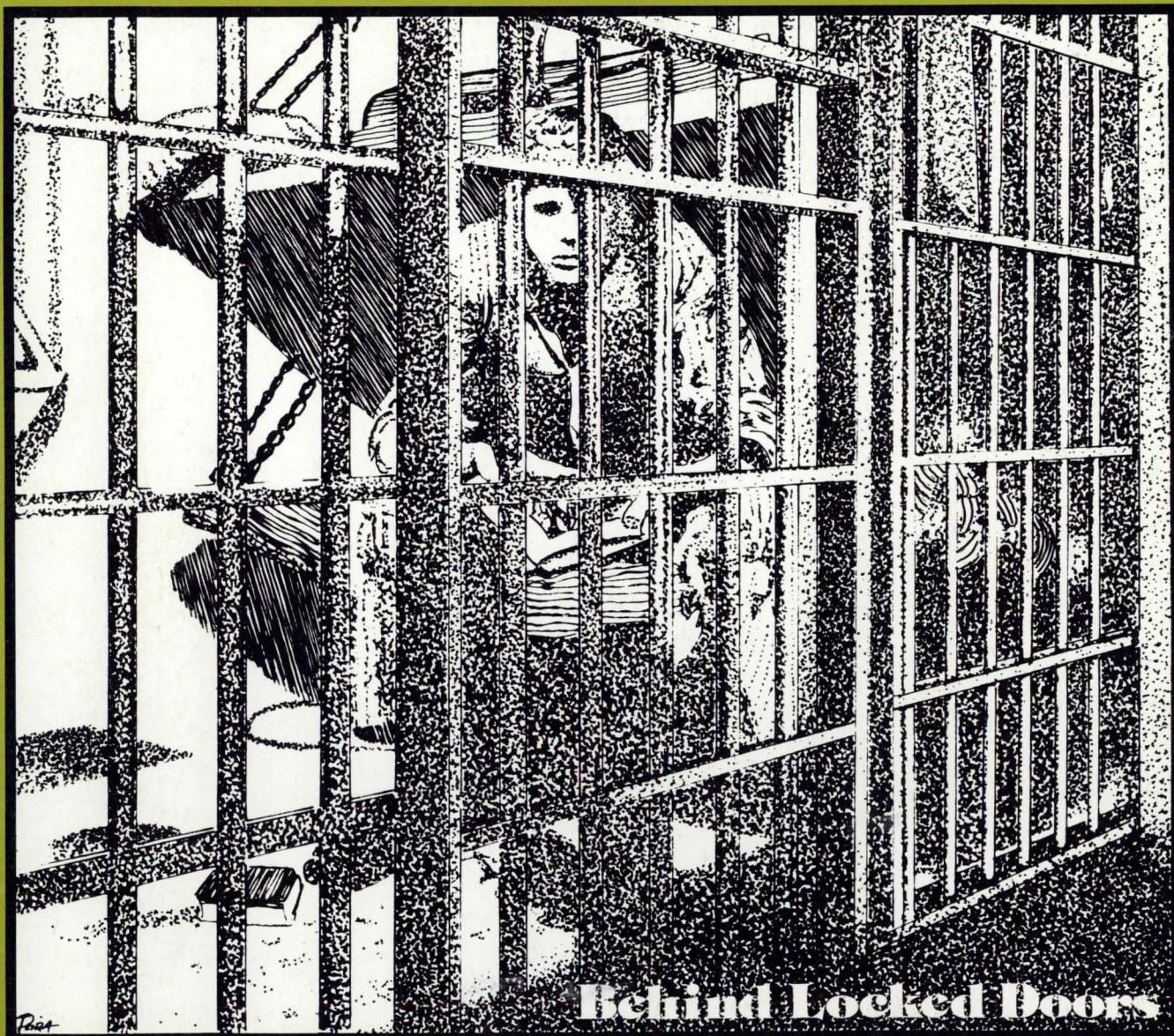


The GAO



SPRING 1979

REVIEW



Behind Locked Doors



The **GAO** REVIEW



Spring 1979

Contents

Volume 14 ■ Issue 2

- 1 From Our Briefcase**
 - Fraud Task Force in Business
 - The Many Aspects of Tax and Spending Limitation Proposals
 - Word Ban in Ohio
 - Briefing the Farmers
 - Food Issues Newsletter Can No Longer Provide an UPDATE
 - Wider Audience for a GAO Publication
 - Behind the Scenes for the *Annual Report*
 - Mr. Staats Receives Plaque of Recognition
 - Got an Idea?
- 4 New England . . . It's Not Getting Older, It's Just Getting Better**
 - Leslie Aronovitz, Valeria Gist, Al Larpenteur, and Ray Wessmiller
- 16 A History of GAO's Buildings**
 - Marcia Anderson and Jeff Jacobs
- 18 Behind Locked Doors**
 - Norman Steubenhoffer
- 21 The State of the Art of Program Evaluation**
 - Clark C. Abt
- 26 Mission Analysis: A Response to the Taxpayer Revolt**
 - Barry W. Holman
- 30 How To Kill A Consultant**
 - Beryce W. MacLennan and Ted Sheppard
- 32 New Ideas GAO Can Use To Help Congress Make Decisions**
 - Roger L. Sperry
- 36 Strategic Planning in GAO**
 - Gary Boss

Contents

- 40 How a GAO Task Force Became Metric Experts**
J. Kevin Donohue
- 45 GAO's First Sunset Review: Deciding Whether To Dismantle an Agency**
Lawrence J. Dyckman
- 49 The New Challenge of Weapon System Reviews**
Norman C. Berman
- 52 Computer Assisted Telephone Interviewing**
Edward H. LaBelle and James H. Solomon
- 56 Productivity Appraisal – A New Look at Some Old Problems**
Bill Mandel
- 58 Using Multiple Evaluation Methods To Analyze Handgun Issues**
Theodore H. Saks
- 63 Information Access in an Information Age**
Anne Farley
- 65 Earlier GSA Probe Found San Antonio Scandal**
Joe D. Quicksall, Charnel F. Harlow, Rudy J. Nobles
- 67 Using Broad Scope Auditing To Serve Management**
W.A. Broadus and Mary Simmons
- 70 Legislative Developments**
Judith Hatter
- 72 Reflections**
Jo Clark
- 74 GAO Staff Changes**
- 78 New Staff Members**
- 79 Professional Activities**
- 85 Bookmark**
John M. Kamensky
- 86 Reporting on GAO Alumni**
Jo Clark

From Our Briefcase

Fraud Task Force in Business

GAO's Special Task Force for the Prevention of Fraud and Abuse received its first major publicity on December 4, 1978, when Comptroller General Staats testified before the Subcommittee on Legislation of the Senate Appropriations Committee. The task force has been in the spotlight ever since. Its most publicized activity is the toll-free fraud hotline (800-424-5454), established at the suggestion of Senators Jim Sasser of Tennessee and Richard Schweiker of Pennsylvania.

In its first month (January 18 to February 18, 1979), task force director Harold Stugart reported the hotline received 4,000 calls. They have resulted in about 2,300 written allegations which have been classified as to nature of call, agency and program involved, and geographic location. Calls have come from 47 States and the District of Columbia, and it appears 50 percent have some substance for audit or investigation.

Initial screening information has led the task force staff to establish six categories for those against whom allegations have been lodged. The categories are Federal employees only, Federal employees in conjunction with others, Federal contractors or grantee organizations, corporate recipients of Federal financial assistance, individual recipients of Federal financial assistance, and other individuals or corporate entities.

Followup is scheduled on a case-by-case basis, and the GAO task force staff review allegations with the applicable agency Inspector General. Followup on all cases will be referred to either an agency Inspector General, a GAO regional office, or a GAO audit division. In all cases, the task force will monitor the status of the case.

While most attention has focused on the toll-free hotline, the Fraud Task Force also evaluates the adequacy of the management control systems in Federal agencies and assesses the adequacy of the followup and corrective actions taken on reports of auditors and

investigators. Based on this analysis, GAO expects to get a better feel for the kinds of fraud occurring and its cost; resources needed to combat it; whether trends indicate that the weaknesses allowing fraud to occur are in the delivery systems, the enabling legislation, or the management systems controls; how agencies handle fraud cases; and actions needed to prevent fraud, including what the agency is now doing to detect it.

The Many Aspects of Tax and Spending Limitation Proposals

The increasing citizen unhappiness with what is viewed as excessive government taxing and spending manifested itself initially with the June 1978 California vote for Proposition 13. (See Volume 13, Issue 4, this section.) In the November 1978 elections, 13 States had tax or spending measures on their ballots, 15 measures in all. The Advisory Commission on Intergovernmental Relations grouped them: property tax reductions or rollbacks; State and/or local spending limits; and measures designed to strengthen public fiscal accountability. Ten of the 15 measures passed.

Attention is now turning to Federal spending—as of March 1979, 28 of the required 34 States had petitioned the Congress to call a constitutional convention to write an amendment requiring a balanced Federal budget. The drive recently lost some of its momentum, partially because rumblings from Capitol Hill make it clear that if such an amendment were passed, many spending cuts would be made in the \$83 billion portion of the budget which goes to State and local governments. As Senate Budget Committee Chair Edmund Muskie said, "That's not a threat, but arithmetic."

In addition to the somewhat obvious financial repercussions arising from passage and ratification of such an amendment, the constitutional ramifications of the process itself are enormous. No such convention has ever been

called, and the Constitution offers little guidance on the scope of a convention, how to choose representatives to it, how to define operating procedures, or what to do with the convention's product.

Once again, we may be in the middle of history in the making.

Word Ban in Ohio

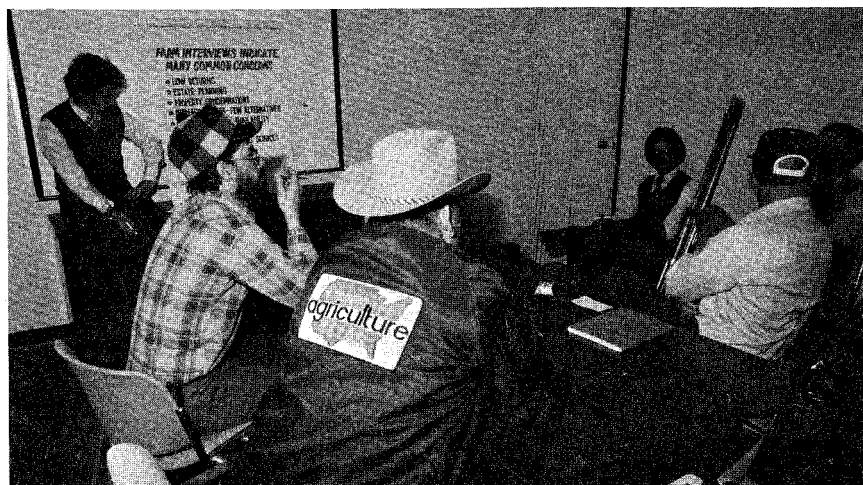
President Carter and Comptroller General Staats are not the only ones trying to simplify the language their staffs use. The University of Cincinnati has declared a "war on words," and administrators are being fined 25 cents if they use "input" and "feedback." Later in 1979 they expect to ban the words "interface," "bottom line," "utilize," "facilitate," and "impact" used as a verb. The University hopes to help people recognize language devoid of meaning, and make them more conscious of what they are writing.

We wish the University of Cincinnati good luck with their crusade. GAO staff beware! How many of you would be able to write a report without the words "utilize" or "facilitate"?

Briefing the Farmers

Talk about timely reporting! Since the GAO staff study "Changing Character and Structure of American Agriculture: An Overview" (CED-78-178), was issued on September 26, 1978, the job's staff, particularly Ed Schaefer of CED's food coordination and analysis staff, have been in the limelight. Ed taped a half hour question and answer program which the CBS radio network broadcast throughout the major farm belt States, and was also interviewed by the Maryland Public Broadcasting network's program "Up on the Farm."

Things really got busy when the farmers arrived in Washington in February 1979. Ed, assistant director Bill Gahr, and staff member Todd Weiss briefed the farmers and various congressional legislative assistants. They took their show on the road as briefings were held at GAO, the Department of Agriculture, and on Capitol Hill. One briefing was filmed by a T.V. crew. Not



Ed Schaeffer (far left), Todd Weiss (left) and Bill Garr (partially hidden) brief farmers.

to be downplayed was CED director Henry Eschwege's February 22nd testimony before the House Agricultural Committee.

Food Issues Newsletter Can No Longer Provide an UPDATE

For the past 3 years, the CED food coordination and analysis staff have published the *Food Issues Update*, the only known publication to pull together information on all aspects of food—nutrition, farm issues, international trade, and processing, to name a few. While the publication has received rave reviews from its clientele, the CED staff find they can no longer devote the time to this 'extra curricular' activity. The December 1978 issue was their last. Although the Department of Agriculture has considered issuing a similar publication, this does not appear likely in the near future. Our condolences to the many readers of this fine publication.

Wider Audience for a GAO Publication

Parlez-vous Français? If you do you can now read the pamphlet, "Status and Issues in Federal Program Evaluation" (PAD-78-83), in French. The International Monetary Fund translated the publication into French and has made copies available to their clients. The IMF initiative is certainly a compliment

to the Program Analysis Division's evaluation staff.

Behind the Scenes for the Annual Report

GAO's 1978 *Annual Report* was a slimmer volume with a new format. The chapters entitled "Highlights of Activities," "Legislative Recommendations," and "Financial Savings and Benefits" remain, but those detailing the activities of each division are no longer included. Instead, there is an appendix describing the major organizational units in GAO. This not only helped make the volume slimmer, it also reduced the work of the operating divisions in preparing portions of the *Annual Report*.

Even though the *Report* was shorter, it still required the painstaking attention of many staff. To recognize their numerous behind-the-scenes efforts, Mr. Staats asked participating staff to pose for a picture as he signed the *Report*. Knowing the offices these people represent gives an idea of the extent of work involved in preparing and distributing the *Annual Report*. Staff are from the Office of the Assistant to the Comptroller General, the Office of Congressional Relations, the Office of Information Management, the Office of Policy, and the Office of Publishing Services.

By the way, this group accomplished something very unusual in the Washington annual report world—the Comptroller General's was one of the few, if not the only, report published in January!

Mr. Staats Receives Plaque of Recognition

Mr. Staats attended the 7th Annual Conference of the American Association of Spanish-Speaking Certified Public Accountants in Las Vegas, Nevada, in November 1978. He was pleased to receive a Plaque of Recognition from the Association. Executive Director Daniel Archuleta of California recently sent Mr. Staats a picture of the occasion, and commented in the accompanying letter that members were still voicing their pleasure over his attendance, which they believe



Seated from left: Emily Rosemund, Emma Colbert, Vinita Mathur, Elmer B. Staats, Cindy Ryan, Cyndy Hale-Wilson, and Wanda Blunt, Standing from left: Jan Kosko, Allen Louderback, Sharon Damon, Walker Smallwood, Ted Roman, Kathy Bennick, Pat Garvey, Jo Clark, Bob Jurek, Mike Spears, Art Lamay, and John Heller. Not Shown: JoAnne Lieb, Gary Reuter and Bill Anderson.



Comptroller General Staats receiving a Plaque of Recognition from Charles T. Bartlett, (left) and Joe B. Pacheco, chair of the Board of Directors (center) of the American Association of Spanish-Speaking CPAs.

adds to their Association's credibility.

Got an Idea?

Have you ever read a somewhat bland article in *The GAO Review* and thought, "I can do better than this"? An idea forms; sentences take shape; you write. But later, when you read your words you see, to your chagrin, something that still resembles a GAO report—not the feature-style article you thought you were writing.

Where did all the flowing sentences go? Why couldn't you put it all on paper? You read what you've written and it doesn't even say what you meant!

You're not alone. But at least you recognize your problem. Many people spend years writing Government reports to please their bosses and not themselves, and find it difficult to rid their writing of bureaucratic language often used not to inform but to impress.

Or maybe you've deleted all the meaningless words and phrases and still think there's something wrong—it still sounds like a GAO report. You're on the road to recovery if you've recognized that the formal style of a GAO report is, indeed, not always best for a *Review* article. A GAO report is written not to "grab" the reader but to give straight facts. It doesn't have to be "sold" to anyone. An informal, featurish style has no place here.

An article for *The GAO Review*, however, must "capture" an audience that hasn't asked for anything—an audience which may or may not be interested in what you have to say. It's up to you to determine your audience and write the article with a slant that will sell it. That is, your article has to have a wide enough appeal to make your audience, in this case *all* GAO employees, want to read it.

Don't despair. Simply dial 275-5863 and ask for the Special Publications Group. Cindy Ryan, Jan Kosko, and Cyndy Hale-Wilson can help you develop your idea,

choose a slant, prepare an outline, and even write your article. And don't think your topic is too arcane. Cindy, Jan, and Cyndy have written articles on subjects ranging from weapons systems and medical equipment to histories of the Chinese spring roll and the peanut.

Once your article has been written, they will help you choose illustrations to complement your text. They'll coordinate any other graphics needs with the photographer and designers from the Graphics Branch and monitor your article's progress through the production stages of typesetting, layout, and printing.

So, if you have an idea for an article which you think would appeal to *Review* readers, submit a proposal letter to John Heller through Elaine Orr in room 7124. It needn't be long, but should give the editors an idea of what you'd like to say. (See the following example of Scott Montgomery's proposal for his article, "War on Science," published in the winter *Review*.) After considering your topic, Elaine will forward your letter to the Special Publications Group. You can then arrange an appointment to discuss your article with them in room 4528. They'll be more than happy to help you.

Sample Proposal Letter

John Heller, Editor
The GAO Review

Dear Mr. Heller,

I would like to submit an article for the GAO Review which discusses the public controversies over certain areas of science. This is an area which I believe would be of general interest to both GAO staff and any external readers of the Review. My article does not focus upon any specific audit or program evaluation. Instead, it examines the broader area of the social accountability of science, an area which is changing the basic social context of scientific research, and about which there is growing, acute debate. Since a significant amount of GAO work deals either directly or more peripherally with research in the sciences, I feel my discussion could help provide background and perspective.

Should you find this topic appropriate for the Review, I will be able to have my article ready for the winter issue.

Thank you for your consideration.

Sincerely,

Scott Montgomery
Scott Montgomery

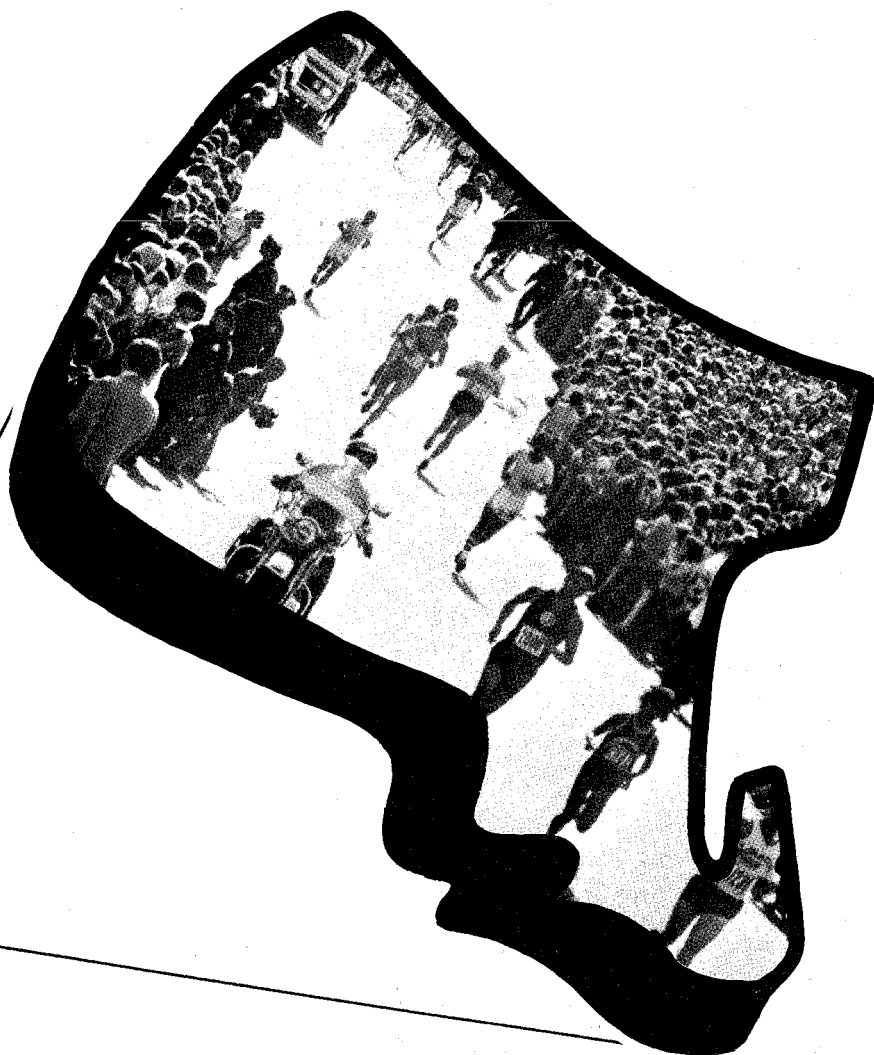
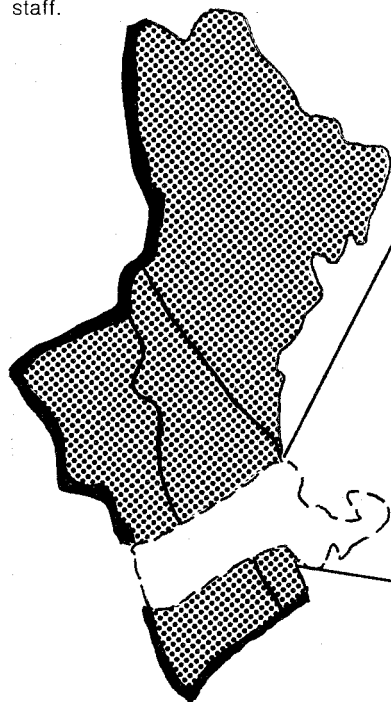
New England...

It's Not Getting Older, It's Just Getting Better



The Broadcaster Staff

This article was written by Leslie Aronovitz, with major contributions from Valeria Gist, Al Larpenteur and Ray Wessmiller. We also appreciated the advice from Fred Layton, Charlie Neville and Paul Slater, the research and clerical support from Pat Harrington, and the cooperation from the entire staff.



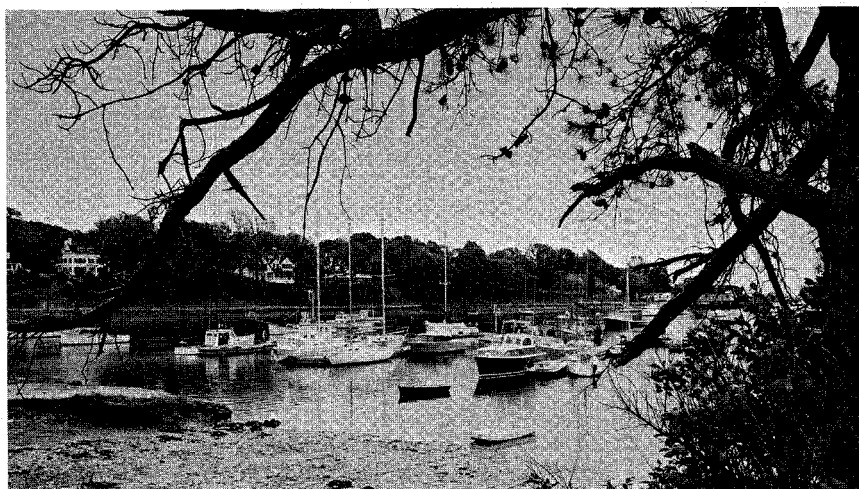
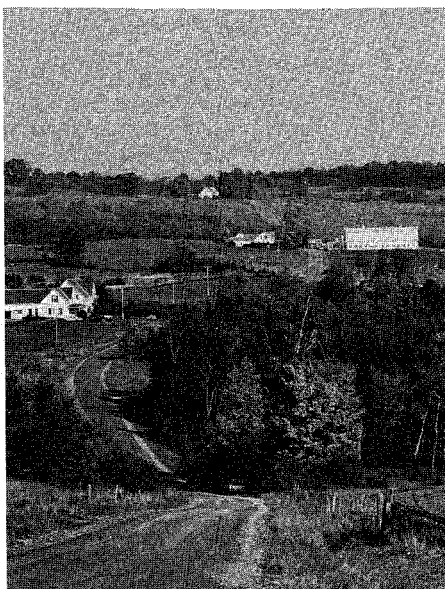
New England honors its past but accepts new challenges. Tradition and progress coexist and yield to each other. The land is sandy coast, virgin forest, and great mountains, but it is also skyscrapers and super-highways. BRO'ers stay here because we find vitality and solace in something uniquely New England. But whatever is special about the region defies generalization. For now, perhaps it is enough to say that it provides a different magic for each person. To put it in the words of a few BRO'ers,

People from outside the region often speak of Boston and New England as though they are one and the same. But I was born and raised here and I've worked in the Boston regional office for 15 years. I know better.

I've been here for 2 years and I like working in the city. It's the commercial and cultural center of New England, and most Federal agencies have regional offices here. I like the PuPu Platter in Chinatown, the pizza in the North End, and fighting the crowds in Filene's basement. I really like working in Boston. But I like living in Rhode Island. It's quieter. And after all, enough is enough!

You can't own a car when you live in the city. You wouldn't be able to park it, even if you could afford the insurance and taxes. Boston is crowded, confining, and costly . . . I think they say it's the highest cost of living in the continental United States. But I'll gladly put up with all that to live in the city. More than anything else, the distinctive seasons keep me in New England. The fall foliage is a spectacular sight and the ski slopes in winter make that time of year almost bearable. The spring is so beautiful and always welcomed. But summer on Cape Cod . . . that's where I spend all my annual leave.

I like the educational opportunities New England has to offer. And I like to know that wherever my audit site might be, there's a good chance I'll make it home on Friday evening. I guess you can tell . . . I don't like to travel.



A drive through New England takes you from tidy farm homes bordering a meandering road in northern Vermont, to big city life in the "Hub," to quaint historic fishing and vacation towns in Maine.

We find it tempting to describe New England in terms of what is biggest and best. But how would we ever agree on what is best about New England? Some would say that it is the panoramic view of Boston from the top of the Hancock Tower. Others would argue for the sea lions at the Mystic Aquarium in Connecticut. And who can say that the old church spires overlooking village greens are any less striking than the high technology corporations dotting Boston's beltway?

GAO has had a regional office in New England for 27 years, and our workload tells much about the character of the Northeast. Today, the BRO contributes heavily to GAO's productivity in the areas of environmental protection, major defense acquisitions, health, education, income security, energy, financial management, and intergovernmental relations. The region's economy and social structure assure our continuing involvement in these areas.



New Englanders find utility in history by restoring Faneuil Hall Marketplace, an exciting and successful commercial center featuring a wide variety of eating places and unique shops.



The Comptroller General and key associates are pictured with the BRO management team and their wives at the combined GAO Directors and Regional Managers meeting held in Boston in September 1978.

What Are New Englanders Really Like?

To capture the true flavor of our office, you should first know about the social, ethnic, political, and managerial influences that distinguish the region from others. And it is sheer treason to describe the contemporary New England en-

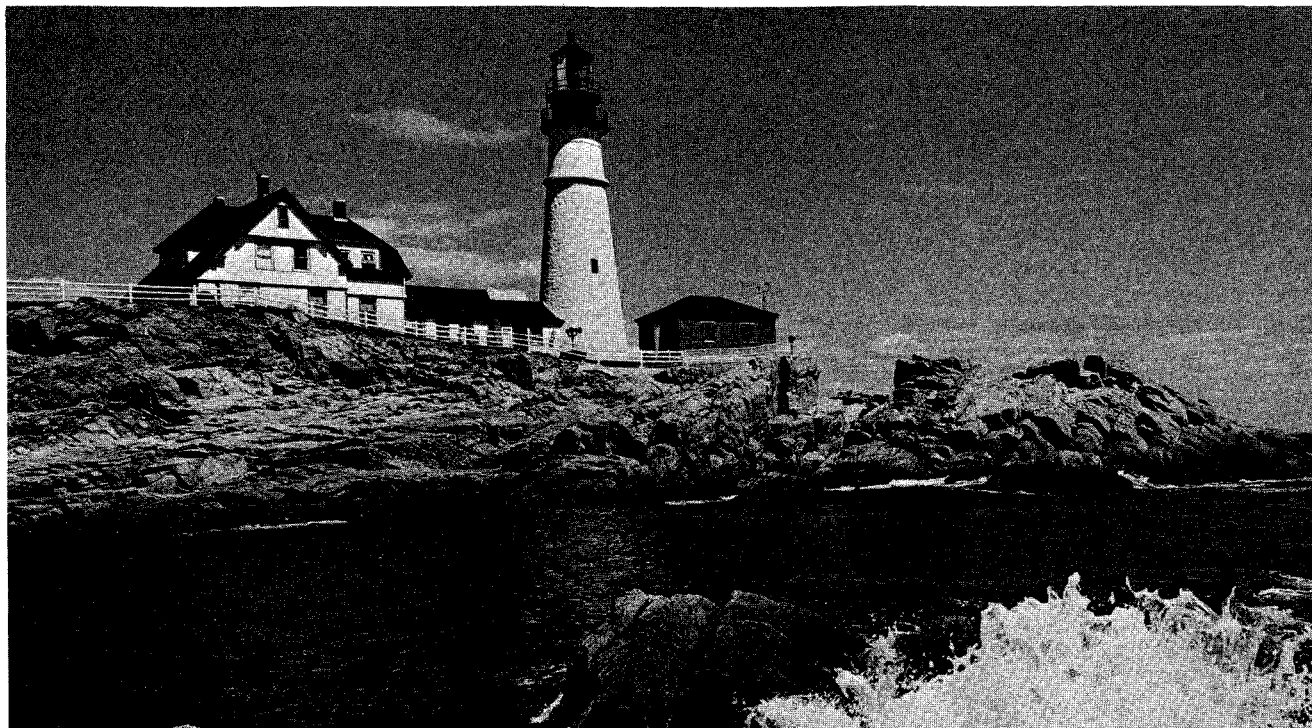
vironment without at least a fleeting reference to our history.

A frustrating fact about New England is that no one will agree on who landed where first. After near exhaustive research into the question, we give first historic honors to Arrowsic, a tiny island off the coast of Maine, where the Indians first settled and left artifacts that could date back 5,000 years. But lest

Maine pride herself too much, a place might not really be considered discovered until it receives a name. And until 1614, New England was simply known as North Virginia, a vague and rather unpromising extension of the colony further south.

After 6 weeks of searching around and about Cape Cod Bay, the Pilgrims selected Plymouth as the least forbidding place to land, (Provincetown was unacceptable) and finally debarked on December 20, 1620. Whether the Pilgrims actually ran the boat's debarking ramp up onto a rock is another unresolved question. (The sandy beach sounds a lot more reasonable.) Nevertheless, Plymouth Rock will always stand as a national symbol too important to depend on historical accuracy.

The triumph of Puritanism that came from establishing the Massachusetts Bay Colony in what is now Boston has long been told. Yet other stories of New England's beginnings are also very colorful but not so well known. Roger Williams, for example, armed with his heretical beliefs, pushed the Puritans to their



Hugging the granite-ledge shoreline of Maine is Portland Headlight, one of four lighthouses built under instructions from George Washington in 1791.

limit. When he persisted in espousing the peculiar notion that the Indians really owned the land in America, the Puritans pointed him in the direction of what is now Rhode Island and told him to form his own colony. He took the Puritans' advice and, in 1644, secured a charter from England and created The Incorporation of Providence Plantation in the Narragansett Bay in New England. By the way, it was in Rhode Island where the first Baptist church and the first synagogue found homes—thus exemplifying true religious freedom.

Drawing their character from Puritan stock, New Englanders are traditionally thought of as proud, opinionated, and productive, giving an aura of classical restraint and sobriety. BRO'ers have augmented this basic Yankee character with other ethnic strains from the diverse cultural and ethnic communities that have sprung up around New England since the early and mid-19th century.

The Boston regional office alone claims employees from over 17 ethnic groups including: Afro-American, Albanian, Canadian, Dutch, English, French, German,

Greek, Irish, Italian, Japanese, Jewish, Lebanese, Polish, Portuguese, Puerto Rican, and Scottish.

During the 19th century, the repercussions of the Irish potato famine and the industrial opportunities brought about by the manufacturing boom transformed the once predominantly English population into a mixture of national groups. Although the region has assimilated well, it is still easy to note, for example, where the Scots and Irish first came to New Hampshire, the Irish and Italians to Boston, the French to Lowell, the Germans to Hartford and the Portuguese to New Bedford.

A few BRO'ers reflect on their ancestry:

I was born on the other side of the expressway in Boston's North End. My great-grandfather came here from Avellino, a province in Italy, to make a better life. Growing up in such a tight knit community really helped the children keep their identity. After all, you might not have known everyone's name, but you knew the face belonged to the North End.

One of my great-grandfathers was a whaler, and came to New Bedford in search of a better life. Actually, most of the immigrants came to America so that their children could have it better than they did. New Bedford's a pretty large city, and I grew up without any real ties to the Portuguese community. But I must admit New England really scored when the Portuguese brought linguica to the new world!

When I came to Lawrence, Massachusetts, in the summer of '73 from Puerto Rico, I almost got run down by the natives scrambling to the beaches. It seemed strange to me then, since back home, you could get a tan year-round. Adjusting to other New England customs was also a bit difficult at first. But now I try to maintain my heritage by teaching the neighborhood children to read, write, and speak their native language. By the way, don't forget we had the "disco craze" long before you guys started moving and bumping to loud noises.

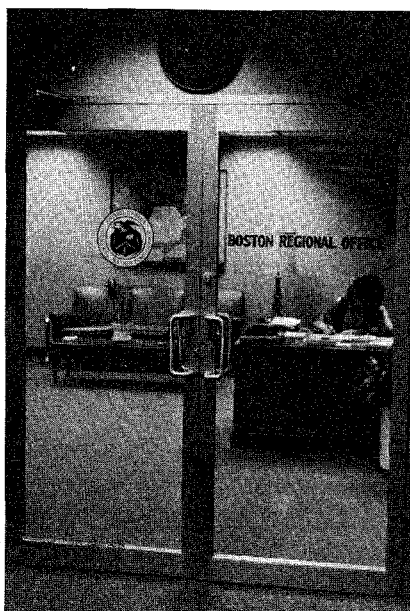
Considering that GAO's work is often conducted at the State and local levels, there is no way to ignore the numerous politicians per square inch who thrive in New England's cities and towns. The traditional New England town meeting, with its nonpartisan elections, is the ultimate in the democratic process and is still prevalent today. The wards of Boston, Providence, and Hartford have always provided lessons in political skill and finesse. And in recent years, even the traditionally reserved Republicans of New Hampshire and Maine have become politically alive and unpredictable.

Our Work Environment

The BRO, like other regions, is adjusting to the teams approach of doing business, but not without apprehension and confusion for some staff members. Even before that, however, BRO management was becoming increasingly aware that morale and the quality of life were at least as important to productivity as the technical ability of its staff. Fred Layton, our regional manager, has worked under the philosophy that BRO'ers at all levels should have a voice in the way they work and should feel free to express their opinions. The challenge was met head on. BRO for example, was one of the first regions to have an attitude survey. This process let employees express their feelings about virtually every aspect of work life, an opportunity they readily seized. This resulted in a number of study groups that recommended actions to improve life in the region. Many standing committees representing the staff's interests regularly provide management with views on the region's operation. Also, new office space substantially improved the physical working environment and had a positive effect on morale.

By no means are the challenges over. Any major change in an organization is, by definition, unsettling. But the early growing pains are slowly giving way to a new awareness and hopefulness about the future:

I've been in BRO for 16 years. I've seen things and people change and I feel good about being here. Sure teams



Receptionist Diane Lee Martin greets visitors to the Boston Regional Office.



Fred Layton, the Boston Regional Manager, with Paul Foley, Louis Lucas, Chuck Forbes, and Nick Carbone, Assistant Regional Managers.

caused concern . . . so did the reorganization . . . and so will our new job planning system. The learning process is slow and it takes time before the benefits can be fully realized. We're in a transition phase now. I believe things will be clearer in about 6 months to a year, and we can better appreciate then what we've been through.

In the 3 years I have worked in BRO I feel there has been a

big change, which I like. But there are others who might feel a little differently.

I'm pretty happy right now with what I'm doing, but I'm not sure about the future. Right now my opportunities are expanding; the work is varied and interesting and, there are chances to affect new and pending legislation. Once I'm promoted to GS-12, though, I'd like to further expand my opportunities and accept new responsibilities. This may not always be possible. And the competition for promotions to higher grades is getting tougher. But I think what's happening in BRO is happening in other regional offices too.

I'm aware of top manage-

ment's commitment to hiring minority staff members. This is an important start towards alleviating negative perceptions of minorities' performance . . . we need exposure and a chance to succeed. I think the Functional Racism Course increased a lot of people's awareness about EEO, and it also helped us have a more positive attitude about ourselves. We still have a long way to go, but we're getting there.

I've applied for promotions a few times under the competitive selection process and haven't made it yet. I don't fully trust the system. You just never know what surprises may result. Yet, when I reflect on the actual selections made, I have to admit that the people who were promoted deserved it. So maybe it works.



Fred Layton, regional manager and Al Larpenteur, editor of the BRO monthly newsletter discuss topics for an upcoming issue.



Carol Boehret and Don Benson discuss their assignment.



Secretaries Donna Perry, Gail Nicoli, and Kathleen Walker serve the needs of the office at a moment's notice.

GAO Review/Spring 1979

The BRO Contribution

The first New England fortunes were made from fishing and shipping. Then, in the 19th century, the region was one of the first to industrialize. Today, New Hampshire and Maine still manufacture paper and some textiles; Vermont produces machine tools and cut stone; Massachusetts makes rubber and plastics and electronic components; Connecticut is noted for submarines, airplane engines, electrical machinery, chemicals, and precision instruments; and Rhode Island is probably the Nation's capital of jewelry and silverware. But economic diversification has hit New England at about the rate of a thundering avalanche—education, medicine, scientific research, banking, and insurance are all affecting New England's economy.

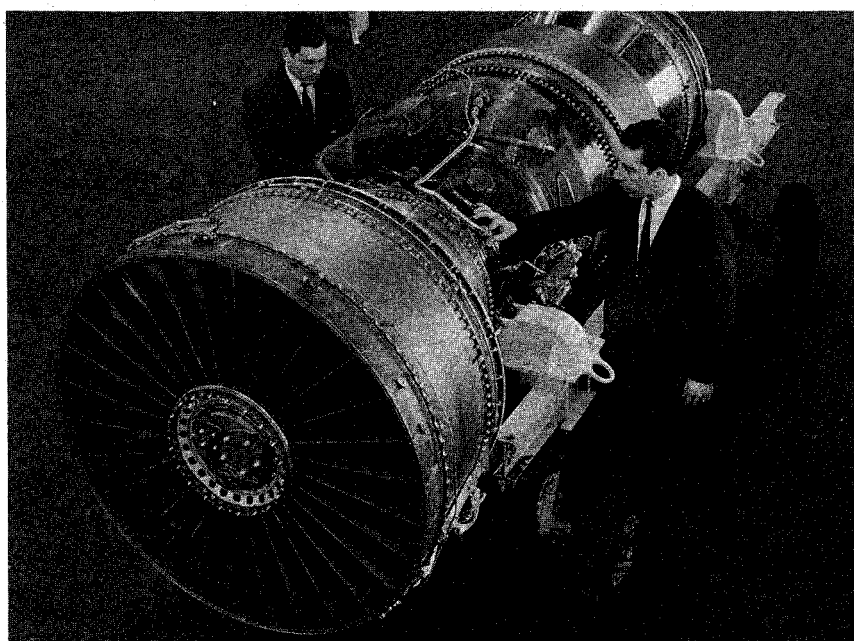
Due to the region's early industrialization and dependence on water power, it seems right that BRO should devote a lot of its workload to environmental protection. According to Nick Carbone, an assistant regional manager, "New England waters were polluted well before the Great West was even discovered." In all fairness, though, the threat of losing the region's natural beauty has to some extent

motivated New Englanders to preserve the land and waterways.

BRO's work in environmental protection dates back to 1966 with GAO's first review of the Federal Water and Pollution Control Act. With the innovative use of a program effectiveness approach, outside consultants, and color graphic presentations in the final report, BRO'ers demonstrated the importance of this issue area and established credentials for future work in environmental protection. Nick Carbone continued:

Since those early days, the BRO has continually been called upon to take part in multi-region reviews in this field. Having been involved in this issue area from the start, I think it is fair to say that the BRO has probably had as much impact on EPA legislation as any other public or private audit agency.

BRO's work on defense systems is a natural outgrowth of the region's concentration on defense-related industries. If you ever wondered where the government gets a lot of its aircraft engines, helicopters, submarines, surface vessels, and even its steam turbines, just look northeastward. Pratt and Whit-



In this circa 1961 photograph BRO auditors Louis Lucas and Tom McAuliffe examine a Pratt and Whitney T-400 jet engine. Pratt and Whitney, a division of United Technologies Corporation, is located in East Hartford, Connecticut, and is one of the State's largest employers.

ney in Hartford, Sikorsky in Stratford, Electric Boat in Groton, Bath Iron Works in Maine, General Electric in Lynn, and Raytheon in Bedford and Lowell are just a few of the places where BRO'ers have spent a lot of biting winters and long, hot summers.

I'm one auditor who really enjoys major acquisition work. After all, someone has to keep the contractors honest. But the locations . . . I'm always assured of at least a 2 hour daily commute. Honestly, you'd think if we could put someone on the moon we would find some way to move that traffic across the Tobin Bridge.

We worked on a survey to evaluate the cost and effectiveness of the Navy's AN/SQR-18 System. It was pretty technical, so I won't give you all the details, but we ended up issuing a letter report to the Secretary of Defense. That job resulted in cost savings to the Navy of \$305 million.

BRO's relatively large defense workload today is not close to the effort it was in the '50s and '60s. Back then, most of the staff was doing supply, procurement, construction, and operation and maintenance audits of military activities from Maine to Connecticut. We were also doing pricing reviews of defense contractors. BRO's work in those days greatly influenced Congress' enacting Public Law 87-653 (Truth in Negotiation) and establishing the Cost Accounting Standards Board. But during the Nixon years and later, many of New England's military bases were closed, and only the stories of those days linger. Paul Foley, assistant regional manager, recounts one of the classics:

A BRO'er was assigned to a payroll audit at a nearby air base. In the early morning hours of a foggy day, he found himself driving down an airstrip toward B-52 bombers without having passed the security checkpoint. He was surprised by the sight of a squad of Air Force personnel armed with loaded .45 caliber automatics. To this day, we wonder whether there were

more fundamental problems at the base than their payroll system.

Today, New England is heavily involved in research and development. The source of countless military advances in electronics, aircraft design, and ship-building, it is the center for the Air Force's electronic systems procurement.

BRO's work in the health area has always been heavy, but due to increased Federal programs, our involvement is becoming even greater. Boston is a natural setting for work in this field, where the notable medical schools, teaching hospitals, and research laboratories provide part of the skyline for joggers on both sides of the Charles River.

Says Louis Lucas, the assistant regional manager in charge of health issues:

Our work in the area of kidney dialysis is a good example of how some of our health reviews evolved. Boston has been a leader in the treatment of kidney disease in the United States. One of our auditors had personal knowledge of kidney treatment here, and was given some discretionary time to explore a potential finding. Later, HRD gave us a survey code. As it turned out, the job resulted in recommendations for alternative treatments and a savings for the Medicare program of about \$40 million a year. Many other improvements to the program were also made.

Our assist work can also be very rewarding. After all, we *do* live where the researchers work!

In the 10 years I've been with the GAO, my most satisfying job was our review of early research on frozen blood and its impact on post-transfusion hepatitis. Our work resulted in a blood donor registry (called the "GAO file" by the hospital) to avert potential cases of hepatitis from blood transfusions. This might sound corny but it really makes me feel good to know that I worked on a job where I might have helped save someone's life.

Fishing is probably man's oldest profession or certainly one of New England's oldest. And it is still a very important part of the region's economy.

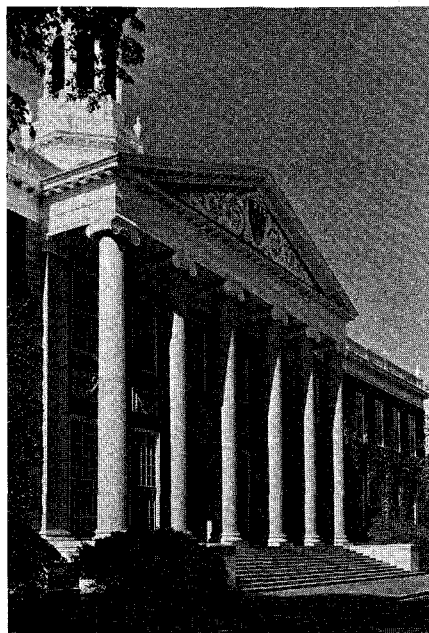
I'm involved with a series of reviews dealing with the Fishery Conservation and Management Act which attempted to conserve endangered species of fish. But with all this new government regulation, the New England fishermen say *they* might be declared endangered.

How can we talk about BRO without mentioning some of the colleges and universities in New England? Some of New England's institutions might not be as well known as Harvard, Yale, Brown, Dartmouth, Wellesley, Smith, Weaton, or M.I.T., but Providence College, Worcester Polytech, and Boston College are also important to the region's intellectual flavor and "higher education" industry.

The development of our electronics industry, including computer design, really got its start from some of the early innovations at M.I.T. Even as far back as 1955 when the Semi-Automatic Ground Environment system was being developed at M.I.T.'s Lincoln Lab, we were there conducting one of our first program reviews. From that day on, we've done work on computer procurement and utilization in government agencies, and looked at everything from software to computer-related activities. Because the region's universities and electronics industries are so advanced in computer technology, I foresee GAO involved in reviewing computer applications for a long time to come.

Our work in education, however, has not always centered on higher education, nor has it always concentrated on the academic pursuits of its professors, researchers, and students. A BRO'er recalls one of his more sensitive jobs:

Remember back in '75 when Boston was the hotbed of dissension over desegregation of public schools? Most Bostonians aren't proud of those days.



Left: Harvard University's Baker Library is familiar to GAO managers who attend the Management Programs at the Graduate School of Business Administration.



Right: Baker Hall, where participants live and attend classes and seminars.

Kids were not the issue . . . neither were the buses. It was the adults! And anti-busing sentiment prevailed. The BRO was asked to verify attendance figures used in developing the Boston desegregation plan and in securing Federal funds. With State police in every corner and metal detectors at every entrance, we were very cautious. Guess everyone is glad that the situation is a lot better now and that we're out of there . . . hopefully for good.

BRO has devoted quite a few staff years to income security programs since the early '70s, when the region's unemployment rate began to climb above the national average. The unemployment was, to some extent, due to the decline of the textile and shoe industries which began to lose their industrial prominence in the mid-'40s:

At the start of this century, New England's abundant, fast flowing rivers supplied power and the textile mills prospered. Also, during this time, Massachusetts alone made 47 percent of the Nation's footwear. But the movement of textile mills southward and the flood of foreign shoe imports necessitated Federal attention to

employment security and training programs such as trade readjustment allowances, unemployment insurance, and CETA. Whenever Federal dollars pile up the way they have in this issue area, you can be assured GAO auditors will be on the scene.

Just as New England's economy becomes more sophisticated and diversified, so does the nature of our work. Energy, banking, and intergovernmental relations are all areas that hold promise for future BRO work.

The energy situation is a case in point. New England is almost totally dependent on imported oil for heating, and to a lesser degree, for electrical energy production. Once, imported oil was cheap. But between 1973 and 1974, New England's total energy bill rose by an astonishing 139 percent, or on a per capita basis, close to three times the national average. Due to the relatively large usage of nuclear power, New England continued its scramble for alternative energy sources, only to be stopped dead by environmentalists:

The energy situation in New England is indeed dynamic. I've handled most of our jobs in this issue area, and I can

see the arguments on both sides. The Seabrook Nuclear Plant in New Hampshire is a great illustration of the trade-off between nuclear power and environmental concerns. As a matter of fact, former Governor Thompson probably lost his reelection bid by favoring a surtax on consumer electric bills to fund construction of the plant. But I think people are beginning to realize that the need for new energy sources will cost plenty in terms of the environment. I'm anxious to see how this issue evolves in the next few years and look forward to GAO being a part of it.

Out of its historic role in maritime trade, New England developed into a major banking and insurance center. Banking evolved to handle the region's trade accounts. Insurance had its genesis in the sharing of risks in sea voyages and later branched out into life, accident, and liability policies.

Today, Massachusetts and Connecticut hold one of the Nation's greatest pools of capital. The money management firms of the region are estimated to have \$85 billion in assets. Ten New England

life insurance companies, led by John Hancock Mutual of Boston and Aetna Life of Hartford, have combined assets of \$46 billion. The great concentration of financial institutions, combined with the trend towards increased Federal regulation in these areas, undoubtedly assures BRO's future involvement in the banking and insurance industries.

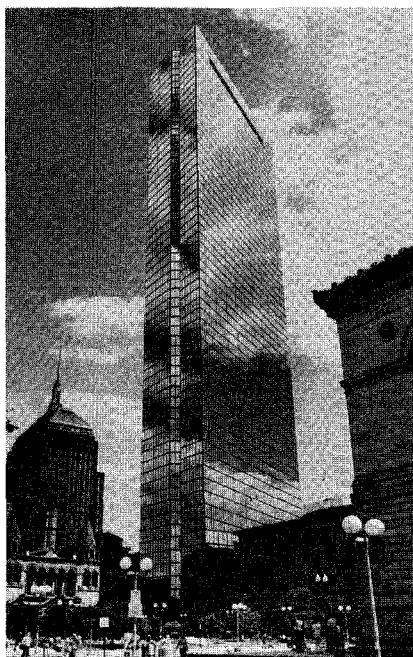
In spite of large private investments in the region's modernization, the industries of yesteryear have certainly left their scars. Boston, Providence, and Hartford have had their share of the problems typical of older cities: high unemployment, abandoned factory buildings, and depressed neighborhoods. Compared to conditions 4 or 5 years ago, though, the economy is vastly improved. Federal funding under numerous urban renewal, community redevelopment, and transportation programs has brought new vitality to the region's major cities.

The small towns dotting the region's countryside are also benefitting from Federal redevelopment programs. These Federal, State, and local partnerships will necessitate BRO's future involvement, and we are looking forward to broadening our expertise in audits of these joint programs.

The Staff

Although the work environment and the type of work we do tell much about New England, we still haven't told you how we got here and who we are. We've come a long way since 1952 when we were operating from the 12th floor of the Customs House with 21 auditors. Charlie Neville can recall how it was back when the workload consisted mostly of Federal agency payroll and cost-plus-fixed-fee contract audits:

I joined GAO back in 1952, 10 days before the Boston regional office was officially established. Before then we were a field office in the Northeast Zone. Even at that time, about a fourth of the entire staff, including three professionals, was female. A college graduate started as a GS-5 and made \$3,410 per year. We trav-



New England's leadership in the insurance industry is represented by the John Hancock Tower, Copley Square, Boston.



This view from the BRO shows the Federal Reserve Bank in Boston's financial district.

elled a bit back then also, and were paid \$9 per diem and 7¢ per mile. The rate was increased sometime after 1955 to \$12 per day, but if you spent more than a month at a site, the rate dropped to \$9 or \$10 per day. Annual and sick leave benefits have remained the same during the past quarter century, and we even had Blue Cross-Blue Shield coverage. However, employees paid the

entire amount to the regional manager's secretary, who sent the money to the insurance company.

We've certainly come a long way since then. In the little over a quarter century in business, we've worked under four regional managers. Omer E. Paquin served until 1957. Next, Charles F. Carr served from 1957 to 1963. Joseph Eder had the longest term of office—1963 to 1976. Our present regional manag-

er, Fred D. Layton, arrived in Boston in July 1976. At the time of his transfer from headquarters, Fred was director of GAO's Banking Task Force and continued in both roles until March 1977.

The years saw the addition of Connecticut to the region's territory and the creation of a Hartford sub-office, which operated for 10 years before closing in 1972. And to keep up with the broadened scope of our work and a corresponding increase in staff, the years witnessed an increase of office space from our original 1,200 square feet to our current 15,000 square feet at 100 Summer Street.



Our office . . . 100 Summer Street.



In 1974, former regional manager Joseph Eder joins Massachusetts State Auditor Thaddeus Buczko and Vermont State Auditor Alexander Acebo in signing the charter of the New England Regional Intergovernmental Audit Forum. The Boston regional office actively supports New England's Audit Forum.

We tried to come up with a few dozen words to tell you what we're all like. Instead, we decided maybe the best thing to say about who we are is that no two of us are the same. But if you add us all up and divide by 126, the result looks something like this:

The average BRO employee:

- Is male.
- Is 36 years old.
- Is married.
- Has 2.5 children.
- Has something between a bachelors degree and a masters degree.
- Has been with GAO for 10 years.
- Was born in New England under the astrological sign of Libra.
- Was raised and educated in New England.
- Is a member of the Association of Government Accountants and handles the financial transactions for a local church or synagogue.
- Supports New England's sports teams, including the Celtics, to the hilt.
- Enjoys tennis, golf, and bowling (in that order).
- "pahks his cah in Hahvahd Yahd."

On the other hand, since individuality prevails in New England, and in the regional office, the "un-average" BRO'er has the following characteristics:

- Is female.
- Is 21 years old.
- Was born on New Years Day.
- Was a Bicentennial bride.
- Is pregnant.
- Has a bachelors, masters, and law degree.
- Has been in BRO for 27 years.
- Was born in Japan under the rising sun.
- Was raised in Puerto Rico.
- Was educated in Seattle.
- Is an avid Yankees fan.
- Enjoys weight-lifting or karate.
- Has a southern accent.

An overwhelming 83 percent of the staff was born and raised in New England. Seventy-six percent received their bachelors degrees from New England colleges and majored in subjects ranging from finance to electrical engineering. BRO'ers have one law degree, 20 CPA certificates, and 47 masters degrees in disciplines ranging from management information systems to comparative government. Sixteen percent of the staff transferred here from headquarters (most returning to their native New England), while three BRO'ers previously worked in the Atlanta, Cincinnati, and Detroit regional offices. Five, at one time, worked in one of GAO's overseas branches. Of the 89 married BRO'ers, 69 have a combined total of 176 children. Five have 17 grandchildren. We should also tell you that 98 percent of us buy U.S. Savings Bonds, giving us the distinction of leading all other regions for several years.

To New Englanders, sports is a religion. The Red Sox, Celtics, Patriots, Bruins, and Tea Men compete in an atmosphere where the home crowd advantage alone can overwhelm the opposition. But BRO'ers are restless and partake in over 40 different sports and hobbies during their leisure hours. (Surprisingly, five staff members listed "traveling" as their favorite pastime. You can bet they didn't transfer here from Atlanta!)

A lot of us were other things before we were GAO auditors. For instance, we were a U.S. Army Chinese translator, a Peace Corps teacher in Afghanistan, an arctic trooper, a charter pilot, a tribal fiscal manager on a South Dakota Indian reservation, a house mover, and a ranked junior roller skater. And whatever we learned while we were there adds a special flavor and dimension to what we do here.

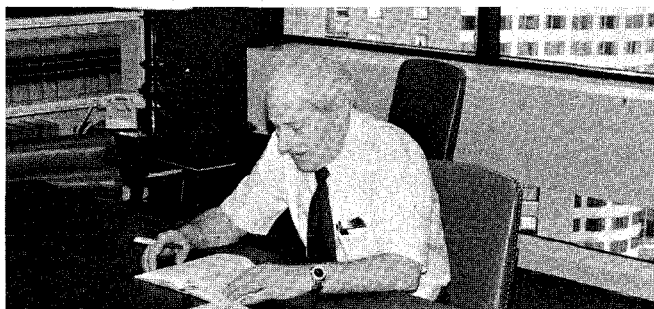
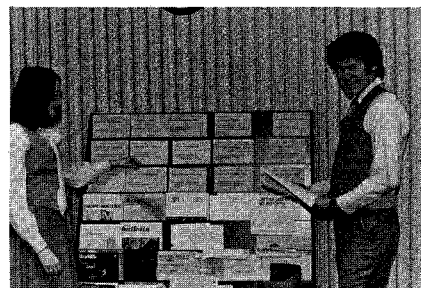
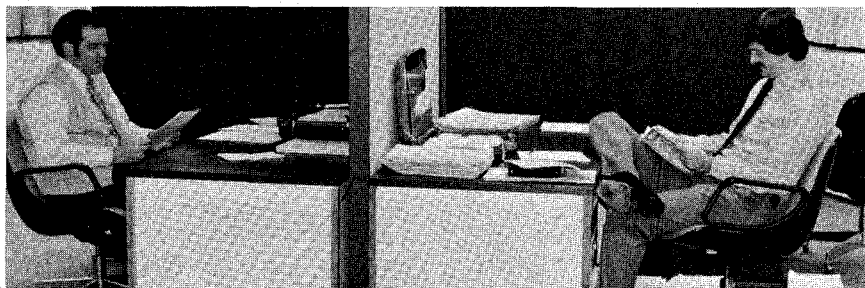
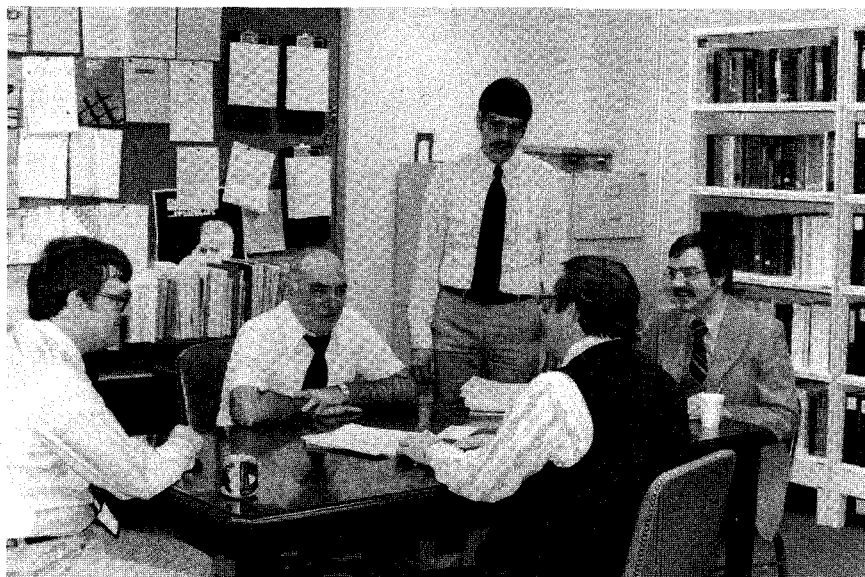
Finally, we're affiliated with numerous professional, fraternal, and religious organizations, twenty-nine, to be specific. We're very proud of our extraordinary ministers, Jaycees, parish treasurers and American Society of Public Administrators members. And we're also glad to have among us 25 AGA members (three are past-presidents and one is president-elect), five

military reservists, two American Legionnaires and a member of the Adoptive Parents Group.

So there you have it. A glance backward, inward, and forward. BRO is indeed getting better and better.

I've been making that one-hour commute to the regional office since I joined . . . over 8 years now. When I look at the future, I see myself competing with 52 other GS-12s for only a few openings. But I'm going to keep working at it. I see changes coming that might really help GAO become a better organization. I think it takes maturity to realize that every job has its ups and downs, and that what you expected won't always be there as fast as you might have hoped. But when you get right down to it, I really enjoy working in GAO and the people I work with . . . besides . . . my heart belongs to New England.

A Day In The Life...



A History of GAO's Buildings

Marcia Anderson
and Jeff Jacobs

The Treasury Act of 1789 created two offices: an Auditor and a Comptroller of the United States, both of whom worked in the Department of the Treasury and were precursors to the Comptroller General. Initially headquartered in Philadelphia, "it appears that the Office of Comptroller enjoyed a considerable degree of independence as well as status within the Treasury Department. As measured by salary, the original Comptroller was outranked in the executive branch only by the President, the Vice President, and the three department secretaries. The second Comptroller, Oliver Wolcott, appointed in 1791, had been the first Auditor, and he later succeeded Alexander Hamilton as Secretary of the Treasury. He was the only person in history to advance to the Secretaryship from the Office of Comptroller, and he was very nearly the only career professional in the field of financial management ever to occupy the post."¹

"From its beginning, the GAO's functioning was significantly conditioned by its office accommodations. Comptroller General McCarl and his immediate staff began utilizing the space in the Treasury Building previously occupied by the Office of the Comptroller of the Treasury. Most of the remainder of his staff and the mass of fiscal records already accumulated were housed in a number of Federal and rented buildings nearby in downtown Washington, such as the Old Post Office Building. Beginning with his first annual report in 1922, McCarl complained of the difficulties of managing and reorganizing his agency and of the safekeeping of its irreplaceable records because the Office was scattered among many different buildings. His demand for a single GAO building, repeated in most of his and his successors' annual reports to the

Congress, was not satisfied until long after his death."²

"McCarl had at least partial solace when in 1926 the central officers of the GAO were transferred to the old Pension Building which occupied most of the block bounded by Fourth, Fifth, F and G Streets, N.W. in Washington. The Pension Building, which became a symbol of the original GAO, had been completed in 1882 to accommodate the processing of pensions for war veterans. It was and still is an enormous architectural oddity, sometimes referred to as 'Meigs Old Brick Barn,'³ one of the largest brick buildings in the world and, as an office building, one containing possibly the highest proportion of wasted cubic footage in the world. Aside from providing the headquarters of the GAO for about a quarter of a century, its principal claim to fame was—and is now—the site of inaugural balls, beginning with Presidents Cleveland, Harrison, McKinley, Theodore Roosevelt, and Taft, and more recently, Nixon and Carter. But the 'Old Brick Barn' could not accommodate GAO's army of 2,000, which would later grow seven-fold. Most of the troops were scattered in various buildings in downtown Washington."⁴

"The mushrooming workload, coupled with the congestion in Washington and the demand for speed, particularly in military and war contract work, virtually forced a wholesale departure from McCarl's long established practice of concentrating activities in Washington. In 1942, the entire postal accounting and auditing operation was moved to Asheville, North Carolina, where Warren had once gone to school. In the same year, a war contract audit organization was set up to provide site-audits at the plants of war contractors to provide prompt resolution of questionable payments on cost-plus-a-fixed-fee

¹Mosher, Frederick C., *The GAO: The Quest for Accountability in American Government* Westview Press, Boulder Colorado.

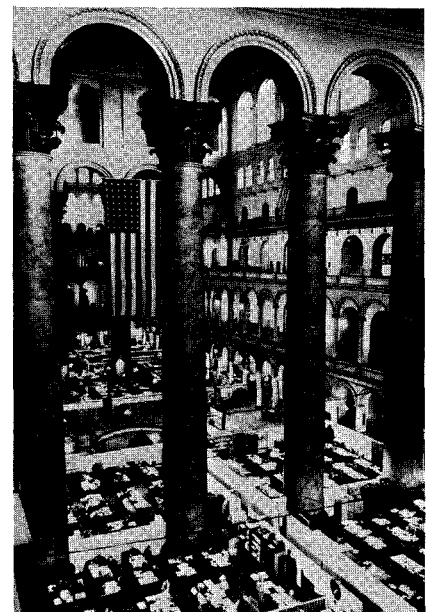
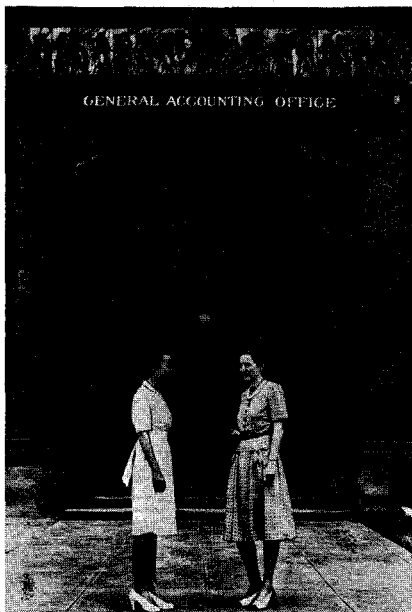
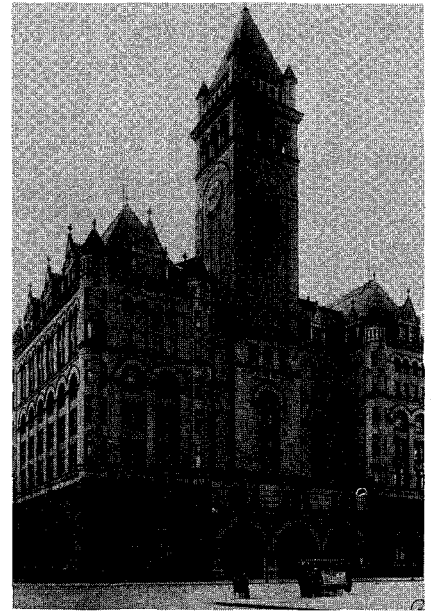
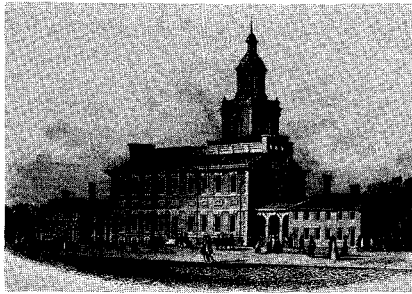
²Ibid.

³Ibid.

⁴Ibid.

contracts. For this purpose, the country was divided into five (later six) zones with audit locations established in about thirty different cities; at one time during the war, there were 276 audit locations at contractors' plants throughout the country. These were later to form the nucleus of a field audit section. In 1944, GAO established four Army Audit branches and one Navy Audit branch in five major cities across the country. They were designed to provide a prompt auditing of expenditures made by military disbursing offices. However, no overseas offices were established, as had been the case in World War I."⁵

"One interesting and somewhat paradoxical event was the completion and occupancy, at long last, of the GAO building in 1951. The construction of a single building to house the GAO had been urged by every Comptroller General, beginning in 1922. Plans to enlarge the old Pension Building in the mid-thirties were abandoned because the growth of GAO staff during the New Deal rendered that structure, even after remodeling, inadequate. In 1940 and 1941, Congress authorized funds for a building; the plans were drawn, the site was cleared, and a hole was dug. But all this effort was delayed because of the War. Work was resumed after the War—but on the basis of an anticipated headquarters staff and record-storing requirements comparable to the pre-War period. No one had anticipated the comprehensive audits conducted on site, the growth of the regional and overseas offices, the abandonment of the bulk of the records, as well as the massive reductions in total personnel. In consequence, the building has never been fully occupied by the GAO."⁶



⁵Ibid.

⁶Ibid.



Norman A. Stubenhofer

Mr. Stubenhofer is an assistant director in the General Government Division and has been responsible for audits in the correctional area since June 1976. He is also responsible for audits at the Law Enforcement Assistance Administration. He joined GAO in 1963 after graduating from Gannon College with a B.S. in accounting. He has attended graduate school at George Mason University, and is a member of the National Association of Accountants, and a Certified Internal Auditor.

Behind Locked Doors



Many GAO auditors, like the two above, are serving time in Federal and State correctional institutions. Although some, like Bob Taylor, don't like to stay very long and successfully make it "over the wall," others have served extended terms. What are they doing in prisons? What's it like?

As you have probably already guessed, we GAO auditors are doing what we're paid to do—auditing. We are currently doing corrections work at headquarters and in 10 of our regional offices—looking into issues such as employment training, health care, and safety.

Our role at the Federal Bureau of Prisons is direct—we can recommend that improvements be made or that certain aspects of the Bureau's correctional system be used as a model for others at the State and local levels.

In our audits of State and local correctional activities, we look for ways in which Federal programs can be better used to serve existing needs.

We can also use the information we obtain to inform the Congress of areas where increased Federal assistance is needed. I should emphasize that Federal assistance does not necessarily have to take the form of extra dollars. Increased coordination or improved technical assistance are other alternatives.

Our work has been of considerable interest to Congressmen and we



have done several jobs at their request. For example, we examined the circumstances surrounding a tragic fire at the Federal Correctional Institution in Danbury, Connecticut, at the request of Senators Abraham Ribicoff and Lowell Weicker. Congressman Carl Perkins asked us to look into alleged mismanagement at the Ashland Correctional Institution. And, at the request of Senator Sam Nunn, we are currently studying the management practices of five Bureau of Prisons institutions.

As a result of these requests and our self-initiated work, our auditors have spent a lot of time in prison. Most have some "war stories" related to their work; but fortunately, not all are unpleasant. The following vignettes will give you an idea of what it's like to audit *behind locked doors*.

Auditors sometimes find that doing prison audits strangely influences their behavior. . .

Frank Reynolds, Detroit regional office, recalled, "I was concerned about a phone call I received at home from *U.S. NEWS and WORLD REPORT*. Since I wasn't there, one of my children took a message: *U.S. NEWS* would return their call. I was concerned that the phone call might be about our recently issued report on medical/dental health care in prisons and jails, and I went through a lot of mental preparation in the interim. Sure enough, they called back to ask if I planned to renew my subscription."

Rich Clough of Dallas regional office told me he felt a little edgy during his first visit to a "minimum security" facility. . .

"The inmates, who wore street clothes, could only be distinguished from the correctional staff by their lack of keys. The staff joked that they could easily spot the inmates because they dressed better than the staff. Since we GAO auditors wore suits, we were apprehensive about being mistaken for inmates. Fortunately, that never happened."

However, Willie Bailey from Cincinnati said that, in his experience, the opposite was true. . .

"Our attire clearly distinguished us from the staff and residents. I remember walking past a group of inmates who were shouting, 'Hey you, hey you fellows in the fine suits. We know you must be important, so why don't you do something about the T.V. in our dormitory?' We were concerned because we were unescorted. Making a beeline for the administrator's door, we found it locked. The inmates started teasing us about being locked in the same as they were. We were really relieved when the guards showed up!"

Al Viera and Kevin Murphy from Boston were careful not to get themselves into a similar situation at Danbury. . .

"We arrived at Danbury in the middle of a severe snowstorm. The warden told us we must be really desperate for a finding. He then offered to put us up for the night within the prison, but we took our chances in the snow."

However, one seasoned prison auditor, Bob Aughenbaugh from Norfolk, told me how his audit team made a hasty retreat from a section of prison and continued nonstop right out the main gate. . .

According to Bob, "The reason for the early departure was a combination of events which started on Tuesday morning of that week and ended on Thursday afternoon." Specifically, in chronological order, the events were as follows.

"On Tuesday morning, a member of the staff told us that a snitch had informed them that a breakout was being planned and hostages would be taken. She advised us to keep our door locked and to stay in a group. Unfortunately, our audit space could not be locked from the inside. Also, what audit team plans their work so they can go around as a group? All things considered, it did not look good. As if the staff member was not fully convinced we understood our situation, she told us that 'the last major breakout had been planned right here in our unit!' Her parting instruction to us was that we should act very naturally. If those planning the breakout should become aware that their escape plan had been leaked, the snitch would surely die. With this she returned to her room, which, incidentally, locked from the inside.

"The rest of Tuesday was very uneventful. We went about our work, and so as to act naturally, we continued to make small talk with the inmates in the unit and around the institution, as had been our practice for the past 6 or so weeks of the job.

"Wednesday was more of the same except the inmates seemed to be coming down to our room more often and looking through the window in the door. This was not all that unusual, as a day did not go by that an inmate or two wouldn't wander down our hall and take a look in at us. The difference between then and now was that now it was happening all the time.

"The only really interesting thing that happened that day involved our co-op, Ray Hudson. He was sitting in our audit space, he tells us, 'with his back to the wall and his eyes on the door,' when an inmate having a psychotic episode came in for some conversation. The inmate told Ray about the space ship he had parked under a battleship in Charleston Harbor, and how he was making a flight to the Moon later that day. Also, the inmate told Ray, at great length, how he used to be the director of the New York Museum of Natural Art. Since we had run into this guy ourselves earlier that day, we knew what Ray had been through. We were all happy when Wednesday ended. However, on Thursday our luck ran out.

"As we entered the unit Thursday morning to go to our audit space, we could sense things were far from normal. Roland Saunders, an old hand at prison jobs, and I, on my fourth prison-related review, generally were able to tell when something was up. Ray Hudson, the co-op who had never been in prison before, was even beginning to look like he would rather be somewhere else. Brad Simpson, our subteam leader, knew when to be somewhere else and was on 2 weeks annual leave. Attempting to ignore our suspicions, wishing the feeling would go away, we quickly went about our work, hoping everything was all right.

"Possibly everything was all right, but it really didn't seem like it. Roland and I found ourselves discussing the fact that inmates we had been talking to almost daily for the past 6 weeks were now either out of sight or had become uncommunicative. We decided that that was probably a bad sign.

"It was now evident that we were being closely observed by the inmates. About every 10 minutes or so an inmate would come into our corner, press his face against the glass in the door, and count us. For the first time I was beginning to feel uneasy. Something was definitely going on, and as I returned to our audit space from a phone call, an extremely large inmate, who had in the past 6 weeks never greeted me with more than a bone chilling sneer, all of a sudden wanted to be my buddy. Since he was blocking my path and I only came up to his

chest, we talked a while. He quickly came to the point: he wanted to know when we were leaving. I said we were finishing up and we would be leaving the next day. At that point I sidestepped him and just closed the door as he tried to follow me back into our audit space.

"About 10 minutes later, Roland returned to the office and asked me to guess who had just stopped him outside, wanting to know when we were leaving. Apparently our large friend had picked up some good auditing techniques, and he was checking my story with a second source, just to be sure. At this point Roland and I sat down to discuss all the sudden interest in our departure date. Our discussion of the recent events was not reassuring. We decided to think rationally. First we noted the Bureau of Prison's (BOP) policy, which states that they will not deal with a prisoner holding a BOP staff member as a hostage. The prisoners, too, are made aware of this policy. However, we also had been told that the BOP would not deal with an inmate holding a GAO auditor as a hostage. Could it be that the inmates had *not* been told that GAO types were likewise expendable? This was a thought too terrible to consider.

"As I started packing my hernia bag I asked Roland if he knew where the co-op was. Roland thought he might be in the records office. The fact that the records office door locked from the inside was not lost on me. I went for the co-op while Roland finished packing. I didn't have to say anything to Ray. As soon as he unbolted the door, he asked if we were leaving.

"Certainly none of us wanted the inmates to think we were bad sports. However, as we crossed the day room, bags in hand, there was no avoiding the pained expressions on a number of inmates' faces. Now what would have happened had we stayed around another day is purely a matter of speculation. We don't know for sure, and probably never will. But should you think we acted hastily, without cause, or even irrationally, don't judge us too harshly. Instead, picture yourself as the captive of a huge inmate and let your imagination take over. That's what we did, and that's why we ran."

But Norb Trapp of Cincinnati was quick to point out that not all inmates are as awesome as those just described. . .

"During our visits to various Federal and State correctional institutions, we had the opportunity to meet some very remarkable individuals. One of the most memorable ones was a character we will call inmate John. Due to his institutional career, he proved very knowledgeable of various institutions and had become life long friends with most of the institutional staff.

"Most of the institutional staff considered inmate John a pathological liar, who was unable to distinguish reality from fantasy. Inmate John had spent many hours developing his 'dream world.' He told us how he was a successful college professor with a wonderful wife and several successful children. His father was a very successful businessman who loved sports so much that the family owned season box tickets to at least four professional NFL teams. His family also owned an exclusive seafood restaurant in Florida and he invited us to dine there when vacationing in Florida. As time went on, we learned that inmate John was unmarried and that his father probably never even watched NFL games on television. After driving many miles in Florida and asking everybody we saw about the exclusive seafood restaurant, we concluded that it did not exist either.

"For all of his faults, inmate John did accomplish something that most unincarcerated people cannot. This modern day 'Robin Hood,' with the aid of his attorney, managed to defraud a bank of several thousand dollars. He gave his attorney an out-of-State bank draft for \$3,000. His attorney deposited this draft in a local bank and opened a personal checking account for inmate John. Using the blank checks provided, inmate John made sizable contributions to a national telethon for crippled children and to the local United Way campaign. After honoring these checks, the local bank discovered the out-of-State bank draft was worthless. The bank officials notified the Warden who initiated disciplinary action against inmate John.

"Subsequently, the bank officials

declined to prosecute inmate John for fear of adverse publicity and embarrassment. Therefore, the Warden had no basis for disciplinary action and inmate John was returned to the general prison population. Thus Robin Hood was able to take from the rich, give to the poor, and escape unharmed."

As you can see, working in a prison atmosphere lends a different flavor to doing an audit. It's certainly not dull, but at the same time it's reassuring to know that we don't have to stay.

If you're interested, give me a call.

The State of the Art of Program Evaluation

Clark C. Abt

This is the third in a series of articles on program evaluation.

Adapted and updated from a statement by Clark C. Abt, Abt Associates Inc., at the Legislative Oversight and Program Evaluation Seminar Series, May 19, 1975.

I will briefly cover what program evaluation can and cannot do, particularly from the legislative aspect; how quickly and cheaply it can be done; how the program evaluation state of the art has advanced in the last decade; what we have learned about how it should be done; and some future directions.

Positive Aspects of Program Evaluation

First, I assume more information is better than less, and uninformed decisionmaking has a high cost. These are assumptions; they are not always operating explicitly, but ideally would be. We strive for timely, relevant, and accurate evaluations.

They can be very timely. Recently, the Office of Technology Assessment did in 3 weeks some evaluations which had significant impacts on offshore oil leasing policy. So the rationalization that we do not have time to do evaluations because it takes years and we have to make decisions in weeks is not valid.

Years ago, I did technical intelligence evaluations of large-scale weapons systems. We usually had a week to respond to what the Air Force called "quick reaction capability requirements." We found that, in general, these 1-week evaluations of new intelligence information on these systems developed about 90 percent of the information about program effectiveness that we got in a further year's additional study. I am not saying that this is always the case in social research, but a lot can be done in a short time.

In terms of relevance, the question is, "Can program evaluation answer questions of relative benefits and costs, and of cost-effectiveness and impacts of programs?" I believe that evaluations can, although they frequently do not.

We can measure cost-effectiveness and cost/benefit of any kind of program. Cost-effectiveness is easier; some criterion of effectiveness is set, such as advance in reading scores in an educational program, and the amount of advance per unit of cost is the cost-effectiveness or, more correctly, the effectiveness divided by the cost.

Benefit/cost is harder to compute because we are computing benefits and costs in commensurate, usually dollar, terms. We are trying to compute return on investment, so we can compare different programs. It is hard to compare years of reading achievement per dollar with percentage reduction in cancer fatalities per dollar—two completely different programs in education and health. If you have benefit/cost ratios or return on fungible resources invested for both, you can compare across programs. Ideally, you can optimize the whole portfolio of government investments by what the economists call equalizing marginal utilities.

All programs have a production function which usually shows gradually increasing productivity per investment up to some point of declining or diminishing returns to scale. Ideally one would invest in all the programs at the accelerating part of the curve, and begin investing in other programs when these programs' return on investment declines. Program evaluation helps us achieve these cost benefit measures.

We can determine the past, present, and future impacts of programs in various dimensions of concern to voters and policymakers—physical impact, social impact, economic impact, political

impact, the psychological impacts, the behavioral impacts, and impacts on the actual physical state of the environment, the state of people's opinions, and their market response.

We can do all of this to resolve conflicts of program choice, to make decisions more rationally about whether to start, modify, expand, contract, or terminate a program, and we can aid that same set of decisions within a program about program components.

Obstacles to Program Evaluation

What we cannot do with program evaluation is create new programs, make decisions, make the assumption of rationality come true, and get users or consumers of program evaluations to ask the right questions. We also cannot make value judgments that have any credibility where these are decisive program decisions.

The most important limitation of program evaluation is that people will not use it. I believe the three main obstacles to using program evaluation are goal conflicts, communications failures, and knowledge gaps.

There is often not a clear agreement about the purposes of evaluation between the sponsors, the operators, and the users. For example, HEW may sponsor an evaluation that the Congress will use and some independent research organization will actually perform. They do not necessarily all have the same interests, and in fact there is a functional tendency to look at it differently. Evaluators want clarified goals and clarified consequences. Political actors who sponsor evaluation, and particularly who sponsor programs to be evaluated, sometimes need to reduce the distinctions and to muddy them in order to build winning coalitions that will get programs through. So they may not have the same interests, at least not at the same time, as evaluators.

Communication Problems

Communication problems among the various actors occur for many reasons, among them: poorly specified requests for evaluation, lack of clear program goals, and time

frames which are not conducive to using evaluation results when making program decisions. Most frequently the work statements in requests for proposals for program evaluation overspecify what they want done and how, but not why. There is very little information for the bidders (potential evaluators) about the actual purposes of the evaluation. This may be deliberate, as purposes differ. On the other hand, some work statements are underspecified and some mandates for program evaluation are so global that one must guess what is really intended.

I believe the overspecified requests may be overcome by limiting specifications to program evaluation outputs and constraints when obtaining those outputs. The decisions about populations to be sampled, sample sizes, research design, and so forth are best left to the program evaluators.

Requests for evaluation proposals are often underspecified because requestors try to assess the competence of potential program evaluators with contractual definition of the work output. The two can be separated by giving an exam, reviewing records or asking for a specific competence demonstration, and then separating that from the actual work to be done.

Work outputs should be defined in operational terms. Most enabling legislation for program evaluation is extremely vague about the questions to be answered. Legislation calling for program evaluation should have very explicit statements of what the minimum set of policy and program questions to be answered should be.

Another problem in this area is that evaluation sponsors and researchers rarely communicate directly with the most important consumers of evaluation. In about 20 years of evaluation research, I have never had the opportunity to discuss the purpose of an evaluation with the congressional leaders or legislative assistants who are most concerned with the results of that evaluation—never.

I distinguish between asking program evaluation questions and insisting that all programs have clearly communicated goals. Joe Wholey at the Urban Institute insists that you cannot evaluate a

program if you do not know its goals. I think he is certainly correct in that it is easier to evaluate programs whose goals are specified, than those whose goals have changed over time, or whose goals mask a loose coalition of varying goals. If one requires a clear specification of goals before program evaluation can be effective, one precludes most program evaluations, because clear goals can often not be found.

Even if we cannot detect specific program goals, the program evaluators can establish what the goals should be. One could, for instance, determine whether a rural health program made any difference to the health of the rural area resident—whether that was the program goal or not, it should have been.

It is possible to write evaluation goals into enabling legislation without requiring program goals. This will enable program evaluators to understand the political environment and the questions to be addressed.

Most connections between evaluation results and program or budget decisions are largely random. I would suggest that future enabling legislation for program evaluations call for decision-driven evaluations—program evaluation results should be scheduled to allow sufficient time to make a decision using those results.

Communication is further muddled when the goals of the evaluation conflict with one another. These conflicting goals are reflected in either global work statements and specifications or very fuzzy ones. A way of dealing with this legislatively is to resolve the goal conflicts before writing the specifications for the evaluation, rather than expressing conflicting aims in the specification for the work. If these conflicting aims cannot be resolved, it is better to accept the conflict and say we will simply sponsor two kinds of evaluations having conflicting objectives, and being mutually independent. Conflicts will be resolved after we get the results of the evaluations, rather than muddle the issue and compromise the evaluation goals.

The Knowledge Gap

The knowledge gap exists because
GAO Review/Spring 1979

tween the program evaluation sponsors and users—not necessarily the same group—and the evaluation researchers or producers. And neither group completely or fully appreciates the position of the other.

It is very hard to really appreciate the capabilities and limitations of evaluation without having done it. It is unlikely that the intended users in the legislature and in the executive branch will really appreciate it until they get involved in it. How can we tempt them to get involved in it? This is a paradox, because they are not particularly eager to have their own activities and their own processes evaluated. I think the next best thing is to get them to participate in some of the planning of evaluations. That gives a sense of control, a sense of power over things, and basically more sharing by the executive branch and the administration with the legislative branch of the actual setting up of program evaluations.

Evaluation Advances in the Past Decade

Evaluation has had an engineering advance but not a scientific advance. Most of the statistical concepts, the experimental designs, the instrument design issues, and the operational designs of program evaluations were done in the 1940's or earlier—many of them in World War II operations research, in earlier public opinion and marketing research, and in survey research in the 1930's developed for commercial purposes.

In the last 15 years, partly through the diffusion of the cost-effectiveness analysts from the Defense Department to the social program agencies of the Government, these methods have diffused through the rest of the Government. And, with the increasing investment in social programs, the techniques have begun to be applied. A lot of the mistakes and errors made in social program evaluations have resulted in the rediscovery of things that have been known scientifically for 20 years but were simply not known to social program evaluators.

We have had a great deal of technological development in program evaluation research in the last 10 years, with the diffusion of sur-

vey research methods, experimental design methods, instrumentation methods, and statistical sophistication. Add to this diffusion of cost/benefit and cost-effectiveness analyses to new applications from their original hardware technology and military applications to health, education, welfare, housing, criminal justice and so on, and this is still going on. Sponsors and users are increasingly sophisticated and sensitive to the limitations.

Large-scale data processing capabilities have also expanded. Ten or 15 years ago survey research was too expensive. In a housing allowance demand experiment we did, a base-line survey of 100,000 led to final selection of 4,000 households for the randomly selected control group. This was done for a few million dollars within a few months. Before large-scale data processing facilities were available, it would have taken many years and probably tens of millions of dollars.

Problems to Resolve To Make Evaluation More Useful

I would like to describe some particular weaknesses of evaluation which, if reduced or removed, I think could improve the usefulness of evaluation and applicability of the work to legislation.

- Misselecting program goals and subsequent effectiveness criteria, such as cases in which the program operator's goals differ from those of the sponsors and possibly those identified by the evaluators.
- Focusing too broadly and failing to limit the evaluation to program aspects that can be researched in enough depth to achieve validity given the time and resources available—the “fishing expedition” that generates a low signal-to-noise ratio.
- Focusing too narrowly with premature concentration on a few variables assumed to be significant at the cost of exclusion of potentially more significant ones.
- Failing to explore relevant literature and data concerning similar programs or phe-

nomena being evaluated.

- Confusing a program inventory for a program evaluation.
- Confusing program outputs for impacts.
- Confusing needs assessment for an evaluation.
- Contaminating program results by using evaluation procedures that directly influence program activities as part of the evaluation processes.
- Scheduling too little time to develop the critical issues in depth.
- Misdesigning the data gathering, particularly inappropriately allocating survey resources that result in over-sampling the most significant groups.
- Not establishing any control groups, rendering the validity and generalizability of the findings completely uncertain.
- Not randomly selecting experimental and control groups, biasing the findings.
- Failing to select the readily measurable measures of effectiveness relevant to the policy issues.
- Prematurely and inappropriately collecting perishable information that cannot subsequently be readily updated or corrected.
- Failing to recognize and compensate for statistical artifacts such as regression towards the mean.
- Misdesigning questionnaires, often as a result of a lack of pilot testing that may be a result of a lack of sufficient time.

Suggested Ways To Overcome Problems

I think the only kind of regulation we can look for here is self-regulation in the field itself. Qualitative competition among the evaluators themselves could really deter faulty work in the field. For a Government policy on this, I would relate awards and fees to the quality of previous work. That always raises administrative problems about who is to judge, etc. Ob-

viously, it is not in the interest of a lot of sponsoring agencies to want this, so we cannot count on them. But I think there are some other ways besides an internal regulation.

Ideas on the specific technical and managerial approaches which may help to correct some of these typical weaknesses of contemporary evaluation research are described below.

Focusing Too Broadly

This is generally a problem of either over-ambitiousness or under-appreciation of the costs of collecting and analyzing information responding to specific questions, or both. It can be corrected, like most misallocations of effort, by setting clear priorities and estimating opportunity costs for specific tasks, maximizing the accomplishment of highest priority high productivity tasks. Sponsors of evaluation sometimes contribute to the native intellectual imperialism of some evaluators by urging the evaluators to "find out a lot about a lot of things," with the likely result that little that is new or useful is found out about even a few things.

The focus can also be kept in perspective through continuous and candid communication between sponsors and researchers throughout the evaluation concerning research priorities and the cost and tradeoffs involved in realizing them. Note that a pro-forma monthly progress report does not often achieve this. Face-to-face meetings between sponsor and researcher are needed to develop enough mutual trust and confidence for the evaluator to be able to risk admitting that the goals of the evaluation had shifted and with it the task priorities, without the researchers resorting to legalism or unresponsiveness.

Focusing Too Narrowly

Ideally, given sufficient time and resources, all evaluation research should be executed in at least three cycles—the first broad and shallow to maximize the probability of capturing the critical variables, the second more narrow and with an in-depth analysis of the hypotheses generated in the first cycle, and the third a number of almost-as-deep parallel analyses to check external

validity and reliability.

Since this kind of iterative process is not always affordable, it may be helpful to attempt to compress the cycles within a given evaluation, or to use analogical other efforts to simulate the first and third cycles. In any case, a thorough and broad literature search should reduce (but will not eliminate) the probability that a too narrow focus has excluded the potentially significant factors.

Ignoring the Relevant Literature

This is correctable by effort, insistence on it and demonstration of its results.

Scheduling Too Little Time

What is needed here is some standardization of the lead times of the lengthier evaluation research tasks, such as field testing of questionnaires, data reduction and cleaning, etc. Further, there needs to be a better appreciation of the advantages and the elapsed time requirements of a longitudinal research, such as a classical "before and after" treatment evaluation.

Misdesigning Data Gathering

Here again, many marginal evaluators fail to be aware of or exploit the great mass of survey research and sampling methodology, quite adequate for meeting the technical demands of most evaluation researches. The under-utilization of the mass of survey research and sampling methodology can be addressed if sponsors impose higher standards of survey competence on the evaluation researchers. Appropriate course work and experience in statistics, sampling, design, and instrumentation should be specified for survey task leaders. For the more sophisticated survey design problems, the uncertainty concerning the optimal evaluation design may be partially overcome by pilot testing and/or simulation.

Not Establishing Control Groups

The absence of a control group is

often justified by lack of data gathering resources, political infeasibility, and the irrelevance of comparisons.

The first two obstacles have been discussed above. The issue of irrelevance of comparisons requires clarification. When a program's relative effectiveness and efficiency are to be evaluated, and controlled comparisons are being developed, the experimental method need not apply.

Sponsors of evaluation and research must distinguish among basic research, development, test, and evaluation programs. Basic research may or may not require control groups. Development and testing rarely do, and evaluation usually does. Where the evaluation aspires to validity, generalizability, and replicability, control groups should be required.

Not Randomly Selecting Control Groups

The excuses most frequently given for lack of random assignment to experimental and control groups are evaluation timing, political obstacles, and resource constraints.

The post-hoc timing of many evaluations render random assignment subject to the accessibility of a "natural" control group which satisfies this requirement. Since most post-hoc evaluations are concerned with treatments specifically addressed to a particular "target" population's problem, it is unlikely that such a "natural" control group that satisfies other experimental conditions can be readily identified after the treatment is already well underway. One policy for avoiding this problem is to require evaluations to be designed and executed concurrently with the programs to be evaluated.

Political obstacles to random assignment exist when a treatment is perceived as very desirable, and untreated control groups think they are victims of discrimination. Where "double-blind" experimental approaches are not feasible (as in most social, as contrasted to biomedical, experiments, because of treatment detectability by laymen), some forms of side payments to compensate controls for providing information while not receiving

treatment have proven effective. In operating HUD's Experimental Housing Allowance Program's Demand Experiment, for example, Abt Associates, Inc., has not experienced any significant political opposition from the randomly selected controls not receiving the allowance, probably because they receive a modest payment (much less than the housing allowances) simply to compensate them for supplying control information.

Resource constraints require a tradeoff between the validity of findings for a smaller set of variables versus less validity (or unknown validity) for a larger set. In most cases, sponsors and producers of evaluation should require that the available surveying resources be distributed to achieve valid findings for whatever set of variables can be accommodated, rather than invalid findings for a more ambitious set. Alternatively, exploratory or inventory-taking evaluations may require inclusion of all known variables but not generalizability of findings. In these latter cases, random assignment to controls, and sometimes even controls themselves, may be sacrificed for other research objectives, but the limitations of the resulting findings should be clearly understood and accepted by sponsors and evaluators at the outset.

Failing To Select Readily Measurable Measures of Effectiveness Relevant to Policy Issues

This is often a problem where evaluators are more concerned with contributing to a discipline or field of knowledge than they are to the formulation of a policy or operation of a program.

The most obvious corrective approach is to conduct a decision analysis of how the policies or programs of interest will actually be decided on, before the evaluation is designed. This decision analysis should identify the relevant decision criteria and supportive information requirements, so that the evaluation research can be specified to meet those requirements.

Failing To Recognize Statistical Artifacts

Most of these kinds of errors of evaluation can be avoided by advanced training in statistics and research design. A straightforward policy for assuring such competence is to require it of the technical director of all major evaluation efforts. If this is impractical, a somewhat more cumbersome but probably effective approach would be to require all evaluation research designs to be reviewed and accepted as technically sound by a group of statisticians of proven competence, institutionalized within some Government agency. OMB clearance of questionnaires provides both a good and a correctable model for such an approach.

Misdesigning of Questionnaires

There is remarkably little questionnaire research built into most evaluations, yet the results of the entire effort are usually critically dependent on the quality of these instruments. This is an activity in which there appears to be very little technique transfer between the masterful practitioners and the neophytes—again, because neophytes believe it is easy (and it *is* easy to do it badly).

This or other data-gathering instruments can be corrected by pilot testing, provided there is sufficient time available. Much of the pilot testing time might be saved if standards of competence in instrument design were more strongly required by sponsors, since almost everyone believes that they can design an effective questionnaire.

Future Directions for Evaluation

The evaluation resources of competent people, money, and time are scattered, and need to be concentrated. Instead of a little bit of evaluation everywhere, we need to do enough evaluation to be timely, relevant, valid, and accurate for the big payoff (impact) programs. Generally, impact is a function of how many people are affected, how much, how long, and how intensively.

Need for Comprehensive Evaluation

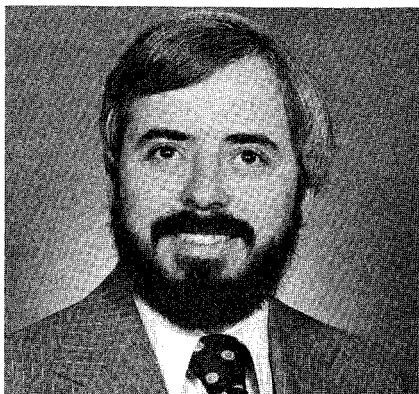
Evaluations often compare programs within agencies, but rarely do they compare programs with similar goals in different departments. We have about a dozen income transfer programs, and for each of those we have eligibility and certification processes which have never really been compared across different programs. Government income transfer programs on the average have about 100 percent overhead. A large percentage of that is for outreach and certification. All these different income transfer programs do certification differently.

We need cross-cutting evaluations of processes and functions that are common to a great many different agencies' programs. I think this is a major new role for the cross-agency missions of the Office of Management and Budget, General Accounting Office, the Congressional Budget Office, and the Congress. I do not see how this can be done completely within the departments themselves.

Evaluation as a Decisionmaking Tool

Evaluations are rarely inputs to budget decisions, and often are not focused on controllable policy variables. A policy variable is one you can do something about, such as the particular characteristics of a program, as opposed to a contextual variable, something you cannot do anything about, such as the percentage of people under the age of 30 living in a town. Much academic evaluation research tends to focus on contextual variables which are not under the control of policymakers. To be more effective, policy variables for evaluation could be legislatively specified.

I do not believe the next major breakthrough in evaluation will be in methodology—we have the methodology. Instead, the breakthrough will be in increased Government use in decisionmaking of evaluation results—particularly of those results developed by cross-cutting agencies such as the General Accounting Office, Congressional Budget Office, and the Office of Management and Budget.



Barry W. Holman

The author is a management auditor in the Washington regional office. A graduate of Virginia Commonwealth University in Richmond, Va., he has been with GAO since June 1974.

Mission Analysis: A Response to the Taxpayer Revolt

The vexing question of how to instill accountability into the Federal Government has, over the years, increasingly concerned the American public. While there is a longing to hold individuals responsible, and ultimately they are, accountability may be difficult to achieve because of the financial underpinning of Government programs—the Federal budget.

Traditional Budgeting

Traditional budgeting focuses on how public monies are to be spent, indicating either a function, program, or activity. The emphasis is on funding products, technologies, and other activities rather than on results. Thus, there is little basis for assessing results and determining to what extent the original need which gave rise to the program or activity has been satisfied. With the absence of a profit and loss statement or "bottom line" to measure results and pin down accountability, it is little wonder that business and the public at large often view Government activities as inefficient and unproductive.

"... Congress falls into the 'rut' ... of trying to confront literally thousands of separate line-items and programs ... The mission, the end capability being bought with these expenditures, becomes lost, as does the connection with ... policy judgments ... Congress unconsciously abdicates a crucial role in providing early policy guidance and controls over the ... program."

SEN. CHILES (1976)

An Alternative Approach

Mission budgeting, an alternative to the traditional approach, focuses on the following questions:

- What are the monies for?
- Why are they needed?
- How are they to be spent?

Mission budgeting focuses on fulfilling needs in order to accomplish

missions, each expressed in terms of end-purpose or end-objective to be achieved. Thus, mission budgeting is intended to enhance the role of the Congress in two key areas:

- Policy, i.e., what are the funds for, and why are they needed?
- Oversight, i.e., how are the funds spent, and what are the results?

It is intended to enhance management planning, implementing, and controlling through emphasizing the results to be achieved. By stressing needs, priorities, and end-purposes to be served, performance can be measured because a bottom line—results achieved—will more clearly exist.

GAO's recommendation that the Congress experiment with mission budgeting was based on recommendations of the Commission on Government Procurement which clearly stated the need for congressional review of agency missions. The Commission said:

- Congress should have an early and comprehensive opportunity to debate and understand any agency's mission needs and goals for new acquisition efforts, and the opportunity to discuss the relationship of proposed mission capabilities to current national policy and the allocation of resources in accordance with national priorities.¹

The Commission's recommendations were intended to sharpen the effectiveness of congressional review efforts and make available a more meaningful level of review and control.

Will the Congress Go for Mission Budgeting?

Beginning with fiscal year 1979, the Congress required that the

¹Report of the Commission on Government Procurement, vol. 2, part C, p. 77.

budget submitted by the President contain a breakdown of funding requests by broad missions and national needs. It is uncertain whether the Congress will go further, as the Commission recommended, in making missions the primary basis for budget presentation, review, authorization, appropriation, and oversight. Some committees and members have expressed interest but it is still too early to tell whether the Congress will embrace the entire concept or how soon.

"Everyone in this body is familiar with the difficulty of trying to evaluate and decide upon hundreds and hundreds of budget line items and programs, and fit them into a coherent and adequate picture of where we are . . . and where we should be heading . . . a mission-oriented budget . . . would provide Congress with the tool it needs . . ."

SEN. HOLLINGS (1976)

Mission budgeting, to be fully adopted, would require that budget authorizations and appropriations be predicated on a definitive statement of agency missions and needs arising from each of those missions. Where such is not the case, it would be up to the Congress to clarify what agency mission purposes are, or should be, in relation to current national policy. The Congress would also require budget justifications to show clearly the relationship of requested funding to mission needs at various levels of the budget from individual program or organizational levels up through the composite Presidential budget.

Mission Analysis – A Corollary to Mission Budgeting

The mission approach requires a periodic, thorough analysis of agency missions, program needs, and priorities on the part of the executive and legislative branches. Doing so gives simple recognition to the dynamics of today's world. Needs change as does public will. Both must be periodically reassessed if the Congress is to be responsive to those whom it represents. Changes in public attitudes and national needs may signal the need to change or refocus missions, change program emphasis, or even cease certain functions.

How Is Mission Analysis Accomplished?

Mission analysis examines programs or groups of programs involving one or more agencies, in terms of national policy, needs, and end-purposes to be accomplished. Mission analysis focuses essentially on the following questions:

- What is the mission (expressed in end-purpose terms) to be accomplished?
- What agency (agencies) is (are) responsible?
- How well is the mission being accomplished?
- Does agency management have mechanisms to track and measure mission accomplishment and/or contribution of individual program elements?
- To what extent are the agencies, agency components, or individual programs meeting the mission or mission needs? That is, what are the program results in relation to end-purposes originally sought?
- How do contributions of missions compare to resource requirements—past, present, and future?
- Are new programs evolving rationally in mission terms, based on priority needs supported by agency mission analysis, and clearly defined objectives, followed by a search for alternative solutions?
- What is needed to better fulfill the mission?
- Are there alternative and perhaps better ways to achieve the purpose of the program or mission?
- Are there other programs with similar purposes and objectives which can be eliminated or consolidated?
- Can any activities or programs be terminated or reduced without prejudicing the mission?

These questions can be tackled from a micro program level or a macro policy/issue level (see chart). That is, one might begin with an existing agency program

and question the end-purpose(s) to be achieved, how it relates to the agency mission, and national needs. Or, one might begin with national needs and look at the various agencies and programs being funded to meet those needs. Another approach could be to look at individual agencies to assess their role in meeting national needs and how the individual programs contribute toward that purpose.

APPROACHING MISSION ANALYSES

From The Top Down



From The Bottom Up

The point to remember is that with the mission approach there should be a clear linkage of mission and end-purpose extending from the highest level of national need down to individual organizational activities. Consequently, one could begin a mission review assessment at any point in the progression of acquisitions and activities to national needs.

The Case for Doing Mission Analysis Now

Notwithstanding the Procurement Commission's recommendations for mission budgeting and the accompanying need for mission analyses, there are other current and compelling reasons to begin doing mission analyses now.

Public Concern Over Spending

One may or may not agree with the "Proposition 13" approach to controlling taxes and Government spending. However, it is an inescapable fact that many Americans believe that the Government, at all levels, is wasteful, inefficient, and unproductive. Many also believe that the Government lacks accountability. At issue is how the Govern-

ment, beginning with the Congress (and GAO) and extending to the executive branch, will act to address these concerns.

Mission analysis might provide the vehicle for rationally and systematically responding to growing public concern and frustration over Government spending. With the emphasis on assessing end-purposes to be served and careful scrutiny of attendant needs and results, there might emerge a clearer picture of what programs and activities are beneficial and needed and those not working or no longer serving a useful purpose. There might also be a clearer perspective from which to assess efficiency and effectiveness of individual programs and activities.

Without a good faith effort on the part of the Government to address their concerns, the public is left with no alternative but to demand unilateral cuts in taxes and/or spending.

Pending Legislation Would Promote Mission Analysis

Pending congressional legislation (Sunset Act of 1979, S.2), which GAO helped draft, would require periodic reassessment by the Congress of Federal programs to determine whether they are being implemented and are being performed in accordance with the objectives and intent of the Congress. GAO would be expected to provide the Congress with information for these program evaluations. GAO reports covering a 6-year span would be provided to congressional committees as each program is reauthorized. For a program or group of programs this congressional reassessment is intended to bring about:

- More efficient achievement of their intended purpose.
- Elimination of needless duplication or overlap.
- Consolidation of similar functions and activities.
- Termination in whole or part of those not serving a useful purpose.
- Appropriate modification of the Federal role in relation to other levels of Government and/or the private sector.

Mission Reviews Could Fill An Existing Void

In addition to providing more broad based analyses, mission reviews could also be valuable where more than one congressional committee has purview over individual missions, mission areas, and agencies. Broad based reporting by GAO could bring the various committees together in focusing on key issues, policies, and national needs transcending the scope of an individual committee's charter.

Mission reviews could also be useful in bridging any gaps that exist in GAO coverage. For example, where GAO divisions are organized according to functional or agency review responsibilities, this could put GAO review groups on a parallel track with the agency or program to be reviewed. This could result in a limited review where the end being sought or the mission to be accomplished is much broader than an individual program or agency.

Who Would Do Mission Analyses?

If mission analyses are to be done in the legislative branch, who is going to do them? Would they be done by GAO? Would there be a role for a sister agency such as the Congressional Budget Office, Congressional Research Office, or Office of Technology Assessment?

Within GAO there are several options. Mission analyses could be done by a special task force, by PAD, or by any or all of the operating divisions. Particular divisions could be assigned lead responsibility based on functional area of responsibility or agency review responsibility. On the other hand, these reviews could even be a product of cross-divisional teams, which certainly would enhance the team concept and foster inter-divisional cooperation. Under any of these options or combinations, the team concept would take on new meaning and mission analyses could be enhanced through using multidisciplinary teams.

A key question is whether assigning lead responsibility to one division would preempt the review rights of other GAO divisions. That need not be the case. In fact, more

traditional reviews by other GAO divisions could be enhanced. One result might be more substantive areas of review by all GAO divisions through problems uncovered in mission analyses.

Equally important, the basic questions applicable to mission analyses might be applied more frequently to many of the more standard GAO reviews. It is important to first determine the basic need and end-purpose to be attained, and then the contribution that the program being reviewed is making toward achieving that end. This could make the difference between taking program or activity justification for granted or getting a broader perspective from which to assess program effectiveness.

The Skeptic's Views

Some people will no doubt question the relationship of the mission approach to zero-base budgeting (ZBB), program planning and budgeting (PPB), or even management by objectives (MBO). Some will question whether the mission approach can be any more successful than any of the other programs in producing results. The more skeptical will write off the mission approach as simply a new set of wheels for an old car.

Certainly the mission approach is closely related to ZBB, PPB, and MBO. The kinship is found in their purpose of fusing a closer link between the management functions of planning and controlling and providing a base for more meaningful assessment of program justification, needed funding, and results achieved. Each of these past efforts has brought us closer to focusing on end-purposes than was the case years ago when budgeting was product- or input-oriented and was presented almost exclusively on a line-item basis. But more can be done so that goals, objectives, and plans are truly oriented to end-purposes rather than to intermediate goals or organizational activities which in the past have often become ends unto themselves.

Summing Up

Mission budgeting attempts to closely link mission needs with planning and controlling through the authorization and appropriation processes. It is intended to be an integral part of the management and budget process, not an auxiliary tool to be half-heartedly used and then discarded. It envisions a firm base for assessing results.

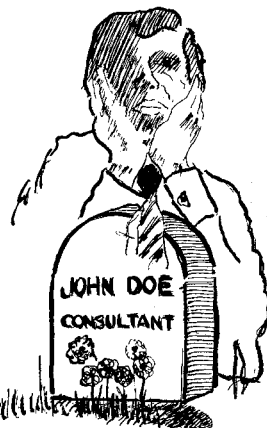
GAO, in its mission budgeting report to the Congress, recommended a cautious approach of testing and experimenting with mission budgeting on a limited scale to prove its worth.²

Mission analysis, however, can be done now. Through mission analyses the Congress can have a clear, objective perspective on mission end-purposes and what is needed to achieve them. Such analyses can point out the good and the bad of existing agency missions and whether program activities are fulfilling mission needs. There could be a clearer picture of results expected in relation to the needs and end-purposes funded. This could help the Congress to better respond to taxpayers' concerns over spending.

At the same time, GAO may be able to better achieve its own mission end-purpose and help the Congress understand mission budgeting through mission analyses. As a minimum, we in GAO can benefit by keeping in mind the mission analysis approach as we go about our more customary reviews.

²"Mission Budgeting: Discussion And Illustration Of The Concept In Research And Development Programs," (PSAD 77-124), July 27, 1977.

How To Kill a Consultant



Beryce W. MacLennan

Dr. MacLennan, Senior Mental Health Advisor to HRD, has a Ph.D. in social and clinical psychology from the London School of Economics. Before joining GAO in 1976 she directed the Mental Health Study Center at NIMH which included research and development on community mental health consultation.

Ted Shepherd

Mr. Shepherd has a B.A. and an M.A. in English and his background is in journalism. He assists in HRD's efforts to make GAO reports more timely and effective.

In recent times GAO has been asked to evaluate program effectiveness in other agencies and reorganize responsibilities in its own.

This has led to the increased use of consultants and to the oft-whispered question: How do you get rid of them?

Encouraging title aside, we must give a chilling reply: It is practically impossible to kill consultants, *particularly* in Washington, D.C. (This city has always been their natural habitat; it is rumored that L'Enfant favored avenues *without* traffic circles, until he hired a consultant.)

There are, however, a number of practices which—if employed with a killer instinct—can break a consultant's heart, spirit, and will to live. These will be offered for your education and enjoyment.

What is a consultant? A consultant is an animal reported to have some knowledge and experience, is without ranking in the tribal hierarchy, and is powerless except for one form of leverage that is almost never used: that of tattletale.

Because consultants are most often found in or around projects, we will employ the going-on of a project as framework to discuss the doing-in of a consultant.

Perhaps the darkest day of a project is that day when the consultant "comes on board."

Try not to be there.

If possible, have the most junior of the junior members perform the welcoming ceremonies—coldly.

Once that is over, make sure that everybody is "just too busy right now" to meet the consultant, and make doubly sure that the "right now" lasts at least a week or two.

Effective? Listen to the words of a consultant so used:

"Nobody spoke to me. I was assigned a cubicle—about the size of a closet—in the suburbs of the office. Very few people entered it. Those that did? They acted like they'd discovered mildew in the closet."

Every project has relationships with ongoing work, is hostage to certain budget, planning, and personnel priorities. To understand how a project sits in the context of these relationships, a consultant needs a groundwork of knowledge about them.

What happens if you *withhold* that knowledge?

"I asked everybody. Nobody would tell me. I became so desperate I even asked the cleaning lady. She didn't know either—but she was nice. She said: 'You must be a consultant.'"

No phase in a project's life—or a consultant's—is more important than the structuring of approach. The consultant is incredibly eager to be there at the creation—to get and to *give* meaningful input.

How can this be avoided?

Here's how one veteran consultant-baiter handles the problem.

"When a consultant wants to be in on approach structure, I get three pieces of paper. On each piece of paper I put a truly doubtful approach and some dog food. My dog is kind of picky. It generally avoids at least one piece of paper. That's the approach possibility I tell the consultant I want surveyed—in depth."

Even if the consultant resists, the manager is, after all, the manager. By the time the consultant has proved the approach to be irrelevant, time has passed and with it the problem.

Of course, if you don't have a dog, a shorter way to accomplish the same end is: Never call in a consultant until a project is well underway.

Regardless of where the project is, the new consultant is normally given a rather small task to allow the manager to ascertain the consultant's talents without risking resources or reputation. Consultants—not wishing to dig their own graves before they get the lay of the land—approve of this practice, for awhile.

Make the "awhile" last forever.

After the consultant has passed the initial test, there is a reasonable expectation for more substantive work.

Don't meet that expectation.

Give irrelevant tasks. If they are accomplished well, give more. Brook no opposition. (A good way to brook-no may be seen in the frequent use of this simple comment: "I guess it's just my way, but I was brought up to make sure that everything was done thoroughly.")

If you feel too shy to use this method, consider the it's not-in-my-hands approach. Nothing will raise a consultant's blood pressure faster!

"You know what I hate to hear worse than anything? 'Upstairs'. 'Personally, we'd like to give your approach a try, but upstairs . . . They're kind of particular about what they want, upstairs.' When I hear that word, I know I'm bound for the basement."

Any project, sooner or later, turns up data. The data requires *assessment*—and the premises which that data was gathered to test may require *reassessment*.

The consultant yearns for this time, cherishes it. This is the season of the consultant's content, a time when condition is measured against criteria, when effect may emerge to prove hitherto unindictable cause!

No one method is sufficient to keep so aroused a consultant at bay. Here are several possibilities.

Keep the consultant physically removed from the data. If the data is in Akron, make sure the consultant is in Valdosta.

Allow the data to remain untranslated. The consultant seeking data in ounces will naturally slow down

when it is presented in metric tons.

Don't allow the consultant to massage the data. A consultant and data are like a hog and mud. Consultants can root through data and find things that cause headaches, embarrassment, and the need for additional work. This rooting must never be permitted.

Fortunately, at this particular stage, the consultant is quite excited—and therefore specially vulnerable to such cutting phrases as:

"Sounds nice in theory, but . . ."

"Your proposal may have merit, however, it overreaches the scope."

When a project reaches closeout, a consultant wants to be present to catch lingering errors and assist with final processing. The consultant wants to feel identified with the project.

If the project is a winner, assure that when client and high management are passing out congratulations, accolades, and thank-yous, the consultant is not there to share them.

If the project is in disfavor, viewed as wasteful, irrelevant, a hot potato, or a cold fish, give the consultant *all* the credit. Think of the project as an albatross—and the consultant as a neck.

Regardless of project life, a consultant's professional life blooms through contacts. The wise manager will:

Make it impossible for the consultant to develop information sources in Congress or relevant agencies.

Discourage attendance at any meeting where the consultant's area of interest might be on the agenda.

Disallow conferences by the consultant with persons involved in similar work on comparable programs. (One manager says he has stopped requests for the consultant by having the office secretary answer calls with this message: "He's not in right now. He's gone into selling life insurance and I know he'll be eager to talk to you. Who shall I say called?")

The true value of a successful project lies in the use made of findings. The consultant—whose future may lie in the balance—wants to know that, if any, difference the project has made.

Don't tell.

Say: "Heard it's still being reviewed."

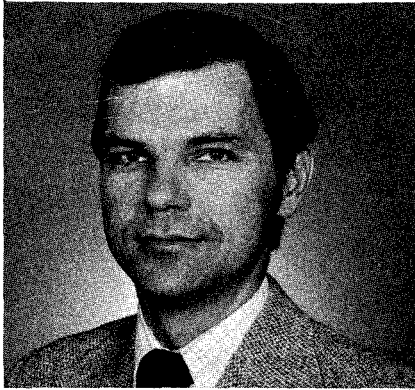
Say: "Indexer had some trouble. Hasn't fixed a publication date."

Say: "That? Haven't heard much on that lately. Think it's been shelved."

Some managers report difficulty with these phrases. Several managers have noticed they have trouble speaking to them with a straight face. Others are aware of a certain pity in themselves.

Practice will take care of the first problem. As for the second, there will from time to time arise in your breast a surge of human warmth and empathy for the consultant. This is a predictable, if somewhat unnatural, feeling. As one manager says: "Sometimes I even like spiders and snakes."

If this feeling occurs when you are confronting your consultant, the very best way of keeping it from showing is to think immediately of some cold and solemn occurrence, perhaps the spectre of somewhere, sometime, waiting to join you on another project, *another* consultant.



Roger L. Sperry

Mr. Sperry is an assistant director in the Program Analysis Division. He joined GAO's Civil Division in 1963 and has also been assigned to the Joint Committee on Atomic Energy and the Office of Congressional Relations. Mr. Sperry received his undergraduate degree in accounting from the University of New Mexico and a masters of public administration degree from Harvard University in 1976.

Dorothy Lynn Gordon, a former PAD staff member now with the Department of Justice, also assisted Mr. Sperry with this article.

New Ideas GAO Can Use To Help Congress Make Decisions

The Congress receives large quantities of budget data and information from the President, and it generates a great deal more through congressional hearings, the Congressional Budget Office (CBO), meetings, and other information sources. However, sometimes the budget information available to Congress is unorganized, and is not presented in a form suitable for decisionmaking from a congressional perspective. Also, not nearly enough of the information comes from independent, unbiased sources that are concerned with presenting all sides of important issues.

The General Accounting Office generates, or has available to it, a lot of data and information that can help the Congress in making budget decisions. Much of this information is made available to the Congress but, in my view, we have a duty to assure that it is developed and presented in the most useful form possible.

During fiscal year 1979 budget cycle, the Program Analysis Division analyzed how well GAO serves the needs of the committees involved in the budget process. We explored the means and resources available to develop information relevant to the budget process and talked with congressional committees about their information needs. We learned that committee staffs had many questions about issues of interest and concern to them which they did not have time to answer themselves. We also found that there was a substantial reservoir of information already existing within GAO that could be used to answer these questions.

We assembled a staff of analysts in the summer and fall of 1977 and developed and pilot tested the following two ways to provide information to committees involved in the budget process:

- Staff studies of selected budget issues—designed to meet the specific information

and analytical needs of the budget-related committee staffs at the time the budget was being considered.

- Summaries of GAO reports in selected subject areas—organized in a format suited to the budget process.

The summaries of GAO reports in a selected subject area were done in response to a congressional request, and the staff studies of selected budget issues were self-initiated.

Budget Issue Analyses: What They Were and How They Were Done

We analyzed four budget issues and issued three staff studies early in 1978. They were based, at least in part, on work done by GAO which was directly related to the congressional decisionmaking process. In our analyses we emphasized gathering information relevant to an issue and exploring alternatives. We were not necessarily interested in finding program deficiencies or in making specific recommendations. We tried to be even-handed in addressing an issue and to identify as many facets of an issue as time and resources permitted. Our approach recognized that congressional decisions must be made on issues that often are very complex and that these decisions are based on a variety of considerations, such as cost, efficiency, intergovernmental relations, organizational framework, and the needs of competing individuals and groups. By identifying several courses of action and analyzing the impacts of each, we sought to provide a framework for congressional debate and consideration of the issue.

Selecting Issues for Analysis

Selecting a limited number of issues to analyze from among the myriad Federal programs is itself an

extensive process. To insure that we selected some which would be useful to Congress and yet feasible, given our resources, we developed a somewhat structured process which is described below.

- **Selecting subject areas**—We assumed these could represent a budget function or subfunction, all or part of the legislative jurisdiction of an authorizing committee or appropriations subcommittee, or a commonly understood term which covered a segment of Government activity. We understood that what we chose would greatly influence who the customer would be. Our criteria for selecting areas were: congressional interest, existing GAO expertise, extent of information now available or being prepared, and willingness of management in the responsible GAO operating division to try with us this new approach.
- **Obtaining background information**—Here we used readily available information sources to gain a broad perspective on agency operations, related policy goals and objectives and current problems.
- **Selecting issues**—We gathered information on five or six major issues we thought Congress would consider in the next budget cycle, and narrowed this to two issues in each subject area. Our criteria here was congressional interest, GAO operating division input and ongoing work in GAO and the other congressional support agencies. We then met with the cognizant authorizing and appropriations committees and subcommittees to obtain their input.

Through this process we identified two subject areas which met our criteria—rail transportation and law enforcement and justice. Within these areas were the four issues we eventually selected for analysis—alternatives to Federal prison construction, Amtrak financing, Conrail's profitability and crime statistics.

Issue: What means should be used to provide correctional institutions for Federal prisoners?

We selected this issue because congressional staffs were interested in the problem of overcrowding in Federal prisons, and also because GAO had already done work involving the Federal prison system. The analyst assigned to develop this issue had no prior background in the subject area; however, GAO had done substantial, high-quality audit work in the area and had several ongoing reviews. Our analyst relied heavily on the knowledge of the GAO audit staff and supplemented that with information from public interest groups. He also developed close working relationships with the two Federal agencies involved.

Our staff study, "An Analysis of Amtrak's Five Year Plan," (PAD-78-51) discussed the reliability of the plan and how Congress could use it for making funding decisions and evaluating performance. GAO had performed a similar study a few years earlier and conducted other major efforts in the area. This study described assumptions contained in the Amtrak plan about inflation and improved efficiency and showed how the Congress could use the plan to make funding decisions and evaluate Amtrak's performance. It also suggested ways to improve future 5-year plans. Rather than discussing alternative financing schemes, similar to the approach taken in the Federal prison study, we outlined alternative uses of the 5-year plan itself.

Issue: Conrail's Profitability

Conrail, the private corporation chartered by Congress to assume responsibility for operating the bankrupt Northeast rail system, was the other major Federal responsibility in rail transportation. Financial projections made by the U.S. Railway Association in 1976, when Conrail began operating, assumed that \$2 billion in Federal assistance would be all the railroad would need to become self-supporting. We had heard indications that additional financing would be needed.

"Conrail's Profitability: Framework for Analysis" (PAD-78-52) discussed Congress' need for better information and analysis on Conrail's financial projections, assumptions made to develop them, and how actual experience differed from the projections. We were able to draw upon some prior PAD analyses and an ongoing review by the cognizant audit division. The staff who performed this work also had analytical backgrounds. This analysis did not include extensive contact with the agency but relied more on analyzing financial data that PAD had available to it from previous work.

Because of the subject matter, we did not present alternatives for future financing of Conrail deficits. Instead, we discussed Conrail's actual experience compared with forecasts in its final system plan and described the kind of information about Conrail which we thought should be publicly reported to assist the Congress in making decisions on future Federal involvement and support for the railroad.

Issue: Crime statistics and how they can be improved

We selected this issue in our law enforcement and justice subject area because it was very topical and controversial, and the committee staffs were quite interested in it. However, among other things, we learned that the crime statistics issue was something other than primarily a budget issue. While there were budgetary implications to each of the available alternatives to improving crime statistics, we found that the central questions were primarily organizational—that is, who in the Federal Government would carry out this responsibility and how would they relate to State and local entities that gather and publish crime statistics? Therefore, the relevance of our work to the budget process diminished considerably. We decided not to issue a staff study.

"What Can Be Done about Overcrowding in Long-Term Federal Correctional Facilities" (PAD-78-50) was the staff study that discussed alternatives to prison construction. Basically, the study described the substance of the issue and its

significance to the Federal budget, briefly addressed several major questions that had arisen in the corrections field in recent years, and described four alternatives for how best to house long-term Federal prisoners. For each alternative, we provided available estimates of projected operating and construction costs.

The alternatives we assessed were:

- Aiding State and local governments in the construction of facilities to provide space for Federal as well as non-Federal prisoners.
- Decreasing emphasis on institution-based programs and increasing the use of minimum security alternatives, such as halfway houses and prison camps.
- Using and/or improving existing Department of Defense facilities that are excess or underused, such as, existing military detention centers, prison camps at active military installations, and inactive or closed military installations.
- Constructing new Federal correctional institutions and/or expanding existing facilities.

Issue: Amtrak financing

Amtrak was established to provide rail passenger service for the Nation and to relieve private railroads of the losses incurred from providing this service. When we began our work, the Congress and others were concerned about the increasing financial deficits being incurred by Amtrak.

The Process Revisited

As noted, a major difference between the budget issue analysis process and the process typically used on GAO reviews lies in the proportion of time spent documenting the problem or issue vis a vis that is spent developing alternatives for resolution. While we independently verified the extent of the problems, we relied heavily on information already collected by GAO, the Federal agencies, interest groups and our sister agencies, and that which was presented in studies

done by experts in the field. In performing our analyses we were careful not to accept blindly the views of any group.

The factors we considered in analyzing an issue included the substance of the legislation and funding involved; its relationship to established policies and programs; its organizational, budgetary, or management implications; jurisdictional questions, precedents, timing of congressional or other action; and any legal issues which might exist.

The alternatives selected were considered in light of their ability to: 1) more effectively meet program objectives, 2) save money, 3) make better use of resources, or 4) resolve a problem not covered by the existing system. Special attention was also given to identifying related programs and activities in other Federal agencies. Although our success in developing alternatives varied for each issue, we were able to identify at least three alternatives for congressional action for each issue.

For each alternative, we tried to identify the pros and cons, the costs and benefits, and how the alternative could be implemented, should it be the one ultimately chosen by the Congress. Information needed to assess each alternative was generally incomplete, particularly for cost/benefit assessment.

We believed the way we presented the staff studies was nearly as important as the information contained in them, so we were careful to minimize technical details and concentrate on only those areas which directly related to studying the issue or implementing the alternatives. The staff studies thus had three parts—introduction and/or background, issues directly affecting alternatives, and alternative analysis.

Finally, to assure our studies were released when most useful in congressional budget considerations, we streamlined the processing by designating one staff member to stay on top of processing for the three studies which were issued. The average time from first draft to staff study issuance was 8 weeks, which included obtaining informal agency comments.

Summaries of GAO Reports in a Selected Issue Area

The second way we provided information for the congressional budget process involved summaries of GAO work in certain areas. At the request of a member of the House Budget Committee, human resources programs were selected for the GAO program evaluation summaries. The other congressional support agencies were asked to provide similar data on studies and analyses they had conducted in this area. We agreed to provide these summaries by March 1, 1978, so the committee staff could review them before the committee's markup of the first congressional budget resolution. With a staff of two people we were able to develop the summaries and make them available to the committee staff in a period of about 6 weeks and with an investment of about 30 staff days.

For each program area, we provided a list of issued GAO reports, major ongoing assignments, data on the budget function, major Federal programs, major Federal departments, proposed Federal spending for each major program, and a summary by program of relevant GAO findings and conclusions in issued reports.

There was nothing unique about the process we used to prepare the summaries. They could as easily have been done by the audit staffs responsible for the work. So what contributions did they make to the budget process that could not have been obtained from other GAO sources? The answer is the summaries of available GAO data were *packaged* in the form and context which the committee wanted. We were doing the work the committee staff could have done for themselves but which they did not have time to do. Had we not done it, GAO would have had less input from GAO's work to the committee's budget decisions. What we did was the last important step in making GAO's work available at a time and in a form needed by the user.

What Became of Our Work?

The three staff studies were well received by the congressional committee staffs with whom we discussed this project. Both rail transportation studies served as input to the appropriations hearings, and we prepared specific questions on one of the studies at the request of congressional staff. The Federal prisons study was discussed in appropriations committee hearings and the House committee report on the Department of Justice authorization bill. Section 9 of the bill, which became law, required the Attorney General to consult with the Secretary of Defense to develop a plan for using surplus DOD correctional facilities to house Federal prisoners.

The requesting congressman and the committee staff found the summaries of human resources programs useful in preparing for the Budget Committee's markup of the first concurrent resolution. They were timely, and they provided the committee with information on the subject which was available in GAO.

The consensus of the staff who performed these studies was that the analyses could easily have been performed by operating divisions or the regional offices. In fact, because the expertise and the knowledge rests with the operating divisions and the regional offices, this would probably be the most efficient approach. The major barrier to the divisions now performing these analyses is the issue identification and selection process and a willingness to make a firm commitment to meeting specific budget cycle deadlines.

Broad-based staff studies can tie directly into key decisionmaking processes. We demonstrated that this can be done with minimal resources by drawing on information, knowledge, and analyses that currently exist in the GAO.

Where We Go From Here

A number of the recommendations the House Select Committee on Congressional Operations made in its June 1978 report on GAO are relevant here. Among other things,

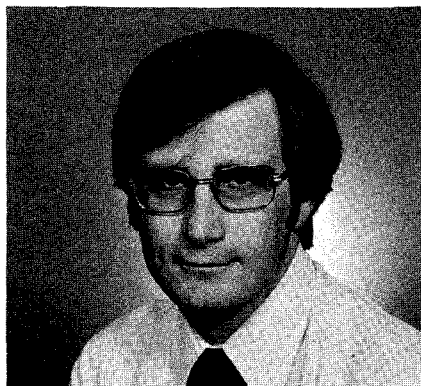
the Committee said GAO should:

- Implement a systematic procedure for soliciting and considering committees' views as part of our planning process.
- Make every effort to reduce the time required to complete and issue our reports.
- Continue to develop the competence to meet congressional needs for quick response kinds of assistance.

GAO has already begun to carry out these recommendations, but there will always be further opportunities to achieve these worthy goals.

In our judgment, an individual staff study can be completed in less than 6 months from the time the issue is identified until the study is released. The process of subject area selection and issue identification should begin a month or two earlier. Therefore, projects like these typically should begin in August or September and the staff study be issued in January, February, or March of the following year.

To accomplish this on a broader base in GAO, attention would need to be devoted to issue identification and selection beyond what we already do to prepare our program plans. Part of this process is developing and maintaining close contact with the congressional committees involved in the budget process.



Gary Boss

Mr. Boss is a management analyst in the Office of Program Planning. Prior to joining GAO in 1976, he did economic research and worked on trade policy matters for the U.S. Department of Commerce. Mr. Boss received an M.B.A. in marketing and finance from the University of California at Berkeley in 1971.

Strategic Planning in GAO

Planning can be defined as "determining what courses of action are possible within known constraints in light of the ends to be attained." This simple concept applies to just about everything we do, whether we are performing an audit, preparing a travel order, or making budget allocations. A good planning system should provide the framework within which decisions can be made, and should provide the guidance to enable management to match resources to needs in the most optimal manner.

It is against this backdrop that GAO's issue area planning system evolved from its early beginnings as mostly a "stage setting" document to its current status as a fairly rigorous yet flexible vehicle for setting objectives, generating jobs to meet those objectives, and evaluating how well the objectives were actually met.

From Fraud to Farmers

In recent years, the growing complexity of Government and its diverse range of programs has led to an equal diversity in GAO audit coverage. The eyeshade-wearing auditor adding long columns of figures has long been abandoned as a symbol of what GAO is all about. Some recent report titles attest to GAO's diversity:

- "Federal Agencies Can and Should Do More to Combat Fraud In Government Programs"
- "Handgun Control: Effectiveness and Costs"
- "Are Enough Physicians of the Right Type Being Trained in the United States?"
- "What Causes Food Prices to Rise? What Can Be Done About It?"

These reports illustrate GAO's growing involvement in issues of national interest. At the same time, many reviews still focus on a single agency or program which may have limited or Government-wide impact.

Audits in procurement, logistics, accounting systems, and internal auditing are prime examples.

The constant growth of Government makes it clear that some kind of system is needed to prioritize and allocate resources to address the most important issues and concerns. Recognizing that only a fraction of what needs to be done can be done by GAO, we need a mechanism to help us decide how to best deploy our resources. With a good planning system, this can be accomplished.

Planning and Doing

Realizing that a different type of organizational structure was needed to meet the demands of a growing Government, GAO reorganized in 1972. Several new divisions were created, each representing a function or program concern. While GAO felt it important to retain agency cognizance within these new divisions, there was also a need to develop a distinctive competence to address the most pressing national issues and concerns, which inevitably cross agency lines. This led to creation of an "issue area" planning system in 1975. The system's primary objectives are to:

- Build into the operating divisions the responsibility for planning our forward work program on a Government-wide basis.
- Develop and take full advantage of expertise among the various divisions and offices.
- Improve communications among organizational units of GAO.
- Provide a basis for setting priorities and measuring achievement of objectives.

The key elements of the system are (1) the identification of a single division (the "lead" division) as being responsible for GAO-wide leadership in a designated area ("issue area") and (2) the preparation of a plan for all of GAO work in an issue area over an 18-month period.

To achieve the system's objectives, major issues, such as issues of current national importance or issues in which the Government has an obvious stake, must be identified for special planning treatment by the Comptroller General and his top managers (called the Program Planning Committee or PPC). Issue area planning guides the work of all GAO staff so that, in fulfilling their regular audit responsibilities for agencies and programs, they also contribute in a planned way to broader GAO objectives.

Selecting Issue Areas

GAO currently has 35 issue areas covering a broad spectrum of government activity, from the seemingly mundane to the glamorous. Some, such as food, energy, health, and environment, deal with world problems. Some, such as, crime, housing, and transportation deal with domestic concerns. Others, like income security, nondiscrimination and consumer protection, deal with concerns of the individual. Many issue areas are concerned with the key management functions of Government itself: accounting and financial reporting, internal auditing, and procurement.

Of course, issue areas will not last forever; some will be dropped, others will be modified, and new ones will be added. The "acid test" for issue area candidates is:

- the extent to which the issue represents a significant obstacle to the Nation's progress or a serious threat to the well-being of its citizens;
- the importance of improvements needed in vital Government-wide management functions;
- the immediacy of the issue and adequacy of executive branch planning and management activities;
- the degree of impact on the population or on governmental or economic processes;
- the potential for significant GAO contribution; and
- the expressed and continuing interest of Congress.

These issue areas are the keystones to the planning system—a

GAO Review/Spring 1979

system involving lead divisions, program plans, the Office of Program Planning, and the Program Planning Committee. Each plays an important role in the system.

Issue Area Leadership

Each issue area is assigned to one of the operating divisions which then becomes GAO's lead division for that issue. The lead division is responsible for developing a program plan which sets objectives and provides GAO-wide guidance for any audits and evaluations to be pursued in the area. Normally the lead division is also responsible for auditing and evaluating the agencies and programs most directly related to the issue area.

For example, the income security issue area is led by our Human Resources Division whose Federal agency responsibilities include the Department of Health, Education, and Welfare; the Department of Labor; the Veterans Administration; the National Labor Relations Board; and the Railroad Retirement Board. By assigning lead responsibility on this basis, the lead division—already deeply involved in the area and having expertise and accumulated experience with respect to it—has a headstart in guiding Office-wide planning for it. It also makes it easier to bring about necessary coordination among GAO divisions, which sometimes have important interrelationships.

It is important to stress the leadership role of the lead division. That division will take the lead in identifying issues, developing plans, and formulating GAO approaches to the issue. However, it will not have direct audit responsibility for all of the departments or agencies involved, and it is not expected to perform all of GAO's audits in the issue area.

Within this leadership role, the lead division is specifically responsible for:

- Maintaining, on a continuing basis, information on assignments involving the issue area undertaken anywhere in GAO.
- Preparing background papers and issue analyses for general reading by GAO and

congressional staff.

- Participating in the assignment planning process.
- Performing audits or advising and assisting other divisions in developing report positions, including providing advice and assistance in reaching conclusions and arriving at recommendations.
- Developing the program plan for the issue area.

Plan Preparation

Plan preparation is a fairly rigorous exercise and involves obtaining advice from division staff, regional offices, congressional staff, and outside experts and consultants. The plans establish subissues—or lines-of-effort—which must be addressed, set objectives, list assignments, and establish the priorities—called priority lines-of-effort—for efforts in the issue areas. Some divisions take these plans one step further by developing more specific, 1-year work plans for implementing the issue area plan. When approved by the PPC, the 18-month program plan guides all GAO efforts in the issue area until audit objectives are met or until changed circumstances require their revision.

While the methods used to produce them differ, the plans themselves are quite similar in format and content. Since 1975, some elements for a plan have been dropped and others have been added. But there are five key items which have been requirements for all plans since the beginning:

- (1) A Director's Summary.
- (2) The issue area statement.
- (3) A series of lines-of-effort.
- (4) Identification of priorities.
- (5) Line-of-effort statements.

The Director's Summary is just that—a summary of the program plan. In addition, the summary discusses resource allocation, the how and why of "changes" from the previous plan, accomplishments in the issue area, agreements reached with other organizational units on who will perform work under the issue area, and highlights of current and future issues.

In the issue area statement the lead division clearly defines the issue area—What is it? What does it include? What does it not include? How does it relate to other issue areas? What are the major concerns within the issue area? These questions and others should be answered in the issue area statement.

From the general description of the issue area, the plan should narrow its focus to those particular problems, concerns, or questions ("lines-of-effort") which GAO can and should address. The lines-of-effort communicate in more specific terms the desired thrust of GAO efforts. The plan should list all of the lines-of-effort GAO could pursue if it had the resources to do the whole job in the issue area.

The next step is to identify those lines-of-effort which should receive "priority" and which given available resources, should be addressed during the 18-month period covered by the plan.

The plan then discusses each priority line-of-effort. This "statement" outlines what GAO can reasonably expect to contribute (our objectives) in addressing the problems inherent in the line-of-effort and guides the GAO-wide approach in making these contributions. In short, the guidance provided in priority line-of-effort statements should *lead* staff members to perform the most important work.

Since 1975, we have been revising and refining the process and the plans themselves. Each year the operating divisions have been given improved guidelines for plan preparation. Recently, we added two significant elements to our plans: a "futures section" and an "accountability model."

The futures section is intended to provide a probable picture of the issue area beyond the short-run. It is defined in terms of likely problems, concerns, and opportunities which might form the basis of future GAO audit efforts.

Because most issue areas have had at least one approved plan, the Comptroller General asked that the 1978/1979 plan revision, review, and approval cycle include "an assessment of where we are in

relation to where we said we were going." So, a standard method has been developed to present GAO's accomplishments under an approved plan: the accountability model. This model relates output (reports, testimony, briefings, studies, etc.) to the objectives of *each* priority line-of-effort and provides a description of what's left to be done under each. The model is a required appendix to each plan.

Objectives and Flexibility—Keys to Success

Of uppermost importance in all plans is the description of the objectives. Divisions must describe in clear, concise, and measurable terms what they want to accomplish and how they expect to do it. Sounds simple enough. Yet, in practice, objective setting can be—and probably should be—an arduous task. Describing objectives is the most enduring feature of GAO's issue area planning and is, perhaps, the most critical element in any planning system. Without clear and specific objectives to serve as a goal, it is extremely difficult to know where you are going and it is impossible to know when you have gotten there.

In addition, a good planning system should be able to accommodate the individual needs of operating units. An overly rigid system can lead to a kind of "organizational rigormortis" by encouraging people to focus more on form than substance. At the same time, some sort of a common structure is desirable to make plans meaningful to all divisions. If everybody follows a different format, it is difficult for top management to make intelligent decisions on establishing priorities or allocating resources. Flexibility is the key. Striking an appropriate balance between the need for structure and the need for individuality is difficult to achieve but important to strive for.

Although this planning system is relatively new and is still evolving, issue area planning has proven to be an effective way of focusing GAO resources on those important issues to which a significant GAO contribution can be made—now and over the next several years.

Resource Tie-in

This fiscal year marks the first time that we used something other than division structure for allocating our budget. The total available resources were allocated to issue areas by the Comptroller General based on the requests from the divisions and the advice of his Budget Committee. The lead divisions are responsible for managing all of the issue area resources even though some resources may have been allocated to other divisions. This process is taking time to get used to, but it seems to be working.

There are many factors which influence decisions about which issue areas are to get what number of staff years. Obviously, the year's appropriation is the critical factor. During the planning process, the lead division estimates the level of resources which it believes should be given to the issue area. The division considers factors like congressional interest, urgency of the problems or concerns, upcoming legislation, division resources, objectives to be achieved, and contributions to the issue areas from other divisions. The Program Planning Committee, in reviewing and approving each plan, functions in a manner similar to that of a congressional authorizing committee. It approves an upper limit on the resources to be given to the issue area, thus providing an indication of the importance of each issue area relative to the others.

The Program Planning Committee, in making its "authorizations" considers essentially the same factors as the lead division—from a different perspective, of course.

GAO's Budget Committee makes the resource allocation recommendations to the Comptroller General. This committee recommends the number of staff years to be "appropriated" to each issue area and division. The Budget Committee in making its determinations, considers current staff year resources, future resource levels, long-and short-range staffing plans, and headquarters/field resource relationships, among other things.

The approval of the plans and allocation of resources to the issue area leads, then, to the implementation of the plan—the selection of assignments.

Short-Range Planning

The bottom line in any planning system is the extent to which it helps the agency better achieve its objectives. An important step toward achieving our objectives is to make sure the jobs we initiate are the most important ones to perform.

GAO's issue area planning is designed to support and guide the selection of individual jobs. Aside from congressional requests, which are forwarded to appropriate divisions through our Office of Congressional Relations, divisions are individually responsible for generating self-initiated assignments. These account for nearly two-thirds of all GAO job resources and should directly contribute toward achievement of issue area plan objectives. To help assure that they do, the Office of Program Planning reviews all job authorizations before significant resources are expended. The concern here is to make sure jobs are budgeted to the appropriate issue area and, more importantly, that they contribute toward issue area planning objectives. In addition to this review, there is one additional Office-level review of selected assignments.

In 1976, the Comptroller General established the Assignment Review Group. This group, composed of GAO's top management, reviews and discusses selected GAO assignments referred to it by the Office of Program Planning. It can refer unresolved issues on a specific assignment to the Comptroller General for resolution.

The Assignment Review Group represents GAO's final "quality control check" on the assignments the Office undertakes. It is a visible reminder that top level management's involvement and interest in planning and managing assignments does not end when an issue area plan is approved. It ensures that individual assignments are judged from an Office-wide perspective.

Thoughts for the Future

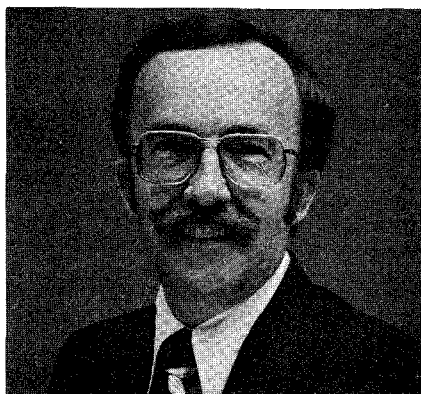
The environment in which GAO operates will certainly grow more complex. Ever present pressures from public and private sources will continually lead to new Government

programs being launched, while old ones are abandoned and reshaped. And, Congress itself will change and so will its needs. All this means that GAO will have to regularly monitor its priorities and work approaches with greater intensity. The vehicle for performing this task will be the planning process. Perhaps the greatest impetus for increased reliance on good planning will be trying to make fewer resources cover more and more programs and policies. Such will be GAO's greatest challenge in the coming years.

There are several specific changes to the planning process that could occur in the future, such as:

- Better measures of accountability. Measuring performance against original objectives is a basic tenet of management. We can expect more specific and reliable measurement techniques in the future.
- A closer tie-in to information systems. Planning activities and information systems should be mutually supportive. Good planning needs good information.
- Different versions of plans. Just as issue areas are different, so are their plans. In the future, it may be appropriate to develop one type of plan for functional issues (such as health, food, energy) and another for the more "management" type issue areas (i.e., procurement, facilities management). These two distinct kinds of issue areas may be sufficiently dissimilar to warrant separate planning treatment in the future.

Many other possible innovations may occur in GAO's strategic planning system. Regardless of which new techniques or formats are eventually adopted, one thing is clear—greater reliance will likely be placed on GAO's strategic planning as the primary vehicle for making basic management decisions.



J. Kevin Donohue

Mr. Donohue is an assistant director in the Community and Economic Development Division. He is a graduate of Providence College, Providence, R.I., a CPA (District of Columbia), and a member of the American Institute of Certified Public Accountants and the Association of Government Accountants. Currently, he is responsible for reviews of the Department of Transportation's highway and safety programs.

How a GAO Task Force Became Metric Experts

It is not often that GAO has the opportunity to provide essential information on a national issue that directly and personally affects each and every American in many and varied ways. But this is what happened when on October 20, 1978, GAO issued its Metric Report, titled "Getting A Better Understanding of the Metric System—Implications If Adopted By The United States." Over 10,000 copies were distributed by the end of 1978 and a stream of requests—150 to 180 each week—continued to come in thereafter. This report provided the Congress and the American people with a much needed, timely, and objective study of what is involved in a conversion to the metric system of measurement—commonly referred to as metrication. There is a certain amount of added satisfaction and sense of accomplishment in issuing this report because it provides worthwhile information on a personal basis to those who pay our salaries—the taxpayers.

Misconceptions

There are many misconceptions and misstatements about a conversion to the metric system, including the advantages and disadvantages. The most widespread and serious misconception is that there is a national policy in the United States to convert to the metric system—there's no choice, it's mandatory. This is simply not true. There is no national policy to convert to the metric system and, in fact, bills containing such a policy were rejected by the Congress. Conversion is voluntary, and there is now a Federal agency, the U.S. Metric Board, available to assist those who voluntarily decide to convert but not to advocate metric conversion.

Other misconceptions are that metrication will make consumer price comparisons easier and will result in a more logical series of consumer product sizes. Conversions to date have not supported this and present sizes were de-

veloped over the years to meet customers' demands. Unit pricing would help consumers make price comparisons more than anything else.

Another principal misconception deals with trade where proponents say metrication will enhance our country's trade position while opponents say it will damage our economy by opening it to a flood of imports. We found no evidence to show that our Nation's trade would be significantly affected by converting or not converting.

Also, some opponents say that metrication will cause everything from the width of railroad tracks to land records to be physically changed. Not so, only the terms would change.

One way to understand what metrication is all about is to simply read the Executive Summary (CED-78-128A) and refer to the basic report (CED-78-128) whenever more details are necessary. The detailed report has been widely accepted as a reference document that will be used continually in the ensuing years. Many organizations are encouraging their members to read the report as the American Metric Journal did. They referred to the report as a welcome and much needed objective study of metric conversion in the United States.

Implications

The implications of metric conversion are enormous. Think of any object, a piece of clothing, food, a building—name it and in some manner metrication is involved. As more and more people read our report they will be able to judge the extent of metric advantages and disadvantages and its impact on the Nation and on their own lives.

Metrication would mean thinking, hearing, and seeing things in metrics—such as distances in terms of meters, volume in terms of liters, weight in terms of grams, and temperatures in terms of Celsius. The impact would surprise many Americans and affect them in many and varied ways. It would mean

- new sizes for screws and bolts,
- new distances on maps,
- new weights on scales,
- new speed limits on highways,
- new tools to repair automobiles and other products,
- new sizes for beverages, food, and clothing,
- new recipes in the kitchen, and
- new educational materials.

Of course, it does not mean that all sizes, distances, and weights actually would change (although a great many would), but the terminology and numbers used to express them would.

If the United States were to adopt the metric system, Americans would be affected at work, at school, at home, in their shopping, and in their leisure activities. Every organization, firm, industry, and level of government would feel its impact.

How the Study Began

In May 1976, the first in a series of events occurred that culminated in the Metric Report, when the Comptroller General suggested that GAO undertake a review of the problems of implementing the metric system in the United States. He suggested that the experiences foreign countries had in converting would be helpful and that one of the primary areas to be considered should be the effect on foreign trade. Shortly thereafter it was agreed that the metric system warranted GAO's attention and a study would be conducted. It was decided that a task force approach would be used with the Community and Economic Development Division taking the lead with staff contributions from the Procurement and Systems Acquisition Division, the Logistics and Communications Division and the International Division.

Organizing the Task Force

In mid-June 1976, I was selected to head the Task Force. Task Force members worked solely on the Metric Task Force and reported

GAO Review/Spring 1979

METRIC CONVERSION FACTORS				
Approximate Conversions to Metric Measures				
Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
in	inches	2.5	centimeters	cm
ft	feet	30	centimeters	cm
yd	yards	0.9	meters	m
mi	miles	1.6	kilometers	km
AREA				
in ²	square inches	6.5	square centimeters	cm ²
ft ²	square feet	0.09	square meters	m ²
yd ²	square yards	0.8	square meters	m ²
mi ²	square miles	2.6	square kilometers	km ²
	acres	0.4	hectares	ha
MASS (weight)				
oz	ounces	28	grams	g
lb	pounds	0.45	kilograms	kg
	short tons (200 lb)	0.9	metric tons	t
VOLUME				
tsp	teaspoons	5	milliliters	mL
Tbsp	tablespoons	15	milliliters	mL
fl oz	fluid ounces	30	milliliters	mL
c	cups	0.24	liters	L
pt	pints	0.47	liters	L
qt	quarts	0.95	liters	L
gal	gallons	3.8	liters	L
ft ³	cubic feet	0.03	cubic meters	m ³
yd ³	cubic yards	0.76	cubic meters	m ³
TEMPERATURE (exact)				
° F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	° C
Note: This chart is based on National Bureau of Standards' publications.				

directly to me as the Task Force Director. This was a predecessor to the team concept, with some slight variations, and, in my opinion, the assignment could only have been conducted as successfully as it was by using this approach.

One of the most important qualifications in the staff assigned to any job is an interest in the subject. Each member assigned to the task force almost immediately became totally absorbed in metrication both at work and at home. We got the feeling that our spouses believed we were obsessed with it. The staff

was totally dedicated to bringing the study to a successful completion resulting in a high quality and timely report. By the way, there weren't any metric experts available at the time but by the end of the assignment, we had an excellent team of experts capable of effectively discussing the subject with anyone.

The staff was broken down to six teams with a supervisor assigned to each. Each team was assigned several areas of responsibility, generally in accordance with the backgrounds of team members. For

METRIC CONVERSION FACTORS

Approximate Conversions from Metric Measures

Symbol	When You Know	Multiply by	To Find	Symbol
LENGTH				
mm	milliliters	0.04	inches	in
cm	centimeters	0.4	inches	in
m	meters	3.3	feet	ft
m	meters	1.1	yards	yd
km	kilometers	0.6	miles	mi
AREA				
cm ²	square centimeters	0.16	square inches	in ²
m ²	square meters	1.2	square yards	yd ²
km ²	square kilometers	0.4	square miles	mi ²
ha	hectares (10 000 m ²)	2.5	acres	
MASS (weight)				
g	grams	0.035	ounces	oz
kg	kilograms	2.2	pounds	lb
t	metric tons (1000 kg)	1.1	short tons	
VOLUME				
mL	milliliters	0.03	fluid ounces	fl oz
L	liters	2.1	pints	pt
L	liters	1.06	quarts	qt
L	liters	0.26	gallons	gal
m ³	cubic meters	35	cubic feet	ft ³
m ³	cubic meters	1.3	cubic yards	yd ³
TEMPERATURE (exact)				
°C	Celsius temperature	9/5 (then add 32)	Fahrenheit temperature	°F

Note: This chart is based on National Bureau of Standards' publications.

provided us with invaluable assistance throughout the review particularly with respect to the intent of current legislation. Even now he is involved in a point of law on the nominations to the U.S. Metric Board.

Getting It All Together

We decided to have a chapter for each area (industry or subject) covered in the study and an overall summary. The final report contained 31 chapters in a single document. We also decided to issue an abbreviated version—an Executive Summary. For the Task Force this approach enabled each area to be worked on completely independent of other areas which saved time and it also proved easier for the reader of the report who was concerned with only selected areas.

To supplement our direct contacts with associations, firms, and governmental organizations we sent out over 2,000 questionnaires and received about an 80 percent response. In all, we contacted over 2,500 organizations, including all the largest firms in the United States. Similar contacts were made in the United Kingdom and Canada.

One of the Task Force's objectives was to study a conversion in process or completed in the United States which directly affects consumers. We wanted to see what was involved in an actual conversion and whether the claims of advantages and disadvantages were valid. There was only one area that met this criteria—the beverage industry. Both the wine and distilled spirits industries were converting all their products. The wine conversion was completed in December of last year, and the conversion of distilled spirits is to be completed by the end of this year. These two conversions took place for marketing reasons rather than a pure desire to convert to the metric system. And, consumers didn't fare too well in the price and size changes that took place in these industries. To get better coverage we also reviewed how metrication would affect the beer, milk, and soft drink industries which are not committed to a conversion.

We looked at how metrication would affect consumers and con-

example, one team member was an educator with extensive experience in that field, had dealt with State governments, and came from GAO's transportation audit site. You guessed it, he was assigned to the areas of education, State governments and transportation. Another team member, a pilot, was assigned to work on the aviation and aerospace industries. Also, since the auto industry was centered in Detroit, we obtained a team with experience in that industry from our Detroit regional office. To ensure impartiality, consultants

who had extensive backgrounds in the areas affected by metrication reviewed our report.

Our review of metric legislation showed that metric conversion is a very complex and controversial subject that has been discussed and debated since the birth of our Nation. There is an ongoing debate on what existing metric legislation was intended to accomplish. Because of all this a lawyer from our Office of General Counsel was assigned to assist us on an "as needed" basis. This proved to be a very wise move, as the attorney

sumer products including food and clothing. Our study also included the Federal Highway Administration's ill-fated attempt to convert highway signs to metric as well as the National Weather Service's current attempt to convert. You've heard of Celsius, that's a metric temperature. Other subjects covered were the legal effects, sports, education, State and Federal Government operations, trade, small and large businesses, standards, labor, surveying and mapping, medicine, and transportation. The industries covered were machine tools, paper, petroleum, aircraft and aerospace, fasteners, automotive, rubber tires, metals, computers, small appliances, building and construction, and scales.

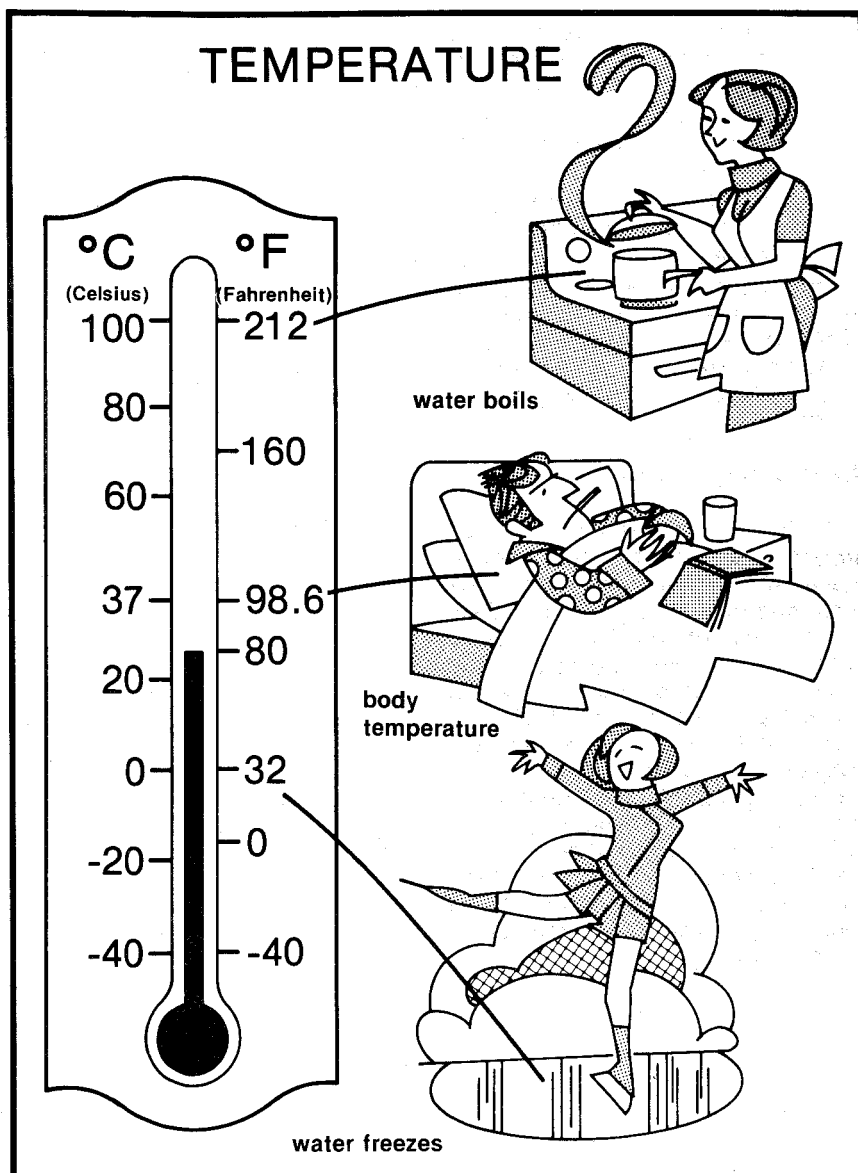
Our Foreign Connection

Of major importance is the experiences of the four countries now in the process of converting—the United Kingdom, Canada, Australia and New Zealand. We learned about a dozen lessons from their experiences that could help the United States if it decides to “go metric.” We corresponded with foreign country representatives and held discussions with various embassy officials in Washington. In addition, I had the opportunity to participate in a private sector-sponsored U.S. Metric Study Mission to the United Kingdom. There I gained invaluable information on that country's conversion experiences. While in the United Kingdom discussions were held with members of Parliament, government officials, and industry and consumer representatives. The Task Force also met with Canadian government and industry officials in Ottawa for several days which provided each sub-project manager with in-depth knowledge of that country's metrication activities in the numerous affected areas. After these meetings, team members moved on to meet with other Canadians at other locations.

Private Sector Cooperation

It was a unique experience for a GAO group to deal on a first-hand basis with a wide spectrum of

GAO Review/Spring 1979



American industries, many of which had no previous contact with GAO. There was no obligation on their part to take time out to discuss metrication with us—no Federal program was involved and thus no funding strings attached. In spite of this, we received almost 100 percent cooperation. In many cases we were taken on a tour of their facilities so that we would gain a better understanding of their operations and how conversion would affect them.

Debatable Knowledge

Not only did the staff become metric experts, we picked up some debatable knowledge in such diverse areas as:

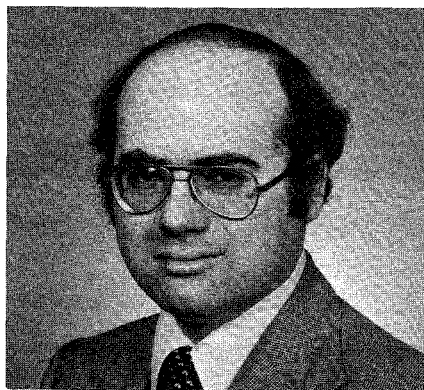
- How beer and wine are made (no samples please).
- How body measurements are determined (that ought to keep you guessing but it's not very scientific).
- How to convert recipes (but not how to cook).
- The nuts and bolts of making nuts and bolts.
- The production of automobiles and what goes into it (no, we are not advocating a GAO car).
- How to build a metric home (slowly and carefully).
- How to fit the longer metric paper into Government binders (fold it).

- How to play sports in metric (don't mention it to Howard Cosell).
- How to tell if you're cold in metric (same as in the customary).
- How to lose weight (use metric, the numbers are smaller).

And, a point to remember, while the metric system is based on units of 10, you've been "had" if you buy a metric dozen eggs and receive only 10. A dozen is a dozen even in metric.

Looking Back

GAO's metric report will be around and discussed for years to come. It certainly was worth the effort and to my knowledge all Task Force members would enjoy another such effort—once they catch their breath. It demonstrated that a dedicated group of individuals can work effectively as a team, review a subject for which there is no Federal program, be timely in reporting on the subject, and be able to gather substantial information from private industry over which GAO has no authority and leave them with a favorable impression of Federal employees.



Lawrence J. Dyckman

Mr. Dyckman, an audit manager currently assigned to CED's EPA audit site, was project manager of the CED task force which reviewed the activities of the Commodity Futures Trading Commission. He graduated from Brooklyn College with a B.S. degree in accounting, received a master's degree in public financial management from George Washington University, and is a CPA (New York) and a member of the American Institute of CPAs. He joined GAO in October 1969.

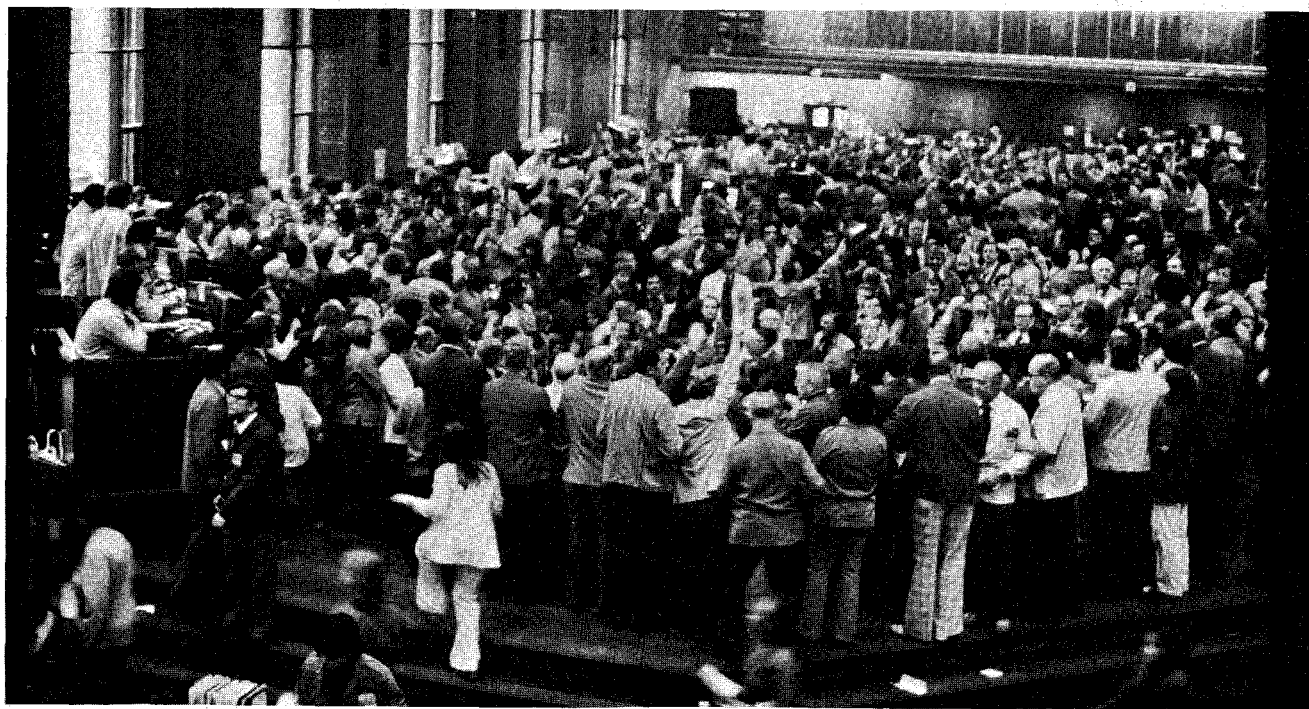
GAO's First Sunset Review: Deciding Whether To Dismantle an Agency

The Congress is shying away from authorizing unlimited life for Federal programs and, in some cases, for entire agencies. Increasingly, agencies will find themselves under a "sunset" review process when their authorizing (or reauthorizing) legislation expires after a period of years. Without new legislation, they will cease to exist—the sun will set. In the years to come, GAO can expect to assist the Congress in performing comprehensive sunset reviews to determine whether to reauthorize or restructure an activity.

The Community and Economic Division's (CED's) recent review of the Commodity Futures Trading Commission (CFTC) represents GAO's first sunset review of an entire Federal agency. CFTC was created in 1974 to regulate the mysterious and mushrooming commodity futures markets. Their ex-

plosive growth is illustrated by the rise from 13.6 million futures contracts valued at \$148 billion in 1970 to about 43 million contracts valued at over \$1 trillion in 1977.

Until 1974 the Department of Agriculture, with some assistance from the Securities and Exchange Commission and the States, regulated futures trading only in certain agricultural commodities such as pork bellies, corn, wheat, and soybeans. In 1974 GAO recommended that the Congress establish a strong, independent agency to regulate the futures markets. Acting on our recommendation and those of others the Congress passed the CFTC Act of 1974, establishing CFTC in April 1975 as the sole regulator of futures trading. CFTC was given substantially more authority and responsibility than its regulatory predecessor, Agriculture.



Trading at the Chicago Mercantile Exchange.

Futures Trading— What's It All About?

Futures trading has been described by some as the last frontier for the self-made man. *Playboy* magazine, in a recent article, stated tongue-in-cheek, "Want to know how to make a small fortune in commodities? Start with a large one." Let's just say futures trading can be a very risky way to make money.

Technically, futures trading is the buying and selling of standardized contracts for the future delivery of a specified grade and amount of commodity at an agreed price. The actual trading takes place in circular-shaped pits at the Nation's 10 commodity exchanges. Trading is by open, competitive outcry. It involves the use of hand signals, which to the uninformed can look like violent or even obscene gestures. To witness opening trading in the soybean pit at the Chicago Board of Trade—the busiest pit at the busiest exchange—is something to behold. Just imagine 1,000 people cramped in a small circle jumping up and down, yelling, and waving all at once.

Futures trading affords producers and users of a wide variety of products a means of protecting themselves against commodity price fluctuations. Futures trading also serves as a guide for pricing cash commodities. Thus, the futures markets act as price insurance to farmers, producers, merchants, and bankers and as barometers of cash prices to all users of the cash markets. Theoretically these processes, called hedging and price discovery, allow businesses to operate on more stable profit margins, passing savings on to the ultimate consumer—the general public.

That's one side of the coin. While the foregoing may take place (empirical evidence is not that abundant), the markets also serve another purpose—speculation. Most individuals who buy or sell futures contracts couldn't care less about hedging or price discovery. They just want to make a buck. It has been estimated, however, (again, no hard evidence) that the overwhelming majority of speculators lose money.

While being somewhat similar to a stock market trader, the commodity futures speculator must be willing to assume more risk and be prepared (financially and mentally) for frequent unanticipated developments. For example, the pace of commodity trading is much more hectic than stock trading; rapid price volatility is a common occurrence. Another difference is that, unlike the stock market where "investors" can watch from the sidelines as their "paper" profits or losses accumulate and fluctuate, commodity trading requires *daily* settlement. For example, if the price of a soybean contract drops 10 cents a bushel from \$5.50 to \$5.40, the trader is required to "ante up" the difference. Since each soybean contract represents 5,000 bushels, the trader must pay the broker \$500. Of course, if the price goes up, the trader would be due \$500.

Job Inception

The 1974 Act gave CFTC a 3-year lease on life. Unless reauthorized after fiscal year 1978, it goes out of business. During the summer of 1976 the Comptroller General and the director of CED, anticipating a comprehensive sunset review by the Congress (particularly the House and Senate Agriculture Committees) decided that GAO should prepare to assist the Committees and the Congress as a whole in the sunset review process.

In February 1977 the director established a multidisciplinary task force to perform a comprehensive review of CFTC. At its peak, the task force was composed of about 15 members selected from CED and from New York and Chicago regional offices (where 8 of the 10 commodity exchanges are located), and FPCD. Also, an OGC attorney was a task force member during much of the review. He examined CFTC's reparation program—a quasi-judicial process for solving monetary disputes between traders and brokers. FPCD staff examined CFTC's employee financial disclosure and conflict-of-interest systems.

Shortly after we started, Senator Herman Talmadge, Chairman of the Senate Agriculture Committee, and

other Members of the Congress requested that we expand the scope of our review and report to the Congress in time for it to consider whether to reauthorize CFTC. Talmadge asked GAO to specifically look into certain CFTC operations, including its effectiveness in planning and managing resources.

Start-Up Problems

The futures markets, as we soon found out, are among the most fascinating but complicated of the country's financial institutions. Trading takes place under complicated, if not archaic, procedures and evolves around a labyrinth of interrelated Federal and exchange-imposed rules and regulations, many of which were designed to protect the public from abusive (manipulative) practices which the unsuspecting trader can fall prey to.

Task force members, who lacked expertise in futures trading, enrolled in a correspondence course designed by an industry trade association to train commodity salespersons. We also visited several exchanges and, accompanied by exchange officials, toured the trading floors. Additionally, the CED team participated in CFTC training courses designed for new CFTC employees. After training, CED prepared detailed audit guidelines for task force members from the Chicago and New York regional offices.

To obtain "instant knowledge," we used three economic consultants—each a highly respected expert on futures trading. The consultants helped us identify key regulatory areas which should be included in our review. Additionally, we consulted PAD's regulatory group to obtain their observations on the latest trends in the Federal regulatory process, for which they have lead division responsibility.

Evaluating an entire agency, even a small one, takes a lot of planning. In deciding whether to reauthorize, restructure, or dismantle an agency, which is what a sunset review involves, a reviewer cannot just evaluate the effectiveness of one or two of the agency's programs, but must focus on all of its major programs and activities. Therefore,

we had to devise a plan which would provide indepth coverage of each primary CFTC activity. (As it turned out, our final report contained 14 chapters and 282 pages and covered almost every phase of CFTC activity from leasing office space to analyzing its programs to prevent manipulation of future tradings.)

During the planning stage of the assignment, the only task force members were Ralph Lowry and myself.¹ We each spent countless hours interviewing top, middle, and lower level headquarters officials to learn as much as possible, as quickly as possible, about the agency's operations. We also visited CFTC regional offices and various exchanges to get a first-hand look at Federal regulation of the futures markets. After much interviewing, reading, and rereading, we prepared a 100-page audit guideline for the task force. Much of the descriptive language in the guideline was used in the final report.

A third problem was establishing criteria to answer these basic sunset review questions:

1. Is there a continuing need for Federal regulation of the commodity markets?
2. If such a need exists, should CFTC be the regulator or should it be dismantled and some other agency assume its responsibilities?
3. If CFTC should be reauthorized, should it be restructured, changed, or given more or less authority?

As we discussed these questions among ourselves and searched for possible approaches to resolving them, we found that, by and large, we were dealing with issues which do not easily lend themselves to quantitative analysis. Also, we realized that there are strong political ramifications involved. For example, it may be difficult to obtain congressional support for transferring one agency's responsibilities to another if the agencies involved fall under the jurisdiction of differ-

ent oversight committees.

To help answer these basic questions, we set the following groundrules:

1. We would refrain from prejudging an issue, (i.e., is there a continuing need for Federal regulation of the futures industry) and wait until completing most of our review work before formulating an answer.
2. We would seek the advice of as many experts as possible, including our own panel of consultants, CFTC Commissioners and staff, the Security and Exchange Commission (a frequently mentioned candidate to take over CFTC), and exchange officials.
3. We would measure the progress CFTC had made in implementing the key mandates imposed by its enabling legislation.
4. We would be especially cognizant of legislative changes which we felt were necessary to refine and upgrade the regulatory process.

A fourth problem facing the task force concerned access to records. Although CFTC's enabling legislation grants GAO access to all of its books and records, it does not grant GAO access to those of the commodity exchanges. We attempted to negotiate access privileges with each of the eight New York and Chicago exchanges included in our review, but we met with limited success. While five of the eight agreed to give us access to (most of) their records, three refused. In the latter group were the two largest, the Chicago Board of Trade² and the Chicago Mercantile Exchange, which together account for about 80 percent of all futures trading.

To compensate for our limited access authority, we had to redirect some of our audit steps. We concentrated on evaluating CFTC's regulatory posture and its efforts to bring effective self-regulation to the futures industry as opposed to

examining first-hand industry efforts to self-regulate.³

Some Out-of-the-Ordinary Audit Steps

Aside from reviewing facets of CFTC's activities that are common to GAO reviews, such as the agency's compliance with and adherence to its legislative mandate, the effectiveness of its audit function, staff turnover, the efficiency of its procurement and leasing procedures, and its enforcement of its regulations, we examined some areas that are not that familiar to GAO. One such area was the agency's planning system. Essentially, we determined how the agency set its priorities and objectives, how it planned to allocate its resources, and what accountability systems were in place to assure that actual expenditures (and objectives) followed planned expenditures (and objectives).

We found that CFTC did very little planning. Because of a weak commitment to planning, its regulatory posture was often *ad hoc* and reactive, as opposed to anticipatory and preventive. Also, there was no strong accountability system. Therefore, an important incentive for planning was missing.

Our evaluation of the planning system led us to inquire into how the five-man CFTC operated on a daily basis. To do this, we attended important CFTC meetings, listened to tapes and read transcripts of past meetings, and interviewed each of the Commissioners and most top agency officials. We found that often the Commissioners did not fully debate sensitive issues. Apparently, they were more concerned with appearing to be one big happy family than with adequately confronting difficult and important decisions. Also, there was little formal voting on some key issues. Again, it appeared that the Commissioners did not want to publicly air their differences.

Another area which we felt was crucial in evaluating the Commission's effectiveness was the quality of its decisionmaking. To do this,

¹ Mr. Lowry is a management auditor now assigned to CED's Federal Communications Commission audit site. He was the Assistant Project Manager of the CFTC Task Force.

² After many months of negotiating and after we essentially completed our field work the Board of Trade agreed to grant us access to its records.

³ A primary theme of the 1974 CFTC Act is the development of meaningful industry self-regulation.

we looked at several key CFTC decisions which had a significant impact on the commodities industry. These included (1) commodity options: trading in options to buy or sell futures contracts (something considered by many to be even more risky than futures trading) and (2) dual trading: whether a broker should be allowed to concurrently trade for himself and for customers' accounts. We concluded, after painstakingly combing through every piece of information we could find on the subjects, that CFTC decisionmaking was not based on systematic analysis of available information. Further, when information was missing, CFTC did little to fill the vacuum.

For example, on options trading CFTC did little, until it was too late, to protect thousands of traders from losing millions of dollars to "fly-by-night lie-by-day,"⁴ high-pressure, boilerroom-type commodity options firms.

On dual trading we found that CFTC was too easily swayed by industry opposition to a ban on such trading and that it did very little to independently evaluate the advantages and disadvantages to the industry and the public for dual trading.

Helping the Congress Decide CFTC's Fate

Amid much unfavorable media publicity concerning CFTC's operations, the House and Senate Agriculture and Appropriation Subcommittees held hearings during February, March, and April of 1978 to decide whether to reauthorize CFTC, and if so, in what form and at what level of funding. Although we did not issue our report until May 1978, we provided considerable "up front" assistance to the Committees and their staffs.

First, throughout the review we met with the staffs of the four Committees and several Congressmen and Senators to familiarize them with the key commodity futures regulatory issues and to keep them abreast on our progress and our tentative findings. Second, in December and January, we

formally briefed Committee members and staff on the results of our review. Third, in February the Comptroller General, along with CED officials, testified before Senate and House Agriculture Subcommittees. Fourth, task force members assisted the subcommittees by providing answers for the record to over 40 questions raised during the hearings. Finally, our report to the Congress contained 63 recommendations to CFTC's Chairman and 9 to the Congress on ways to improve Federal regulation of the commodity futures industry.⁵

In our testimony and report we stated that we had found serious deficiencies in CFTC management of its personnel and the effectiveness of its overall efforts to regulate the futures markets. However, we pointed out that the fledgling agency was understaffed to do all the things contemplated by the 1974 CFTC Act. We recommended that the agency be reauthorized, but that some limited functions could be performed better by, and should be transferred to, the Securities and Exchange Commission. To reduce the Federal role in regulating the futures industry we recommended that State securities agencies be authorized to act in cases of options or commodity fraud and that CFTC work harder to upgrade industry self-regulatory activities. At the same time we offered numerous recommendations for improving CFTC management, planning, and program performance.

In the spring of 1978 both the House and Senate Agriculture Committees reported out bills which contained provisions aimed at implementing many of our legislative recommendations. Approval by the full House and Senate (after conference Committee action) took place in September. On September 30, 1978, a day before the Commission's charter was to expire the President signed the "Futures Trading Act of 1978" reauthorizing the Commission for 4 more years.

Future Sunset Reviews

As the public's desire for more efficient and economical govern-

ment finds its way into the political process, the Congress will increasingly attach sunset provisions to the legislative proposals. Just this past June the Senate Rules Committee approved a bill (S. 2) that would require most Federal agencies to either pass a thorough sunset review every 10 years or go out of existence.

GAO should actively support the sunset review process. It offers our Office a unique opportunity to use our management and auditing skills and provide a valuable contribution to both the Congress and the public in deciding how the Nation's tax dollars should be spent. GAO needs to devise and experiment with new strategies, techniques, and indicators for evaluating overall agency performance and for considering more efficient alternatives to existing programs. This will put us in a better position to assist the Congress in making the tough decisions that sunset reviews demand.

⁴ A phrase used frequently by CFTC's outspoken, but often criticized, Chairman.

⁵ "Regulation of the Commodity Futures Markets—What Needs To Be Done," (CED-78-110, May 17, 1978).

The New Challenge of Weapon System Reviews

Norman C. Berman

Mr. Berman is a supervisory auditor with the Philadelphia regional office. He joined the General Accounting Office in 1962 after receiving his B.S. in business administration from Pennsylvania State University.

Software is essentially a combination of computer programs and data which enables computer equipment to perform various computational and control functions. Modern day weapon systems use computers and their associated software programs to perform numerous functions critical to the success of strategic and tactical missions. These functions can include navigation, guidance and control, target detection and tracking, communications, and detection of system malfunctions. Weapon system software costs the Department of Defense (DOD) over \$3 billion annually, and the cost is steadily rising.

During the last decade, weapon system development has increasingly relied on software to perform functions previously done by human operators or which formerly could not have been performed at all. Today, software applications pervade almost every weapon system that is developed, and software is often the pacing item in a project's ability to meet cost and development schedule estimates provided to the Congress.

The importance of software makes it imperative for GAO auditors who review weapon system management to understand how software development should be managed and apply this knowledge if we are to present Congress with informative, reliable assessments of weapon system status. We can and should audit software management regardless of what stage of development a system is in. Auditors do not have to become technical experts to do this. It involves learning the set of management principles which apply, and, in this respect, is no different from many of our other assignments.

What Has Been Done

In May 1976 the Philadelphia regional office and the Major Acquisition Systems Group, Procurement and Systems Acquisition Division,

embarked on a joint venture to learn how software should be managed. Using DOD policy directives, procedures, and technical studies, we developed criteria and audit steps which could be applied to reviewing any weapon system program. We used these guidelines in a follow-up review of nine weapon systems in various stages of development and issued a congressional report on the deficiencies we found. Some of our recommendations have already been implemented, and others are being studied by DOD to develop detailed implementing procedures. In addition, DOD top management directed several of the projects we reviewed to take specific corrective actions on issues we raised.

The Nature of Software Development

When a computer is an integral part of a weapon system, its computer programs are called "operational software." Operational software and system computers must be designed, developed, and tested in accordance with the weapon system performance requirements. Therefore, policies and procedures for acquiring general purpose ADP systems do not apply.

The software development process begins as soon as the operational mission requirement for a weapon system is defined. It consists of:

- Analyzing requirements for software.
- Designing and documenting computer programs.
- Preparing or "coding" the program so that instructions are in a medium understandable to computers.
- Testing the program for errors.
- Integrating software with hardware so that it functions as a system.
- Testing the system to be sure

it conforms with technical specifications and is capable of meeting mission requirements.

At the end of this process, DOD management decides whether system hardware should be produced. In effect, the software has already been produced so that the system could be tested. During the hardware production phase, the software is modified to correct errors disclosed by testing.

Software development is usually a relatively low-cost item in the procurement of ships, aircraft, missiles, electronics, and communications equipment; however, these high cost items will not function properly without a good software package. It is, therefore, very important not to be misled into treating software as a minor portion of the program when applying management controls. The intangible nature of software makes it difficult to measure progress and makes it even more necessary to formalize the steps in design, development, and testing. For this reason, DOD policy now requires that software should be managed as an item of major importance during each phase of a weapon system's life cycle.

After a weapon system is produced and made available to the military user, the software is changed to correct problems found during operational use or to incorporate modifications in system equipment or capability. This process continues throughout a weapon system's life cycle and can involve redoing steps already performed in the original software development process. The facilities and personnel needed for software modification can be a very expensive part of system operational support costs.

Preparing software documentation is an integral part of the software development process. Documentation is technical data in human readable form which shows the design or details of computer software, explains software capabilities, or provides operating instructions for using the software to obtain desired computer results. It can be readily seen that documentation is essential to ensure that software is properly designed, de-

veloped, tested, and modified. It is a costly proposition to obtain complete documentation, and the problem is compounded because documentation must continually be updated to reflect design changes.

Software is considered unreliable if it does not perform operational functions correctly. When this happens, the computer system will produce erroneous control signals or mission data, or possibly even stop functioning. Software failures can be caused by erroneous program design or coding, or by externally caused failures, such as hardware malfunctions, environmental changes, or improper operation of equipment.

Testing is an especially difficult and costly phase of software development, because a myriad of computer instructions must be verified by testing, both in the lab and under operational conditions in the field. Thoroughly testing software is just as important as testing hardware, so that discrepancies are identified and corrected before the system is released to the users. This usually requires establishing laboratory facilities for the test effort.

There is no proven technical method of developing an error-free software program. Therefore, judging whether a software program is acceptable, both contractually and for operational use, is a matter of designating it as "ready" at some point in its development. This occurs when the customer determines that the software does not have numerous errors and that there is reasonable assurance that it will perform effectively. Quantitative measures used for hardware reliability do not apply to software. Part of the problem in determining whether software is reliable is the difficulty in establishing objective criteria for determining software quality. There is considerable variation among projects depending on which criteria are used.

System interoperability is a buzzword in DOD that especially applies to software. When weapon system computers exchange information during the performance of a mission, they are said to be "interoperable." The software program can control the exchange of information over digital data links, and, there-

fore, becomes an important technical consideration.

Some Basic Questions To Ask

Now that you have some perspective on what software development involves, I have assembled an abbreviated list of the questions we considered during the audit. The questions presented below are broken down into the two phases of the weapon system development process which involve heavy software effort. They are "tip of the iceberg" questions, the answers to which may indicate a software management problem which warrants detailed review.

Advanced Development

- What importance does the project place on software management? The absence of technical analysis on how computer and software requirements were derived, as well as formal written plans on developing, testing, and modifying software, indicates that software is a secondary consideration to the project. History shows that this approach leads to a future disaster.
- Does the project have plans and approved funds for acquiring the facilities and personnel during engineering development that will be needed to support software modification after system deployment? The alternative is to use the contractor who develops the original package throughout the system's life cycle.
- What has been done to verify that critical elements of the software design are sound before developing the whole system? For example, did the project do any software prototyping?
- Have formal procedures been established to maintain configuration control over software design changes as the system is being developed? The alternative is not really knowing how the system is designed.

Full-scale Engineering Development

- Has the project obtained the services of a laboratory or contractor to independently verify software design and coding as it is being developed by the system contractor? If the Government relies on the contractor to test his own product, it will prove only that it works exactly as he programmed it. If a project plans to wait until the whole package is delivered before determining whether it meets specifications, it is a sure bet that any major problems found will either cause major schedule slippage or will not be corrected until after the system is deployed.
- Did the project allow the contractor to start design and coding before approving detailed software specifications that describe the functions software is to perform?
- Did funding shortages cause elimination of any planned software test phases? Why was this testing important?
- What emphasis has been placed on developing software used to diagnose and isolate system malfunctions? If this segment does not keep pace with the rest of the program, the project will not be able to assess system reliability and availability before seeking a production decision.
- Did the project rely solely on laboratory testing as a basis for acceptance from the contractor, or was there field testing under realistic operational conditions?
- Did testing include proof that the system could really interoperate with related systems?
- Did the development and operational test phases which preceded the production decision have a fully developed software package available for testing? If not, what system functions did the testing skip?

- Did testing disclose problems with the software package that are significant enough to defer hardware production because the problems involve critical mission functions? Did the project disclose these problems to top management when it requested a production decision?

Conclusion

Because software is an integral part of every major weapon system which uses a computer to perform mission functions, it is imperative that it be given the same degree of management attention as the hardware itself. Failure to properly design, develop, and test software will result in such major problems as cost overruns, delays in development and, most importantly, the weapon system will not be able to perform its mission effectively. It is, therefore, important that an evaluation of the adequacy of software management be an important factor in GAO's weapon systems reviews.

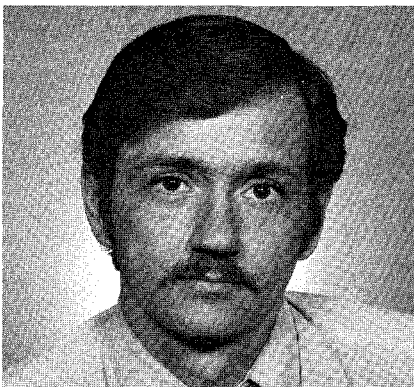
As a final note, I would like to pass along two quotes which are very relevant to software management.

- "Why is it that we never have the time and money to do it right the first time, but we always have the time and money to do it over?"
- "Software is the system, the hardware just runs it!"



Edward H. LaBelle

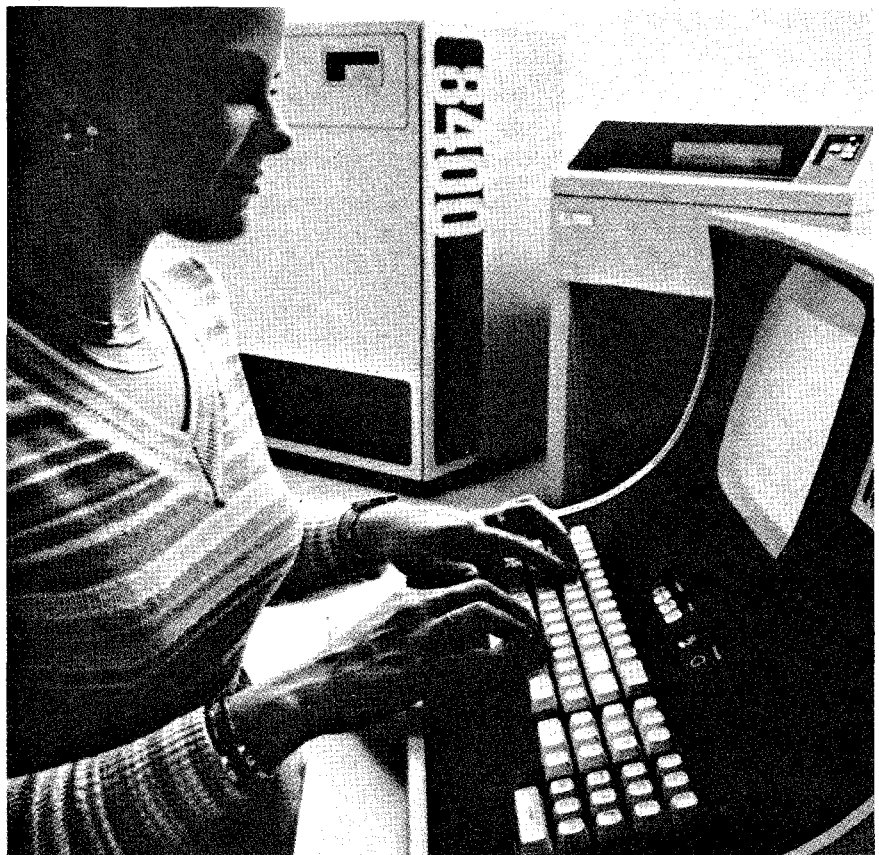
Mr. LaBelle is a supervisory auditor in the Program Analysis Division. He has a B.S. in accounting from Central State University, Edmond, Oklahoma, and is currently in the M.S. program at American University. The major fields he is studying are management information systems and computer systems. He is a member of the Association of Government Accountants.



James H. Solomon

Mr. Solomon, a member of the Evaluation Methodology Group of PAD, graduated with honors with a B.A. in economics from Moravian College in 1974 and joined GAO that same year. He is currently studying for a graduate degree in economics at American University. He is a member of the American Economic Association.

Computer Assisted Telephone Interviewing



In survey research it's been called the "way of the future." It's quick, accurate, and the most reliable survey method currently available. What is it? It's computer assisted telephone interviewing (CATI).

CATI is a collection of linked computer programs for online data processing that includes cleaning, coding, and formatting and labeling of variables so that the data can be input directly into standard statistical or report generating programs.¹

In CATI, some survey elements usually controlled by the inter-

viewer are placed under computer control, and the survey instrument, such as a mail questionnaire, is stored in the computer. A prespecified sample of telephone numbers is dialed by the interviewer in order to reach valid respondents. (A valid respondent is one who meets the purposes of the survey.) Once a contact is made, the telephone interviewer, sitting at a computer console, asks a series of questions which are automatically displayed on an attached cathode ray tube (CRT) screen. The respondent's answers are entered directly into the computer data base. Once an answer is coded for one question the computer displays the next appropriate question and the interview continues.

CATI's Survey Instrument Design

CATI facilitates the use of com-
GAO Review/Spring 1979

¹ The reader should refer to PAD's report, "An Assessment of Sample Survey Methods in Program Evaluation: Cost, Timeliness, and Reliability," for a more detailed analysis of data collection methods and CATI's place in survey methodology. A companion document, "Computer Assisted Telephone Interviewing: What Is It and Can GAO Use It?" gives a detailed description of CATI and discusses the feasibility of its application to GAO.

plex survey instruments by automatically handling "branching" operations. Survey researchers define a "branch" pattern as a combination of a controlling question and one or more sets of dependent questions. For example, the control question could ask the respondent's age. Then, depending on the answer, the interview "skips" or "branches" to another set of questions. If, for example, the respondent is less than 20 years old the interviewer may ask a series of questions relevant to teenage issues. If the respondent is over 65 years of age questions on medical care of the elderly may be asked. If the respondent's age falls somewhere between these categories another set of questions may be asked.

CATI automatically branches to the dependent question as soon as the control question response is coded into the computer. The interviewer sees only the appropriate dependent questions rather than having to search the entire questionnaire for the appropriate question to ask. Also, the dependent questions need not be physically located near the control questions in the computer program. Therefore, much more complicated instrument design and use is possible.

Sampling Administration

Telephone interviewing methods generally rely on the random digit dialing process. During this process, telephone numbers are randomly selected from all theoretically available telephone numbers in a geographical area. It is used in an effort to minimize the effects of unlisted telephone numbers and obsolete telephone directories. This entire process can be turned over to the CATI system.

The CATI system can select a series of random telephone numbers and show them one at a time on the computer display. The interviewer can then dial this number and conduct the interview. Further, once blocks of nonassigned telephone numbers or blocks of numbers assigned to categories outside the study's scope are identified, the computer can eliminate them from further selection consideration.

Also, if several telephone area codes are in the sample, CATI can schedule calls depending on geographical area and time zones. For instance, if the study was being performed in Washington, D.C., the computer could select a sample from each geographical area but schedule West Coast interviews later in the day.

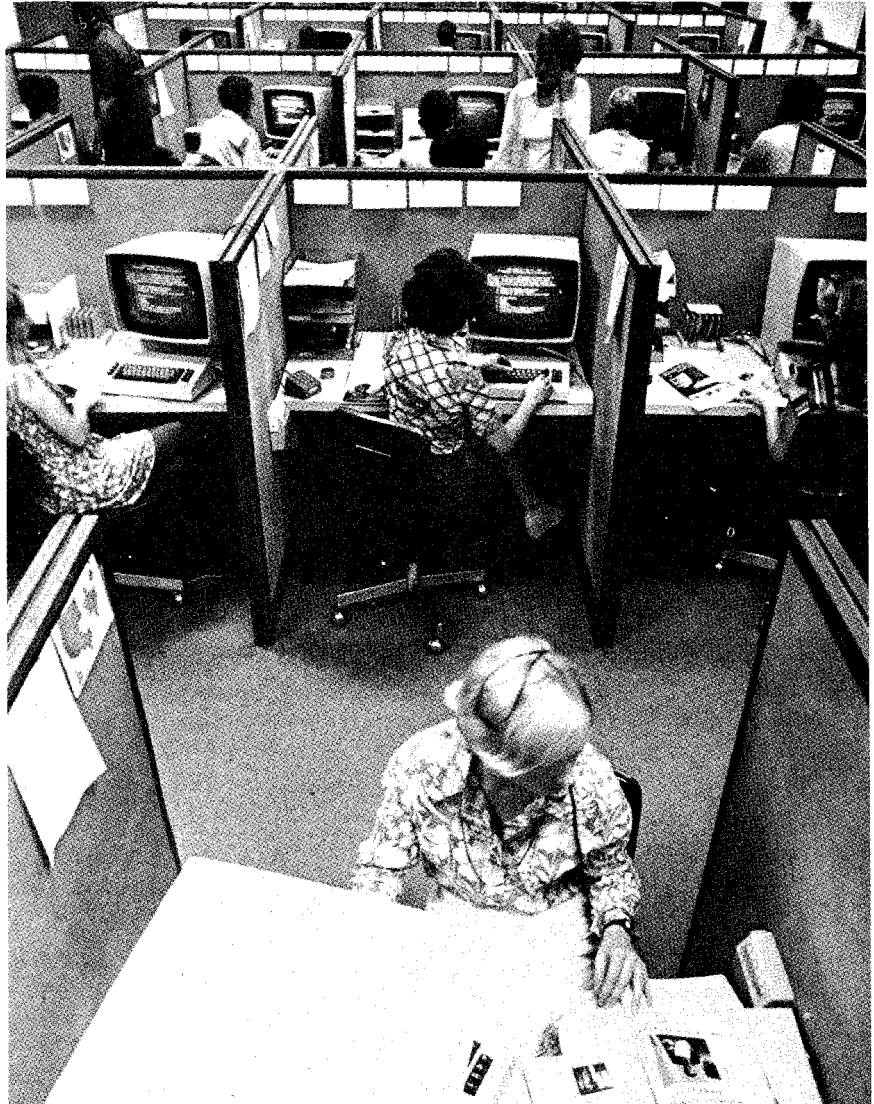
Similarly, complex systems of followup calls can be scheduled by the computer. A followup is an additional attempt to contact a potential respondent who was unavailable during previous calls. CATI can record times and dates of unanswered or unsuccessful calls and can assign a complex followup schedule. For example, if no contact is made on the first call then the system may schedule followup calls at a different time of the day

and/or a different day of the week. A major beneficial aspect of CATI is that it can reschedule and keep track of a large number of followups quickly, efficiently, and inexpensively.

Supervising Interviews

CATI improves telephone survey quality control by imposing stringent supervision on the interviewing process. The supervision can be directly provided by the supervisor or can be indirectly imposed through computer assisted reliability checks.

CATI interviews are usually conducted from a central interviewing room where the supervisor can easily monitor all interviewers' work. In a CATI system the super-



visor can quickly discern the question the interviewer is asking and check the interviewer's coding simply by watching his or her own computer display screen while listening to the interviewer. One CATI system we examined had a bank of CRT screens so that the supervisor could monitor the interviewers. If the interviewer encountered problems she/he could type the word "help" and the supervisor monitoring the screens could quickly respond with assistance.

Another CATI organization we visited programmed its computer to automatically calculate reliability checks for each interviewer. All interviews are automatically coded with a number identifying the interviewer. Then, periodically, each interviewer's set of coded answers is compared with those of all other interviewers. If the answer patterns differ more than would statistically occur by chance, the interviewer is contacted and her/his survey instrument data is individually reviewed. If the differences are caused by factors such as interviewer bias, fraud, etc., all interviews conducted by that person are excluded from the sample.

CATI's Interviewing Capabilities and Control

During the course of a survey, the most important feature of CATI is the interview. From the survey instrument, questions are displayed sequentially, one at a time, on the CRT screen. As precoded ("yes" or "no") or typed (open-ended) answers are placed in computer storage, the computer controls the branching to the next set of questions.

Also, CATI will take answers to certain key questions and insert them into subsequent questions. For example, if a respondent states that a primary disabling condition is heart trouble, a subsequent question may be, "When did you first notice your heart trouble?"

One of the CATI systems that we examined had both an English and a Spanish version of the survey instrument. This allowed bilingual interviewers to switch from one version to another during the interview. Even though this existed on

only one system, we feel that this further demonstrates the flexibility of the CATI system. Depending on the target population of a survey and the number of languages that may be encountered, there can be any number of corresponding language versions of the survey instrument.

Additional interviewing capabilities of CATI include filling in the text of the remaining questions with "you" or name of person and adjusting pronouns and verbs accordingly when first names of household members are obtained; allowing the interviewer to easily switch to another household member as respondent by providing the fills accordingly; allowing multiple answers to the same question when "Any Other" is specified; allowing the interviewer to enter comments at any point during the interview; and allowing the interview to be broken off at any point and restarted at a future time.

Under control capabilities, if a respondent changes an answer to a previously asked question, the interviewer can back up to that question and revise the answer. With the new answers, the computer program provides revised branching to a new series of questions. Further, as respondents' answers are placed in computer storage, a roster of key items such as first names, sex, age, employment, and income, is maintained for all household members. The interviewer, at any point during the interview, may view or modify the roster. These tasks were used in connection with certain CATI systems that we have examined; however, certain elements such as key items of the roster are dependent on the survey instrument design and can be changed or reordered depending on the needs of the survey instrument design.

Coding Assistance

Coding assistance prepares respondent answers for data processing. During coding assistance, a printout is prepared for each completed interview. The printout includes the answer to each precoded and open-ended question and any interviewer comments. After they are prepared, the interview printouts are then examined to determine whether all questions

have been answered, whether inconsistencies exist, or whether there are any identifiable errors. At this point, coders can enter revisions through on-line consoles. With the revised data, updated printouts are prepared noting any residual errors or anything that requires editing and coding. Finally, daily logs are prepared on completed interviews, interviews in coding, and coded interviews.

In certain CATI systems, where the level of sophistication was rather low, people performed the actual coding assistance; however, in others, where the sophistication was high, internal computer program coding was done with people overseeing the operations.

Placing respondent answers into predefined categories is an example of internal computer program coding. The CATI system would derive codes from the predefined categories and assign the codes to each unique element of the respondent's answers. As they are coded, the elements would move to certain sets of categories. (The survey needs the categorization of responses rather than a mere enumeration.) This process would be a complex network of matching, but where a match was not found, a coder interacting with the CATI system may establish a new category.

Data Processing

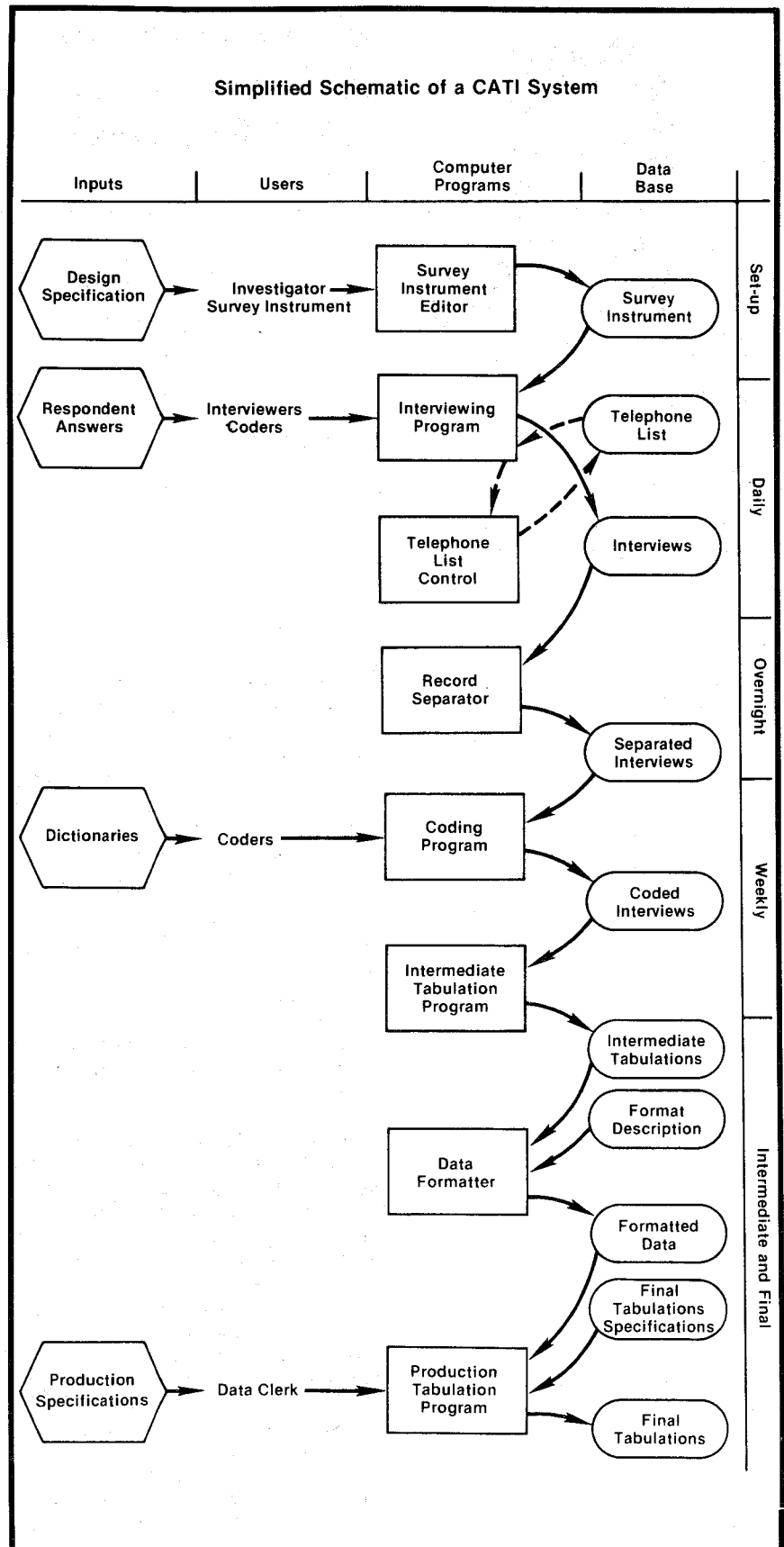
The final phase of the CATI system, data processing, can be subdivided into intermediate and final processing phases.

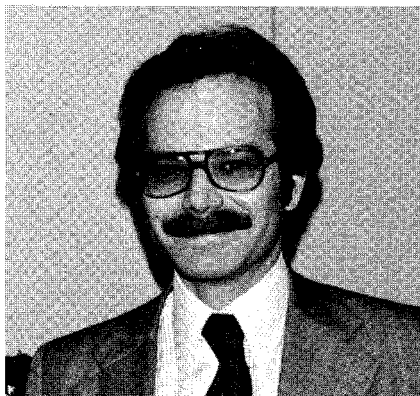
During the intermediate phase, daily, overnight, and weekly summary information is processed. Also during intermediate processing, the ordering of the questions on the survey instrument is examined to determine if any bias has been introduced because of that order. The potential for bias due to question order may exist for a number of reasons. From the standpoint of the respondent, questions asked earlier may affect those answered later because the respondent may have recently learned information that may cause subsequent response distortions. From the standpoint of the interviewer, question placement may cause the interviewer to become bored or

fatigued. As information becomes available on a daily basis, trends can be looked at with the above in mind and any possible reordering can be done at once. During actual data collection however, the on-line data base permits relatively frequent analysis and sensing for important respondent characteristics for immediate augmentation of the interview or flagging for future follow-up.

During the final processing phase, tabulations, summary totals and report presentations are processed. Under final processing, interviewers on-line in the same system contribute to a common data base and the data base is constantly updated. With this advantage, the interviewing programs, intermediate tabulation programs, and production tabulation programs can provide immediate tabulations, summary totals, and report presentations that describe the survey results.

The task force on improving GAO's effectiveness identified the need to improve the timeliness of GAO's work; CATI can help improve that timeliness by speeding up the collection of data and its presentation. With increased speed, more errors may occur, but with CATI's series of checks, balances, and controls, reliability has been improved over earlier versions of telephone interviewing. From our examination of the various CATI systems, the short term outlook for GAO might well be to pursue this further with certain private sector organizations. In the long term, GAO may want to obtain its own CATI system; however, there will be those university based and Federal Government based CATI systems available soon for use by GAO.

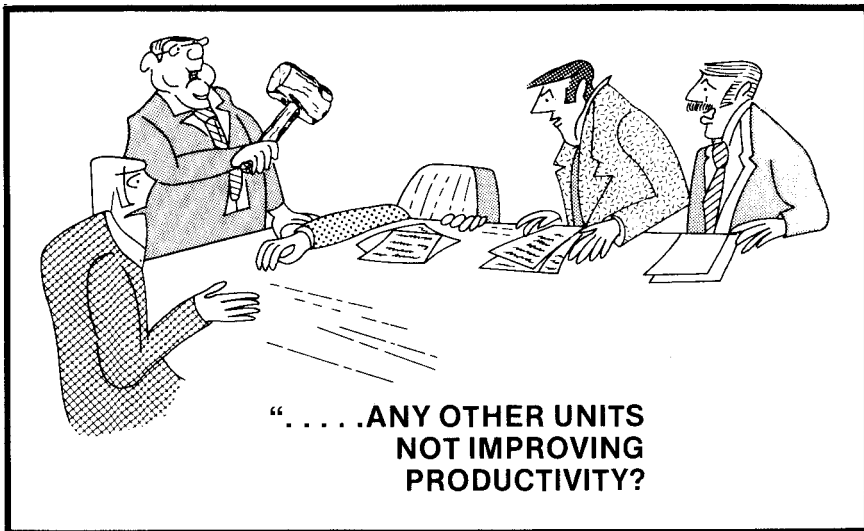




Bill Mandel

Mr. Mandel is a management analyst with the San Francisco regional office. He has a B.A. and an M.B.A. from Rutgers University. Working with FGMSD's National Productivity Group, Bill developed productivity appraisal guidelines that were recently field tested in the Postal Service. He has also assisted in formulating a divisional productivity program plan and serves on an advisory committee to the American Productivity Center.

Productivity Appraisal— A New Look at Some Old Problems



While the importance of productivity in Government can not be overstated, for a long time it has been successfully overlooked. Now, however, public opinion and resulting tax cuts are starting to force some State and local governments to take a second look at their operations. At the Federal level, civil service reform and increased attention to budget deficits are exerting similar pressures on executive agencies.

This renewed concern for doing more with less will require assessments of governments' potential for improving productivity. Consequently, the focus of future program evaluations will shift from an audit of what managers should have done to an appraisal of what they must do to improve productivity. This change in focus will in turn require a change in audit perspective.

The first step toward this change is understanding the differences between a traditional economy/efficiency audit and a productivity appraisal. One difference is their time dimensions. A productivity appraisal looks ahead rather than back. It analyzes past performance only to the extent that the analysis provides a key to understanding an organization's future improvement potential.

Another difference is in the productivity appraisal's scope. Generally an economy/efficiency audit will examine a particular program, activity, or aspect of an organization in detail. A productivity appraisal, on the other hand, will involve an assessment of multiple programs and activities, and how they relate to one another and to the organization's overall potential for improving productivity. Emphasis is less on documenting effects than it is on establishing the existence of interrelated causes.

A productivity appraisal also requires an understanding of the concepts of performance measurement, human resource management, budgeting, and organizational theory and how they can be used to affect the output/input ratio. (See Table 2.) This base of knowledge provides the criteria needed for carrying out the appraisal and for making recommendations.

Above all else a productivity appraisal requires a system's view of the organization. With this perspective the auditor no longer views programs or activities as discrete operations, but as interrelated elements of a complex business system. In this context, the auditor recognizes that productivity barriers

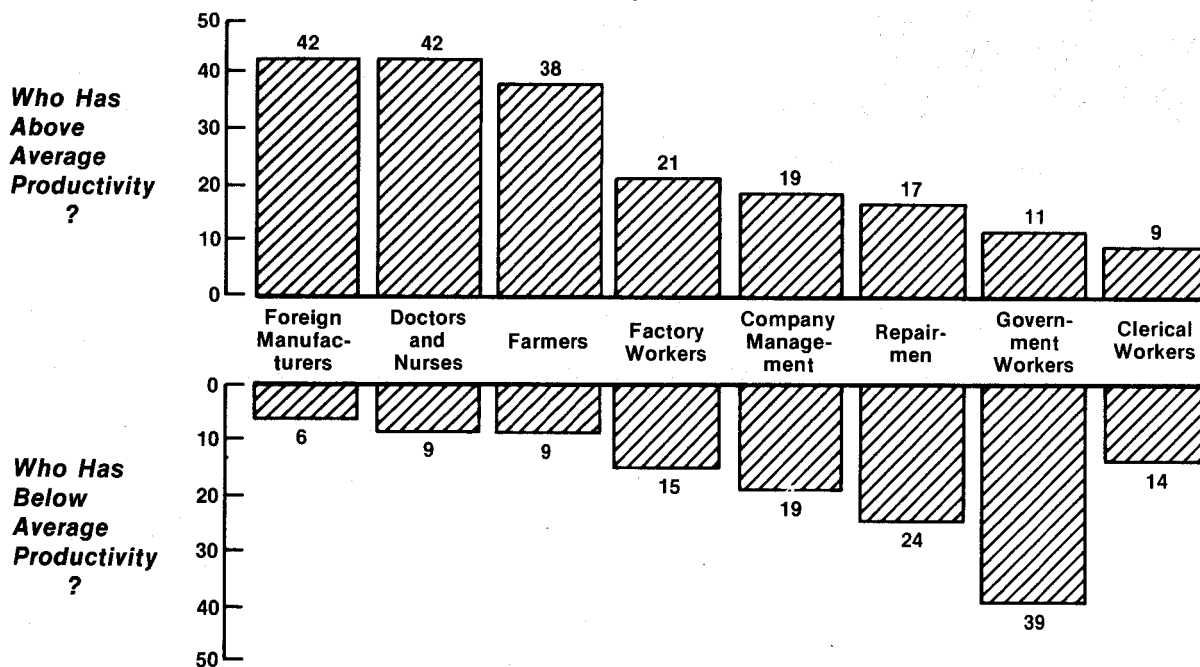
can exist in any number of places within the system and that the removal of one barrier will require complementary or compensatory adjustments elsewhere.

Productivity appraisals can be a potent tool for audit organizations and government managers alike. It provides both with a new and useful way of looking at some old prob-

lems. The only prerequisite to its successful use is a willingness to initiate rather than react to changes in organizational productivity.

TABLE 1

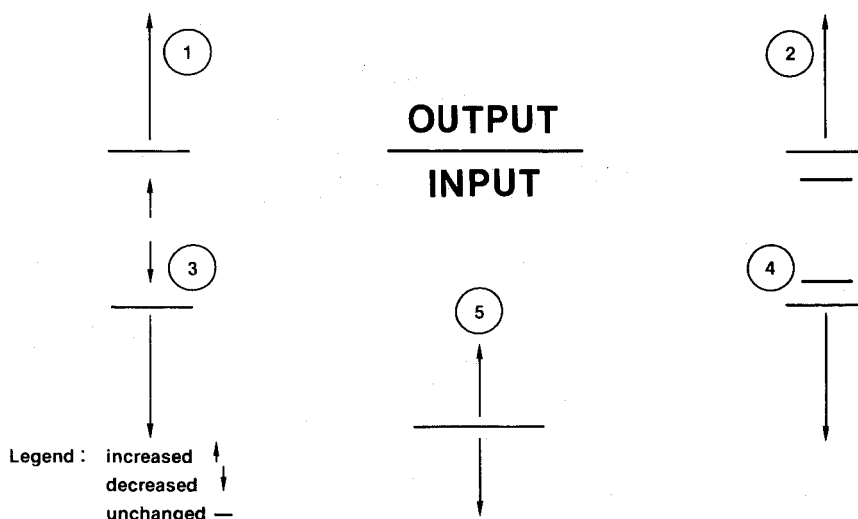
Public Opinion Regarding Relative Productivity of Various Groups of Workers



Source: Harris Poll

TABLE 2

FIVE WAYS TO INCREASE PRODUCTIVITY





Theodore H. Saks

Mr. Saks is an operations research analyst in the Program Analysis Division. He has a B.S. degree in engineering and an M.S. in urban and policy sciences from the State University of New York at Stony Brook. He worked at the National Bureau of Standards and for evaluation groups at HEW for three years before joining GAO in 1975. He is a member of the Institute of Management Sciences and the American Society for Public Administration.

Using Multiple Evaluation Methods in an Analysis of Handgun Control Issues

Introduction

Handgun control is a volatile and highly emotional issue, characterized by claims and counterclaims which reflect the lack of consensus of the facts. In every recent session of Congress some form of gun control legislation has been introduced. Special interest groups, criminologists, general researchers, and interested individuals have all bombarded Congress with highly diverse and conflicting information and viewpoints ranging from anecdotes to the results of highly sophisticated studies. However, because handgun control has frequently been debated with emotions rather than facts, the validity and accuracy of such studies were often suspect or unknown. GAO analyzed handgun control at the request of the House Subcommittee on Crime to provide Congress with information which was as impartial and objective as possible.¹

Clearly this is an important topic that wasn't about to go away. The issues involved did not relate to one specific program or even a single level of government but to a variety of programs in the law enforcement area at the Federal, State, and local levels. The effectiveness and wisdom of gun control measures involve a variety of significant law enforcement and socio-economic questions relating to handgun violence. Thus, to effectively evaluate such a complex and comprehensive issue, we found it necessary to apply a variety of analytical approaches that could provide the information needed. Although individually these techniques have been used in many GAO audits, the empirical nature of portions of our study required the use of several approaches in combination. The

results provided analytical and informational benchmarks for congressional and administrative policy decisions.

The scope, importance, and need for objective information in this area made GAO uniquely qualified to sort out the information from the variety of programs and related studies, to appraise and validate the information, and to conduct further analysis to fill in the information gaps.

Background

The Gun Control Act of 1968 was the first comprehensive gun control measure enacted since 1938. Its passage was a reaction to the public outrage over the assassinations and violence of the sixties. The act, together with sections of the Omnibus Crime Control and Safe Streets Act of 1968, concerned the possession, transfer, and ownership of firearms. The laws dealt with the regulations for firearm dealers and manufacturers, and prohibited the possession, receipt, or transport of firearms by certain restricted groups, such as convicted felons. A special attempt to aid State and local law enforcement required that no one purchasing a gun could be a member of any of the restricted groups.

Proponents of new legislation have criticized these laws as having serious flaws and for not going far enough. Others criticized them for going too far. One flaw often cited is that while convicted felons are prohibited from buying a gun under present law, there is no requirement for a screening process to verify the lack of a criminal record, so there is little threat of a convicted felon getting caught purchasing a gun.

The three proposals most often considered by Congress are licensing and registration approaches,

¹ These efforts resulted in the report, "Handgun Control: Effectiveness and Costs," PAD-78-4, February 6, 1978.

and the prohibition of inexpensive, nonrecreational handguns referred to as "Saturday Night Specials." Less commonly proposed measures, which have never been given much chance of passage, range from repeal of the existing gun control laws to outright prohibition of handgun possession by private citizens.

A main concern of Congress was whether further national handgun legislation would be effective in reducing crime, especially handgun violence, and if so, what approaches would be best. To address this question we had to examine several basic issues: the role of firearm use in crime, the relationship between firearm availability and violent crime, the relationships between law enforcement approaches and crime and firearm availability, and the costs of handgun control.

Approaches

Our approach was designed to address the central issue of handgun control effectiveness and answer those related issues. We used the following techniques to do this:

- (1) evaluation synthesis and reanalysis,
- (2) cost analysis,
- (3) stepwise multiple regression analysis and hypothesis testing,
- (4) modeling and curve fitting, and
- (5) time series analysis.

Evaluation synthesis served to identify and acquire information readily available from existing literature, to assess that information, and to sort out conflicting study results. It enabled us to assimilate a vast amount of information without expending huge resources on original analysis, thus "reinventing the wheel." Many of the important questions were answered this way. But the synthesis also identified those areas where information was missing and where only certain approaches could provide the information that other techniques could not have provided. For example, the lack of any current information on the cost associated with gun control became apparent. We needed to know more about whether the easy

availability of firearms influences crime, and whether firearm availability is significantly relative to various socio-economic factors, such as poverty, which is often associated with crime. The use of stepwise multiple regression provided statistics on these relationships. Expanding the initial regression analysis by using more complicated statistical modeling reaffirmed the earlier findings regarding the relationships. Little was known about the potential impact of firearm "turn-in" and "bounty" programs. Using time series analysis on data from one such program in Baltimore, Maryland, we were able to evaluate the effect such programs had on crime.

Methods

Evaluation Synthesis and Reanalysis

The synthesis approach starts with a general framework for evaluating a program or issue which lays out all the important questions and information needs, as is done in any broad survey or review. Then the framework is filled in by first locating as much information from existing literature and previously completed studies, assessing what is found, and using whatever reliable results or findings this information offers. When information gaps exist or questions are unanswered, the remaining part of the framework is filled in by researching basic data sources or unanalyzed information and conducting further analysis. Reanalyzing a study's data from a different perspective to fill such gaps is also very useful. Synthesis offers the potential to make maximum use of existing results from evaluation studies, social research, and other analysis and to increase the information that can be used and do it cost effectively.

As part of the synthesis effort of this project, we conducted an extensive literature search of material relating to gun control, firearm related crime, and crime and law enforcement in general. The literature was evaluative and informational, allowing us to examine the existing studies and data on all sides of the issues. A deeper understanding of the studies and infor-

mation was obtained when experts in the research and academic field were contacted. Individuals at the Federal, State, and local levels were also extremely helpful in providing insight, data, information and studies. An abundance of sources, studies, and material resulted and was assessed.

A careful examination, analysis, and reanalysis was conducted to determine the validity and credibility of the information, methods, and conclusions in the material. This was done by examining the technical approaches, integrity, accuracy, and appropriateness of the data and by critically comparing different sources of information. However, perhaps most important, was the careful examination of the underlying assumptions and theories of the studies. As might have been expected with this highly emotional issue, a good portion of the material was not analytically supported or was of poor quality. A great deal, however, was useful, credible, and analytically supported.

When studies or data conflicted, it was necessary to compare them and try to resolve the situation. Previous analysis was updated with more recent data to determine if previous findings would be altered. Further, data from studies was reanalyzed from a different perspective to provide answers to questions not addressed in the original studies. For example, our use of regression analysis, in an examination of the link between firearm availability and crime, provided new findings. Much information was obtained and clarified in this manner. The procedure also enabled us to identify information gaps and methodological problems associated with the study area. As already mentioned, this helped indicate those areas where further analysis would be useful.

Cost Analysis

To provide a perspective on the cost of handgun control approaches, we applied standard cost analysis. This allowed us to examine the operations and costs of existing State and local handgun control programs along with the few existing cost estimates for proposed national systems.

We obtained cost and systems operations information on a variety of licensing and registration approaches in Illinois, Massachusetts, New Jersey, and New York. And we contacted in these States many units of government ranging from centralized State agencies to local police departments and county courts. Our intent to provide a useful perspective on costs was met by this small sample and a fairly indepth examination of each case. These States' approaches to handgun control ranged from highly restrictive to fairly permissive.

Examining the various factors affecting costs helped compare cost components. Factors examined included those that were a function of the nature of the law, such as the kind of background checks and screening process, and those that are a function of procedural practices, such as the degree of automation. This allowed the cost components to be identified. The information was then integrated with the few credible estimates of national systems.

We were able to document the manner in which costs varied with the restrictiveness of the licensing and registration approaches and efficiency of their implementation. The relationship between major cost components and the cost of a total system was then presented so that Congress could have some cost perspective on the possible alternatives being considered.

Regression Analysis

One effort to provide additional information involved testing the hypothesis that the easy availability of firearms contributes significantly to crime. Using regression analysis and a specially developed index, we examined a sample of handguns associated with crime in 16 cities in order to provide more information concerning this relationship.

Roughly speaking, regression analysis puts into a simple numerical form the relationship between two or more variables. For example, if one suspects that as firearms become more and more available crime will increase and that this relationship is linear (described by a straight line), then the regression technique will show quantitatively

how strong this relationship is and whether it is statistically significant. It will also give the mathematical equation of the "best" linear relationship describing the nature of the line. If it is thought to be a curve, then the technique will describe the nature of the curve. In either case, it produces a simple formula describing the statistically significant links between the factors being considered (in this case firearm availability) and crime.

In actuality, the relationships may be more complex or may relate many variables, and the calculations become more complex. For example, when a number of variables are involved, regression may tell you the relative extent to which a series of variables are statistically related to another variable, such as firearm crime. The principle of regression remains roughly the same, and a formula showing the significant relationships can be generated. This approach can be used to show statistical relationships, predict values based on previous observations, and examine hypotheses about causal relationships. It enables the analytical examination of relationships that could not be done otherwise.

We used it to test the hypothesis that easy availability of firearms contributes significantly to crime. This relationship had been analyzed by others, providing some good indications of how these factors related. Data from a recently completed law enforcement project enabled us to analytically test this hypothesis in a way which promised the most conclusive information to date on the influence of firearm availability on firearm crime.

The hypothesis was precisely stated:

- In a city, if most handguns are purchased a short distance away (indicating they were easy to obtain) firearm crime will be higher than if handguns are available only at a greater distance (i.e., they are harder to obtain).

Project Identification, conducted by the Bureau of Alcohol, Tobacco, and Firearms, was the first attempt to analyze handgun commerce in the United States. In "Project I," a sample of handguns confiscated by the police during 1973-75 in each of

16 cities was traced from the handgun manufacturer to the retail outlet where the handgun was sold. The data provided enabled us to pinpoint the purchase locations (States) of these handguns associated with crime in each of the 16 cities. A "handgun proximity index," was developed which measured the average distance a handgun traveled from the States of purchase to the city in which it was confiscated by the police.

The distance between the city in which the handgun was confiscated and the retail source State was multiplied (weighted) by the number of handguns coming from that State. These weighted distances were summed for all the source States and then divided by the total number of guns traced in each city to provide a weighted index. (This formula is shown below.)

The proximity index for city i was

$$P_i = \frac{\sum_{\text{all } j} (d_{ij} \times n_{ij})}{N_i}$$

where for each city i and state j

d_{ij} = the distance from city i to the source State j where (For each city, handguns to have a distance of zero

n_{ij} = the number of handguns

$N_i = \sum_{\text{all } j} n_{ij}$ = the number of all states (including

This index measured the average distance a handgun travels to get to a city and reflects the availability of the guns in that city. A high index indicates that on the average handguns confiscated by police in Project I were purchased a long distance from the city, while a low index indicates they were purchased a short distance from the city.

Using the proximity index and FBI crime data for each of the cities, computerized multiple regression techniques were applied to test our hypothesis. This technique allowed us to examine how the proximity index (reflecting the

distance of handgun sources) related to firearm crime in the cities. As with any complex social problem, many variables may be involved and regression enables the examination of their relative contributions when considered together. Therefore, we used step-wise multiple regression analysis to examine the proximity index in combination with various socio-economic variables such as each city's per capita income, percent of the population below the poverty level, and percent minority population.

The results of these regression analyses confirmed our hypothesis, showing that as handgun sources get closer, the percentage of crimes, such as murder and aggravated assault, in which a firearm was used increases (a negative relationship) and vice versa. The proximity index, even when examined

fitting approach to see if a clearer picture of the situation could be obtained. Curve fitting explores whether alternative relationships between the variables being examined would provide more complete information. In the initial regressions already discussed, we assumed that the relationship between crime and proximity index was linear, i.e., a straight line. By exploring various possibilities, a more complete picture of the relationship was discovered.

Curve fitting and regression analysis are really tools of mathematical modeling, which, simply put, is a mathematical representation of a situation or system. The results of our curve fitting effort and regression analysis, if expanded and refined with more variables, could possibly have led to the development of an overall firearm crime model. As with any model, it could have been used to examine how its components interact to produce different outcomes.

To perform the curve fitting the computer provided plots of the data. By examining the graphically presented relationships, we speculated that instead of the proximity index P_i (average gun miles) being linearly and negatively related to firearm crimes, the relationship might be inversely related. This could be either in the form of a directly inverse relation ($1/P_i$), or an inverse square relationship ($1/P_i^2$), or some other inverse form. In fact, the direct inverse proximity index proved to be a better explainer of the cities' firearm crimes.² However, to report these results would not have changed our previous finding and would have made it difficult to clearly communicate our results to the public and Congress. The results of this type of analysis provided great insight for us and were useful in confirming our results, but it is really more suited for an effort to develop an overall firearm crime model. However, it became obvious that such an effort was beyond the scope, resources, time frame, and needs of this particular evaluation effort.

These analyses provided additional information in a needed area of analysis which could not

have been obtained otherwise. We believe the development of the index and its application represent an advance in knowledge and in the state-of-the-art for evaluations in this area.

Time Series Analysis

Another analytical approach, time series analysis, was used to examine the impact of a gun control program in Baltimore, Maryland. In August 1977, Baltimore officials offered to pay \$50 for any handgun turned into the police. They also started a bounty program offering \$100 for information about illegal firearms. Since no such effort had ever been examined, we attempted to determine whether the programs had any impact.

Time series or longitudinal analysis describe the techniques commonly used in the physical and social sciences to examine data collected before, during, and after a policy or program change. A meaningful change in such trend data can provide evidence that the event or action taken was responsible for the observed change, assuming other causes can be ruled not responsible. In this case, time series analysis was used to determine if crime trends after the programs' initiation were significantly different than those before the programs were implemented.

The figure below shows the approach for murder rates: crime data from before the program was used to predict what the crime trends would have been had the program not been initiated. Regression analysis, using preprogram crime data, provided an evaluation (or trend line) describing the crime trends up to when the programs were initiated (solid line). This equation line was then used to project what the trend would have been had the program not been implemented (dashed line). On the basis of the variance of the preprogram data from the estimating equation, we developed a boundary around the projected trend line for which postprogram data³ could be expected to fall with 95 percent accuracy.

³The data was seasonally adjusted by month based on previous data, so that seasonal variations would not be mistaken for the programs effects.

handguns were confiscated to
guns had their retail purchase.
within the State were considered

city / from State /
is traced in city / from
city/ State)

together with the other socio-economic variables, proved the most significant variable in explaining the role of firearms used in such crimes. The index also proved to be a significant factor in explaining crime rates. The results of the analyses indicate that the ease with which firearms can be obtained is significantly related to the relative use of firearms in crime and crime rates.

Modeling and Curve Fitting

In an effort to refine our regression analysis, different forms of the variables were examined in a curve

² The other forms of the inverse index tried provided mixed results.

If enough data points fell below the lower boundary it would be possible to speculate that the program had some effect.

This approach identified no overall crime reduction in murder, aggravated assault, or robbery rates. However, when the relative use of firearms versus other weapons was examined (using a more limited approach necessitated by the data limitations) it appears there was a short-term impact.

Summary

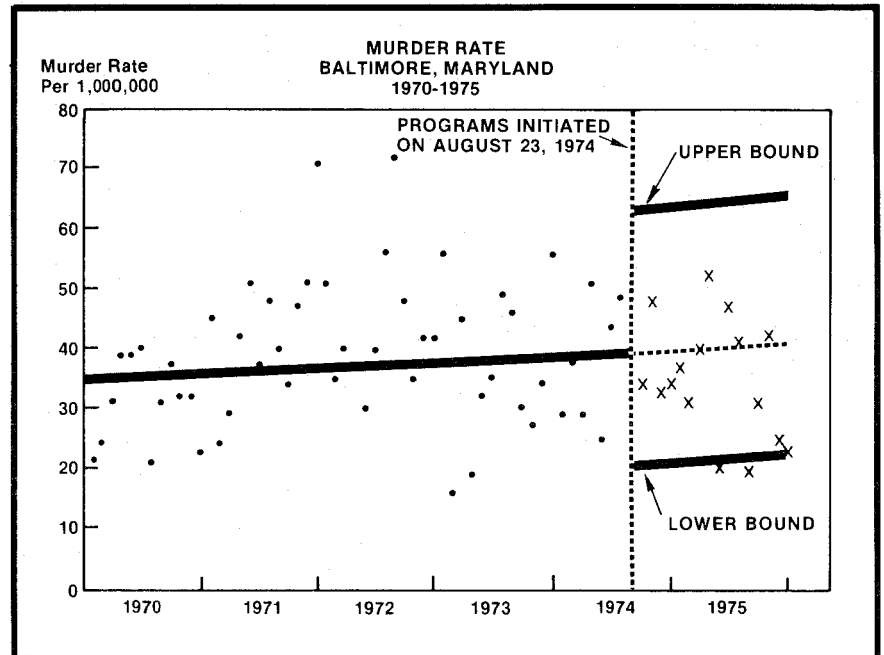
A variety of evaluation methods were applied to analyze the complex and controversial issue of handgun control. The synthesis and reanalysis of information served as a fulcrum around which to make maximum use of existing information sources, identify information gaps, and then fill in some of these gaps. Cost analysis provided needed information on the cost components associated with various approaches. Regression analysis and modeling was used to analyze the relationships among various variables and examine hypotheses. In this case the relationship between firearm availability, various socio-economic factors, and crime was analyzed. Time series analysis was used to examine whether crime trends declined after special gun control programs were implemented.

Conclusions

The use of multiple evaluation approaches can be especially useful in the comprehensive and complex issues and questions GAO must address. The nature of some of the questions that needed addressing required using special techniques other methods could not have answered as well or at all.

The problems faced by the decisionmakers and administrators of public programs and policy are complex, and growing more so everyday. The nature and breadth of the information needed has reflected this increase in complexity. In a similar fashion the methods and techniques available to provide the needed information have developed rapidly as methodologists try to keep up with this demand.

The increasing complexity and scope of government programs and activities offer a challenge to GAO. To provide the best analysis of government programs, policies, and related alternatives it will be necessary to draw on the most appropriate methods and techniques from the wide range of alternatives at our disposal.





Anne Farley

Ms. Farley is a technical information specialist in the San Francisco regional office. Prior to joining SFRO in 1977, she worked in GAO's Library in Washington, D.C. She has a B.A. in linguistics from the University of California at Berkeley and an M.L.S. from the University of Maryland.

Information Access in an Information Age

We are living in an information age. Deluged with data, we must be able to sort out particular information to make specific decisions intelligently. Since sifting through data can be overwhelming and time consuming, FOD has addressed the information explosion problem. It's solution—the technical information specialist.

These specialists, scattered throughout the regional offices, provide research support for audits and other projects. Currently, GAO employs four technical information specialists: Katie Hall, Washington; Clifton Spruill, Norfolk; Jay Rhodes, Boston; and myself, Anne Farley, San Francisco. I now service Denver, Los Angeles, and Seattle, as well.

How Our Work Benefits You

Need some background on an audit topic? Need to know if your subject has been evaluated before? Need to know if someone is studying your topic now? These are some examples of where a technical information specialist can help you.

The information we prepare is most frequently used as background information when starting an audit. San Francisco regional office, for example, recently started working in the banking area. A data base search identified journal articles, congressional hearings, and committee prints that examined Federal banking regulations. The search also pinpointed banking associations and other institutions that could be used as contacts for interviews. Overall, the package I prepared informed the auditors of banking issues, especially those of interest to Congress; acquainted them with banking terminology; and shortened their learning time on the job.

Possibly, the information we supply may justify discontinuing an audit. A data base search for information related to one proposed audit verified that several evaluations had already been done. Since GAO had no reason to perform yet another evaluation, the audit was killed, saving many staff-hours.

In other than audit work, information we provide can be used to keep abreast of issue areas; write speeches, testimony, and papers; and prepare training courses and



Equal Employment Opportunity Programs.

Tools of the Trade

How do we find all the requested information? Some information is at our fingertips. References include almanacs, dictionaries, indexes, and encyclopedias. When the answer is not in print, our best resource is often the telephone. Contacting an expert, whether in Federal, State, or local government or private industry, can save time and assure a valid answer.

But our major source of information is data bases. The San Francisco regional office, for example, has access to over 125 bibliographic data bases that store summaries of millions of journal and newspaper articles, technical reports, books, and even research in progress. These data bases, which are searched in coordination with the GAO Library to avoid duplication, are contained in nine systems. (See chart.) The result of a data base search is a printout of citations of articles and reports, each with a summary, on a particular topic. A search can be updated to identify material recently published. Once citations of interest are identified by the requester, we can borrow full texts of needed documents from area libraries.

Value of Information Services

Recently, I distributed to San Francisco regional office staff a questionnaire on the value of information services to them. Their comments speak for themselves:

"Could have used you since day one."

"Works well and has been responsive to my needs."

"I think it is great! You have saved me hours of work, to say nothing of the peace of mind knowing we had not missed a crucial report."

If the information explosion is a problem for you, you, too, may be able to use the services of a technical information specialist.

BIBLIOGRAPHIC DATA BASE SYSTEMS AVAILABLE TO GAO

Defense Documentation Center (DDC) Data Bases/Department of Defense:

DOD and associated contractors' research and development in science and technology.

DIALOG/Lockheed Information Systems:

over 100 diverse data bases covering science, technology, social sciences, humanities, business, and economics; includes National Technical Information Service Data (NTIS) base (Government-sponsored research and development reports) and the Government Printing Office Monthly Catalog (cites Federal agency reports).

DOE/RECON/Department of Energy

all aspects of energy: nuclear, solar, materials, and policy analysis.

Golden Gate University (GGU) Serials Data Base:

GGU periodicals and pamphlets.

Information Bank/New York Times Company:

95 percent news and editorial matter from the *New York Times*, includes selections from journals, such as *Business Week*, *Time*, *Fortune*, and other newspapers, including the *Los Angeles Times*, the *Wall Street Journal*, and the *Washington Post*.

JURIS/Department of Justice:

full text of Federal case and statutory law as well as CG decisions.

MEDLINE/National Library of Medicine:

medical research, health care, hospital administration, and related areas.

ORBIT/System Development Corporation:

much the same subject matter as DIALOG; includes Smithsonian Science Information Exchange, Accountants Index, Energy Line, and American Statistical Index.



Charnel F. Harlow

Mr. Harlow, a supervisory auditor, graduated from Abilene Christian University in 1966. He has been with the Dallas Region since 1969, and he became a CPA in 1978.



Rudy J. Nobles

Mr. Nobles, a supervisory auditor, received his B.B.A. from East Texas State University before joining GAO in Washington in 1967. He transferred to the Dallas Region in 1969.

Joe D. Quicksall

Mr. Quicksall, a supervisory auditor in the Dallas Region, graduated from the University of Texas in 1961. In 1978 he was selected to spend one year in the Army War College in Pennsylvania.

Earlier GSA Probe Found San Antonio Scandal

The title for this article was the headline of a recent San Antonio newspaper story describing how a GAO audit uncovered fraud in GSA equipment repair contracts. The story reported that four men had been convicted and sentenced for submitting fraudulent claims to GSA, and that an investigation of other contractors and GSA employees was continuing. But the article did not fully describe GAO's role in detecting the false claims and in the FBI's subsequent criminal investigation. That story follows.

The Audit

Our audit began as a routine survey to evaluate GSA's oversight and internal control procedures over equipment repair contracts. However, we quickly discovered that internal controls were almost nonexistent; a single GSA representative approved the quality of completed work, and *no one* questioned the validity of contractor-submitted repair invoices. At this point, the assignment became more than routine, and we found that textbook admonitions about inadequate controls, theft, and fraud have a very real and practical application.

The repair contracts issued by GSA were "time and materials" contracts which provided that payments for each piece of equipment repaired would be based on the actual costs of parts and materials used and the number of direct labor hours used multiplied by a specified hourly rate. GSA relied upon the contractors to correctly account for the materials and labor hours used.

In the Dallas Region, we audited five of the largest repair contracts. Working solely with the contractors' records, we found evidence that on all five contracts the Government was paying for goods and services not actually received. Work in two other regions produced similar results, and GAO issued a report to

Congress, "Administration of Repair Contracts Needs Improvement," on December 27, 1976. The report explained how some contractors had charged for labor hours not actually worked and for materials not actually used in repairing Government equipment.

The Criminal Cases

After our report on GSA's lack of controls was issued, and the evidence was referred to the FBI, GAO's customary role was over. Discovering and reporting a serious problem had given us some satisfaction, but at the same time we felt that the full magnitude of the irregularities might never be discovered without a full-scale criminal investigation. Since such an investigation is outside GAO's responsibility and authority (see GAO Order 1130.1), the next move was up to the FBI. We could only wait to see if the FBI would take an active interest in our referral.

Our answer came quickly. The FBI not only started an investigation, but also requested assistance from the GAO auditors who had worked on the original audit and were thoroughly familiar with the contractors' operating procedures and accounting records. Since the FBI request coincided with a planned GAO follow-up to the original audit, GAO agreed to assist the FBI in determining the extent of false claims.

Our work began when the FBI brought us thousands of subpoenaed contractor records including payrolls, time cards, supplier invoices, and company and personal bank records. A smooth-working partnership between the FBI and GAO teams began; GAO developed evidence of improper charges from the contractor records, and the FBI corroborated our findings with interviews, pictures, and criminal investigative work outside GAO's jurisdiction.

Several schemes had been used

to defraud the Government, but the most common was by using invoices from fictitious supply companies to support contract charges for nonexistent materials. Our job was to determine which invoices were phony.

Identifying the bogus invoices was difficult. Routine tracing and verifying of contract payments to the contractors' supporting documents revealed few discrepancies, and in fact, seemed to indicate that the invoices were legitimate. Purchase records showed that competitive bids had been obtained from at least two suppliers and that materials had been ordered from the lowest bidder. Supply company invoices showed that the materials had been delivered, and cancelled checks showed that the invoices had been paid. Inventory records showed that the materials had been placed in the company supply, and requisition documents showed that these materials had been issued to the shop area and used to repair government equipment.

Another factor pointing to invoice legitimacy was that all the records we examined had been signed by company employees, many of whom we had met during the audit. Most of these employees had been open and friendly; certainly none of them had looked dishonest. We found it difficult to believe that a scheme to defraud could go undetected when it required at least passive cooperation from so many of these employees.

Despite all the evidence pointing to legitimacy, we felt that invoices from several companies were bogus. Something made them seem different from the other invoices. At first, the differences were difficult to pinpoint, but gradually certain characteristics convinced us that we were right:

- Printed invoices (though often dated weeks apart) were consecutively numbered, indicating that the supply company had but one customer.
- Invoice blocks, which should have shown how the materials were shipped, were either left blank or annotated "customer pick up."
- Listed unit prices for materials were often unrealistic when compared with prices

of comparable materials in the Government's inventory.

- Some supply companies were unlikely sources for the materials purchased. For example, components of specialized aerospace ground equipment were bought from a company which advertised that it sold commercial water pumps and electric motors.

The evidence we developed was not sufficient for criminal prosecution, but it did provide the starting point for the FBI investigation. The FBI, for example, interviewed parties involved to obtain supplemental oral evidence, located and obtained original Government records, such as Treasury checks, and located authorized record custodians to identify documents in court.

The first supplier the FBI investigated proved to be classic. Contractor records showed that \$50,000 worth of electronic components had been purchased from this supplier and billed to the Government. However, the FBI investigation revealed that the supply company had no place of business. Its assets consisted of a rented post office box, a bank account, and several pads of blank invoices with the slogan "Serving the Aerospace Industry Since 1947." The only person authorized to make withdrawals from the bank account was a co-owner of the contracting firm under investigation.

Eventually, the investigation uncovered more sham companies, and four individuals were ultimately found guilty of submitting and collecting on false claims to the Government. During the trials, the U.S. Attorney used GAO workpapers as evidence and called us as witnesses to explain and authenticate the papers. In two trials, some of us sat at the U.S. Attorney's table to assist when questions arose about accounting details. Other auditors remained on call nearby to research workpapers for evidence to counter defense arguments.

In a letter to the Comptroller General, the U.S. Attorney expressed appreciation for GAO's assistance and commended the auditors for their ability to work in close harmony with the FBI and the U.S. Attorney's office while wading

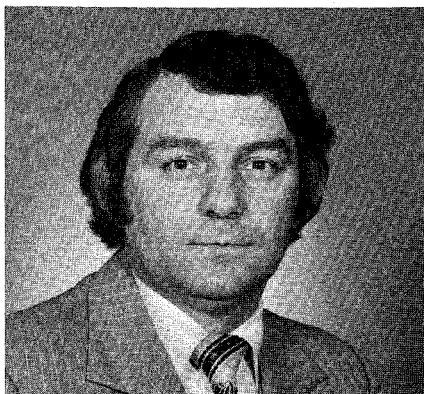
through the mountains of evidence. He also expressed his desire for continuing cooperation between GAO and the Justice Department in protecting the interests of the Government.

Lessons Learned

We learned several lessons from this experience that we'd like to pass along to other GAOers.

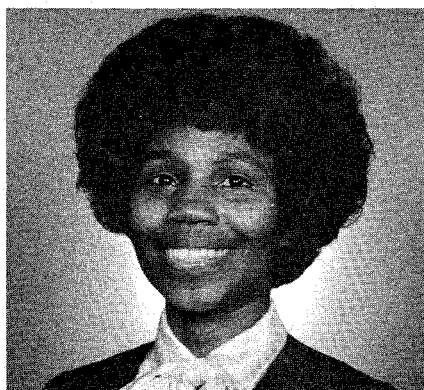
- Look upon finding inadequate controls as only a first step; your second step is to look for negligent or intentional abuses.
- Examine supporting documents carefully. Documents merely *report* that an event or transaction took place; they do not *prove* that it did.
- Never underestimate the potential for fraud or allow irregularities to be expained away too quickly. Some people do steal.
- Follow your audit leads through to completion. You could be stopping just one step short of detecting fraud.
- Be careful, thorough, and go "by the book," when preparing workpapers. You never know when you may have to explain them in court.

We found that preparing for and testifying in a criminal case can be mentally and physically demanding and can require long workdays. But we also found, as you will, that the experience and satisfaction gained are well worth the effort.



W.A. Broadus

Mr. Broadus is an assistant director in the Financial and General Management Studies Division. He received his undergraduate degree from Eastern Kentucky University and a master's degree in government administration from George Washington University. He also attended the Education for Public Management Program at the University of Virginia during 1974-75. He is a CPA (Ohio) and spent his first 8 years with GAO in the Cincinnati regional office.



Mary Simmons

Mrs. Simmons is an auditor with the Financial and General Management Studies Division. She is a graduate of Howard University. Prior to joining the headquarters staff, she was with the Washington regional office.

Using Broad Scope Auditing To Serve Management

This article is a digest of the Audit Standards Supplement Series No. 10.

Today auditors are no longer limited to "green eyeshade" activities. They have been challenged to provide answers to questions that cannot be answered by the traditional financial and compliance audit alone. They have been compelled to expand the scope of their audits. And their efforts have evolved into what is known as "broad scope auditing."

Broad scope auditing encompasses three elements:

- The financial and compliance audit.
- The economy and efficiency audit.
- The program results audit.

Each element of broad scope auditing has a different focus. The financial and compliance audit provides answers to such questions as:

- Were financial operations conducted properly?
- Were financial reports presented fairly?
- Were applicable laws and regulations complied with?

The economy and efficiency audit provides answers to such questions as:

- Was the agency managing its resources (personnel, property, space, funds, etc.) economically and efficiently?
- What were the causes of any inefficient or uneconomical practices?

And the program results audit provides answers to such questions as:

- Were desired results or benefits being achieved?
- Were the objectives established by the legislature or other authorizing body met?
- Were alternatives considered which might give desired results at lower costs?

Government administrators are increasingly recognizing the benefits of expanded scope audits. When the Governor of Mississippi took office in January 1976, he announced, in an address to the Joint Assembly of the Mississippi Legislature, plans for evaluations of State government operations.

With guidance from the General Accounting Office, the Governor formed a temporary audit group to perform the evaluations. Representatives of State and Federal governments and the private sector comprised the group, which was directed by a senior member of the Governor's staff. This effort was to include only two elements of broad scope auditing: (1) an economy and efficiency audit and (2) a program results audit.

The following paragraphs present some of the problems identified by the audit as applied to the Office of the Governor and to several agencies of the State.

Changes Needed To Improve the Office of the Governor

The Governor's Office was a "one-man operation" with no formal organizational structure. The staff was not organized to identify, plan, or establish programs that would achieve the Governor's objectives. The staff was a reactive one that became involved in the pressures and crises of the moment. Little attention was given to guiding and directing the agencies and programs which were under the Governor's control. Even less effort was made to coordinate with agencies over which the Governor had no legal control, although the participation of these agencies was necessary in many of the Governor's programs.

The group recommended establishing a programs staff which would be the link between the Governor and the agencies of State

government. In response to the recommendations, the Governor established additional "Assistant to the Governor" positions to provide State agencies with the leadership, direction, coordination, and communication needed to successfully pursue his objectives. This reorganization also provided for the establishment of a permanent staff in the Governor's Office to continue evaluations of State government operations.

Over 40 recommendations were made for improving day-to-day operations. Most of the recommendations were immediately implemented; the others required additional time for devising final actions. Some of the major changes follow:

- The mission of the Governor's Office was reassessed and restated, a formal organizational structure was established, and a staffing plan was developed that more clearly defines administrative responsibilities and permits the Governor to devote more time to program matters.
- The office layout and conference room facilities were improved for more effective work flow and communications, and some staff were relocated because their functions did not require immediate or continuing contact with the Governor.
- An appointments assistant position was established to better schedule the Governor's time for visitors, meetings, speeches, trips, etc. This gave the Governor more time for furthering his program objectives.
- Responsibility for mail was assigned to qualified personnel, and accountability for incoming correspondence, from receipt through final disposition, was established.

Greater Economy and Efficiency in Operating State Agencies

The auditors reviewed several major agencies' organizational structures, procedures, and operations to identify ways of reducing

the cost or improving the results of government programs. They identified instances of inefficient or unnecessary use of resources and the underlying causes.

Following are examples of findings and recommendations.

More timely deposits of tax collections could increase revenue

The Tax Commission was depositing tax collections and other receipts in non-interest-bearing accounts in local banks for up to 15 days before transferring these funds to the State Treasury where they could be invested.

The average daily balance in these non-interest-bearing accounts exceeded \$15.8 million during fiscal year 1976.

The audit group estimated that prompt deposit of the funds into interest-bearing accounts could earn additional revenue of \$1 million annually. As a result of the audit, the Governor directed the Tax Commission to study the problem further, and, where practical, move tax collections into interest-bearing accounts without delay.

Revenue lost as a result of agency not enforcing filing of quarterly declaration of estimated income tax

The audit group estimated that the failure of taxpayers to file declarations of estimated State income tax was costing the State approximately \$360,000 in interest annually.

Presently, the failure to file quarterly statements is a violation of criminal law punishable by fines of up to \$100. The Tax Commission had found it uneconomical to enforce the law because of the cost of criminal proceedings and the light penalties assessed. The audit group concluded that, if a civil penalty assessed by the Tax Commission was substituted for the criminal penalty, and the limitation on the amount of the penalty increased, then it would be economically feasible for the Tax Commission to enforce the law. The auditors recommended that legislation be enacted to accom-

plish this. Such legislation has been prepared by the commission and proposed to the State legislature.

Organizational changes needed to improve efficiency

Organizational changes were needed in the Motor Vehicle Comptroller's Office to eliminate overlaps of field division boundaries and reduce duplication in operations among the agency's divisions, allow the agency director to devote more time to overall agency direction and policy matters, reduce travel, and permit more effective use of personnel. The recommended changes which were being implemented at the completion of the audit included:

- Reducing the number of divisions reporting directly to the comptroller from 10 to 3.
- Consolidating administrative functions, including accounting, data processing, maintenance, purchasing, and property management into one bureau of administrative services.
- Reducing the overlap and duplication of field districts by consolidating field functions and establishing uniform boundaries, and reducing travel by assigning personnel to smaller districts. (Field personnel were traveling 4 to 6 hours per day. The audit group estimated that changes in field organization would save \$248,000 annually in travel costs and that the resulting increased productivity would equal another \$285,000 annually in personnel costs.)

Excessive costs incurred to meet minimum travel requirements

A review of the use of nine vehicles assigned to the Game and Fish Commission officials showed that \$37,800 was spent for only 324 days of vehicle usage. The vehicles were used an average of less than 3 days a month each for official travel during fiscal year 1976.

The audit group estimated that pooling vehicles or reimbursing employees for using privately owned vehicles could save approximately \$32,000 annually. As a result of the audit, the agency arranged for these vehicles to be pooled so all personnel could use them as needed for agency business.

Improved procedures needed to ensure remittance of license sales revenue to the State

The sale of hunting and fishing licenses is the largest source of revenue for the Game and Fish Commission. Sales amounted to about \$3.7 million in fiscal year 1976.

State statutes require each bonded agent to remit receipts from license sales to the Game and Fish Commission on or before the 10th of each month. Some agents were not complying with the law—keeping receipts sometimes for more than a year—and the commission had not established procedures to insure collection of such receipts. The audit group recommended that conservation officers located throughout the State contact the independent agents periodically and enforce the timely collection of license sales receipts.

Audits of Program Results

Program results reviews can be made only if the purposes or goals of the organization or program being reviewed have been established. In addition, criteria must be available for measuring performance. Finally, a system is needed for accumulating data to reflect the program's achievements.

The audit group found that the State agencies being audited did not satisfy these basic requirements. For example, they did not have well-defined program goals. One agency goal was "the promotion and development of more and better paying jobs," and some of the objectives included (1) developing as many industrial type jobs as possible, (2) developing better markets, (3) increasing the tourist dollars spent in the State, and

(4) promoting small business development. Objectives stated in such vague terms as "more," "better," and "many" are not subject to a meaningful assessment of achievements.

Furthermore, the agency had not established feedback systems that would show what the programs had achieved. Progress—in some cases major progress—had indeed been made in attaining some of the agency's goals, but other organizations and outside factors had contributed to this progress. No plans had been made to accumulate data to distinguish results attributable to the programs from results attributable to outside factors. There was no reasonable way to measure that part of the progress brought about by the agency's efforts.

Therefore, the principal finding of the audit group, insofar as program results were concerned, was that, if the State was to measure the effectiveness of its programs, it would need to (1) set more specific goals so that progress could be measured and (2) accumulate data on accomplishments.

Overall program goals and criteria should be established by the government body that authorizes the program, with more specific objectives developed by the program managers. When no overall goals and criteria are provided, the program managers should prepare them. The audit group recommended that each of the agencies develop program goals and criteria and establish feedback systems to permit meaningful assessments of results.

Continuing Efforts

The audit identified several audit areas with a potential for saving money or improving programs. Several of these possibilities were related to procedures and organizational responsibilities that involved more than a single agency. The audit group recommended a series of studies of functions and activities that would cross agency lines and identify improvements needed governmentwide. Some of the needed improvements that were identified require further study, including:

- An organizational structure that will provide more effective managerial control and consolidate agencies with overlapping and duplicate functions, activities, or programs.
- Opportunities for greater consolidation and sharing of computer hardware and software among agencies, through the State's centralized ADP center.
- Procurement practices that will help insure that money is spent wisely for goods and services. Each agency, and in some cases each component of an agency, operates its own procurement system. Savings may be possible through a consolidated procurement system for all State agencies.
- A system of administrative and fiscal controls that will help insure the propriety of every government expenditure.
- A State-wide merit system that would standardize personnel policies and procedures and enhance the hiring and retention of qualified State employees.
- A system of program planning and budgeting that would permit a more meaningful consideration of agency budget requests and provide a means of measuring accomplishments.

Although a permanent staff has not been established, the Governor is continuing the review effort with a temporary audit group.

Legislative Developments

Judith Hatter

The 96th Congress convened on the 15th of January with 1,018 bills introduced by Members of the Senate and House of Representatives on the first day.

General Accounting Office Act of 1979

One of the first measures to be introduced by Congressman Jack Brooks of Texas was the General Accounting Office Act of 1979.

This measure passed the House of Representatives in the last Congress on October 3, 1978, but died prior to consideration by the Senate. The bill was referred to as the Federal Accounting and Auditing Act of 1978 in the 95th Congress.

The purpose of the legislation is to provide GAO with additional authority to audit unvouchered accounts which can be spent solely on the signature of the President. It will strengthen GAO authority to obtain access to records needed to audit executive agency programs. The bill provides for a new procedure for the appointment of the Comptroller General and the Deputy Comptroller General. Delays in sending draft GAO reports to executive agencies for their comments will be limited under the terms of the legislation. There is also a provision to bring the accounting and auditing procedures of the Inspectors General of the Departments of Health, Education and Welfare and Energy into conformity with guidelines promulgated by the Comptroller General.

In his remarks on introducing the bill Congressman Brooks said:

The GAO serves an essential role as an investigative and auditing arm of Congress. We can discharge our oversight responsibilities better by insuring that the GAO has the ability to conduct thorough and effective investigations of executive branch activities.¹

Anti-Inflation Program Applied to Government Procurement

On February 5, in his first appearance as General Counsel of GAO, *Milton J. Socolar* discussed the legal issues surrounding the administration's anti-inflation program as applied to Government procurement before the Commerce, Consumer, and Monetary Affairs Subcommittee of the House Government Operations Committee.

Mr. Socolar concluded that the President cannot impose mandatory wage and price controls on the economy in the absence of authorizing legislation, and there is currently no operative statute giving the President such power. Failure to abide by the President's guidelines is not a violation of law.

At the same time, *Jerome Stolarow*, director, Procurement and Systems Acquisition Division, discussed the use of Federal contracts as a device to foster compliance with the President's wage and price guidelines. Mr. Stolarow concluded that penalties against Government contractors who fail to meet the President's wage and price guidelines will have relatively little impact.

Public Disclosure of Lobbying Act of 1979

On February 8, Congressman Tom Railsback and Congressman Bob Kastenmeier introduced H.R. 1979, a lobbying reform bill identical to the bill that passed the House during the 95th Congress. In his remarks, Mr. Railsback contrasted the provisions of his bill with H.R. 81, introduced by Mr. Rodino and Mr. Danielson, which is identical to the bill reported out of the full Judiciary Committee in the last Congress.

Under the provisions of H.R. 1979, each organization is required to register with the Comptroller General and the Comptroller General is, among other things, to

¹ *Congressional Record*, vol. 125, (Jan. 15, 1979), p. H52.

develop filing, coding, and cross-indexing systems to carry out the purposes of the act.

Legislative Accounts Audit—Regulatory Review

Congressman Elliott H. Levitas of Georgia introduced H. R. 534, the Legislative Accounts Audit and Control Act, for the purpose of requiring the Comptroller General to audit the expenditures and financial transactions of Members, officers, and standing committees of the House of Representatives.

Mr. Levitas also introduced H.R. 1067 to establish an Office of Regulatory Review in the General Accounting Office to assist the Congress in evaluating the economic impact of agency rules.

Sunset Act of 1979

Numerous sunset measures have been introduced in the 96th Congress, including S. 2 by Senator Muskie and numerous cosponsors.

Under the provisions of the sunset bill, virtually all Federal programs would come up for review and reauthorization on a rotating 10-year basis.

Among other things, the Comptroller General is required to compile and maintain an inventory of Federal programs.

Reflections

Jo Clark

Twenty years ago in the *Staff Bulletin* (predecessor of *The GAO Review*), it was reported that:

- The Bureau of the Budget issued instructions (Circular A-50) on April 1, 1959, to executive branch agencies requiring systematic consideration of all GAO reports on agency work. The instructions also provided for submission of statements to the Bureau commenting on GAO recommendations, qualified opinions of financial statements, and reported violations of law contained in reports signed by the Comptroller General.
- Robert F. Keller, Deputy Comptroller General, (then General Counsel) testified before the Subcommittee on Constitutional Rights of the Senate Committee on the Judiciary about GAO's being denied access to certain information, records, and reports considered essential to the proper performance of the audit and reviews of the operations in the executive departments.
- The Steering Committee of the Joint Accounting Improvement Program (now called the Joint Financial Management Improvement Program) began an evaluation of the progress made to date by civil agencies in improving their financial management.
- Comptroller General Joseph Campbell testified before the House Foreign Affairs Committee on the budget presentation for the economic assistance program and the next day on the Mutual Security Program in Korea. Two of the persons accompanying him were Frederick K. Rabel, now assistant director in the Community and Economic Development Division, and Charles Hylander, now deputy director of the International Division.
- Comptroller General Campbell, accompanied by Robert Keller, testified before the Government Information Subcommittee of the House Committee on Operations about Navy's refusal to furnish GAO with a certain report regarding procurement operations of the Military Sea Transportation Service.
- The Committee of Educator-Consultants to the Comptroller General sent a letter to deans and professors of the American Association of Collegiate Schools of Business advising them that occasionally GAO could arrange to have a representative speak before classes or professional clubs on various subjects pertaining to financial management, accounting improvements, and auditing developments in the Federal Government. The letter also stated that audit reports and other publications could be sent to them.
- A 3-day Regional Managers Conference was held in Washington at which the managers met with the Comptroller General and other officials to discuss policies, plans, and problems of mutual concern.
- A questionnaire was distributed with the *Staff Bulletin* to obtain the views of the operating staff on how well the *Bulletin* was serving its intended purpose of providing useful information to the staff. A summary of the replies was published in the June 1959 issue of the *Bulletin*. Many helpful suggestions were also received and changes were made to improve the *Bulletin*.
- As a result of a joint team study under the Joint Accounting Improvement Program, the functions of agency and imprest fund cashiers were combined.
- Harry C. Kensky, acting deputy director of the Financial and General Management Studies Division, was made an honorary member of Beta Alpha Psi by the Temple University Chapter. He was also elected a member of the Executive Committee of the Philadelphia Chapter of the Pennsylvania Institute of CPAs.
- Max Hirschhorn, deputy director of the Community and Eco-

nomic Development Division, and Arthur Litke, assistant to the Director of the Financial and General Management Studies Division, were designated as assistant directors in the old Civil Accounting and Auditing Division.

- Edward Densmore, Jr., associate director in the Human Resources Division, joined GAO.

And 10 years ago in the Spring 1969 issue of *The GAO Review*, you'll find that:

- Frank H. Weitzel, Assistant Comptroller General, retired from GAO. Mr. Weitzel was a career man who came to work for GAO in 1923, was Assistant Comptroller General from 1953-1969, and was Acting Comptroller General from May 1954 to December 1954 and from

August 1965 to March 1966. Mr. Weitzel served GAO with such competence, dedication, and excellence for over 45 years—under every Comptroller General since GAO was created in 1921—that his contributions will never be forgotten. For a good resume of Mr. Weitzel's many contributions to the Office, please read Mr. Ellsworth Morse's fine article about him in the *Spring 1969 GAO Review*.

- Two important memorandums were issued on the subject of reporting budget revenues and expenditures on the accrual basis instead of the cash basis—one signed by President Nixon and the other signed jointly by the Secretary of the Treasury; the Director, Bureau of the Budget; the Chairman of the Council of Economic Ad-

visors; and the Comptroller General. These memorandums were issued as a result of the report of the President's Commission on Budget Concepts (of which Comptroller General Staats was a member), which recommended that all agencies use the accrual basis. (Wonder what ever happened? Many of the agencies still are not using it.)

- Comptroller General Staats appeared as a leadoff witness at the Army tank program investigation begun by the Subcommittee for Special Investigations of the House Committee on Armed Services.
- Comptroller General Staats was discussion leader in the second annual British Legislators' Conference on Reform of Machinery of Government and in a joint meeting of the American and British Committees of the Carnegie Conference on Independence and Accountability in the Contract State, at Ditchley Park, Oxford, England.
- Allen R. Voss, director of the General Government Division (then assistant director of the Civil Division), testified before the House Public Works Committee on GAO's reviews of the Federal water pollution control program.
- John D. Heller, Assistant to the Comptroller General, and James D. Martin, director of the Office of Program Planning, were designated as assistant directors in the Civil Division.
- Richard L. Fogel, associate director in the General Government Division, joined GAO.



Frank H. Weitzel

GAO Staff Changes



Walter L. Anderson

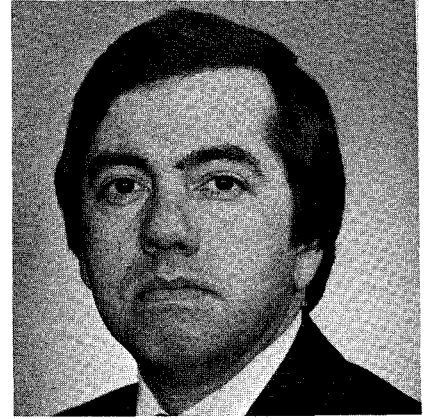
Walter L. Anderson has been designated associate director, senior level, in the Financial and General Management Studies Division, effective January 28, 1979. He is responsible for automatic data processing activities.

Mr. Anderson joined GAO in September 1974 after many years in the computer field in private industry. From 1955 to 1974, Mr. Anderson was with General Kinetics, Inc., a firm in the computer and related fields, and rose to the position of president of the company in 1965. He also served terms as corporate director of Computer Test Corporation, National Instruments Laboratories, Inc., and Food Technology Corporation.

Mr. Anderson has been active in professional societies in the computer field for 20 years. He is a past president of the American Federation of Information Processing Societies, Inc. (AFIPS). He also served as national chairman of the Institute of Electrical and Electronics Engineers Computer Group.

Mr. Anderson has a M.S.E.E. and B.E.E. from the University of Minnesota. After specialized training at Bowdoin College and M.I.T., he served as an electronics officer in the Navy from 1944 to 1946.

Mr. Anderson received the Director's Award in 1978.

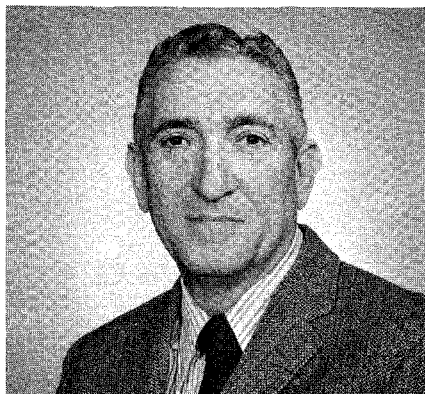


F. Kevin Boland

F. Kevin Boland was designated associate director in the Energy and Minerals Division, effective January 28, 1979. He is responsible for GAO's reviews in the areas of energy regulation and pricing, fossil energy resources, and energy information systems. He will also be responsible for GAO's work under Title V of the Energy Policy and Conservation Act (P.L. 94-163). The act authorizes GAO to independently verify energy data, inspect the books and records of private persons and companies under certain conditions, and requires that the Securities and Exchange Commission consult with GAO in developing accounting practices for the oil and gas industry.

Mr. Boland joined GAO in 1962 after graduating from the University of Scranton with a Bachelor of Science degree in accounting. He brings with him to this position a broad background and perspective gained from 16 years of diversified GAO experience, including over 4 years in the energy area.

Mr. Boland is a member of the National Association of Accountants. He received the GAO Meritorious Service Award in 1972, the EMD Director's Award in 1977, and was GAO's nominee for the William A. Jump Memorial Foundation Award in 1978.



Harry C. Kensky

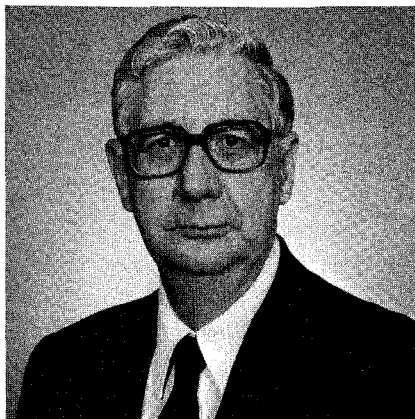
Harry C. Kensky has been designated associate director, senior level, in the Financial and General Management Studies Division, effective January 28, 1979. Mr. Kensky is primarily responsible for directing reviews of Federal agencies' accounting systems in operation Government-wide and reviews of the Securities and Exchange Commission.

In 1951 Mr. Kensky joined the staff of the Corporation Audits Division in Washington, D.C., after having been associated with a Philadelphia CPA firm. In 1952 he was transferred to the Philadelphia regional office and was designated the first assistant regional manager in 1960 and in 1967 the first director, program planning staff, in the Office of the Comptroller General. In 1972 he was designated associate director of the Financial and General Management Studies Division. He is currently acting deputy director, Financial and General Management Studies Division, temporarily replacing Harold Stugart, who is directing the operations of FGMSD's Fraud Prevention Task Force.

Mr. Kensky holds a B.S. degree in commerce from New York State University and M.B.A. and Ed.D. degrees from Temple University. He is also a graduate of the Advanced Management Program of the Harvard Graduate School of Business Administration. He is a CPA (Pennsylvania), and a member of the American Institute of CPAs, the Pennsylvania Institute of CPAs, and Association of Government Accountants, of which he has been a past president of the Philadelphia Chapter and the Chairman of the

20th National AGA Symposium.

Mr. Kensky has received two Meritorious Service Awards, the GAO Career Development Award, and the Director's Certificate of Appreciation. In October 1978, Mr. Kensky received the Comptroller General's Distinguished Service Award.



John E. Milgate

John E. Milgate was designated associate director, senior level, in the International Division, effective December 31, 1978. He is responsible for directing reviews relating to trade and finance activities.

Mr. Milgate served in the U.S. Air Force from 1943 to 1946. He graduated from Syracuse University in 1947 with a B.S. degree cum laude in accounting. He also attended the Management Program for Executives at the University of Pittsburgh in 1967 and the Federal Executive Institute in 1975.

Since joining GAO in 1952, Mr. Milgate has had responsibilities on a wide variety of assignments in the former Division of Audits and in the Civil and International Divisions. Before joining GAO, he was a staff accountant for several years with a national public accounting firm.

Mr. Milgate received the Meritorious Service Award in 1968 and the Distinguished Service Award in 1978. He is a CPA (Maryland) and a member of the American Institute of CPAs and the Maryland State Society of CPAs.

Other Staff Changes

NEW DIRECTORS

Equal Employment Opportunity Office

Ryan S. Yuille

Office of Budget and Financial Management

David E. Bryant

Office of Publishing Services

Julius S. Brown

NEW ASSISTANT DIRECTORS

Community and Economic Development Division

Theodore Roman, Jr.

Ronnie E. Wood

Financial and General Management Studies Division

Lawrence B. Sullivan

General Government Division

Robert W. Gramling

NEW SUPERVISORY MANAGEMENT ANALYSTS

Federal Personnel and Compensation Division

Rosslyn S. Kleeman

Financial and General Management Studies Division

Carl R. Palmer

NEW SUPERVISORY COMPUTER SPECIALIST

Financial and General Management Studies Division

Theodore F. Ganter

NEW SENIOR ATTORNEYS

Office of General Counsel

Johnnie E. Lupton

Robert J. Centola

NEW ASSISTANT REGIONAL MANAGER

Washington Regional Office

Gloria H. Mayer

REASSIGNMENTS – ASSISTANT DIRECTORS

Financial and General Management Studies Division

Frederick L. Haynes

Herbert S. Millstein

ASSISTANT REGIONAL MANAGER

Boston Regional Office

Clarence L. Forbes

ECONOMIST

Office of Policy

Stephen C. Swain

RETIREMENTS – ASSISTANT DIRECTORS

Federal Personnel and Compensation Division

Morris W. Kandle

Financial and General Management Studies Division

James P. Oliver

Logistics and Communications Division

Wilbur W. Bailey

SENIOR ATTORNEY

Office of General Counsel

Albert G. Wellens

New Staff Members

The following new professional staff members reported for work during the period November 16, 1978, through February 15, 1979.

Federal Personnel and Compensation Division	Angeles, Hawthorne A.	Department of the Army
General Services and Controller	Kidd, Stephen W. Li, Allen	University of Pennsylvania Department of Transportation
Human Resources Division	Maloney, Michael J.	University of Scranton
Office of the Comptroller General	Nobles, Warren P. Yuille, Ryan S.	National Aeronautics and Space Administration Department of the Army
Program Analysis Division	Hale, Roberta A. O'Neill, Dave M.	Duquesne University Columbia University
Personnel	Blimline, Carol A. Erbal, Richard C. Harris, Frances S.	Gettysburg College Department of Health, Education, and Welfare Smithsonian Institution
REGIONAL OFFICES		
Atlanta	Dunham, Donald C.	Western New England College
New York	Zacchea, Nicholas M.	Department of Energy

Professional Activities

Office of the Comptroller General

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

National Academy of Sciences Academy Forum on "Technological Innovation and the U.S. Economy," (panel discussion), Washington, D.C., Nov. 14.

Lewis and Clark College (Portland, Ore.) Students in Public Administration Program, "Role and Functions of the General Accounting Office," Washington, D.C., Nov. 30.

Centennial Conference, Office of the Auditor General of Canada, on Comprehensive Auditing—Planning the New Approach for Century II, "Government Auditing: An International Review," Ottawa, Canada, Dec. 7.

The Secretary of the U.S. Department of Health, Education, and Welfare's National Conference on Fraud, Abuse, and Error, Protecting the Taxpayer's Dollar, "Preventing Fraud and Error and Increasing Public Confidence in Federal Programs—Top Priorities," Washington, D.C., Dec. 14.

Seminar for Senators-elect and their staff, "Congressional Support Agencies," Washington, D.C., Dec. 14.

Press Conference with Senator Sasser Inaugurating GAO's Task Force for Prevention of Fraud, "GAO's Task Force for Prevention of Fraud," Washington, D.C., Jan. 18.

Panorama, WTTG Television, "GAO's Task Force for Prevention of Fraud," Washington, D.C., Jan. 18.

Following are recently published articles of the Comptroller General:

Funcionarios para un buen Gobierno (Eng., "Auditors Agents for Good Government," (*Boletín Informativo, Tribunal de Cuentas de la República, República Oriental del Uruguay*, Oct. 1978.

Statement as Panel Member on "Technological Innovation and the U.S. Economy," *Technological Innovation and the U.S. Economy, Academy Forum, National Academy of Sciences*, Nov. 14, 1978.

On February 8 Mr. Staats chaired a symposium on the "Need to Improve Public Administration and Financial Management Capabilities in Developing Countries Through Training and Other Efforts." He was assisted by J.K. Fasick, director, James A. Duff, associate director, and Edward D. Kennedy and James R. Hamilton, supervisory auditors, of the International Division.

A panel of 14 experts from academia, U.S. Government agencies, international financial organizations, and other international organizations took part in the 1-day meeting at GAO headquarters. There were a number of observers from other organizations.

John D. Heller, Assistant to the Comptroller General, addressed the following groups:

Ontario Legislative Assembly Procedural Affairs Committee of the Canadian Government, on "The U.S. Congress and the Role of GAO," Feb. 7.

Federal Executive Institute Alumni Association's Capitol Hill Seminar, Feb. 26. His subject was "Congressional Oversight and GAO's Role."

Elaine L. Orr, assistant to the Assistant to the Comptroller General, convened a panel on "The Threat of Being Sunsetted: How Will Federal Managers React?" at the National Capital Area Chapter of the American Society for Public Administration Annual Conference, Dec. 1.

Office of the General Counsel

Milton J. Socolar, general counsel, addressed the following groups:

The American Institute of Industrial Engineers Conference on Federal ADP Procurement on "How to Work with the GAO," Dec. 25.

Office of Personnel Management (Civil Service Commission) Training Program for upper level executive branch officers, Jan. 27.

Brookings Institution Conference for Business Executives on Federal Government Operations, Jan. 29.

Charles P. Hovis, deputy assistant general counsel, spoke before the Defense Advanced Procurement Management Course on "Problems in Formal Advertising," in Huntsville, Ala., Jan. 17.

Geraldine M. Rubar, senior attorney, addressed the New England Intergovernmental Audit Forum on "Privacy and Freedom of Information Acts," Amherst, Mass., Jan. 25.

Ronald Wartow, senior attorney, spoke before the Defense Advanced Procurement Management Course on "Problems in Formal Advertising," Long Beach, Cal., Feb. 20.

Michael J. Boyle, attorney-adviser, spoke before the Air Force Institute of Technology on "Problems in Formal Advertising," at Wright-Patterson Air Force Base, Ohio, Feb. 14.

Office of Congressional Relations

Martin J. Fitzgerald, director, spoke on the role of the GAO before the following groups: American University's Washington Seminar on Jan. 15, U.S. Chamber of Commerce's Corporate Executive Development Program on Jan. 22, and the Congressional Research Service's Advanced Legislative Institute on Feb. 8.

T. Vincent Griffith, legislative attorney, spoke before the Civil Service Commission's Congressional Operations Seminar for Managers on the role of the GAO on Jan. 26.

M. Thomas Hagenstad, legislative adviser, spoke on GAO's role before the Civil Service Commission's Congressional Operations Seminar on Jan. 24 and Feb. 7, and before the American University's Washington Seminar on Jan. 29.

Peter J. McGough, legislative adviser, spoke before the U.S. Chamber of Commerce's Corporate Executive Development Program on Jan. 29 and Feb. 5.

Community and Economic Development Division

Ed Schaefer, food staff agricultural economist, was interviewed on Dec. 18 by the Maryland Public Broadcasting Station concerning our recent staff study entitled "Changing Character and Structure of American Agriculture," (CED-78-178, Sept. 26, 1978). He also conducted briefings for various farmer groups on the same subject.

Ray Ridgeway, food staff management analyst, spoke on "Alternative Food Marketing Methods: What Role Does the General Accounting Office Play?" before the Northeast Agricultural Marketing Committee, Jan. 18.

John Viallet, assistant director, spoke on "Transportation Issues in the 96th Congress" before a graduate seminar in transportation, at the University of Virginia, Jan. 17.

Bob Levin, management analyst, spoke on "Current Issues in intergovernmental Relations" at the annual meeting of the Transportation Research Board, Jan. 16.

Jess Plonka, management auditor, spoke on "GAO's Role in the Area of Rural Water Supply" before the Executive Committee of the National Rural Water Association, Jan. 19.

Federal Personnel and Compensation Division

H.L. Krieger, director, spoke to the First Annual Classification Workshop on "Position Classification and GAO's Oversight Role Under the Civil Service Reform Act," Oct. 5.

Donald G. Boegehold, assistant director, addressed the Manpower Analysis and Planning Society on "Legislation Impacting on Intergovernmental Manpower Programs and Issues," Dec. 6.

John Harper, psychologist, spoke on "Merit and Affirmative Action in Civil Service Examinations" before the Personnel Testing Council of Metropolitan Washington, Nov. 8.

Rosslyn Kleeman, supervisory auditor, spoke on "GAO Policies and Plans for Evaluation of Civil Service Reform Implementation" at the Syracuse University's Maxwell

School Mid-Career Seminar, Jan. 7.

Janet Lowden, supervisory auditor, spoke on "The Comptroller General's Report—Is Better Management Needed in the Administrative Process?" at the Fourth Annual Symposium, American Bar Association Conference of Administrative Law Judges, Jan. 26.

Joan Slowitsky, economist, chaired a symposium on the causes and management of attrition of enlisted personnel in the military services, Jan. 25-26. Sponsored by GAO, the symposium included participants from the Department of Defense, each of the military services, and experts from the academic and research communities.

Financial and General Management Studies Division

Donald L. Scantlebury, director: Was the keynote speaker on Nov. 28 at the National Bureau of Standards Invitational Workshop on Audit and Evaluation of Computer II: System Vulnerabilities and Controls, at Miami Beach, Fla. He spoke on "Security Audit Challenges." He also served as chairman of the session on Managerial and Organizational Vulnerabilities and Controls—Staff Level.

Spoke on "How Standards Affect Federal ADP Procurements" at a meeting of the American Institute of Industrial Engineers, Dec. 13. Spoke on "Accounting for Fixed Assets" at a meeting of the Maryland Association of Certified Public Accountants and Maryland Public Finance Officers on Jan. 19 in Baltimore.

Spoke on "Auditing for the Government—Expectations of the Auditor and His Client Are Not Always the Same," at a seminar of the D.C. Institute of Certified Public Accountants, Feb. 23.

Arthur L. Litke, assistant to the director, spoke on "The Financial Accounting Standards Board and the Bermuda Triangle" at the Joint Northern Virginia Chapter NAA and AICPA Society on Jan. 11.

Walter Anderson, associate director:

Spoke on "Recent GAO Reports on Automatic Data Processing" at the Executive Seminar on Telecommunications and Information Systems sponsored by MITRE Corporation at Hershey, Pa., Jan. 31.

Spoke on "Personal Observations of the President's Reorganization Project on ADP Management" at the American Institute of Industrial Engineers Conference on Federal ADP Management, Feb. 7.

George L. Egan, Jr., associate director:

Spoke on GAO's new Audit Guides at the HEW Audit Agency Seminar in Atlanta, Dec. 4.

Spoke at the District of Columbia Institute of Certified Public Accountants' program on governmental auditing at George Washington University, Feb. 23.

Ken Pollock, assistant director, spoke on "GAO Perspectives on Management Information Systems in Government," at a Civil Service Commission Seminar for Advancing Managers in Oak Ridge, Tenn., Dec. 6.

Brian L. Usilaner, assistant director, participated in a panel on the use of resources for improved productivity at a symposium sponsored by the Association of Government Accountants, Feb. 23.

Earl M. Wysong, Jr., assistant director:

Spoke at a seminar sponsored by the Defense Contract Audit Service in Marietta, Ga., on "Computer Fraud Detection and Prevention," on Dec. 13.

Spoke at a seminar sponsored by the Montgomery-Prince George's Chapter of the Association of Government Accountants on "Detection and Prevention of Computer Frauds," in Silver Spring, on Feb. 7.

Was nominated for the position of International Director on the Board of Directors of the Association for Systems Management.

James R. Watts, assistant director, spoke on "Latest Proposals and Directions in Standards" at the American Institute of Industrial Engineers' conference on Federal ADP Management, Feb. 7.

Theodore F. Gonter, assistant

director, spoke on "The Part That Computer Performance Evaluation Plays in EDP Auditing" at the January meeting of the National Capitol Area Chapter of the EDP Auditors Association luncheon meeting, Jan. 16.

James L. Hedrick, assistant director, participated in a Program Evaluation Committee, sponsored by the Commission on Accreditation of Rehabilitation Facilities which reviewed evaluation standards for rehabilitation facilities on Jan. 22 and 23 in Tucson, Ariz.

Benjamin I. Gottlieb, assistant director, spoke on the actuarial aspects of Cost Accounting Standards 412 and 413 at a Defense Logistics Agency workshop for its Cost Accounting Standards Monitors and Pension and Insurance Specialists on Feb. 27-28.

Kenneth A. Pollock, assistant director, **Joseph L. Boyd**, assistant director, and **John W. Lainhart**, supervisory management analyst, were awarded a Certified Data Processing Auditor certificate on Dec. 2, 1978.

Ronald J. Points, supervisory systems accountant, spoke on "Impact of FASB Discussion Memorandum on Government Accounting" before the Association of Government Accountants Financial Management Update Seminar, held in Trenton, N.J., on Dec. 5, and New York City on Dec. 6.

Robert F. Raspen, supervisory auditor:

Participated in a panel entitled "The Search for Economy in Governments" at the American Society for Public Administration workshop at George Mason University, Fairfax, Va., Jan. 12.

Participated in a panel to discuss governmental auditing at the District of Columbia Institute of Certified Public Accountants' program at George Washington University, Feb. 23.

David Dore, supervisory management analyst, spoke on "Additional GAO Audit Standards—Auditing Computer-Based Systems" before the ADP Audit Managers Subcommittee of the Federal Audit Executives Council, Feb. 28.

Joint Financial Management Improvement Program

Susumu Uyeda, executive director:

Conducted a training program on "OMB Circular A-102, Standard Administrative Requirements for Grants and Contracts to State and Local Governments" sponsored by Interagency Auditor Training Center on Dec. 5.

Gave a presentation on "The Role of JFMIP in Cash Management" at the cash management seminar sponsored by Sokol Associates on Dec. 14.

Gave a presentation on "The Roles of the Central Financial Management Agencies and JFMIP" at a meeting of the American Assembly of Collegiate Schools of Business on Dec. 20. He was assisted by **Kenneth Winne**, project director.

Conducted two workshops on OMB Circular A-102 for 70 State of Virginia officials in Richmond on Jan. 24 and 25 and Feb. 27 and 28.

Doris Chew, accountant, on assignment to JFMIP from Treasury, gave a presentation on "The Role of JFMIP" at a Letter-of-Credit Workshop in Kansas City, Feb. 27.

General Government Division

Richard Fogel, associate director, spoke on the "Evolving Roles of Auditors in Providing Alternative Policies to Decision Makers" before the Mid-Atlantic Intergovernmental Audit Forum in Richmond, Feb. 16.

John Kosinski, supervisory auditor, and **Gene Dodaro**, management analyst, spoke on GAO's approach in auditing antirecession fiscal assistance and the impact of the program on State and local governments, before the Industrial College of Armed Forces, Oct. 6.

Robert Weinstein, GAO auditor, received his M.B.A. degree in January from George Mason University.

Human Resources Division

Gregory J. Ahart, director, addressed the seminar on Domestic Policies and Programs conducted by the U.S. Civil Service Commission Executive Seminar Center, Kings Point, N.Y., on Dec. 6. Subject: "Evaluating Domestic Policy Outcomes."

Matthew R. Solomon, assistant director spoke to:

The Society of Research Administrators at the 12th annual meeting in Boston on "Federal Auditing Procedures, Practices and Objectives," Dec. 8.

The National Institute of Health Grants Management Advisory Committee in Bethesda on "GAO Audit Activities and Their Effect on NIH Grant Programs," Jan. 17.

Carol Codori, supervisory psychologist:

Recently had an article entitled "The Problem of Selecting Adults for a Childcare Training Program: A Descriptive and Methodological Study" published in the *Yale Monograph on Paraprofessionalism* (1978), based on her earlier work in the *Child Care Quarterly*.

Recorded a 6-cassette series on changing roles for contemporary men and women entitled *Women in Change*. The tapes are part of the media-assisted therapy program published by the Human Development Institute, Chicago, Ill. (1978).

Participated in sessions on the role of psychologists in health care delivery at the annual meeting of the American Psychological Association in Toronto, Canada, Aug. 28-Sept. 1.

Thomas J. Milan, management auditor, participated on a panel discussing the Department of Labor's "Monitoring of Employment and Training Programs" before the National Research Council-National Academy of Sciences' Committee on Evaluation of Employment and Training Programs, Jan. 26.

International Division

Frank C. Conahan, associate director, **John D. Redell**, assistant director, and **J. Allan Hovey**, super-

visory auditor, assisted Comptroller General Elmer Staats as GAO's discussion leaders at a symposium Jan. 9 on "Public Diplomacy: International Communication, Cultural and Educational Affairs—Current Issues and Opportunities." A panel of 14 specialists, together with spokesmen for more than a score of Government agencies and private organizations, took part in the 1-day session at GAO headquarters.

Alan Hovey also served as a panelist at a Washington conference on the United States' role in international education, sponsored by the Institute of International Education and 70 other private organizations, Feb. 28. He was also a participant in a conference on funding problems in international education convened Feb. 27 by the Woodrow Wilson International Center for Scholars.

John E. Milgate, associate director, assisted by **Joseph R. Ferri**, assistant director, **Alan Bennett**, **Mike Welsh**, and **Ed Donnelly**, auditors, chaired a conference on "Perspectives on International Trade and Payments" on March 7 at GAO. A panel of 13 experts from industry, labor, private consulting firms, and Congress took part in the one-day meeting.

Logistics and Communications Division

Richard W. Gutmann, director, spoke on "A Single Logistics Manager for the Department of Defense—Advantages and Roadblocks" before the joint meeting of the Society of Logistics Engineers and the National Contract Management Association, Jan. 25.

Harold J. Podell, audit manager, spoke on "Project Guidelines for Developing Computer-Based Information Systems" before the Department of Defense Computer Institute, Dec. 6.

Program Analysis Division

Harry S. Havens, director:

Addressed the Brookings Institution Seminar on Public Policy for Faculty Fellows and Business

School Deans on "Role and Mission of the General Accounting Office," June 26.

Testified on the costs of regulation before the Consumer Subcommittee, Senate Committee on Commerce, Science, and Transportation, Nov. 21. He was accompanied by Dennis Dugan, Allan Mendelowitz, and Doug Klein.

Dean K. Crowther, deputy director, spoke on "The American Experience, Control of Public Expenditures, and the Use of Program Evaluations" before the Conference on Methods and Forums for the Public Evaluation of Government Spending, sponsored by the School of Public Administration, Carleton University and the Institute for Research on Public Policy in Ottawa, Ontario, Canada, Oct. 20.

Mort Myers, deputy director, spoke on "GAO's Viewpoint of Science Policy Issues" at the Brookings Institution's Science Policy Seminar for Federal Executives in Williamsburg, Va., Nov. 14.

Dennis J. Dugan, GAO chief economist and senior associate director, spoke on "Federal Grant Formulae—Irrationalities and Inconsistencies" at the 33rd annual meeting of the National Association of State Budget Officers, Charleston, S.C., Aug. 1.

Mr. Dugan also had an article, "Long Term Fiscal Outlook for New York State," published in a book entitled *The Declining Northeast: Demographic and Economic Analysis* (1978).

Joe Comtois, assistant director, participated as a member of the Professional Advisory Board on Public Policy Analysis at the George Mason University, Department of Public Affairs, on Oct. 4 and 25.

Allan Mendelowitz, assistant director:

Spoke on "Research and Innovation: Regulatory Impediments and Reform Alternatives" before the National Conference on the Advancement of Research, in Biloxi, Miss., Sept. 25.

Participated on a panel on "The Economics of Transportation Regulation" at the Allied Social Science Association meeting in Chicago, Aug. 31.

Dean Scott, auditor, spoke on "Colleges and Universities Need to Use Equipment Inventories and Screening Procedures to Justify Research Equipment Purchases and Optimize Its Shared Use" at the 20th annual meeting of the National Council of University Research Administrators, Nov. 10.

Marti Dey, analyst, gave a briefing on the Congressional Sourcebooks for members of the White House Reference Center staff, Oct. 27.

Procurement and Systems Acquisition Division

John G. Barmby, assistant director, spoke on "Appraisal of Federal Research and Development Programs—the GAO Audit Function" before management seminars at the Civil Service Commission on Dec. 14 and at NASA's Goddard Space Flight Center on Jan. 29.

Robert B. Hall, assistant director, spoke on "Mission Budgeting" before the student body of the Air Force University, Maxwell Air Force base, Dec. 7.

George E. Breen, Jr., operations research analyst, participated in the Department of Defense's First Strategic Mobility Analysts' Conference held at the Pentagon, Nov. 14-16.

Alan M. Stapleton, supervisory management auditor, spoke on "The Proper and Improper Use of Consultants" before the Classification and Compensation Society, Nov. 15.

Field Operations Division

Atlanta

Martin Colbs, regional manager, spoke on "Carrying Out Oversight Functions—How GAO Interfaces with DOD" to the controller's course of the Air University, Maxwell AFB, Ala., Feb. 26.

Solon P. Darnell, assistant regional manager, spoke on "Career Opportunities in GAO" to students at West Georgia College, Apr. 3.

Chicago

Dan White, assistant regional manager, addressed graduate students at Northwestern University, Jan. 4. Mr. White's remarks opened a course on "Auditing and Accountability" which focuses on GAO as a major instrument for achieving accountability within the Federal Government and federally subsidized programs.

Subsequent to the above talk, the following staff members have made presentations to this class:

Dave Utzinger, audit manager, on "Sixteen Air and Water Pollution Issues Facing the Nation," Jan. 25.

Jim Musial, supervisory auditor, on "GAO Audits of the U.S. Postal Service," Feb. 8.

Mel Koenigs, audit manager, and **Clay Nelson**, supervisory auditor, on "Followingup on Auditors' Findings," Feb. 15.

Stewart Herman, audit manager, **Robert Kolar**, supervisory auditor, and **Mary Quinlan**, auditor, on "Amtrak's Plans for High-Speed Corridor Service," Feb. 22.

Mr. White and Mr. Herman also spoke on "Chicago's Tunnel and Reservoir Project," Mar. 1.

Donley Johnson, audit manager, addressed the Twin Cities Chapter of the Institute of Internal Auditors on "Economy and Efficiency Aspects of Operational audits," Minneapolis, Jan. 17.

Robert Carmichael, supervisory auditor, spoke on "Conduct of GAO Electrical Energy Audits" before an assembly of board members of Minnesota Power Cooperative, Wilmar, Minn., Feb. 3.

Ken Boehne, supervisory auditor, represented GAO at a conference on Federal Urban Policy and Chicago sponsored by the American Society for Public Administration, University of Chicago, and Northwestern University, Nov. 14.

Cincinnati

Harold R. Fine, assistant regional manager, was guest speaker before a combined meeting of Business Communications Educators and the Administration Management Society in Covington, Ky., Feb. 20. His talk, entitled "Can You Teach A Person How to Ride a Bike by

Teaching the Name of the Parts," dealt with the question of how our education institutions will need to change their communications curriculum if they expect to produce competent communicators.

Dale Ledman, supervisory auditor, addressed the Ohio State Student Accounting Association, Jan. 16. Sharing the program with speakers from other Federal agencies, Mr. Ledman described GAO's mission and functions.

James Gabriel, auditor, participated in a public forum on China affairs, in Columbus, Ohio, Feb. 15-16. Mr. Gabriel, who writes and speaks fluent Chinese, was personally invited to attend by Senator John Glenn.

Dallas

Irwin M. D'Addario, regional manager, spoke on GAO functions and activities before political science and business classes at Texas A&I University in Kingsville, Tex., Nov. 13.

Francis Langlinais, supervisory auditor, spoke on "Auditing in an ADP Environment," and **Ken Pritchett**, supervisory auditor, spoke on "Fraud in Federal Programs: The Problems and the Federal Response" at the Army and Air Force Exchange Service's Annual Audit Conference in Dallas, Tex., Jan. 9.

Detroit

Walter C. Herrmann, Jr., regional manager, was one of three Government leaders who spoke at a "Bosses Night" dinner meeting, Jan. 8, sponsored by the Detroit Chapter of the Association of Government Accountants. Under the topic area "Management in Government," Mr. Herrmann discussed GAO's move to matrix management in the region.

William F. Laurie, supervisory auditor, has been invited to be a member of the Continuing Conference for the Center on Aging of Case Western Reserve University. Conference members are leaders in the field of gerontology and geriatrics. The conference will guide the work of the Center in its mission of improving interdisciplinary work in the field of aging.

Paul Zacharias, training coordinator, spoke on the Orientation of Students for Training at the Midwest Center for Cooperative Education workshop on Employer Influence on Cooperative Education, Feb. 13.

Kansas City

David A. Hanna, regional manager, presented "An Overview of the Objectives, Organizations, and Functions of GAO" at a meeting of the American Society of Military Comptrollers, Feb. 21.

Los Angeles

Eugene T. Cooper, Jr., audit manager, was a panel member at the MBA Admission Forum Workshops in Los Angeles, Dec. 2. Mr. Cooper described career opportunities in GAO for MBA graduates.

Frederick Gallegos, supervisory management analyst, was selected as a biographee in Marquis 21st edition of *Who's Who in Finance and Industry*. Mr. Gallegos was awarded the Certified Data Processing Auditor designation by the EDP Auditors Association. He also spoke and participated in several panel discussions and seminars at a conference workshop sponsored by the Information Systems Department of California State Polytechnic University in Claremont, CA., Feb. 22 and 23. Mr. Gallegos discussed GAO's ADP training program for auditors and specialists. Mr. Gallegos also taught Internal Control and Auditing EDP Systems to a UCLA extension class in Los Angeles, Mar. 24.

Norfolk

Richard Payne, supervisory auditor, addressed the Virginia Advisory Committee on Child Abuse and Neglect on GAO's Review of Efforts to Identify, Treat, and Prevent Child Abuse and Neglect, Richmond, Va., Dec. 8.

Priscilla Williams, supervisory auditor, made a presentation on "Employment and Training Programs and Employer Problems in the Richmond Area" to the Norfolk Chamber of Commerce Employment Committee and the American Society of Personnel Administra-

tors, Richmond Chapter, Aug. 16 and 17.

Paul Latta, supervisory auditor, addressed the Chesapeake Kiwanis Club on "Small Agency with a Big Role in Government—The General Accounting Office," Chesapeake, Va., Feb. 26. He also presented a course segment on "Interviewing techniques" to the Naval Area Audit Service, Norfolk, Va., Feb. 28.

Daniel A. Omahen, supervisory auditor, presented a session to the Naval Area Audit Service on "Statistical Sampling" in Norfolk, Feb. 20.

Philadelphia

Richard D. Behal, supervisory auditor, participated in a panel discussion on CPA opportunities in GAO at an Accounting Forum sponsored by the Pennsylvania Institute of Certified Public Accountants at the Philadelphia College of Textiles and Science, Feb. 28.

San Francisco

Bill Mandel, deputy team leader, discussed the use of productivity appraisals in the Federal Government at an executive seminar sponsored by the American Productivity Center in Chicago, Dec. 5.

Tom Monahan, team leader, spoke at the 47th Annual American Immigration and Citizenship Conference, Nov. 10, in New York City. The title of his talk was "Public Charge Implications of Newly Arrived Aliens Receiving Supplemental Security Income."

Charlie Vincent, assistant regional manager, conducted seminars on Operational Auditing for the Palo Alto-Peninsula and San Francisco Chapters of the Association of Government Accountants, Jan. 18 and 25. **Jack Birholz**, team leader, participated in the January 25th seminar by conducting the portion of the program covering the essence of developing audit evidence and reporting audit findings.

Mr. Vincent and **Dave Peltier**, team leader, spoke on how operational auditing techniques can assist local governments in balancing their budgeting at the Convention of the California City and County Finance Officers' Association, Feb. 2.

Seattle

John P. Carroll, regional manager, served as discussion leader on the subject of developing new employee performance appraisal systems under the Civil Service Reform Act at a 2-day conference for regional heads of Federal agencies sponsored by the Seattle region of the Civil Service Commission, Port Ludlow, Wash., Nov. 27-28.

Kenneth W. Edmonson, assistant regional manager, served as a panelist on the subject "Can Auditors Operate Effectively in a Political Environment?" at the semi-annual meeting of the Pacific Northwest Intergovernmental Audit Forum, Portland, Ore., Nov. 30.

Stephen J. Jue, supervisory management auditor:

Addressed the Pacific Lutheran University Chapter of Beta Alpha Psi on "GAO Auditing," Nov. 13.

Was elected president of the newly formed Puget Sound Chapter of the EDP Auditors' Association, Nov. 21.

Along with **Randall B. Williamson**, audit manager, discussed "GAO Auditing and Issue Development" with the graduate class of the School of Public Administration, University of Washington, Nov. 28.

Donald A. Praast, supervisory management auditor, was appointed to the executive board of the Seattle Chapter, Association of Government Accountants.

Leonard L. Dowd, audit manager, participated in Western Washington University's annual Federal Career Information Day, Bellingham, Wash., Jan. 24.

Washington

Dave Sorando, regional manager, and **John Anderson**, supervisory auditor, accepted a Certificate of Appreciation from the National Capital Association for Cooperative Education at its annual meeting on Dec. 6. The award was presented by George Mason University for WRO's outstanding contributions to and support of its cooperative education programs.

Bookmark

State and Local Government Finance and Financial Management: A Compendium of Current Research

Edited by John E. Peterson, C.L. Spain and M.F. Laffey;
Government Finance Research Center, Municipal Finance
Officers Association,
Washington, D.C., August 1978; 690 pp.

Federal aid to State and local governments is expected to reach \$82 billion in fiscal year 1979. As intergovernmental aid has increased, so has applied research in the field of State and local government finance and financial management.

This compendium takes the first comprehensive snapshot of applied research which is now in the pipeline or has recently been published. The size of a Bible, this paperback might well become just that for new and experienced intergovernmental financial analysts. Since GAO audits State and local government programs, many GAO auditors may find it to be a valuable resource. The 690 page volume is divided into three parts:

- A survey of the state of the art in 16 major areas of State and local financial research by authorities in the field. Topics include budgeting; cash management practices; debt policy management; accounting, auditing, and financial reporting; productivity; and revenue and expenditure forecasting. Essayists include George Break, Roy Bahl, Phillip Dearborn, and Bernard Jump, Jr. In addition to reviewing current research activities, they indicate areas that need further study.
- An inventory of research since 1974. The inventory describes briefly over 900 current research projects in finance based on a national survey of individuals and organizations active in public finance research. The descriptions include an abstract, methodology, antici-

pated users, and cross references.

- A directory of the 700 researchers whose work is reported in the volume. The listings include their institutional affiliations, addresses, and most importantly, their telephone numbers.

The essays are packed with useful information and the list of researchers and their affiliations is valuable. However, the research inventory itself—which is the heart of the compendium—is overwhelming. Because of the volume of research reported, finding individual items is not easy. Good research projects may be buried in the volume because of a weak cross reference and index system. Also, because of the inherent nature of the volume, directory entries become outdated very quickly.

But even with these weaknesses, it is well worth the time to flip through the entries. The chances of discovering items which pertain to many GAO issue areas are quite high. Knowing that certain research is underway and who to contact will greatly expand the transfer of research knowledge in the field of intergovernmental finance.

John Kamensky
Program Analysis Division

Reporting on GAO Alumni

Jo Clark

Hassell Bell, formerly with the Office of Assistant Comptroller General then headed by Sam Hughes, visited the office recently to have lunch with some of his friends. He has been busy on a project to attract young families to join his Argyle Country Club and to modernize and expand facilities there. In addition, Hassell has done a lot of voluntary work endorsing TRIM for the Montgomery County Taxpayers League.

Smith Blair, former director of the Office of Congressional Relations, has been recruited by the National Association of Retired Federal Employees to be its special legislative representative. NARFE is battling administration proposals to whittle back Federal benefits and plans to offset social security benefits for future Federal retirees. Smitty's knowledge gained at GAO and on Capitol Hill should be of great value to the NARFE.

James Hammond, former deputy director of the Procurement and Systems Acquisition Division who "retired" in 1974, has certainly been busy. First, he and the late Bob Rasor, former associate director of the Office of Policy and Special Studies, conducted in August 1975 the first operational auditing course, which Bob Rasor put together, at the Interagency Auditor Training Center of the Department of Commerce. Since that time Jim has conducted about 35 additional courses in operational auditing in the United States and all over the world. In addition, he has taught some students of foreign governments, including a 2-week training course in Accra, Ghana, for the Auditor General's staff of the Ghana Government.

Clarence Jauchem, former assistant director in the old Office of Policy and Special Studies, is now doing consultant work for Executive Management Service, Inc., and the Agency for International Development on some of their financial management requirements. Last summer he and his wife, Roberta, enjoyed their tour of Sri Lanka for 3 months while on assignment for the

International Monetary Fund.

Cathy Mechlin, former secretary to the director, Office of Internal Review, recently visited some of her former coworkers. Cathy enjoys attending Heritage University in Fort Mill, S.C., and was elected secretary of her freshman class.

Evelyn Smith, former secretary to the director of the old Civil Division, also recently visited friends at the office. We hear that she sold her home here and has a lovely condominium in Myrtle Beach, S.C.

Statement of Editorial Policy

This publication is prepared primarily for use by the staff of the General Accounting Office. Except where otherwise indicated, the articles and other submissions generally express the views of the authors and not an official position of the General Accounting Office.

Proposals for articles should be submitted to the editor. Staff should concurrently submit a copy of their proposal letters to liaison staff who are responsible for representing their divisions and offices in encouraging contributions to this publication.

Articles should be typed (double-spaced) and generally not exceed 14 pages. Three copies of the final version should be submitted to the editor. Article subject matter is not restricted but should be determined on the basis of presumed interest to GAO staff. Articles may be on technical or general subjects.

The GAO Review

Editor

John D. Heller

Assistant Editor

Elaine Orr

Administrative Assistance

Josephine M. Clark

Kathy G. Bennick

Publishing Services

Art LaMay, Graphics Chief

John Regan, Writing Chief

Cyndy Hale-Wilson, Writer-editor

Cindy Ryan, Writer-editor

Jan Kosko, Writer-editor

Ken Psira, Graphics

Designer

Richard Rockburn,

Photographer

Walker Smallwood, Printing

Specialist

Liaison Staff

Office of the General Counsel

Vincent A. LaBella

Office of Internal Review

Carl R. Fenstermaker

Office of Policy

Marvin Brown

Office of Program Planning

Daniel L. Johnson

Claims Division

James C. Farley, Jr.

Community and Economic Development Division

Robert G. Chambers

Energy and Minerals Division

Jack Bachkosky

Federal Personnel and Compensation Division

James L. D. Moore

Financial and General Management Studies Division

Ronell B. Raaum

General Government Division

Jerry Stankowski

Human Resources Division

James F. Walsh

International Division

Charles E. Hughes

Logistics and Communications Division

Jacob W. Sprouse

Procurement and Systems

Acquisition Division

Philip W. Pennington

Program Analysis Division

Peter A. Smith

Management Services

Tom Franklin

Field Operations Division

Louis J. Rodrigues

Atlanta

David R. Lampe

Boston

Paul Slater, Jr.

Chicago

Daniel C. White

Cincinnati

Elmer Taylor

Dallas

James J. Jodon

Denver

Arley Whitsell

Detroit

Randall Conley

Kansas City

Arnett E. Burrow

Los Angeles

Eugene T. Cooper, Jr.

New York

Ngaire Cuneo

Norfolk

Lindsay B. Harwood

Philadelphia

Maurice Sady

San Francisco

Alice Donovan

Seattle

Alvin S. Finegold

Washington

Val J. Bielecki

U.S. GENERAL ACCOUNTING OFFICE
WASHINGTON, D.C. 20548
OFFICIAL BUSINESS

POSTAGE AND FEES PAID
U.S. GENERAL ACCOUNTING OFFICE



CONTROLLED CIRCULATION RATE

KARR, ROGER N
DIV: OL-LS
BLDG: GAO
ROOM: 6428