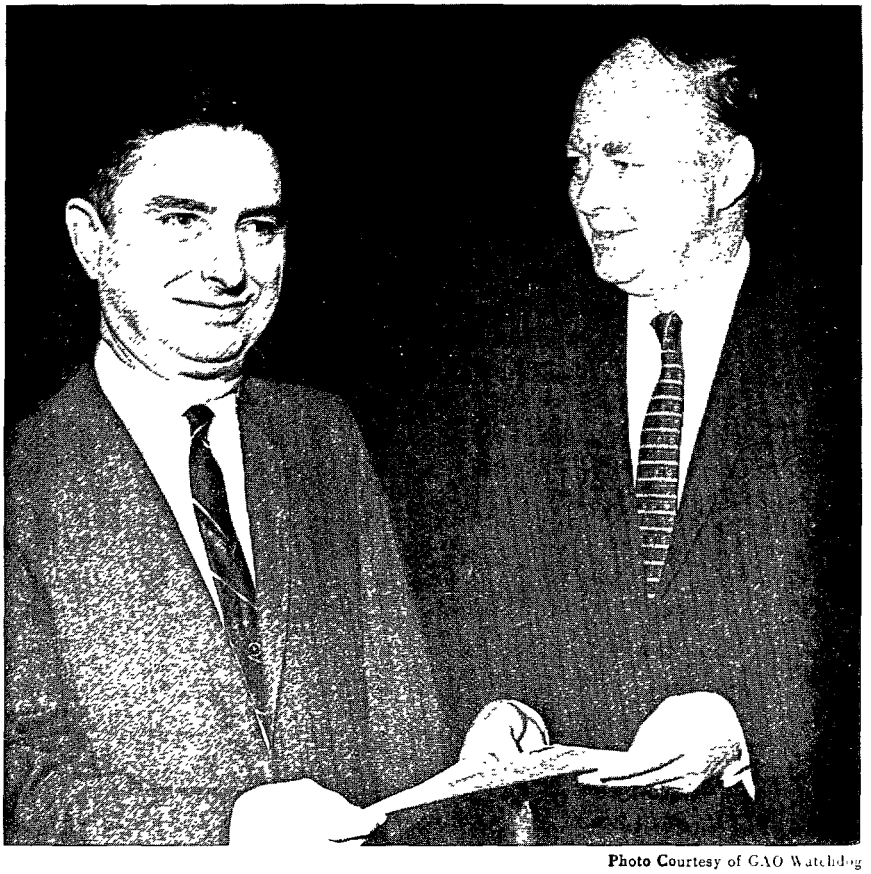

**Photo Courtesy of GAO Watchdog**

# National Civil Service League Career Service Award

*Ellsworth H. Morse, Jr.*, director, Office of Policy and Special Studies, was selected by the National Civil Service League to receive its 1968 Career Service Award.

In announcing the award to the heads of divisions and offices of the U.S. General Accounting Office on March 6, 1968, the Comptroller General, *Elmer B. Staats*, stated:

> I am sure that you recognize the signal honor which has been accorded Mr. Morse and the General Accounting Office by the League's decision to grant him this outstanding award. The National Civil Service League has come to be recognized as the outstanding proponent of the recognition of merit in the public service. For some years it has made an annual award to 10 of the outstanding civil servants in the Federal Government. The prestige associated with this award is now recognized around the world.
>
> This award is all the more fitting in view of the increased emphasis upon and recognition of the importance of financial management in the Federal Government. Mr. Morse has played an outstanding role in this area. In fact, I believe it can be said that he now holds the position of leader in the Federal Government's efforts to improve financial management.
>
> I am proud and pleased, as I know you are, that he has been accorded this honor . . .

The 1968 awards were conferred by the National Civil Service League at a banquet and dance held at the Washington Hilton Hotel, April 27.

The National Civil Service League is a nonpartisan, nonprofit citizens' organization founded in 1881 to promote efficiency in Federal, State, and local government. Business firms, organizations, and individuals interested in a quality public service sponsor the program.

A previous GAO winner of one of these awards is *Lawrence J. Powers*, assistant to the Comptroller General. Mr. Powers received this award in 1957 when he was director of the Defense Accounting and Auditing Division.

# Staff Development in the U.S. General Accounting Office

On February 19, 1968, the Comptroller General released the first of a series of booklets relating to the continuing development of GAO staffs.

The first booklet pertains to the professional accounting and auditing staffs and sets out the basic policies, objectives, and approaches for fostering their continuing career development. The ultimate goal of this program is to sustain for GAO the highest level of professional and managerial competence.

Copies of the booklet have been distributed to all members of the professional accounting and auditing staff.

The content of the Comptroller General's letter which introduces this booklet is reproduced on the following pages.

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

TO THE ACCOUNTING AND AUDITING STAFF MEMBERS
OF THE UNITED STATES GENERAL ACCOUNTING OFFICE

All of us can take great pride in the fact that the General Accounting Office has earned the reputation for high professional competence and objectivity. I think we will all agree that our goal should be to maintain and enhance, if possible, this reputation.

In our concern with day-to-day assignments, we may sometimes lose sight of the tremendous importance of the role which our organization plays in serving the Congress and the Nation. We carry a heavy responsibility in encouraging the efficient, economical, and effective performance of the executive agencies; in handling highly complex legal matters; in improving financial management practices; in providing staff assistance to members and committees of the Congress; in adjudicating claims for and against the Government; and in many other ways.

The first and foremost need for each of us is an awareness that his work is important and useful. Beyond this is the need for:

--Each individual to desire to improve his professional and managerial capacity.

--Each individual to have a part in identifying his staff development needs, both those which he alone can meet and those in which his supervisor or the Office can help.

--A strong and varied training program which will meet the needs of the staff as well as the Office.

--A program as well as a policy to assist in appraising performance and in identifying staff development needs.

--A career development practice of reviewing performance and potential throughout the year rather than only at the required annual appraisal time.

--A supervisory climate which enables the staff member to participate in setting his work

goals, in reviewing his performance and potential, and in planning for his career development so that he is motivated toward accepting and achieving higher performance standards which will result in greater self realization in his job.

--Recognition of the increasing size of our audit staff and the growing number of audit assignments which call for greater emphasis on identification of capable supervisors and on training designed to strengthen managerial capabilities.

--Recognition of outstanding performance through awards and salary advancements.

Finally and basically, it is important that policies and programs be stated for all employees; for, without this knowledge, no career development program can be fully effective. It was with this latter point especially in mind that we decided to set out our policies and programs in a series of booklets entitled "Career Development in the General Accounting Office." This first booklet entitled "Career Development in the General Accounting Office--Part I--Accounting and Auditing Staff," has been completed and is being distributed at this time to staff members engaged in accounting and auditing activities. Additional career development booklets are being prepared for other professional and administrative staff members.

This booklet has been several months in preparation. It is the product of the views of regional managers, division and office directors, individual employees, and consultants.

The General Accounting Office has had an enviable career development program in the past, but, with your help and with the programs outlined in the various booklets, we will have an even better program and a stronger and more effective organization.

Comptroller General
of the United States

February 19, 1968

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# NEWS and NOTES

### *New Budget Concepts*

In transmitting the Federal budget for the fiscal year 1969 to the Congress, the President called attention to the new unified budget concept adopted as recommended by the President's Commission on Budget Concepts in its report of October 1967. The President stated:

> I am presenting my 1969 budget under the new unified budget concept unanimously recommended by the bipartisan Commission on Budget Concepts I appointed last year. Among the many changes recommended by the Commission and incorporated in this year's budget presentation, two stand out:
>
> - *First,* the total budget includes the receipts and expenditures of the *trust funds,* which were excluded from the traditional "administrative budget" concept. Because some $47 billion of trust funds are included in the new budget concept, its *totals* are much larger than those in the old administrative budget.
> - *Second,* when the Federal Government makes a repayable *loan,* the effect on the economy is very different than when it spends money for a missile, a dam, or a grant program. A loan is an exchange of financial assets. Unlike other outlays, it does not directly add to the income of the recipient. Consequently, the Commission on Budget Concepts recommended that the budget identify and distinguish "expenditures" from "lending," and, for purposes of evaluating economic impact, show a separate calculation of the surplus or deficit based on expenditure totals alone. My budget presentation follows this significant recommendation.

Most of the Commission's recommendations (see *GAO Review,* Winter 1968, p. 50) were incorporated in the 1969 budget following the President's approval in December 1968. The principal recommendations remaining to be implemented in future budgets are those calling for stating budget receipts and expenditures on the accrual basis and segregating the subsidy portion of loan disbursements.

### *Summary of 1969 Budget*

The President's Budget Commission proposed a new form of budget summary which would highlight appropriation action required of the Congress, summarize total budget receipts and outlays in terms of an expenditure account and a loan account, and disclose the financing of deficits.

The recommended summary format was included in the 1969 budget and is reproduced on the following page.

### *General Scope of GAO Management Evaluations*

In addressing the staff and students of the Marine Corps Command and Staff College at Quantico, Va., on January 5, 1968, *Frank H. Weitzel,* Assistant Comptroller General, characterized the general scope of GAO audit work as it pertains to evaluations of management performance in the following terms:

> Because of our limited resources, it is not possible for us to comprehensively review a particular Government activity to a sufficient degree to make an evaluation that this agency or that major segment of an organization is well managed, reasonably well managed or poorly managed. Of necessity we must look for opportunities to improve management and, therefore, our re-

[Fiscal years, in billions]

| Description | 1967 actual | 1968 estimate | 1969 estimate |
|---|---|---|---|
| Budget authority (largely appropriations): | | | |
| Previously enacted | $135.4 | $125.1 | ---- |
| Proposed for current action by Congress | | 3.3 | $141.5 |
| Becoming available without current action by Congress | 58.7 | 69.9 | 73.1 |
| Deductions for interfund and intragovernmental transactions and applicable receipts | −11.5 | −11.8 | −12.9 |
| Total, budget authority | 182.6 | 186.5 | 201.7 |
| Receipts, expenditures, and net lending: | | | |
| Expenditure account: | | | |
| Receipts | 149.6 | 155.8 | 178.1 |
| Expenditures (excludes net lending) | 153.2 | 169.9 | 182.8 |
| Expenditure deficit (−) | −3.6 | −14.0 | −4.7 |
| Loan account: | | | |
| Loan disbursements | 17.8 | 20.9 | 20.4 |
| Loan repayments | −12.6 | −15.1 | −17.1 |
| Net lending | 5.2 | 5.8 | 3.3 |
| Total budget: | | | |
| Receipts | 149.6 | 155.8 | 178.1 |
| Outlays (expenditures and net lending) | 158.4 | 175.6 | 186.1 |
| Budget deficit (−) | −8.8 | −19.8 | −8.0 |
| Budget financing: | | | |
| Borrowing from the public | 3.6 | 20.8 | 8.0 |
| Reduction of cash balances, etc. | 5.3 | −1.0 | (*) |
| Total, budget financing | 8.8 | 19.8 | 8.0 |
| | *1966 actual* | | |
| Outstanding debt, end of year: | | | |
| Gross amount outstanding | 329.5 | 341.3 | 370.0 | 387.2 |
| Held by the public | 265.6 | 269.2 | 290.0 | 298.0 |

*Less than $50 million.

views rarely take on an aspect of being an overall appraisal of management. We do, of course, try to give credit where credit is due if in so doing we do not have to employ a great deal of manpower resources to be in a position to say the activity is well managed.

### *Project on Transportation Services for Civil Agencies*

A new joint agency project to study the procurement, auditing, payment, and settlement for passenger and

freight transportation services for civil agencies has been launched under the Joint Financial Management Improvement Program.

Its objectives, approved on March 5, 1968, by *Frederic H. Smith*, deputy director, OPSS, and chairman of the JFMIP Steering Committee, are to:

- Review the current system of the civilian agencies of the Federal Government for procuring, paying (including the actual disbursement), auditing, and settling with the carriers for transportation services, and evaluate the adequacies of this system and identify improvement or needed changes from the standpoint of both the carriers and the Government.
- Develop alternative arrangements for these processes in obtaining transportation services and evaluate these alternatives both in terms of the relative advantages and disadvantages of each to the Government and the carriers.
- Determine the most effective arrangement of these functions from the standpoints of benefits to the Government in relation to cost and businesslike relations with the carriers.
- Develop a plan for putting into effect any changes in the existing system required, including specification of the actions to be taken, the agencies to take them, and their sequence and timing.

The project will be led by W. L. Johnson, Jr., Assistant Administrator for Administration, General Services Administration.

GAO will be represented by *Thomas E. Sullivan*, director, Transportation Division; he will be assisted by *Lowell W. James* and *David F. Engstrom.*

Representatives from the Bureau of the Budget, and the Departments of Treasury, Agriculture, Commerce, and Health, Education, and Welfare will also participate.

### *Senate Investigation Into Small Business Investment Companies*

The Permanent Subcommittee on Investigations of the Senate Committee on Government Operations issued its report on this investigation on January 31, 1968 (Senate Report No. 958, 90th Cong., 2d sess.).

The Small Business Investment Company (SBIC) program was authorized by the Congress in 1958 and is administered by the Small Business Administration (SBA). The purpose of the program is to provide an additional source of capital funds to small business concerns through small business investment companies (private corporations) which could obtain loan funds from the Federal Government through the Small Business Administration.

The subcommittee started its investigation in 1965, the scope of which included inquiry into susceptibility of SBICs to infiltration by dishonest persons; effectiveness of administration of existing laws; and losses expected to be experienced by the Federal Government.

The Comptroller General and other GAO officials testified before the subcommittee on August 2, 1966 (*GAO Review*, Fall 1966, p. 69). The subcommittee's report contains numerous references to this testimony.

Among the conclusions recorded in the subcommittee's report are the following:

1. No studies of expected losses by SBICs had been made by SBA, nor had that agency issued guidelines to SBICs for use in making loans and investments. (This was done later pursuant to a GAO recommendation.)

2. Administration and supervision of the SBIC program by SBA were lax and inefficient in several respects.
3. Fidelity bonds required by SBA were inadequate to protect the Government in event of fraud by owners and employees of SBICs.

The subcommittee's report also includes information on actions taken by SBA to strengthen administration of the program and on new legislation pertaining to the program enacted into law in October 1967 (Public Law 90–104).

Indicative of the high risk nature of this program is the estimate included in the report of over $50 million in possible losses to the Federal Government out of total advances of SBICs of nearly $300 million.

### *Significance of Inventory Adjustments*

Good control over inventories of supplies and equipment requires periodic testing of the accuracy of the accounting records by physical count, weight, or measurement and the correction of the records where necessary. Reasons for differences should be investigated to determine the need for correcting records and to identify correctable causes of errors in the records.

At a hearing by the Subcommittee on Economy in the Government, Joint Economic Committee, on December 8, 1967, the Comptroller General, *Elmer B. Staats*, provided testimony on inventory management problems in the Department of Defense. A part of his comments dealt with the significance of adjustments of records resulting from the taking of physical inventories.

We recognize that in private industry a net adjustment figure (gains offset by losses) can be used to measure the extent to which profit or loss has been affected during a particular accounting period or the extent to which capital investment in inventories has been affected by inventory adjustments. However, this figure does not give a satisfactory indication of the effectiveness of inventory controls or the reliability of the inventory records. For these purposes, gross adjustments (the total of gains and losses) is a more meaningful figure.

An excessive volume of gross inventory adjustments is a clear indication that, in a large number of instances, the inventory accounts for specific items were inaccurate in relation to actual stocks on hand and, therefore, represented potential management problems. In those cases where records indicate more stock on hand than actually exists, there is a distinct danger that when stocks are depleted, orders cannot be filled. On the other hand, when the inventory records do not reflect all of the stock that is actually available, unnecessary procurements may be made and potential excesses generated. Since either of these conditions represent an unsatisfactory condition requiring management attention, it seems more appropriate that gross inventory adjustments be used as a measure of the effectiveness of the stock control practices and records.

Since the purpose of maintaining inventory records is to have accurate information available as to the quantities and location of stock on hand, an excessively high ratio of gross adjustments to average inventory is a strong indication that such inventory records are not accomplishing the purpose for which they are maintained and that necessary controls over the inventories are absent or inadequate.

### *Relationship Between Defense Contract Audit Agency and GAO*

On February 29, 1968, the House Committee on Government Operations issued its report entitled, "Defense Contract Audits (Relationship

between Defense Contract Audit Agency and GAO)" (House Report No. 1132, 90th Cong., 2d sess.).

The report was an outgrowth of hearings conducted by the Military Operations Subcommittee in July 1967. The subcommittee's primary interest was the newly established Defense Contract Audit Agency (DCAA), established in June 1965, and the possibility of unnecessary duplication of audit effort as between the General Accounting Office and the DCAA auditors.

On this point, the report observes:

> The Comptroller General and the DCAA Director both have assured the committee that there exists between the two agencies a high degree of cooperation, that their work is complementary, and that duplication generally is avoided. The committee recognizes that in large part they have differing missions and tasks, DCAA being an administrative agency in the DOD providing audit support services for procurement and contracting, the GAO being an independent statutory agency in the legislative branch performing various duties by congressional request and statutory delegation.

The committee's report includes a number of recommendations:

- —That DCAA and GAO give continuing attention to insuring effective working relationships between them in the interest of a full, mutual exchange of information, avoidance of unnecessary duplication in contract auditing activities, and the optimum deployment of available audit resources.
- —That the DCAA director furnish information reports to the Assistant Secretary of Defense (Comptroller) on such matters as the director may deem significant and useful for improvement of procurement and contract administration.
- —That DCAA expand its program for surveying and improving contractors' estimating systems and procedures to include as many contractors as possible below the criterion of $15 million a year of annual sales to the Government.
- —That GAO continue to review, on a comprehensive basis, other audit agencies and programs—as it has done in the case of DCAA—so as to be able to report to the Congress on the compliance and effectiveness of agency operations in the light of congressional intent and statutory purposes.

With respect to the latter recommendation, the committee stated:

> One of the GAO's primary responsibilities is to "audit the auditors," in line with the intent and purpose of the Budget and Accounting Procedure Act of 1950. The committee notes an increasing effort in the GAO to discharge this important responsibility and commends the Comptroller General for his attention to the matter.

### *Defense Procurement Notes*

On January 22–23, 1968, *Elmer B. Staats*, Comptroller General; *Robert F. Keller*, General Counsel; *Stephen P. Haycock*, assistant general counsel; and *Charles M. Bailey*, deputy director, Defense Division, participated in a conference on the "Truth-in-Negotiations" Act (Public Law 87–653) sponsored by the Machinery and Allied Products Institute. The conference was held at the Statler-Hilton, Washington, D.C.

The conference provided a forum wherein officials of both industry and government could discuss their different views, problems, and plans for the future in implementing this law. Discussions included such subjects as the "Truth-in-Negotiations" Act in perspective, new Armed Services Procurement Regulations implementing the act, data submission requirements, defective pricing clauses, prime and subcontractor problems, contract audit and the future of the act.

The Senior Vice President of MAPI, Charles I. Derr, in expressing

appreciation for GAO participation stated:

There is no question, I think, that conference participants now have a far better notion of governmental attitudes respecting Public Law 87-653 and, I think, a better feel for how the Act is likely to be administered in the future.

### *Perspective on GAO Reporting on Contract Audits*

In addressing the Electronic Industries Association Symposium on March 5, 1968, the Comptroller General, *Elmer B. Staats,* provided the following very useful perspective on the large number of GAO audit reports relating to contract pricing in the late 1950s and early 1960s:

Over several years GAO sent numerous reports to the Congress describing contract negotiations resulting in prices GAO considered to be unreasonably high in relation to cost and pricing data available to the contractor at the time of negotiation.

This audit work did *not* justify a general conclusion that the great majority of defense contractors willfully misled the Government. Neither did our work establish that Government contracting officials were not diligent in trying to protect the Government's interests.

What the audits did show was that—given the magnitude, complexity and uniqueness of equipment being purchased, and the lack of a competitive atmosphere—Government negotiators often were not in a position to negotiate advantageous prices for the Government, because they were not aware equally with the contractor of all the cost and pricing factors influencing the prices proposed.

These reports were a primary factor leading to enactment in 1962 of Public Law 87-653, better known as the "Truth in Negotiations" Act. GAO collaborated with the House Armed Services Committee and the Department of Defense in drafting this law.

### *Profits on Defense Contracts*

In his remarks at the same symposium, Mr. Staats commented as follows on defense contract profits and the importance of good contractor cost estimating systems:

During recent years the Department of Defense has sought to increase competition in the award of defense contracts, enabling more potential suppliers to compete for and secure Government business. Under firm fixed-price contracts, savings from cost reductions and increased efficiencies accrue almost solely to the benefit of the contractor. However, in some cases, this competition has been so intense that contractors' risks as well as profit positions have been affected adversely.

In the recent study by Logistics Management Institute, 19 out of 23 responding high-volume defense contractors indicated that their returns on firm fixed-price contracts—particularly those negotiated on a competitive basis—were not as satisfactory as their returns on other types of contracts. They cited several reasons why contract profits on firm fixed-price and fixed-price competitive procurements are lower than profits on other types of contracts. Among the reasons cited were "buying-in" on competitive procurements in order to get in or stay in a particular program or product line. Other factors also specified as being primarily responsible for the lower profits were the inadequacies and over-optimism of the contractors in their cost estimating.

The increased use and increased competition for firm fixed-price contracts has a vital effect on contractors' risks and profits. The importance to contractors, and to the Government, of the need for contractors to have effective cost estimating systems under these changing circumstances is obvious.

* * * * *

The Government's concern that contractors should have reliable and effective cost estimating systems does not originate solely because of cost estimating systems' influence on the amount the Government must pay for procurement. The Government is almost equally concerned with the financial stability of its contractors.

Financial stability of contractors is essential to their ability to perform in accordance with the terms of existing contracts. Financial stability also insures the existence

of effective and knowledgeable sources of supply for future contracts from which to fulfill Government needs for services and goods in a timely manner.

### *Work of the General Accounting Office*

Congressman Charles A. Vanik of Ohio recorded the following welcome note about GAO performance in the *Congressional Record* for February 12, 1968 (p. E701).

Mr. Speaker, I wish to make note of the recent annual report of the General Accounting Office which serves the Congress of the United States in investigative matters. The work of this important Office, which carried out 2,203 audits and reviews in the United States and overseas during the fiscal year 1967, is to be highly commended. The efficiency and responsibility of the members of the staff and the Director of the General Accounting Office, the Honorable Elmer B. Staats, is remarkable.

Nearly 1,000 reports were issued by GAO to the Congress, to our committees, officers, and Members and 600 to various Federal departments and agencies. Under the mandate of Congress to assist the House and the Senate, its committees and Members in carrying out their responsibilities, it has become evident in my own work and that relating to my city of Cleveland that GAO works with fairness and consistently high standards to assure that the information we receive is trustworthy and of current interest. We can account in this year alone to over $190 million in savings directly attributable to the work of the staff and director of GAO.

I wish again to commend highly Mr. Staats and his highly competent staff for all of their assistance in the past year to my office and to Congress generally.

### *Revised Glossary of PPB Terms*

A revised edition (January 1968) of the booklet containing a glossary of terms relating to planning-programming-budgeting and systems analysis has been prepared by the systems analysis group of the GAO Office of Policy and Special Studies.

### *Significance of Approved Accounting Systems*

Writing in the Spring 1966 issue of *The Federal Accountant*, Edwin J. B. Lewis, then editor, assessed the significance of Comptroller General approval of Federal agency accounting systems in the following terms:

Knowledgeable officials, even those most critical of lagging systems progress, will readily concede that the number of accounting systems approved is at best a dubious measure of overall progress in what these days are often termed the "financial management areas." Numerous agencies without an approved system have earned, in university terminology, a substantial number of credits and many quality points towards attainment of the Comptroller General's formal stamp of approval. Formal systems approval is nonetheless an important measure of accomplishment and is so regarded by the influential House Committee on Government Operations . . .

However many significant advances may go unrecognized in the tabulation of complete and partial accounting systems approved, formal approval of a system does document the attainment of a major goal and in this respect might be likened to the conferral of a university degree. The number of formal degrees conferred, while certainly less than an ideal measure of educational progress, is the most useful tangible index of accomplishment and the same can be said for the number of accounting systems approved by the Comptroller General.

### *GAO Audit of Federal Deposit Insurance Corporation*

The Comptroller General, the Assistant Comptroller General, and other GAO officials appeared before the House Committee on Banking and Currency on March 6, 1968, to present testimony on the GAO position concerning its need for full access to examination reports and related

records on commercial banks whose deposits are insured by FDIC. Although GAO is required by law to make an annual audit of this Government corporation, unrestricted access to bank examination reports, files, and related records has been denied to GAO auditors.

As an instrumentality of the Federal Government, the chief function of FDIC is to insure bank deposits. At June 30, 1967, the corporation was insuring 13,867 banks whose insured deposits were over $239 billion.

The Comptroller General reviewed for the Committee the history of this controversy over the years. Significant parts of his testimony pertaining to the need for unrestricted access to such records follow:

As I have stated, the full discharge of our audit responsibilities requires that we have unrestricted access to all accounts, records, and related information of agencies subject to audit. To make a satisfactory audit of the Corporation "in accordance with the procedures applicable to commercial corporate transactions," and "to inform the Congress of the financial operations and condition of the Corporation," as required by the Federal Deposit Insurance Act (12 U.S.C. 1827), we must obtain a comprehensive understanding of all factors which may significantly affect its financial operations and condition.

* * * * *

Because the financial condition of the Corporation is inseparably linked with that of the banks it insures, we cannot report to the Congress on the financial condition of the Corporation without evaluating the significance of its contingent insurance indemnity liability within the framework of relatively stable general economic conditions. Such an evaluation requires unrestricted access to all records containing information bearing on the contingent insurance indemnity liability.

* * * * *

In summary, the Federal Deposit Insurance Act contemplates that we will make a professional audit of the financial transactions of the Corporation, and report to the Congress on the financial operations and conditions of the Corporation. The proposition that a professional audit cannot be performed without unrestricted access to pertinent records is well supported by positions previously taken by this Office as well as in pronouncements of the American Institute of Certified Public Accountants. We believe that under similar circumstances a firm of certified public accountants would withdraw from the audit engagement. We are precluded from taking such action because the law requires that we make an audit.

The Federal Deposit Insurance Corporation's contingent liability to depositors of member banks is one of the most significant aspects of its financial condition. The existing arrangement whereby we are denied access to names of banks and their personnel has prevented us from evaluating the work of the Corporation's examiners. We have access only to copies of their reports from which all names have been deleted. We do not examine the working papers that culminate in these reports because it would be impractical to delete names from such papers. Consequently, we cannot appraise the effectiveness of the examinations in identifying banks whose financial condition is unstable and we therefore cannot determine to what extent we may rely upon the results of such examinations in reaching our conclusions on the financial condition of the Corporation.

Finally, there is the matter of independence in our work. Independence is the very cornerstone of auditing. An auditor's job is to provide an informed and impartial opinion on the financial condition of an enterprise. To formulate such an opinion, the auditor must assess all pertinent information. If an auditor has access to only such information as the enterprise under audit chooses to provide, he is in a position where he cannot reach an informed and impartial opinion on the financial condition of the enterprise. These are the circumstances under which our audits of the Federal

Deposit Insurance Corporation are now performed.

Accordingly, in order to permit us to carry out our audit responsibilities * * * and prepare meaningful and useful reports to the Congress, we believe that the Federal Deposit Insurance Act should be amended to specifically provide for our unrestricted access to the examination reports and related records pertaining to all insured banks.

### *GAO Report on Discounting Practices*

The first GAO report originating in the systems analysis group of the Office of Policy and Special Studies was issued by the Comptroller General on January 29, 1968. This report entitled "Survey of Use by Federal Agencies of the Discounting Technique in Evaluating Future Programs" (B–162719) was submitted to the Joint Economic Committee of the Congress.

The report summarizes the results of a GAO survey of agency practices in the use of the discounting in evaluating future Government programs. The report brings out a wide variation in discount rates and techniques in use in the executive agencies and suggests the desirability of some measure of standardization to enhance the quality and consistency of information on Federal programs presented for congressional consideration.

The Joint Economic Committee held hearings on the report on the same day it was issued. See published hearings entitled "Interest Rate Guidelines for Federal Decisionmaking" which includes the full GAO report.

### *Air Force Relations With GAO*

The Department of the Air Force recently published a revision of Air Force Regulation 11–8. This regulation prescribes Air Force relationships with GAO representatives engaged in carrying out the statutory responsibilities of the Comptroller General, and explains the General Accounting Office audit program.

The regulation also recognizes that good administration requires prompt response on the part of the Air Force and the Department of Defense to GAO reports. The regulation states that the policy of the Secretary of Defense, the Secretary of the Air Force, and the Chief of Staff, United States Air Force, requires prompt and positive action on all General Accounting Office reports and that responses to GAO must:

1. Be based on an objective evaluation of each report.
2. Be substantive and completely responsive to the General Accounting Office findings, conclusions, and recommendations.
3. Indicate:
   a. Agreement or disagreement with the General Accounting Office, including the reason for any disagreements.
   b. Corrective actions taken or planned, including the anticipated date that planned actions will be complete.
   c. Any additional facts that should be considered.

### *Clarity in Audit Reports*

It is a fundamental GAO policy for reporting on audit work to write in as simple and readily understandable terms as possible. Clarity and simplicity are thus prescribed requirements for all GAO audit reports.

Constant striving to achieve this standard is not always easy because of

the complex subjects dealt with. That we do not always succeed is evidenced by the following observation by the *Rambler* who writes daily in the *Washington Evening Star*. His observation dated February 21, 1968, could well be labeled, "Lest we in GAO forget."

The Rambler often casually examines reports produced by the Comptroller General of the United States.

He rarely can figure out what the office is talking about * * *.

### *GAO Assistance to the Army*

The Assistant Secretary of the Army (Financial Management), Eugene M. Becker, recently expressed appreciation to the Comptroller General for GAO's assistance in 1967, as follows:

. . . I would like to express my appreciation for the assistance provided by you and your organization in pinpointing management problems and making appropriate recommendations in the many and varied activities of the Army. I take this opportunity because it does not appear possible in our day-to-day correspondence to express this appreciation for the constructive efforts of your organization. Under your direction, the new approach of the General Accounting Office to give timely and current management advice is extremely effective. We consider the new approach very successful, although in a few instances there have been some honest disagreements.

### *Communications and the Accountant*

Some well-stated observations on the constant need for accountants to improve their communicating abilities appears in the December 1967 issue of *The CPA*, published by the American Institute of CPAs. In commenting on the subject, Marvin L. Stone, president of the Institute, says:

To make financial data more meaningful to nonaccountants, preparers should make more and better use of written narrative, graphs, and other interpretive media. Since even the best written report has limited communication effectiveness, accountants should augment written reports wherever possible with oral commentary and such visual aids as overhead projectors, motion pictures, and slides. Accounting reports should appeal to as many of the senses as possible.

* * * * *

We accountants should not consider ourselves to be high priests who speak in an arcane language known only to one another. We may speak the language of business to one another but our function is to interpret acounting data into the language of the reader. To do this, we must become more imaginative, adept communicators.

### *Congressional Use of GAO Reports*

Thirty GAO reports issued during the period March–October 1967 are listed with brief digests in Joint Committee Print entitled "Economy in Government—1967: Updated Background Material." This publication, prepared for the Joint Economic Committee of the Congress of the United States, was released on November 1967. The 30 reports cover a variety of problem areas under the general heading of property management activities in the Federal agencies.

### *Published Article on GAO*

The Christian Science Monitor for March 11, 1968, contains a full page article on the Comptroller General and the work of the GAO. The article is entitled "Congressional Watchdog—Protecting The Tax Dollar."

A reprint of the article appears in the *Congressional Record* for March 13, 1968, page E1835.

### *Special Inquiry on Emergency Lighting*

GAO inquiries do not always result in formal reports to the Congress or to agency officials.

The appearance in the GAO building during the past year of numerous battery-powered emergency lighting units touched off a brief inquiry by the Civil Division's operating group at the General Services Administration which manages Government buildings. They learned that GSA had accelerated its emergency lighting program in Government buildings as a result of the Northeast power failure in 1965.

The GAO assistant director in charge of the operating group concerned, *Irvine M. Crawford*, gives us his informal assessment of the emergency lighting program in these terms.

If when you say "emergency lighting" you mean a bureaucratic extravagance conceived with reckless disregard for the insufferable burdens already borne by the taxpayers; if you mean a dust gathering reminder of the declining self-sufficiency of a pioneer people who once fought the Indians and endured the hardship of outdoor toilets; then certainly I am against it.

But if when you say "emergency lighting" you mean a deliverance from fractured skulls and broken limbs and the dark doings of dark places; if you mean a ray of hope for the panic stricken and, yes, more taxes for state and local governments, then certainly I am for it.

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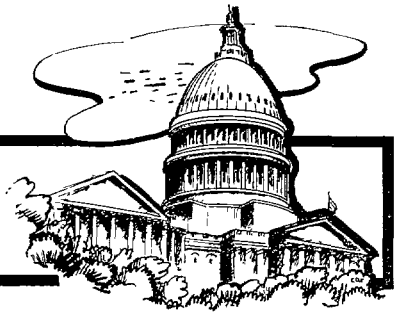
# HEARINGS and LEGISLATION



By Margaret L. Macfarlane

*Chief, Legal Reference Services, Office of the General Counsel*

### *Bid Protest Procedures*

The Subcommittee on Government Procurement of the Senate Select Committee on Small Business in its annual review of Federal procurement policies invited GAO to testify on its bid protest procedures. The General Counsel, *Robert F. Keller,* presented a statement outlining the legal authority for deciding bid protest cases and the procedures followed by GAO in adjudicating bid protest controversies. (Other participants: *Messrs. Welch* and *Allen.*)

### *Supergrades*

On March 11, 1968, *Mr. Staats* testified before the Senate Committee on Post Office and Civil Service on the need for additional supergrade positions in the GAO. (Other participants: *Messrs. Weitzel, Powers,* and *Morse.*)

### *Appropriation Hearings*

The Comptroller General and his staff testified on the GAO budget requirements for 1969 before the Legislative Branch Subcommittee of the House Appropriations Committee on March 19. 20 and 21, 1968.

### *Reports*

A number of reports resulting from hearings and studies in which GAO participated in 1967 have recently been issued by various committees of the Congress.

*Defense Procurement*

The Subcommittee for Special Investigations of the House Armed Services Committee has released a report on the Truth in Negotiations Act as part I of its review of Defense procurement policies, procedures, and practices. Last fall the Comptroller General testified at the initial hearings held by the subcommittee (see *GAO Review,* Fall 1967, p. 82). GAO studies of some 242 contracts in excess of $100,000, which in 1967 totaled almost $22 billion, formed the basis for the interim report issued February 29, 1968. The subcommittee made six specific recommendations designed to correct the areas of weakness in negotiations and deficiencies in contract management identified by GAO.

*Land Reform in Vietnam*

Another report submitted to the House by the Government Operations

Committee on March 5, 1968, which was based on a GAO study was the report on land reform efforts in Vietnam (H. Rept. No. 1142, 90th Cong.). GAO at the request of the Foreign Operations and Government Information Subcommittee conducted field work in Vietnam in April 1967 and on June 27, 1967, submitted its report to the subcommittee (B–159451).

Our report dealt with matters of land tenure and brought together for the first time many of the available statistics relating to land availability and distribution in Vietnam. It outlined the history of Government of Vietnam actions in the field of land reform since 1954 and efforts of the United States to assist in land reform matters. The committee indicated that they found ample substantiation for the GAO finding that United States agencies and officials were fundamentally undecided as to the need for extensive land reform. The committee recommended the resolution of any doubts and uncertainties and urged immediate implementation of an aggressive new land reform policy.

*Agency Accounting Systems*

The report on the second review of the *Submission of Agency Accounting Systems for GAO Approval* was adopted by the House Committee on Government Operations and submitted to the House on March 5, 1968. (House Report No. 1159, 90th Cong.) The committee reported the following findings, conclusions, and recommendations:

*Summary of findings and conclusions:*

1. There has been a notable increase in the rate of progress in financial management improvement among the executive agencies. Substantial steps are being taken by several departments and agencies, heretofore considered lacking in initiative, to develop new and meaningful accounting systems.
2. There is a growing realization of the potential benefits which can be provided to the management of a department or agency through adequate systems of accounting for costs appropriately related to organizational responsibilities and work performance standards.
3. During the past year, the General Accounting Office has notably increased the amount of manpower applied to the field of financial management. This includes assistance to agencies in the development of approved accounting systems. Action to this effect was recommended by the committees in House Report No. 179, 89th Congress.
4. The imposition of sanctions against slow-moving agencies may be necessary.
5. The Bureau of the Budget recently has been more vigorous in encouraging improvement efforts in accounting systems by executive agencies. This action is in keeping with a recommendation to this effect by the committee in House Report No. 179, 89th Congress. However, sterner attitudes toward foot-dragging agencies may be required.
6. Accounting systems approved prior to 1965 may not be adequately designed for planning-programming and budgeting, or other management improvement techniques. An informal procedure currently exists within the General Accounting Office for reevaluation of previously approved systems to see if they conform to current standards and requirements. This informal procedure needs to be formalized and given stronger emphasis.
7. As recommended by the committee in House Report No. 179, 89th Congress, the Civil Service Commission has stepped up its recruiting program for higher grade financial management positions, and has substantially increased its financial management train-

ing programs. Training programs, however, are being seriously hampered because of funding problems.

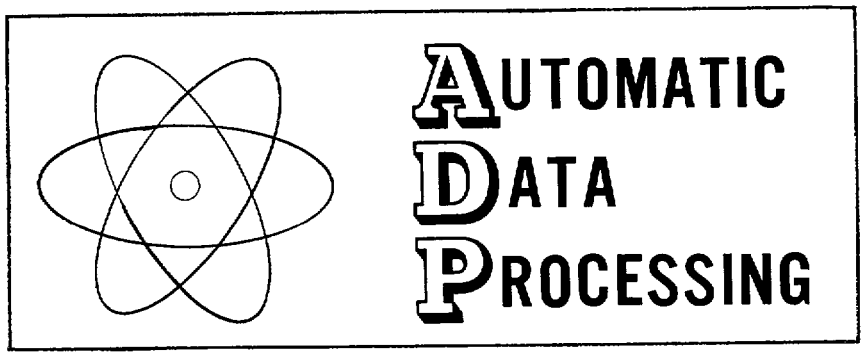
*Recommendations:*

1. The General Accounting Office should make an annual report to the Congress summarizing findings relating to inadequate accounting systems and the progress of agencies in developing systems for submission and approval by the Comptroller General.
2. The General Accounting Office should continue to circulate among executive agencies examples of good financial management practices. Indications are that this activity is very fruitful.
3. The General Accounting Office is urged to formalize the reevaluation of previously approved accounting systems. Some previously approved systems are now inadequate because of program changes, new management techniques, or because they have deteriorated through misuse or lack of proper use, or for other reasons. All previously approved systems should be reevaluated on a regular cycle of perhaps 4 years, and approval withdrawn or qualified when such action becomes necessary.
4. Budget examiners in the Bureau of the Budget should be directed to work more effectively in persuading agencies to make improvements in the area of financial management. There is still too much generalization within the Bureau as to its activities in this direction and not enough discernible results.
5. The Bureau of the Budget should begin a vigorous campaign at all management levels in all departments and agencies to promote management use of cost information resulting from approved accounting systems. Greater economy and efficiency in Government can be obtained only if Federal managers use their accrual accounting systems as management tools.
6. The Civil Service Commission should continue its emphasis on training in financial management, and should maintain close contact with agencies' managers to be certain that the courses offered meet the greatest current need.
7. The Civil Service Commission should immediately seek to resolve the problem of funding the developmental costs of training programs. This could be accomplished through a revolving fund, which would permit the Commission to spread these costs over a number of years rather than charging them against the training conducted during the current year. The Commission presently has a revolving fund for the investigation program, which possibly could be expanded for this purpose.
8. All departments and agencies should encourage financial management personnel to attend Civil Service Commission or other proffered training courses directed toward improvement of their skills, or which can assist them in strengthening management operations in their areas of responsibility.
9. Operating management personnel should be encouraged to attend training courses directed toward better utilization of the financial information with which they would be supplied through an approved accounting system. The Bureau of the Budget should assume responsibility for this activity.
10. Departments and agencies should furnish the General Accounting Office with more realistic target dates for the submission of their accounting systems for approval by the Comptroller General. Target dates should be set on the basis of the development of planned programs, and not on wishful thinking.
11. The goal of accounting system improvements is to promote economy and efficiency through improved financial management operating as an integral part of total management. Because of their direct concern with matters of economy and efficiency, we believe that the Appropriations Committees should give special consideration to requests by departments and agencies for funds for accounting systems improvement work, including more modern systems and more competent trained personnel.

## *Bid Protest Procedures*

GAO's bid protest procedures were also the subject of a study by the

Legal and Monetary Affairs Subcommittee of the House Government Operations Committee. Included in the series of reports issued by the Committee on February 28, 1968, was House Report No. 1134, entitled "GAO Bid Protest Procedures." One of the purposes of the report was to inform Congress, contracting officials of executive agencies, and private contractors and bidders about the scope of regulations applicable to the adjudication of bid protest cases. In addition to approving GAO's efforts in formalizing and publishing its procedures in the *Federal Register*, the Committee recommended certain clarifying changes in the regulations. The Office of the General Counsel is currently preparing changes in the regulations to implement the recommendations of the Committee.




### *Seminar on Information Support for the Congress*

The Brookings Institution conducted a special seminar on this subject on January 22, 1968, for a group of Members of the House of Representatives. Among the resource persons who participated in the discussion were *Frank H. Weitzel*, Assistant Comptroller General, and *Edward J. Mahoney*, associate director, OPSS.

In commenting on the seminar in the *Congressional Record* for February 20, Representative Fred Schwengel of Iowa noted the "very real increase in interest on the part of Members of the House in adapting modern information-handling techniques to many of the problems which confront us as legislators." He also called attention to the "value of computer technology and systems analysis as applied to the legislative and housekeeping functions of the House of Representatives specifically and the Congress as a whole."

### *Computers for Air Force Bases*

Burroughs Corporation was awarded a $60 million contract to supply computer systems to some 135 Air Force bases for personnel, accounting, and other base level operations. The selection of Burroughs reversed a previous Air Force decision to buy computers costing about $114 million from the International Business Machines Corporation after the Comptroller General ruled against the IBM award. (See *GAO Review*, Fall 1967.)

On January 18, 1968, Air Force officials briefed the Comptroller General and other GAO officials on the selection of the Burroughs' bid which was $54 million below that of the canceled IBM award.

According to Air Force representatives, each of the four bidding firms—Burroughs, IBM, Honeywell, and RCA—submitted multiple proposals in the rebidding and each had proposals that passed the benchmark testing. During the first evaluation, only IBM submitted a proposal that passed benchmark tests.

The new contract for delivery of 135 Burroughs B–3500 computers, along with components and peripherals, includes a price guarantee that covers the anticipated 6-year life of the systems. Air Force officials stated that life-cycle costs are significantly lower than those of the IBM systems previously selected.

The actual award of the contract to Burroughs was made by the General Services Administration.

The Air Force will lease the computers through June 1969. At that time a decision will be made to purchase the equipment if sufficient funds are available. It is estimated that leasing costs, if leasing is continued over the proposed 6-year life of the system, will result in considerably higher costs than the $60 million purchase price which covers only the cost of the hardware and does not include maintenance and operating costs.

### *Auditape Training Session*

As part of a continuing program to expand the ability of GAO auditors to use new computer techniques in accounting and auditing operations. a 2-day training course on the Haskins & Sells Auditape System was conducted in Washington, D.C.. on February 29 and March 1, 1968. The primary purpose of the course was to train one individual from each regional office in the use of this system. These individuals will be expected to provide similar training as well as technical assistance to other regional office staff members.

Regional managers selected the following individuals to attend the training session:

Ernest Eramo, Boston.
David A. Gray, Norfolk.
Kyle E. Hamm, Atlanta.
Ronald D. Kelso, Dallas.
John T. Lacy, Denver.
Malcolm J. Ledet, New Orleans.
W. J. McCormick, Jr., Los Angeles.
Donald McDade, Kansas City.
E. C. Messinger, Chicago.
Vincent Phillips, Detroit.
Kenneth A. Pollock. San Francisco.
Edward M. Scott, Cincinnati.
Clarence O. Smith, Washington.
Ernst F. Stockel, New York.
S. Helmer Tellhed, Seattle.

The Comptroller General opened the training session and discussed briefly the development of the Auditape system and GAO interest in it and similar systems. He pointed out that in time GAO expects to make extensive use of the computer in its audit work.

*Joseph Boyd* and *Leonard Koczur* of the Office of Policy and Special Studies conducted the training session on the basis of a case study they had prepared which included an exercise in all five of the present Auditape programs or routines. Each participant was required to complete the necessary specification sheets from which the punched card part of the program was prepared. The course was concluded with a live demonstration on an IBM 1401 computer.

### *ADP Milestone in GAO*

The General Accounting Office is beginning to use the Auditape system (see *GAO Review*, Fall 1967, p. 88) in its audit work in the Federal departments and agencies. This computer program can be used to simplify much detailed clerical work by eliminating the time-consuming task of wading through piles of print-outs or other documents to search, sort. rearrange, extend, foot, cross-foot, and schedule the data needed in making an audit.

Upon learning of the potential benefits of the Auditape system, *Max Hirschhorn*, associate director, Civil Division, gave the go-ahead for its use on the Federal Housing Administration (FHA) audit in Washington, D.C. Under the direction of *Sherman Henig*, assistant director, *Sam Sherman* and his staff at the FHA audit site selected a reel of magnetic tape con-

Photo Courtesy of GAO Watchdog

**The Comptroller General, Mr. Staats, is shown discussing the new program with a group of Washington and regional office personnel. From the left are: Max Hirschhorn, associate director, Civil Division; A. T. Samuelson, director, Civil Division; Joseph L. Boyd, Office of Policy and Special Studies; and Mr. Staats.**

taining FHA acquired home properties for the first live Auditape application by GAO. From an FHA tape layout, the audit staff identified the specific information needed to satisfy the audit objectives.

From over 20,000 properties listed on the agency's tape, the auditors determined that they needed certain information from only those properties whose sale was recorded in the month of November 1967:

1. Subtotals for about 15 different types of data, i.e., acquisition costs, taxes, maintenance expenses, sales, etc.
2. Summary of sales and other data by section of the law under which the property was acquired.
3. Print-out of a statistical sample of properties for detailed review.

With this information, *Joseph Boyd* and *Leonard Koczur* of GAO's Office of Policy and Special Studies prepared the necessary specification cards and set up the computer to process the data.

To start the operation, on February 29 the Comptroller General switched on the IBM 1401 computer to commence the audit of the live data. As the computer went through its paces, *Joseph Boyd* explained the step-by-step process. In a total elapsed time of less than 25 minutes, the computer completed the whole operation. The computer read all 20,000 items on the agency's tape, printed out applicable subtotals, and listed the 2,220 November sales on a reel of new tape for further processing. November sales were summarized by section of law and subtotals again printed out. In the final step, the computer selected a statistical sample of the November sales and printed out detailed information on each item in a workpaper format designed by the auditors.

This specific use of a computer in a GAO audit is only a first step. In the future, GAO will undoubtedly make extensive use of computers. As pointed out by the Comptroller General in discussing this audit program, this new capability of retrieving data in auditable form should go a long way toward solving audit problems created when Federal agencies began using computers to store much of their information.

### *GAO Concern With ADP in Federal Agencies*

Speaking at the American Management Association Briefing in New York City on January 15, 1968, *Frank H. Weitzel*, Assistant Comptroller General, included the following remarks in his address about GAO's concern with ADP in the Federal Government:

> The General Accounting Office has been concerned with automatic data processing developments in the Federal Government for many years. We have made many examinations into specific policies and practices in the Federal agencies and Government contractor offices and we have also conducted special studies of a Government-wide nature. Our studies have resulted in many reports to the Congress and have pointed out many problems in the procurement, management, and administration of the Federal Government automatic data processing program.
>
> We have stressed in our reports that the following six points need particular attention at this time. These are also areas in which many of you can have considerable influence in accomplishing improvements.
>
> 1. Training at all levels—from top management down through systems designers, operators, and users of ADP system products.

2. Improvement in the coordination of ADP resources, including the need to develop procedures for using standard systems, where possible, to reduce the duplication of efforts.
3. Improved system designs to take advantage of the potential power and capability available in the new technology.
4. Accelerated standardization efforts to provide for more efficient use of ADP systems and improved methods for automatic interchange of data and programs.
5. Improvement in data acquisition and data control processes for more accuracy and completeness of data being processed.
6. Improvement and expansion of an overall management information system on use and availability of ADP resources and other information.

# Recent Staff Designations

**Ivo G. Binder**

Ivo G. Binder was designated an associate director in the Office of Policy and Special Studies on March 4, 1968. He will be responsible for conducting special studies, primarily relating to problems of Federal-State-local government relations.

Prior to joining the General Accounting Office, Mr. Binder had 8 years of experience in management consulting. He was treasurer and a principal of Knight & Gladieux, management consultants, New York City. Prior to that he was a managing associate of Booz, Allen, and Hamilton, Inc., in their Chicago and New York offices.

Earlier, Mr. Binder was controller for the manufacturing operations of McCall Corporation, a large magazine publisher and a commercial printer of magazines. He also served as a cost auditor for the U.S. Air Force Auditor General during the Korean emergency, and has worked in public accounting during which time he became a CPA (Arizona). During World War II, he served as an officer in the Quartermaster Corps, U.S. Army.

Mr. Binder received his B.B.A. degree in accounting with distinction from the University of Michigan in 1949. He was elected to the national honorary societies, Phi Kappa Phi and Beta Gamma Sigma. He is also a member of the Financial Executives Institute and the American Institute of Certified Public Accountants.

**Smith Blair, Jr.**

Mr. Blair was appointed February 5. 1968, as an attorney in the Office of the General Counsel where he is assigned to the Office of Legislative Liaison.

Mr. Blair returns to us from the Office of the Inspector General, Department of Agriculture. where he served as executive assistant to the Inspector General for Operations. He was previously employed by the General Accounting Office from 1952 to 1964 during which time he served in various capacities including the headquarters staff of the former Office of Investigations; director, European Branch. 1956–1959; and manager of the Dallas Regional Office, 1959 1964.

Prior to coming with the General Accounting Office, Mr. Blair was employed as a special agent of the Federal Bureau of Investigation; as assistant counsel for the Government Operations Subcommittee (Hardy Subcommittee) of the House Committee on Expenditures in the Executive Departments; and by a special committee of the Senate Agriculture Committee.

Mr. Blair attended George Washington University, Benjamin Franklin University, and received his LLB from Washington College of Law, American University in 1941. He completed the Executive Development Program at Stanford University in 1962.

Mr. Blair has been admitted to practice before the Supreme Court of the United States, the U.S. Court of Appeals for the District of Columbia, and the U.S. District Court for the District of Columbia.

**Herman B. Galvin**

Herman B. Galvin was appointed as assistant director for systems analysis in the Office of Policy and Special Studies, effective March 4, 1968.

Mr. Galvin joins the General Accounting Office from the National Bureau of Standards having previously been employed by the General Electric Co. He is also a former employee of the National Advisory Committee for Aeronautics, predecessor agency of the present National Aeronautics and Space Administration.

He has an M.S. degree in physics from the Ohio State University and is a registered Professional Engineer (Ohio). He is a member of Sigma Phi Sigma (physics honorary society), of the American Physical Society, the Institute of Electrical and Electronic Engineers, and the American Association for the Advancement of Science.

**Milton H. Harvey**

Milton H. Harvey was designated as assistant regional manager of the Philadelphia Regional Office, effective February 25, 1968.

Mr. Harvey attended Temple University, where he majored in accounting. He served in the Army Air Force from 1942 to 1946. Prior to joining the General Accounting Office in 1957, Mr. Harvey had extensive public accounting experience.

He received a GAO meritorious service award in 1966.

Mr. Harvey is a CPA (Pennsylvania and New Jersey) and a member of the Pennsylvania Institute of CPAs, the American Institute of CPAs, the National Association of Accountants, and the Federal Government Accountants Association.

**Edwin J. Kolakowski**

Edwin J. Kolakowski was designated as assistant regional manager of the Los Angeles Regional Office, effective February 25, 1968.

Mr. Kolakowski was granted a B.S. degree, majoring in accounting, by the University of Oklahoma in 1951. He is a CPA (California) and a member of the American Institute of Certified Public Accountants and the Federal Government Accountants Association. He was given the GAO Meritorious Service Award in 1967.

Mr. Kolakowski served in the U.S. Navy from 1944 to 1946. Prior to joining the General Accounting Office in November 1952, he was a cost accountant for a major industrial concern. He transferred from the former GAO Division of Audits to the Los Angeles Regional Office in early 1954.

**Herbert E. Larson**

Herbert E. Larson was designated assistant regional manager of the New York Regional Office, February 25. 1968.

Mr. Larson is a certified public accountant (New York) and is a member of the American Institute of CPAs and the Federal Government Accountants Association. He is a graduate of New York University with a bachelor of science degree.

Before joining the General Accounting Office in 1951. Mr. Larson had experience in private and public accounting. He served with the U.S. Army from 1943 to 1946.

**Keith E. Marvin**

Keith E. Marvin was designated as an associate director in the Office of Policy and Special Studies on December 18, 1967. He directs a group which was established during 1967 to provide a capability in GAO for dealing with planning-programming-budgeting systems and the use of systems analysis concepts and techniques.

Mr. Marvin received a bachelor of arts degree from Doane College, Crete, Nebr., in 1948 and a bachelor of science degree in electrical engineering from Iowa State University in 1950. He completed the General Electric Co. business training course in 1953.

Until 1963, Mr. Marvin was employed by General Electric Co., serving in the corporate financial staff and in cost accounting and analysis for both heavy electrical equipment and aerospace operations.

From 1963 to 1967, he was employed as an operations research analyst in the Department of Defense, where he conducted resource analysis functions in support of systems analysis and the 5-year defense program.

Mr. Marvin is a member of the National Association of Accountants and was awarded a certificate of merit in 1963 for an article published in the Association's technical journal, *Management Accounting*. He is also a member of the American Institute of Industrial Engineers and Washington Operations Research Council.

**Charles L. Perry**

Charles L. Perry was designated as assistant regional manager of the Seattle Regional Office, February 25, 1968.

Mr. Perry received a bachelor of science degree in accounting from Ohio State University in 1950. He is a member of the Federal Government Accountants Association, American Society for Public Administration, Western College Placement Association, and an honorary member of Beta Alpha Psi.

Mr. Perry served in the U.S. Navy during World War II. He joined the Corporation Audits Division of the General Accounting Office in 1950. In 1952 he moved to the Portland Regional Office which became a part of the Seattle region in 1960. Mr. Perry received the GAO Career Development Award in 1967.

**S. S. Podnos**

S. S. Podnos was designated an assistant director of the Defense Division, effective February 25, 1968. As a member of the Research and Development Staff, he will be responsible for planning, organizing and conducting examinations of development and engineering activities of the Department of Defense.

Mr. Podnos received the degrees of bachelor of science and master of arts (Public Administration) from the George Washington University. He is a member of several professional societies and is qualified both as an accountant and an engineer.

Prior to joining GAO in late 1966, he had extensive service in the Army, Navy, and Department of Defense, culminating as Special Assistant to the Assistant Secretary of Defense (Research and Engineering); experience in industry where he was a divisional general manager of a large international corporation; and service as a management consultant including the field of finance.

Mr. Podnos was a sole selectee from the Army for the Arthur S. Flemming award and a lecturer in administration at the Command and Staff College of the Air University. He is an author and patentee in his fields, a registered professional engineer (P.E.) in the District of Columbia, and is listed in "Who's Who in Engineering."

**Maurice Sady**

Maurice Sady was designated as assistant regional manager of the Philadelphia Regional Office, effective February 25, 1968.

From 1943 to 1945 Mr. Sady served in the U.S. Army. In 1949 he received a bachelor of science degree in accounting from Rider College. Mr. Sady joined the staff of the Philadelphia Regional Office in 1953 and from 1957 to 1961 was assigned to the Far East Branch.

Prior to joining the General Accounting Office, Mr. Sady was associated with a CPA firm and the Comptroller's Office, city of Philadelphia. In 1967 he completed the Management Program for Executives at the University of Pittsburgh Graduate School of Business.

Mr. Sady is a CPA (Pennsylvania) and a member of the American Institute of CPAs and the Pennsylvania Institute of CPAs.

**Fred J. Shafer**

Fred J. Shafer was advanced to the position of associate director in the Transportation Division on November 19, 1967. He will head up a newly designated activity for making transportation and traffic management reviews.

Mr. Shafer served in the Army from 1943 to 1945. He received a degree in accounting from Southeastern University in 1948 and a bachelor of arts degree in economics from American University in 1963.

Since joining the General Accounting Office in 1946, Mr. Shafer has held positions of increasing responsibility in every phase of the transportation work of the Office, and has had a wide variety of experience with the civil and military transportation activities of the Federal Government both in the United States and overseas.

# Professional Activities

### *Office of the Comptroller General*

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

Machinery and Allied Products Institute Conference on the Truth-in-Negotiations Act, January 22, on "The Government Viewpoint."

American Society of Military Comptrollers, Fort McNair, February 15.

Tax Foundation, February 19.

Chicago Chapter of Federal Government Accountants Association, American Society for Public Administration, and the Federal Executive Board, Chicago, February 20, on "Accounting and Auditing and Federal-State Relations."

Electronic Industries Association Symposium on Economics for the Defense Industry, March 5, on "GAO Audits Bearing on Risk and Return in the Defense Industry."

Brookings Institution's 1967–68 Science Fellows of the Department of Commerce, March 11.

Briefing before the meeting of the National Newspaper Association, March 14, 1968.

The January/February 1968 issue of *The Internal Auditor* carries an article by Mr. Staats entitled "The Growing Importance of Internal Auditing in the Federal Government."

The Assistant Comptroller General, *Frank H. Weitzel,* addressed the following groups:

The staff and students of the Marine Corps Command and Staff College, Quantico, Va., January 5. The topic of the speech was some of our more recent observations on management practices of the Department of Defense.

The American Management Association Briefing, New York City, January 15. Mr. Weitzel delivered the keynote address "The Management Information Briefing Center: Support for Management Decisions."

IBM Executive Briefing on Federal Government Operations on January 17. Mr. Weitzel outlined the functions and activities of the GAO, its relations with Congress and the executive branch, and the issues and problems about which GAO is currently concerned.

The Conferences for Business Executives sponsored by the Brookings Institution on January 22 and February 6. Mr. Weitzel gave an analysis of the work of the General Accounting Office and its policies.

The Civil Service Commission Executive Seminar Center, Kings Point, N.Y., February 28, on Federal program management.

The Briefing Conference on Government Contracts sponsored by the Federal Bar Association in cooperation with the Bureau of National Affairs, held in Philadelphia, Pa., on March 4.

### *Office of the General Counsel*

*Robert F. Keller*, general counsel, addressed the following groups:

Machinery and Allied Products Institute Conference on the Truth-in-Negotiations Act, January 22, on "Defective Pricing Clauses."

Consulting Engineers Council, Shoreham Hotel, Washington, D.C., January 30, on the architect-engineer fee limitation.

Briefing Conference on Government Contracts sponsored by the Federal Bar Association and the Foundation of the Federal Bar Association in cooperation with the Bureau of National Affairs, Inc., March 5.

*J. Edward Welch*, deputy general counsel, participated in the following:

42nd Procurement Law Course in Charlottesville, Va., on January 22, speaking on GAO's role in Government contracting.

As a panelist in the Concentrated Course in Government Contracts, Federal Publications, Inc., cosponsored with the College of William and Mary, February 12.

As a panelist in the Briefing Conference on Government Contracts sponsored by the Federal Bar Association and the Foundation of the Federal Bar Association in cooperation with the Bureau of National Affairs, Inc., March 4.

*Stephen P. Haycock*, assistant general counsel, spoke before the Defense Advanced Procurement Management Course, Fort Lee, Va., on problems in formal advertising on January 16 and on March 14. On January 25, Mr. Haycock addressed a conference in St. Petersburg, Fla., sponsored by FBA-BNA on requirements for subcontractor cost and pricing data problems under the Truth-in-Negotiations Act. He also spoke on the same date before the Suncoast Chapter of the National Contract Management Association on Public Law 87-653.

*Melvin E. Miller*, assistant general counsel, spoke on January 30 and March 7 before the Defense Procurement Management Course, Fort Lee, Va., on "The Role of GAO in Defense Procurement."

*Paul Schnitzer*, attorney, addressed a conference sponsored by FBA-BNA on GAO and subcontractor claims on January 25. On February 15, Mr. Schnitzer spoke before the Defense Advanced Procurement Management Course, Fort Lee, Va.

### *Office of Policy and Special Studies*

*E. H. Morse, Jr.*, director, discussed GAO functions and operations with the Conference for Business Executives on Federal Government Operations sponsored by the Brookings Institution, March 4.

An article by Mr. Morse entitled "Reporting Budget Expenditures on the Accrual Basis" appears in the December 1967 issue of *The Federal Accountant*.

*Frederic H. Smith*, deputy director, OPSS, gave a talk on "Principles of Financial Management" at a meeting on March 20 of the Philadelphia Chapter of FGAA.

*Robert L. Rasor*, associate director, conducted a session on management auditing on February 15, during the Institute in Management of Government Finances, conducted by the Financial Management and PPBS Training Center of the U.S. Civil Service Commission.

*Francis W. Lyle*, assistant director, served as chairman of agency coordination for the 1968 National Exposition and Seminar of the Federal Government Accountants Association, held in Washington, D.C., February 28–March 1.

*William L. Campfield*, assistant director, is serving on the 1967–68 American Institute of CPA's Ad Hoc Committee to Study the Content of the CPA Examination. He is also a member of the Board of Selection of the Ohio State University Accounting Hall of Fame and is one of the contributing editors to the "Education and Professional Training Department" of *The Journal of Accountancy*.

On February 20, 1968, Mr. Campfield addressed the San Francisco Chapter, FGAA, on "The Challenge of Improving Financial Management in the Federal Government." On March 8, 1968, he addressed the Department of Health, Education, and Welfare auditor intern school on professional development.

### *Civil Division*

*A. T. Samuelson*, director, Civil Division, addressed the D.C. Chapter of the American Society of Women Accountants on February 14, on the subject of obstacles to and hopes for improved financial management in the Federal Government.

*Henry Eschwege*, associate director, attended the Conference for Federal Executives on Business Operations, presented by the Brookings Institute, December 1967.

*Philip Charam*, associate director, *Robert E. Iffert*, and *Frank V. Subalusky*, supervisory auditors, attended the American Institute of Certified Public Accountants seminar on Hospital Accounting and Medicare Audits which was presented in New York on December 18–19, 1967.

*James T. Hall, Jr.*, associate director, addressed a group of political science students from American University on February 16. These students visited GAO as part of a program for students to gain an insight into Federal Government operations through meetings with agency officials.

*Irvine M. Crawford*, assistant director, is attending the Advanced Management Program presented by the Harvard University Graduate School of Business from February to May 1968.

### *Defense Division*

*Charles M. Bailey*, deputy director, in addressing the Machinery and Allied Products Institute Conference in Washington, D.C., on January 22, discussed the requirement for submission of cost or pricing data under Public Law 87–653.

*Charles W. Kirby*, associate director, participated in a panel discussion before the Air Command and Staff College, Maxwell Air Force Base, Ala. The subject of the discussion was GAO relationship with the Air Force.

*James H. Hammond*, associate director, and *Robert B. Hall*, assistant director, Procurement Staff, addressed a high level French delegation, on March 6, here to study Government procurement and contracting.

*Hyman S. Baras*, assistant director, Procurement Staff, has been cited by the Department of the Navy for his contribution over the past 2 years as guest lecturer at the Defense Procurement Executive Refresher course. The course is given in Washington to

senior procurement officials of the Department of Defense.

Mr. Baras spoke on February 15 to students majoring in economics and public administration who are participating in the Washington Semester Program sponsored by the American University. His lecture covered the responsibilities and recent activities of the General Accounting Office.

*Sam Pines*, Procurement Staff, addressed the Accounting Club of the University of Delaware, Newark, Del., on the subject of professional career opportunities with the General Accounting Office on February 15.

### *Field Operations Division*

*Anthony L. Komac*, supervisory auditor, Atlanta, spoke at a Beta Alpha Psi meeting held at the University of Georgia on January 25. His subject was "Opportunities for Employment by the Federal Government."

*Albert L. Braddock*, supervisory auditor, Atlanta, is attending the 15th session of the Program for Management Development at the Harvard University Graduate School of Business Administration.

*Dale E. Ledman*, supervisory auditor, Cincinnati, spoke at the February 22 meeting of the Ohio State University Accounting Association on the subject "GAO—Its Contribution to Our Society."

*W. C. Herrmann, Jr.*, supervisory auditor, and *R. J. Nolan, Jr.*, auditor, Cincinnati, spoke at a meeting of the Accounting Club, Bellarmine College, Louisville, Ky., on February 20. The subject of their talk was "The Functions and Responsibilities of the General Accounting Office." Mr. Herrmann spoke also on February 29, at a Beta Alpha Psi meeting held at Ohio University, Athens, Ohio, concerning the role of GAO.

*Arthur E. Fulmer* and *Donald J. Heller*, supervisory auditors, Cincinnati, participated in the Accounting Careers Seminar conducted by the Accounting Club at the University of Dayton, Dayton, Ohio, on February 28.

*Charles H. Moore*, regional manager, Detroit, spoke on career opportunities in the General Accounting Office at a joint meeting of the Beta Alpha Psi and the Accounting Club at the University of Toledo on February 29.

*John H. Gellner*, supervisory auditor, Cleveland suboffice, Detroit region, addressed a meeting of the Northeast Ohio Chapter of FGAA on January 22. The subject of his talk was "The Role of the General Accounting Office in Government Procurement."

*Walter H. Henson*, regional manager, New Orleans, addressed the February 1968 meeting of Beta Alpha Psi, Mississippi State University. The subject of his address was "Audits of Management Decisions." On March 20, Mr. Henson participated in an experimental program by delivering, by telephone, a one-half hour lecture to a student group at Ouachita Baptist College, Arkadelphia, Ark., on employment opportunities in the Federal service and specific factors considered by recruiters in selecting candidates for appointment.

*Paul deLassus*, supervisory auditor, New Orleans, spoke at the U.S. Public Health Service Hospital Financial Management Training Course in New Orleans on February 19. The subject

of his address was "Financial Aspects of Management."

*Robert Drakert,* regional manager, New York, addressed a dinner meeting of the Long Island Chapter of FGAA on March 12. Mr. Drakert spoke on the need for cooperation among contractors, agencies and GAO before representatives of defense and space contractors, public accounting firms, and agencies.

*Leo H. Kenyon,* supervisory auditor of the Portland suboffice, Seattle region, participated in a panel discussion on "The Internal Audit Function" at the January 18 meeting of the FGAA Portland Chapter. Mr. Kenyon also spoke on "The General Accounting Office—A Friend of the Taxpayer" before the Southwest Portland Lions Club on February 28.

*Lyle L. Nelson,* supervisory auditor, Seattle, served as a discussion leader at the Workshop for Middle Managers held by the U.S. Civil Service Commission during January 28–February 2 at Union, Washington.

***International Division***

*Gilbert F. Stromvall,* assistant director, is currently attending a course in economic studies at the Foreign Service Institute, Department of State.

*Frank C. Conahan,* audit manager, recently completed the Executive Development Program at the Graduate School of Business, University of Michigan.

*James A. Duff,* assistant director, lectured on GAO audit activities at the Military Assistance Institute on February 29.

***Transportation Division***

*T. E. Sullivan,* director, and *T. C. McNeill,* assistant to the director, spoke at the spring meeting of the Freight Revenue Committee of the Association of American Railroads on March 11 in New Orleans, La. They discussed significant problems of mutual concern, including revised Government claims procedures, and a joint agency study of transportation procurement and payment procedures, and several controversial rate issues.

*John M. Loxton,* assistant to the director, and *E. B. Eberhart,* staff assistant, office of the assistant director (audits), participated in a meeting of the Revenue Accounting-Passenger Committee, Airline Finance and Accounting Conference, Air Transport Association at Canton, Ohio, March 12 and 13. The principal topic discussed was the proposal of Traffic Counsel of America to computerize all air cargo tariffs under the sponsorship of the Air Transport Association.

*Joseph P. Normile,* deputy director, and *E. B. Eberhart,* staff assistant to the assistant director (audits), attended the semiannual meeting of the Passenger Revenue Committee of the Airline Finance and Accounting Conference in New York City, March 19 and 20. The principal topics discussed were the simplification of baggage service procurement forms, the joint Government agency study of transportation procurement and payment procedures, and developments in the use of computers for airline reservation, ticketing, and billing operations.

# Successful Candidates—November 1967 CPA Examination

Listed below are the employees who passed the November 1967 CPA Examination:

| *Name* | *Regional Office* | *State* |
|---|---|---|
| Robert O. Barrett | Los Angeles | California. |
| Gilbert B. Bowers | San Francisco | California. |
| Robert G. Chambers | Los Angeles | Arizona. |
| Jack W. Erlan | San Francisco | California. |
| Way S. Hew | San Francisco | California. |
| Kurtis V. Kosty | Seattle | Montana. |
| Thomas O. Mannen | Seattle | Oregon. |
| Antone I. Reeder | Denver | Utah. |
| Jerome D. Shaffer | Denver | Colorado. |
| Walter A. Smith, Jr. | Dallas | Texas. |
| John H. Williams | San Francisco | California. |
| Karl Zeier | Seattle | Montana. |
| Edward Zmijewski | Boston | Massachusetts. |
| | *Division* | |
| David H. Boyle | Civil Division | Virginia. |
| B. Franklin Herr | Civil Division | District of Columbia. |
| Hugh J. Wessinger | Civil Division | Virginia. |
| Jacob W. Sprouse, Jr. | Defense Division | Virginia. |
| Marshall J. Stern | International Division | Virginia. |

*Summary of Successful GAO Candidates*

| | 1967 | | | |
|---|---|---|---|---|
| | Regional Offices | Washington | International Division-FEB | Total |
| May | 29 | 17 | 1 | 47 |
| November | 13 | 5 | | 18 |
| Totals | 42 | 22 | 1 | 65 |

# New Staff Members

The following professional staff members joined the accounting and auditing divisions and reported for work during the period September 16, 1967, through March 15, 1968.

| | | |
|---|---|---|
| ***Civil Division*** | Arendash, James P. | Salem College |
| | Assia, Anthony | Indiana University |
| | Deramo, Samuel J. | Baltimore College of Commerce |
| | Diaforli, Thomas E. | Salem College |
| | Duke, D. Virginia (Miss) | Memphis State University |
| | Gnizak, Raymond J. | Housing and Urban Development |
| | Godwin, Wayne S. | Columbia Union College |
| | Hartman, Maryjane R. (Mrs.) | University of Miami |
| | Meurer, Robert W. | Federal Power Commission |
| | Williams, Gomer R. | Pennsylvania State University |
| | Wolford, Dennis A. | Tusculum College |
| | Zacherl, Mary J. (Miss) | Indiana University of Pennsylvania |
| ***Defense Division*** | Boicourt, Edward M. | Bobys, Noble & Bratman |
| | Brown, Marvin I. | Price Waterhouse & Co. |
| | Fink, Louis L. | Treasury Department |
| | Garbark, Robert E. | Veterans Administration |
| | Nikel, Bernhard W. | Civil Aeronautics Board |
| | Smith, Charles A., Jr. | State Department |
| | Stoyanoff, Robert | Navy Department |
| | Vance, Lafayette, Jr. | Central Missouri State College |
| ***International Division*** | Butcher, Robert H. | Agency for International Development |
| | Thompson, Okey R. | Department of Transportation |
| | Troen, Luther G. | Marine Corps |
| ***Office of Policy and Special Studies*** | Binder, Ivo G. | Knight & Gladieux, Inc. |
| | Galvin, Herman B. | National Bureau of Standards |
| | Marvin, Keith E. | Department of Defense |

## *REGIONAL OFFICES*

| | | |
|---|---|---|
| ***Atlanta*** | Baldwin, Warren C., Jr. | Valdosta State College |
| ***Chicago*** | Looney, Michael R. | Arthur Young & Co. |
| | Utzinger, David B. | Milton College |
| | Wojciechowski, Samuel F. | University of Illinois |
| ***Cincinnati*** | Brackett, James G. | Eastern Kentucky University |
| | Burns, John T. | W. C. Tyirin & Company |
| | Dawson, James B. | Bellarmine College |
| | Fenelon, Mary B. (Miss) | University of Dayton |
| | Jones, Jennifer C. (Miss) | Murray State University |
| | Nolan, Richard J.. Jr. | Bellarmine College |
| | Pollitt, Paul R. | Eastern Kentucky University |
| ***Dallas*** | Ordner, John R. | Texas A & I University |
| ***Detroit*** | Andres, Phillip J. | Central Michigan University |
| | Danyko, Joseph F. | Ferris State College |
| | Gillisse, Richard J. | Ferris State College |
| | Nielsen, Gale P. | Ferris State College |
| ***Kansas City*** | Barber, Kendall D. | Phillips University |
| | Davidson, D. Dewayne | Arkansas State College |
| | Griffith, Rodney D. | Northeastern Oklahoma State College |
| | Kelly, Nickey L. | Central State College |
| | Schroeder, Virgil N. | Phillips University |
| | Seabaugh, E. Morris | Southeast Missouri State College |
| ***Los Angeles*** | Andis, Joe L. | California State College at Fullerton |
| | Eakin, Curtis R. | California State College at Fullerton |
| | Elston, Charles S., Jr. | Federal Aviation Administration |
| | Lance, Noel J. | Weber State College |
| | Paul, Edward D. | California State College at Fullerton |
| | Smith, Dennis L. | California State College at Long Beach |
| | Smith, John A. | California State Polytechnic College |
| | Williams, Dean C. | California State College at Los Angeles |

| | | |
|---|---|---|
| ***New Orleans*** | Dirago, Vincent K. | Mississippi State University |
| | Mc Govern, Harold J., III | Louisiana State University |
| | Perez, Emile P. | Loyola University |
| | Reaux, Pauline E. (Miss) | University of Southwestern Louisiana |
| | Simmons, Joseph Z. | Northwestern State College |
| | Susano, Michael D. | Hartmann, Aly, Monnier & Co. |
| ***New York*** | Malinick, Susan M. (Miss) | New York Institute of Technology |
| | Osser, Steven L. | New York Institute of Technology |
| ***Norfolk*** | Hucks, David B., Jr. | High Point College |
| | Richardson, Allan C. | Berry College |
| ***San Francisco*** | Calhoun, Larry J. | San Jose State College |
| | Zika, George A. | California State College at Hayward |
| ***Seattle*** | Elmslie, Joanne M. (Miss) | University of Washington |
| | Hausler, Ray S. | Personal Business |
| | Samuelson, Bruce A. | Washington State University |
| | Smith, Joel M. | University of Oregon |
| ***Washington (Falls Church)*** | Corbus, William R. | Benjamin Franklin University |
| | Dyess, Margaret H. (Mrs.) | Campbell College |
| | Goldstein, Jan H. | New York Institute of Technology |
| | Scott, Hugh B. | University of Nevada |

# Readings of Interest

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

***The Professional Manager***
By Douglas McGregor
McGraw-Hill, Inc., 1967
196 pp., $6.95

This book is a sequel to the author's 1960 volume entitled "The Human Side of Enterprise." In the earlier book, the author presented his "Theory X-Theory Y" analysis of managerial concepts. To oversimplify, he described conventional management as based on the assumption that people are lazy and must be coerced, controlled, and threatened with punishment in order to get them to work (Theory X). He disagreed with this assumption. McGregor's thesis (Theory Y) is that people have more ambition, intelligence, and sense of responsibility than managers attribute to them. Consequently, if employees are lazy, indifferent, uncreative, etc., Theory Y implies that the causes lie in management's methods of organization and control.

"The Professional Manager" explores the application of Theory Y by the manager in helping him assess his role (what is expected of him by all persons with whom he has contact) and style (how he copes with his responsibilities), organize work at all levels, administer managerial controls, and build a managerial team. The book is by no means, however, a detailed blueprint of how to apply the author's concepts. Rather, it is a plea for self-examination by managers based on the premise that many traditional concepts of human behavior are outmoded and should be discarded.

The chapter on managerial controls should be of particular interest to professional auditors. The author's position is that control systems tend to promote antagonism, noncompliance, production of unreliable information, a need for close surveillance, and incurrence of high administrative costs. He contends that these consequences can be mitigated by his approach to management. McGregor's view is that managerial strategy should seek to create conditions which enable the individual to achieve his own goals best by linking them with organizational goals. If the employee has a sense of identification with and commitment to the organizational objectives, the nature of managerial control, and consequently its acceptability, can be very different from the traditional concepts. Unfortunately, in the opinion of this reviewer, the book leaves the reader too much to his own devices in developing a strategy for

bringing about employees' commitment to organizational goals.

Also of particular significance are the author's suggestions for building an effective management team. Some of the fundamental features of such a team are described as:

1. Agreement as to the objective—"what business are we in?"
2. Open communications within the group—mutual willingness to listen and understand others' points of view.
3. Mutual trust among all members—based on "authentic" communication and consistency between words and actions.

McGregor endorses group action with the statement "the team setting is the ideal environment for individual learning and growth." He also credits it with being a good device for problem solving and innovation.

This reviewer found the book stimulating, partly because of its fresh outlook and partly because it is obviously aimed more at raising questions than in furnishing answers. As for its usefulness to the practitioner, it seems appropriate to quote one of McGregor's reportedly favorite axioms: "Nothing is so practical as a good theory."

*Robert G. Rothwell,*
ASSOCIATE DIRECTOR,
DEFENSE DIVISION.


### *Supervisory Review of Working Papers*

I have read with interest the article entitled "Supervisory Review of Working Papers" (*GAO Review*, Winter 1968). * * * The author states that a (timely) review of the working papers is important because, among other things, the supervisor may learn that the original audit plans cannot be followed or considerable additional work is necessary at other locations. He may also find that the auditor is not following the program or is devoting too much time to insignificant matters.

Although these are desirable reasons for promptly reviewing workpapers, they nevertheless should be tempered by the realization that they represent merely one channel that management pursues in finding out what subordinates are really doing and thinking.

I believe that it is important to recognize that management cannot totally isolate itself from what is taking place and that clear communications are not only desirable but mandatory. For this reason, * * * a site supervisor should keep in constant day-to-day contact with the members of his audit staff and impress on them the need for effective discussions in the pursuit of any assignment.

*Thomas A. McQuillan,*
AUDIT MANAGER,
NEW YORK REGIONAL OFFICE.

## ANNUAL AWARDS FOR ARTICLES PUBLISHED IN THE GAO REVIEW

The Comptroller General has approved the making of two $250 cash awards for each calendar year for the best articles written by GAO staff members and published in the *GAO Review*. These awards will be presented during the awards program of the General Accounting Office held annually in June.

One award will be available to contributing staff members who are 31 years of age or under at the date of publication. The other award will be available to staff members who are over 31 years of age at that date.

Members of the staff in grade GS–16 or above are ineligible for these awards.

The awards will be made based on recommendations of a panel of judges selected by the Comptroller General. The judges will evaluate the articles published from the standpoint of the excellence of their overall contribution to the knowledge and professional development of the GAO staff, with particular concern with such factors as:

Originality of concepts.

Quality of expression and organization of thoughts.

Evidence of individual research performed.

Pertinence to GAO operations and performance.

This award will be known as the GAO Award for Significant Contribution to Financial Management Literature.

## 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 (doubled-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.



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# THE GAO REVIEW

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