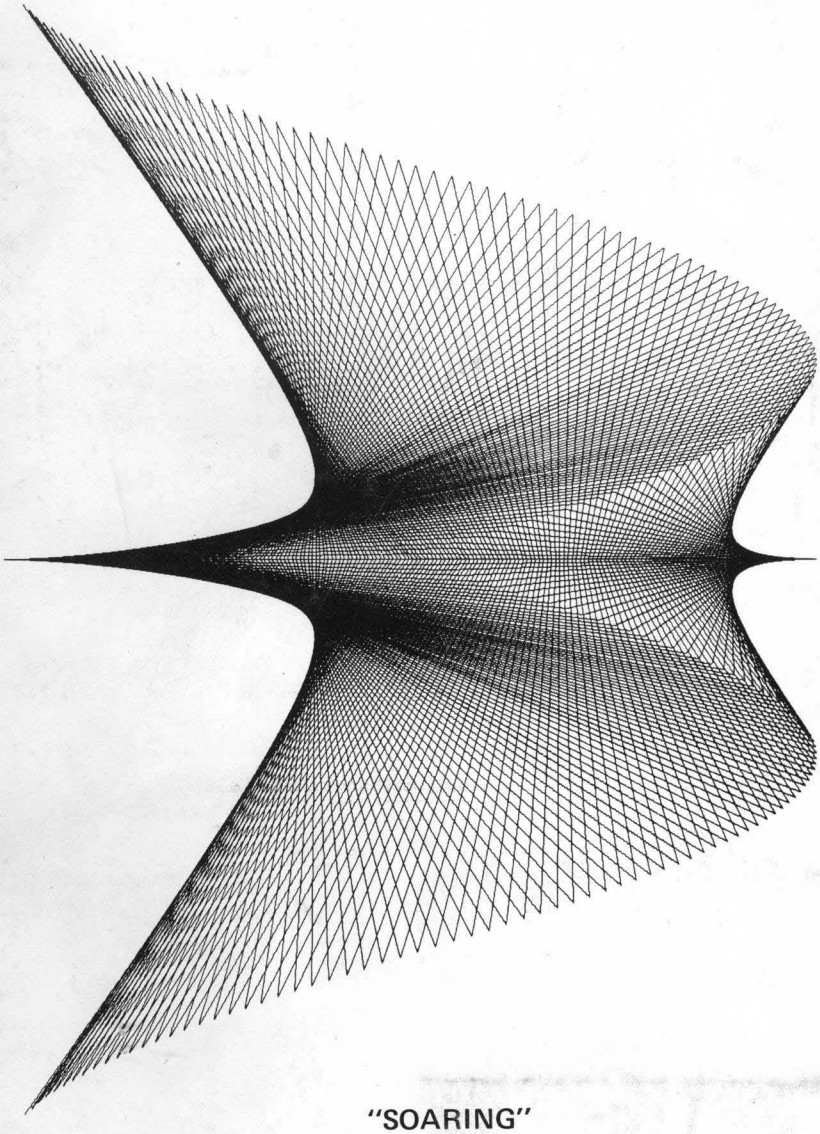
SCIENCE & TECHNOLOGY

*June, 1971*

*Vol. 20, No. 6*

# computers and automation



"SOARING"

IN THIS ISSUE:

Announcement

# The Most Important of All Branches of Knowledge

(Based on the editorial in the April 1971 issue of *Computers and Automation*)

It may be that there is a branch of knowledge which is the most important of all.

If so, I would maintain that it is a subject which used to have the name "wisdom" but nowadays does not have a recognized scientific name, or in any college a recognized department or faculty to teach it. This subject currently is a compound of common sense, wisdom, good judgment, maturity, the scientific method, the trained capacity to solve problems, systems analysis, operations research, and some more besides. Its earmark is that it is a general subject, not a special one like chemistry or psychology or astronautics. Useful names for this subject at this time are "generalogy" or "science in general" or "common sense, elementary and advanced".

Many editorials published in "Computers and Automation" have in one way or another discussed or alluded to this subject:

Examples, Understanding, and Computers / December 1964
The Barrels and the Elephant: Crackpot vs. Pioneer / May 1965
Some Questions of Semantics / August 1965
Perspective / April 1966
Computers and Scientific Models / May 1967
New Ideas that Organize Information / December 1967
How to Spoil One's Mind – As Well as One's Computer / August 1968
The Catching of Errors by Inspection / September 1968
Tunnel Vision / January 1969
The Cult of the Expert / May 1969
Computers, Language, and Reality / March 1970
Computers and Truth / August 1970
The Number of Answers to a Question/March 1971

In the editorial "The Cult of the Expert" we offered a leaflet that belongs in this subject, "Right Answers – A Short Guide for Obtaining Them". More than 600 readers asked for a copy; so clearly this subject is interesting to the readers of C&A.

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This subject is related to computers and the computer field in at least two ways:

First, many of the general principles which this subject contains can be investigated in experimental or real situations by means of a computer. In fact, far more can be investigated by computer than can possibly be investigated by ordinary analytical mathematics.

Second, since computer professionals are in charge of computing machines, many people consider these professionals responsible for the worthwhileness of the results of computers. Because of "garbage in, garbage out", computer professionals have a responsibility to apply common sense and wisdom in at least three ways:

*Input* – in the selection and acceptance of the data with which they begin;
*Processing* – in the processing through a system;
*Output* – in the interpretation and use of the answers.

Then the computerized systems will produce strong structures that human beings can use and rely on, and not weak structures which will crash with false information or ridiculous results.

"Computers and Automation" for April 1971 contains an article, "Common Sense, Wisdom, General Science, and Computers", which deals with this subject. For more than a dozen years I have been studying this subject – ever since I searched in a very large and good public library for a textbook on common sense or wisdom and found none at all. There is, however, a great deal of information to be gathered on this subject because a large number of great men, ancient, medieval, and modern, have made remarks and comments (usually while talking or writing about something else) that belong in this subject.

The subject of wisdom is particularly important in these modern days. The subject has been neglected, while special sciences have been cultivated. Investigators have pursued the special sciences with the enthusiasm of a child with a new toy. Specialized science and specialized technology have rendered our earthly world almost unrecognizable:

All major cities on the planet are only a few hours apart by jet plane.
Millions upon millions of people who otherwise would be dead are alive because of miracle drugs, – thus creating a population explosion;
Nuclear weapons if used can destroy mankind and civilization in a few hours; etc.

To deal with so many diverse, vast problems we need wisdom. To use wisdom we should study it.

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The staff of "Computers and Automation" have decided that it is desirable to make the drawers full of information we have been collecting on this subject more accessible and more widely distributed. We have decided to publish twice a month a publication of newsletter type called "The C&A Notebook on Common Sense, Elementary and Advanced". For more details, see the announcement on page 3 opposite. (The first few issues of the Notebook are free.)

We invite you, our readers, to join us in the pursuit of this subject, as readers of the Notebook, and as participators with us in the research and study.

Wisdom is a joint enterprise – and truth is not shaped so that it can fit into the palm of any one person's hand.

Edmund C. Berkeley

EDITOR

Announcement

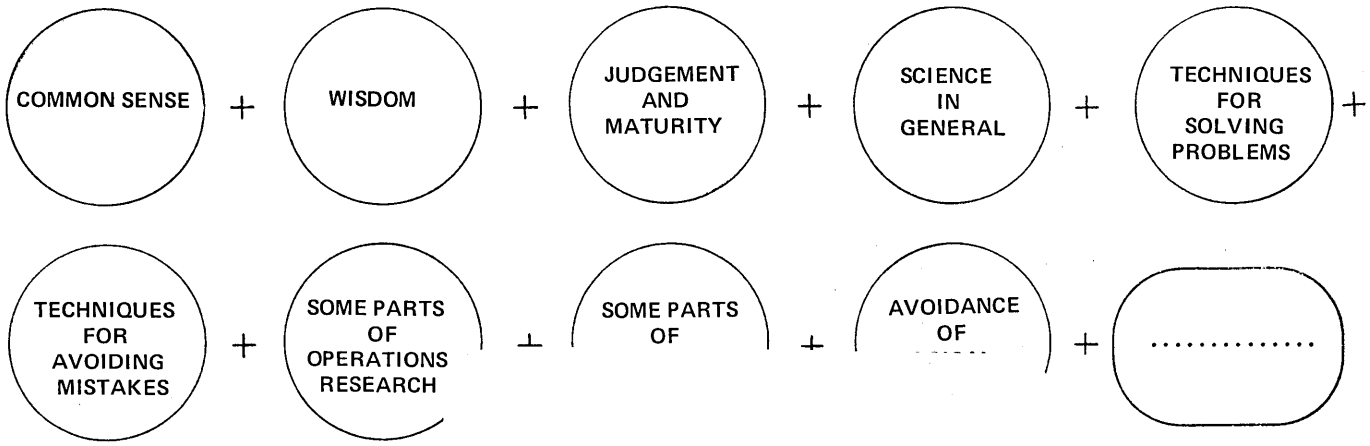
**computers and automation** 815 Washington St., Newtonville, Mass. 02160 invites your subscription to:

# The C&A Notebook on

# COMMON SENSE, ELEMENTARY AND ADVANCED

devoted to research, development, exposition, and illustration of the most important (or one of the most important) of all branches of knowledge, i.e., the subject of —

WHAT IS GENERALLY TRUE AND IMPORTANT =

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Editor: Edmund C. Berkeley

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To: Computers and Automation
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*Vol. 20, No. 6*
*June, 1971*



*Editorial Offices* **Berkeley Enterprises, Inc.**
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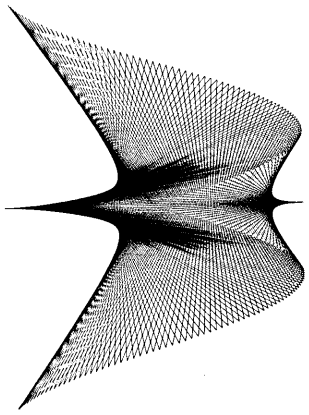
# computers and automation

*The magazine of the design, applications, and implications of information processing systems.*



*This Month's Cover*

The front cover displays a computer-produced drawing entitled "Soaring". It was submitted in 1970 by Mr. J. Elenbaas, Technical Service & Development, Dow Chemical Co., Midland, Michigan 48640.

The drawing was programmed on an IBM 1800 computer and drawn on a Cal Comp 565 plotter.

NOTICE

* D ON YOUR ADDRESS IMPRINT MEANS THAT YOUR SUBSCRIPTION INCLUDES THE COMPUTER DIRECTORY. * N MEANS THAT YOUR PRESENT SUBSCRIPTION DOES NOT INCLUDE THE COMPUTER DIRECTORY.

*Departments*



*Key*

[A] – Article
[E] – Editorial
[F] – Readers' Forum
[G] – The Golden Trumpet
[R] – Reference Information

# The Handwriting on the Wall

Open Letter to All Computer Professionals

Dear Friends,

On the page opposite this one appears a piece entitled "Computerized" by "Margo" (whoever "Margo" may be) as printed in the *Boston Globe* of May 1, 1971.

I draw your attention to this piece because it zeroes in on three important facets of computers which are generally ignored by computer professionals:

- The public hatred of the computer. This, of course, in one sense is silly nonsense, because it should be hatred of the computer programming produced by thoughtless, harried, somewhat arrogant human beings who have not done a really good job of systems analysis.
- Advocacy of ways to make trouble for the computer. This is the opposition of the little man to a system which is too big for him. This evolves into passive resistance and sabotage on a large scale. And eventually this becomes repressive public legislation.
- Failure by the Computer Business to provide the "Computer Victims" with a sensible, effective procedure to use in solving the problems which afflict them from the computer.

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If I get angry with my local oil delivery company (which services my home and perhaps a thousand other accounts), because a section of metal chimney pipe connecting the furnace to the chimney blew off recently and for two days (before I found out) oily soot settled on almost everything in my cellar, then I can telephone "service" in a local call, and as fast as possible they will take care of my complaint, which is legitimate, because they want me to continue buying $400 of fuel oil from them each year as a steady and satisfied customer, which I have been for a dozen years.

But at present there is nothing sensible I can do when a head accounting office for three million accounts in Des Moines, Iowa, sends me for the third time a wrong bill produced by a computer. Even if I should try to phone them long distance, there would not be anybody at the other end of the phone who could do anything sensible for me at all. The action I would logically expect is that someone would write down my complaint, incorrectly, and then lose that also into the vast maw of the computer system, the "illegitimate love-child of the devil and an elephant".

When this is the real rub, it is just plain silly to try to "improve the public relations of the computer" or to protest spreading the idea among the public that a computer thinks. The trouble is elsewhere.

What is needed is an Ombudsman for the computer industry – a Ralph Nader Plus Consumer "Ambassador at the Court of St. James" for the computer field. This person (or this industry body) will take up specific complaints. He (or they) will make sure that *the* faulty computer program at issue is actually corrected – no matter where it may be. Then each kind of trouble as revealed by each bug can be permanently removed from the particular computer system that produced that particular bug.

This is not impossible. For example, so far as I know, the computer for American Airlines' reservations does not make mistakes. I have never been treated badly or wrongly or mistakenly in regard to any plane seat reservation I have ever made with American Airlines. Furthermore, I have never heard any of my friends or acquaintances complain about that computerized reservations system.

If the American Airlines computer system can do that good a job, then almost all other computer systems (that are not too gigantic) can also. It is not impossible.

The issue reduces to just this question:

- Shall we, as computer professionals, apply common sense *now* to correct our computer programs *now* so that they function properly with due friendliness and respect for the human beings affected (coefficient of success to be 99.99%, and improving)? –
- Or shall we wait until we are kicked in the teeth by an aroused public and by repressive legislation?

The handwriting is on the wall. And there are many ways of implementing the idea of an Ombudsman.

Yours sincerely,

Edmund C. Berkeley

Edmund C. Berkeley
Editor,
Computers and Automation

C.a

# READERS' FORUM

## COMPUTERIZED

*by Margo*

Wanna know where the computer came from?

It's the illegitimate love-child of the devil and an elephant.

It remembers absolutely everything it's told while showing a steadfast proclivity for bringing out the worst in people.

The problem with computers is that some of the information they "remember" happens to be incorrect. This produces bills which have no relation to reality, and people who get cranky and frustrated.

These people shall hereinafter be called The Victims.

The Victims are tragic characters because they are helpless. It is well nigh impossible to get a mistaken computerized bill squared away.

That's because it's so hard to argue with exotic machines. They have hand-welded circuits, but alas, no ears.

When a Victim complains about a computer's mistake, the grievance will likely be handled by another computer.

I had a secret meeting with a runaway computer expert. Unable to stand it any longer, he fled into a reputable line of work – with people.

To purge his conscience, I suspect, for the years he provided them with aid and comfort, he confided to me some of the ways in which Victims have gotten even with the classy adding machines.

A computer's Achilles heel, strangely enough, is printed right on the billions of statements it cranks out: Do Not Fold, Spindle, or Mutilate.

A computer, you see, cannot cope with the slightest deviation from the programmed routine. And herein lies the key to computer retaliation: Do not fold, spindle, or mutilate . . . unless you want to annoy the computer and whoever is sending you the bill.

A major credit card company has computerized bills with a series of one's and zero's. Cutting off a few one's here and a couple of zero's there causes the computer to undergo an electronic version of indigestion. And then mechanics with PhD's have to come straighten things out.

Some computerized bills have a stub you are to tear off and return with your payment. If you are having trouble getting their attention back there at the old computer center, and if you should neglect to send back the stub with your payment and write your account number instead on your check, lo and behold, a human being must look everything up in your account records and refeed it into the computer.

Because this takes manpower and costs money, you suddenly are noticed.

On bills from some IBM computers, the first and second rows of punches are meaningless. They are alphabetic characters which have to do with operating the computer and not for your particular bill. The following rows stand for 0, 1, 2, 3, etc.

If the amount you owe is $25, the 2500 row will be punched out. Some very clever Victims punch a hole here or there and the computer automatically credits an erroneous amount as the payment.

A word of caution, however. If you do this wrong, the amount you actually pay will be credited to somebody else's account.

This procedure has only been undertaken by Victims possessed of a gambler's instinct and mischievous altruism.

A major gasoline company uses a computer which will accept payment of as little as a nickel a month. They will not dun you for six months, because that's how long it takes their computer to figure out you are in arrears.

Very few live bookkeepers will let you get away with that. But then they don't have hand-welded circuits.

Reprinted from the *Boston Globe,* May 1, 1971

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## NEW YORK PANTHERS ACQUITTED IN BOMBING CONSPIRACY CASE

*1. Based on a dispatch by the Associated Press*

On May 13, in New York City, thirteen Black Panthers were acquitted on bombing and murder conspiracy charges by a jury which agreed on the first ballot.

The jury received the case shortly after 1:00 pm on May 13 after an eight month trial, and deliberated only 3 and 1/2 hours before announcing its verdict, reached unanimously on the first ballot.

The foreman of the jury, James Fox, a black musician, and one of the jurors, Frederick Hills, said that they had gone into deliberation, "feeling very tense and with little sense of where other people's minds were at". Each juror "spoke for about five minutes, feeling each other out", and the unanimous first ballot resulted.

In addition to eight months of trial the case went through seven months of pre-trial hearings. Most of the defendants have been in jail for more than two years.

The prosecution contended that the defendants were part of a massive terrorist plot for April 1969. Charges against

(Please turn to page 44 )

# ORGANIZING FOR THE COMPUTER

*"During the development of our long range plans, we traveled to many hospitals . . . to see an installation that was attacking various parts of the total computer system with an eye on how it all fit together. This we did not find."*

*Raymond R. Haggerty*
*William Beaumont Hospital*
*Royal Oak, Mich. 48072*

About four years ago, the Board of Trustees of the William Beaumont Hospital asked those of us in the hospital administration to investigate whether the hospital should become involved with computers. At that time we had no computer talent or computer equipment. It was concluded that the first step would be to hire a person with a computer background and have him prepare a feasibility study for presentation to the Board of Trustees. The plan, like most other plans, would contain a timetable of events spread over ten years, a review of the economics, and an analysis of the various equipment in the marketplace.

### A Search for a Successful Hospital System

During the development of the long range plans, we traveled to many hospitals, read the literature, and talked with all the major manufacturers. It was learned that most manufacturers had studied the industry. They recognized that hospitals depended quite heavily on communications. When they talked about the capability of computers and the needs of the hospitals, they knew their equipment was a natural fit.

However, hospital after hospital we visited was plagued with problems, and we were hard pressed to find what we would classify as a highly successful hospital system. This does not mean that there were not successful applications. This was not what we were after. What we wanted to see was an installation that was attacking various parts of the total system with an eye on how it all fit together. This we did not find. Looking back, there seemed to be a number of reasons for this. Three of the most important were:

1. The equipment manufacturers underestimated the complexity of the system. Because of this, the equipment and software did not fulfill the hospital's needs.
2. An attempt to develop communications capabilities at the same time as central processing capabilities was too much to undertake. Talent was spread too thin and once the system was in operation, most of the time was spent keeping it going rather than moving ahead into other areas.
3. Not enough thought had been given to how the introduction of computers would affect the institution and the interrelationship of the various disciplines within the institution. As a result, the financial, operating and medical units were all developing their own system or systems independent of each other.

Raymond R. Haggerty is the Associate Director of Finance of William Beaumont Hospital, a 700-bed, full-service community hospital. In 1970 it handled over 30,000 admissions and over 57,000 emergency room visits. Mr. Haggerty has been working on the development of the Hospital's computer system for four years. He received his M.B.A. from the Univ. of Mich., and is a member of the Data Processing Committee of the Hospital Financial Management Association.

### Identifying the Goals for a Better System

From discussions within our own hospital, plus what we learned while visiting other installations, we arrived at certain conclusions.

The first was that regardless of the equipment manufacturer finally chosen, the success of the installation would be directly related to the skills of those hired to develop the systems and the programs. As a result, when we interviewed each manufacturer to determine whose equipment we would use, very little consideration was given to the packages available.

Second, that there is such a thing as a total hospital information system. True, it could not be completely described, but it was there. Just because it was not possible or practical to install such a system at this time should not be considered important. Our goal would be a total system. To that end all equipment (input, data processing, output) would be evaluated in relationship to other equipment and the organization would be established to allow for such determinations.

Third, the initial installation would have the capacity to store large amounts of data and would have communications capability.

### The Long Range Plan: Compatible Equipment

After six months of review the plan was presented to the Building Committee, the Finance Committee and the Board of Trustees. The Board approved the long range plan and at the same time established the first and perhaps one of the more important organizational procedures. That is, they decided that no individual department or discipline could install a computer without their approval.

To obtain this approval it would be necessary to prove the equipment could serve a need and that it fit into the long range plan. The long range plan, simply stated, was that the institution would have one central computer for mass storage and communications. This same machine would also do some processing; however, the main processing would be accomplished through the use of small special purpose machines located in the departments. In the beginning these special purpose machines could work independently of the central system, but before placing an order, it would have to be proven that on-line capability existed between the specialized equipment and the central computer.

### Developing the Organization

With the overall guidelines established, our next important job was to develop an organization and a communications flow that would involve all those interested in computers. This was accomplished through the development of a centralized systems and data processing department and the establishment of a data processing committee.

### Systems and Data Processing Department

It was decided quite early in the program that if the Data Processing Department were to succeed, it had to have the responsibility for the system. This department would need the opportunity to study and recommend changes in the flow of data throughout the hospital, including forms control, input and output devices, numbering systems, and the review of various methods of patient registration.

Because of these rather broad responsibilities and because of the importance of information to the entire hospital, determining to whom this department would report became the next important consideration. Based on a review of our institution, it was determined that there were three people to whom the manager could report: the Hospital Director, the Associate Director of Operations or the Associate Director of Finance.

In theory, it was our opinion that it would be best to have the manager report directly to the Hospital Director, because information processing is so very important that it deserves that status in the organization. However, it was also recognized that whoever had that function would have to devote a considerable amount of attention to the redesign of the present systems, and the hospital director just did not have that kind of time available. So the decision was whether the data processing manager would report to Operations or Finance. After considerable thought, it was finally agreed that he would report to the director of Financial Activity.

There were two primary reasons for this. The first was that the financial people spend about 80% of their time accumulating, arranging and reporting information. As a result they had a feel for what needed to be done. Second, although the system design encompassed the entire hospital, the Accounts Receivable system was to be the first major system planned for installation.

### Data Processing Committee

It was obvious in reviewing the Systems and Data Processing organization, its reporting relationship, and its first assignment, that no matter how much we stated we were working on total systems, the function would be related to the Financial Activity. This idea had to be overcome. It was decided to do this in two ways.

The first was to create a Data Processing Committee. This committee was made up of doctors plus people from the financial, operating and data processing activities. The purpose of the committee was to explore uses for the computer or for special purpose computers and to recommend new applications or new uses for the programs already described in the long range plans.

The second was to incorporate an on-line census system for nursing as part of the accounts receivable system. In addition, work with the laboratory on an automated system was undertaken.

Other decisions that were made which helped convince all we were working on a total system included: computer training classes for all management personnel, tours of the computer facility, and having members of the Board of Trustees, doctors, and data processing personnel attend seminars or visit at least one installation each year.

In this way all would get to participate in and feel they were part of the entire program.

### Status Report

Since the long range plan was presented to the Board of Trustees in March of 1968, the following has been accomplished.

> Rather than install a computer and build an organization at the same time, we first developed the organization, and in January, 1969, contracted with a service bureau to handle our first applica-

tion, accounts receivable.

- In March, 1970, we installed our own equipment, a Burroughs B-2502, and in August the accounts receivable system was turned on. At that time we ended our relationship with the service bureau. In addition to accounts receivable, a preventive maintenance program, medical record statistics, and patient origin studies were computerized.
- In February, 1971, we began using C.R.T.'s for inquiry into our accounts receivable files. At this time, clerical personnel were trained to use these C.R.T.'s to determine the status of patient accounts rather than referring to paper files.
- Starting in April, 1971, we began parallel operation on census reporting. This will be an on-line system. New admissions, transfers and discharge information will come from the Admitting Department. By June it is planned to provide computer census reporting to all that need to know and to update the room and board charges from the same information.
- Regarding the medical program, work has been going on between our Chief of Hematology, Berkeley Scientific Laboratories and our data processing people for about a year. We plan to install a highly automated system before the end of the year. The laboratory computer and our central computer can, if it is deemed desirable, go on-line. For the time being it has been decided to use the magnetic tapes from the laboratory system to update our patient/accounts receivable file. Also, for the foreseeable future, lab results will go directly from the laboratory computer to the patient floor and/or doctors' boxes.
- Investigations have begun on communication devices to be installed at the nursing station and in the ancillary department. Our objective here is not the ultimate in sophistication. Rather, it is to secure a device that improves our present position, works, is economically attractive, easy to operate and can serve the needs of all. Our objective is to have equipment installed by year end.


### Summary

One of the most difficult determinations facing a hospital that wants to become "computerized" is that of developing the proper organization. The reason it is difficult is that the computer is so useful to all the disciplines in the institution. If an organization is not developed that allows all to participate, the danger exists that each will go his own way. This will cause duplication and will lead to interpersonnel problems and added costs.

To prevent this from occurring at our hospital, the Board of Trustees has taken an active interest in all computerization; we have centralized systems and data processing, but at the same time encouraged all to participate through the establishment of a data processing committee, the conducting of training sessions and tours, plus the attendance of all (Board of Trustees members, doctors and data processing personnel) at seminars.

We feel it has worked for us; we hope our experience may be of some value to others. □


# C.a NUMBLES

## NUMBER PUZZLES FOR NIMBLE MINDS —AND COMPUTERS


**Neil Macdonald**
**Assistant Editor**
**Computers and Automation**


A "numble" is an arithmetical problem in which: digits have been replaced by capital letters; and there are two messages, one which can be read right away and a second one in the digit cipher. The problem is to solve for the digits.

Each capital letter in the arithmetical problem stands for just one digit 0 to 9. A digit may be represented by more than one letter. The second message, which is expressed in numerical digits, is to be translated (using the same key) into letters so that it may be read; but the spelling uses puns or is otherwise irregular, to discourage cryptanalytic methods of deciphering.

We invite our readers to send us solutions, together with human programs or computer programs which will produce the solutions. This month's Numble was contributed by:

Stuart Freudberg
Newton High School
Newton, Mass.

### NUMBLE 716

```
          T H E
        × E A R T H
          T T E O
        A H H O
      U T H T          B = G = L = P
      T H E              A = U
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  = T N S U A E N O
+ I S A R P R T R E N S
= I S A B L E S S I N G   42492  58172  0983
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### Solution to Numble 715

In Numble 715 in the May issue, the digits 0 through 9 are represented by letters as follows:

| | |
|---|---|
| L,H = 0 | F = 5 |
| O = 1 | I = 6 |
| U = 2 | R = 7 |
| E = 3 | T = 8 |
| S = 4 | C = 9 |

The message is: Self-trust is the first secret of success.

---

Our thanks to the following individuals for submitting their solutions – to **Numble 714**: Mary E. Brindamour, West Lynn, Mass.; A. Sanford Brown, Dallas, Texas; Debbie and Gordon Bruno, Cliffside Park, N.J.; T. P. Finn, Indianapolis, Ind.; D. F. Martin, Los Angeles, Calif.; John H. MacMullen, Eden Prairie, Minn.; and G. P. Petersen, St. Petersburg, Fla. – **Numble 713**: Mary E. Brindamour, West Lynn, Mass. – to **Numble 712**: Elwood J. Moore, Skokie, Ill.; and Dan Walther, Beaumont, Texas.

# A MULTIMEDIA APPROACH TO LEARNING DIAGNOSTIC SKILLS

*"If a computer retrieval system stores index numbers to separate files, it can greatly facilitate the access to those files without having to store the files themselves. It is this approach to computer use in education that offers exciting possibilities of multimedia instruction without expensive interfacing."*

*Dr. Richard F. Walters*
*Univ. of California*
*School of Medicine*
*Davis, Calif. 95616*

### Description of Approach

The process of differential diagnosis in medicine can be learned most effectively through practice, preferably with appropriate feedback for improvement. At the early stages, a medical student feels more or less helpless to arrive at a differential diagnosis; as his skill improves, he often seeks a solution based on limited experience, only to find that he has not considered other, perhaps more logical alternatives.

Analysis of the student's approach to this learning process indicates that he relies most heavily on textbook information about alternative diseases which relate to his case, and if possible on other cases showing similar signs, symptoms and etiology. Some aids that can assist the student include the record room in the hospital, dictionaries of medical diseases, and the experience and advice of colleagues and preceptors. Once the student has narrowed his alternatives to a few choices, however, the final differential diagnosis may depend on more detailed information, involving examination of microscope slides or review of other information not routinely stored in medical records. He may also wish to review certain diagnostic procedures which would help him in his differential analysis.

Computers have begun to play an increasingly important role in education. Beginning with Computer Assisted Instruction (CAI), the capabilities of the computer have been extended into Computer Managed Instruction,[1] (CMI) and Simulation.[2] These approaches extend the computer's utility by assisting the instructor (CMI) as well as the learner (Simulation) at key points in the learning process. Another application in the medical world aids the clinician in reaching diagnoses in areas such as Acid-Base balance cases, where diagnosis is based primarily on analysis of laboratory tests.[3] Another capability of the computer has been partially explored in certain forms of CAI by addressing pictorial images through random access projectors.[4,5] In this capacity, the computer utilizes its indexing capacity to extend well beyond its own image-producing capability.

Research for the project described in this article was supported in part by the Univ. of Calif. Regents Grant for Innovative Projects and by the National Fund for Medical Education.

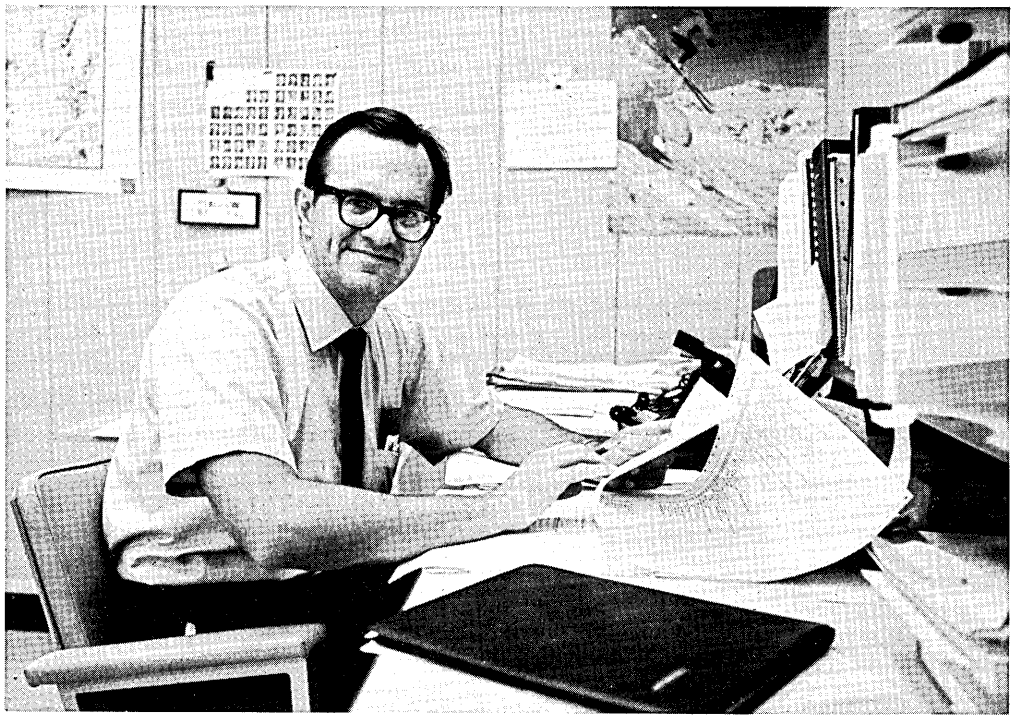
Dr. Richard F. Walters is an Assistant Professor of Medical Education and Human Physiology at the School of Medicine at the Univ. of Calif. at Davis. His major research interests include simulation, information systems, and biomedical computer applications. Dr. Walters was born in Ploesti, Rumania, in 1930. He received his B.A. from Williams College, his M.A. from the Univ. of Wyoming, and his Ph.D. from Stanford Univ.

The computer's utility in an educational setting lies in two prime capabilities: (1) rapid calculation; and (2) rapid retrieval of information. The information retrieved need not, however, be limited to the computer itself. If, for example, a computer retrieval system stores index numbers to separate files, it can greatly facilitate the access to those files without having to store the files themselves. It is this approach to computer use in education that offers exciting possibilities of multimedia instruction without expensive interfacing.

### The CONSIDER Program

The computer can be used to provide a portion of this support. A program has been developed elsewhere to permit a student to retrieve alternative diagnoses through keywords in the Dictionary of Current Medical Terminology.[6] With this assistance, a student can be provided a list of all diagnoses fitting the keyword list he presents to the program; he can then CONSIDER (the title of the program) these alternatives and arrive at his own judgement of the appropriate diagnosis for his case. The information available to him is limited to a computer-stored dictionary of keywords supplemented by the hospital records for patients whose diagnoses might fit the alternatives available.

Dr. Richard F. Walters



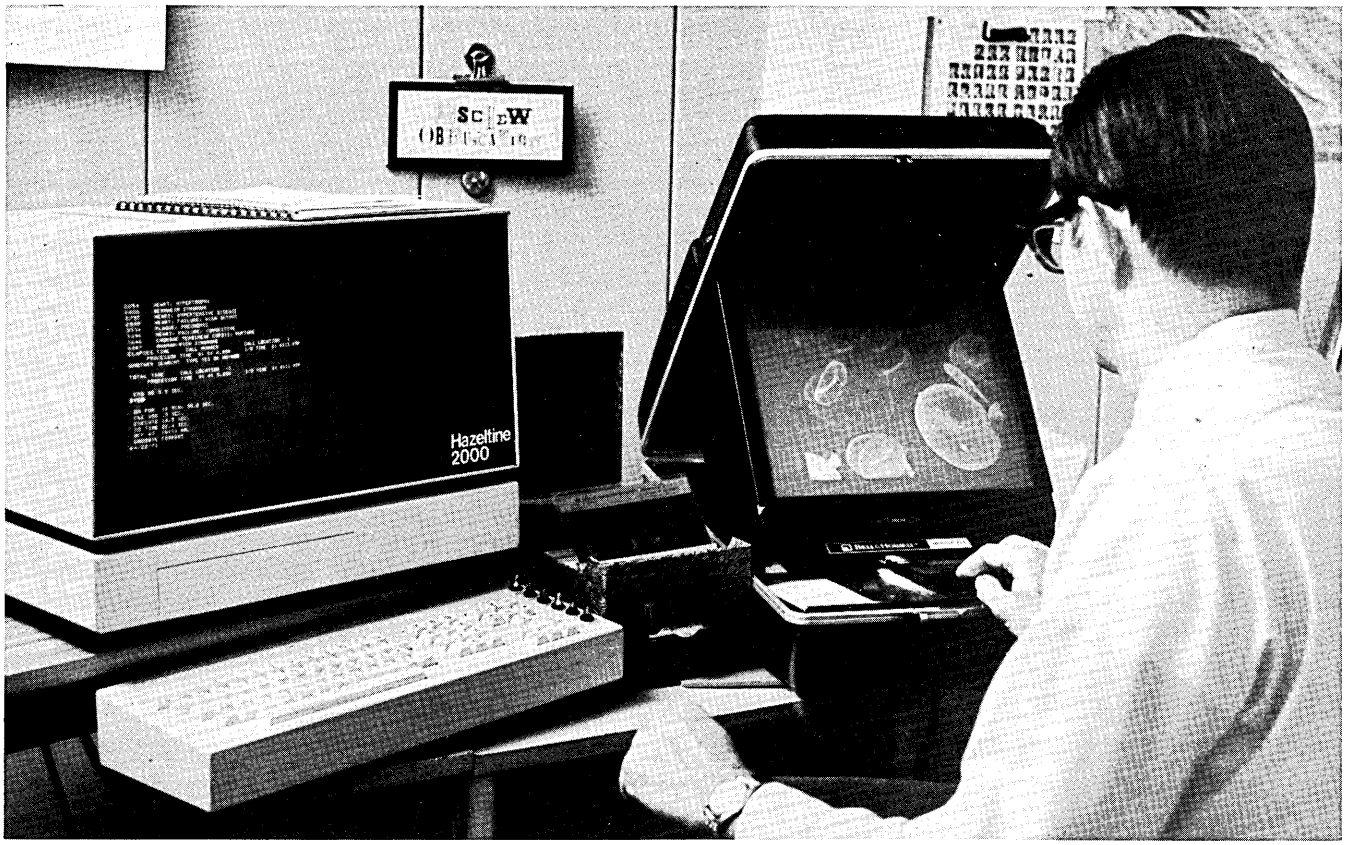



**Figure 1 – Microfiche Reader**

### Limitations of CONSIDER

This approach, while extremely useful, offers certain limitations in cost and utilization. Storage of the entire patient data base, while useful for other purposes, is expensive for purposes of this program alone. Storage of medical records for patients no longer in the hospital becomes extremely costly, and some alternatives must be found in order to maintain an adequate file of diagnoses for student perusal. Furthermore, the computer-stored information omits additional data such as x-rays, slides, etc. which may prove helpful in completing the differential diagnosis. In addition, the student may benefit from consulting a particular reference or reviewing a film illustrating a characteristic sign of the disease in question. It is at this point that the computer's capability of indexing information not actually stored in the computer can be used effectively.

### Auxiliary Information to Aid in Diagnoses

The project in operation at the U.C. Davis School of Medicine uses a keyword dictionary similar to the CONSIDER program, with the exception that additional diseases and keywords are added when the clinical faculty deems it appropriate. The student can list any combination of keywords, using AND, OR and NOT logic to combine groups of words; the program then indicates which diagnoses stored in its memory fit the student's search criteria. In addition, however, the program also indicates what auxiliary information is available to the student to review these diagnoses. The information thus indexed may include the following:

1. **Microfiches of Patient Records.** The recent introduction of color microfiches permits storage of patient charts that can include histologic material, x-rays, and other information that amplifies the data normally kept in a patient's chart. These microfiches are stored in a file box adjacent to the computer terminal sequenced according to an index number referenced by the computer program. A microfiche reader (Figure 1) is also situated adjacent to the computer terminal, permitting the student to review pertinent records as they are referenced. An important feature of these charts is their use of the Problem-Oriented Record[7] which has been introduced in the pediatric ward of the Sacramento Medical Center.
2. **Microfiched References.** Pertinent reference material is also microfiched and stored in the same file box as the patient records.
3. **The Dictionary of Current Medical Terminology.** Rather than store the entire dictionary in computer form, it is placed nearby the student's terminal, so that he can review this material in book form.
4. **Video Tapes.** The multidisciplinary carrels at the School of Medicine's main campus incorporate television playback monitors hooked to a central campus facility by special cables. This system is simulated with video tape playback equipment in the hospital adjacent to the computer terminal. It is anticipated that many of these sequences will be converted to 8 mm cartridges for more convenient storage as the project gains a greater library of video-taped sequences.

At present, plans do not call for the incorporation of other material. However, the system is designed to permit the introduction of new instructional media as they become relevant to the acquisition of diagnostic skills. To introduce a new medium, it will be necessary merely to indicate the type of medium and access number on the computerized index system.

### Success Depends on Widespread Use

The success of a program of this sort is dependent on its use by more than one institution. Collection of pertinent instructional material to document different diseases is a time-consuming process, and one school can operate most effectively by working with groups of diseases, so that the student can be given a complete set of reference material when making a differential diagnosis in a particular subject area. The School of Medicine at Davis, for example, has concentrated on the areas of pediatrics and hematology to date, and will add urology and nuclear medicine in the coming year.

Programming the computer to conduct the searches has been done with the hope that the interactive program can be duplicated elsewhere with a minimum of difficulty. The cross-referenced keyword dictionary is available on request, and another interested institution would have only to write its own retrieval program with appropriate indexing.

The exchange of microfiches should be a relatively simple matter. Color microfiches prepared to teach clinical pathology have already been prepared by another institution for distribution to any interested schools, using the same process. Compatible film cartridges can similarly be exchanged. Thus two or more schools can expand their areas of clinical coverage by agreeing to share their libraries of indexed information in different disease groupings.

### Current Status

The project described above is in its early operational stages. The computer program to retrieve the alternative diagnoses is operational; patient charts have been prepared for some patients, and video tapes have been made to illustrate certain key features for certain pediatric cases. The program is being introduced to third and fourth year medical students during the latter part of the spring, 1971. Funding for the extension of the project into additional charts will become available at that time. Other institutions interested in sharing in this project should contact the Office of Medical Education, School of Medicine, University of California, Davis for further information. □

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# THE NATIONAL CRIME INFORMATION CENTER (NCIC) OF THE FBI: DO WE WANT IT?

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*"The FBI's National Crime Information Center plans to give its users electronic access to 19,000,000 individual citizens' arrest records — nearly 10% of the country's population — beginning this fall."*

The FBI's computerized National Crime Information Center (NCIC) should be a growing source of alarm for all of us who are concerned with human rights -- especially the rights of those who are black, poor, or politically unpopular. This article gives some of the reasons for alarm, and describes my challenge of local police hookup to NCIC. The challenge occurred in a New England Town Meeting in Wayland, Massachusetts.

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### What Is NCIC?

NCIC is an automated nationwide police information network. Teletypes are installed at local police stations, connected by phone lines to state police computer centers, which in turn are connected to a central computer operated by the FBI in Washington, D.C. Records are stored and searched on-line with both state and federal computers. At present, the Massachusetts section, for example, provides "immediate information on stolen cars, missing and wanted persons, lost and stolen property, lost and stolen securities, stolen guns, outstanding warrants, narcotic drug intelli-

gence, and suspended and revoked drivers' licenses and automobile registrations."[1]

These services, especially the narcotic drug intelligence, seem to have a potential for current misuse. Policemen are instructed, for example, to arrest "suspicious" persons for disorderly conduct to facilitate an NCIC check.[2]

However, I am far more afraid of the future of the system. I cannot give an authoritative future description of NCIC for these reasons:

(1) Future plans are in a state of flux;
(2) Officials responsible for those plans insist the planning is confidential, and the public will be notified only after decisions are made;
(3) There is some variation in conception among the different sources I consulted; and
(4) Part of the sales talk for NCIC is that it is infinitely flexible and expandable.

### Why the Alarm?

NCIC plans to give its users electronic access to 19,000,000 individual citizens' arrest records – nearly 10% of the country's population – beginning this fall.[3] Euphemistically termed "criminal histories" (making it sound as if any person who was ever arrested has a history of criminality), these records will help police make decisions about arresting, searching, detaining, questioning, and investigating suspects and "offenders".

The shabbiness of using arrest records as a guide to police action cannot be overemphasized. At present, many forms of arrest records do not note dropped charges nor results of trials and appeals. Even when complete records are kept, arrests that did not stick are listed, creating a suspicion – indeed a presumption – of guilt which can lead to further arrest and harrassment. As a local policeman told me, "a person doesn't get arrested unless he was asking for it." They believe that, judges believe it, employers believe it, and society believes it.[4]

### Plea Bargaining

Moreover, convictions are frequently entered on arrest records as a result of the courtroom practice of plea bargaining. An attorney might get an arrested person acquitted of unjust charges, but an attorney costs money, and there is still a chance of losing, even on appeal, which costs more. Therefore many innocent defendants agree to plead guilty in exchange for a reduced fine, reduced or suspended sentence, or probation. The same idea extends to appeals of unfair trials: making an issue of anything is expensive and risky. (Several personal friends of mine have found themselves in this trap as a result of nonviolent political actions.)

Nowadays citizens can be arrested unfairly, searched illegally, charged with violating dubious laws (disorderly conduct, trespassing, blocking, loitering, or conspiracy), and railroaded into prison by ignorant or vindictive police, prosecutors, and judges.[5] The poor, the black, and the political radicals ("troublemakers") receive the highest incidence of this kind of treatment.[6] Yet, in the name of modern law enforcement, all these arrests and the convictions that go with them will go into the NCIC system.

### The Ingredients of a Police State

Computerizing and nationalizing records of arrests – complete or incomplete – and inviting local police departments to use them routinely – these are the ingredients of a police state. At the very best, discriminatory law enforcement and harassment practices will be cascaded, because an arrest becomes a justification for another arrest, and so on. I have never seen any evidence that this kind of law enforcement helps prevent crime. There seems to be growing evidence, however, of the day-to-day effect of such a system on citizens' lives. This is the chilling of free speech, free association, free petition for redress of grievances, etc. A telephone company manager recently explained this to me in this way: "It behooves a person to avoid arrest."

### Proponents of NCIC Say . . .

Proponents of NCIC argue that police already have five-minute telephone access to statewide and 24-hour access to nationwide arrest records of any person. They say NCIC will provide fairer, more detailed and accurate arrest records, distinguishing convictions from acquittals, for example. They say NCIC's fast response will allow cleared suspects to be released sooner, and arrested persons with clean records to be released on recognizance, thereby enhancing civil liberties. My response is that arrest records do not constitute probable cause for arrest, regardless of their accuracy; that detention without bona fide arrest is illegal in any case; that selective release on recognizance is really preventive detention in disguise; and that police access to arrest records will be stepped up tremendously by NCIC, thereby damaging civil liberties irretrievably.

### NCIC Concern About Privacy and Ethics

The Project SEARCH Staff (System for Electronic Analysis and Retrieval of Criminal Histories) has published a booklet[7] purporting to show that privacy and individual rights are being taken into account in their system planning. (Project SEARCH is now computerizing arrest records for a ten-state federally-funded demonstration.) The booklet is instructive. On page 1 it states: "criminal justice agencies require, in making decisions regarding a suspect or offender, knowledge of his prior involvement with the criminal justice system." And on page 19: "there is every reason to believe that (FBI) rap sheets . . . faithfully record the criminal histories of their subjects."

I found it difficult to read this booklet with any degree of objectivity, because of its countless euphemisms about "offenders" and "criminal justice"; it's a good illustration of the medium being the message.

### Policies Suggested by SEARCH

In no way is the concept of discriminatory or politically-inspired arrest and harassment even touched upon as an area of concern, any more than the self-fulfilling properties of "criminal histories". The booklet presents many policy suggestions which are meaningful in the context of current law enforcement structures, such as improved accuracy and completeness, the exclusion of "information concerning juvenile offenders", and "further studies . . . to specify inclusion or exclusion of specific misdemeanors".

However, let us examine four major areas:

(1) The SEARCH prototype "does not include subjective evaluations . . . by police, judges, or detention authorities," just "hard data" on arrest, trial, and punishment.

(If arrest, judgment, and parole decisions were made objectively, this world would be a different place today. I believe "hard data" is an utterly false description of arrest records, and one of the reasons why they are unsuitable for police access.)

(2) Social security number, FBI number, operators license number, and "any miscellaneous identifying number" are part of each person's file. These are "not (to be used) as a device to permit linkages or data sharing with other information systems."

(Who's going to believe that? It simply can't be enforced.)

(3) Although highway patrols, registry authorities, prosecutors, judges, probation officers, and parole boards are to be given direct access to all records, access is denied to the general public, defense attorneys and legal aid societies, and to the "offender" himself unless he submits to fingerprinting and his state submits itself to a law change.

(4) A "code of ethics" pledges all participants in the system to limit their use to "criminal justice as a matter of government function," and other generally commendable pledges.

(When the pledges do mean something, they do not seem to be enforceable or even checkable.)

The principal author of the booklet, Robert R. J. Gallati, also directs the New York State Identification and Intelligence System (NYSIIS) – the New York section of NCIC and a SEARCH participant. NYSIIS has been pointed out to me as a "model" for the national system in terms of human rights. Some rather bizarre misuse[8] and data theft[9] has occurred, but "civil liberties" and "due process" are supposedly enhanced by reducing illegal detention of suspects from 24 to 3 hours.[10] In order to check his record, however, an "offender" has to travel to Albany and pay a fee to NYSIIS.

A recent position paper[11] outlines at least four major concerns about data banks in relation to human rights:

(1) loss of privacy through security loopholes;
(2) transactions about individuals without their being notified;
(3) merging and correlating dangerous information from diverse sources; and
(4) operation without principled supervision.

NCIC has no features that satisfy a single one of these concerns.

### Other Reasons for Alarm

Thus I regard NCIC to be dangerous because of its basic premise that police need arrest records of citizens, and can use them safely. However, there are yet more reasons for alarm as follows:

(1) NCIC forms the basis for a total *gestapo* (literally "secret federal police") system, since the public has no access to its data, nor is any person notified of inquiries and transactions affecting himself. It could take the last vestiges of the "criminal justice system" entirely out of public hands.
(2) The addition of surveillance data to NCIC is but a small step, technologically. The modern, aggressive style of surveillance and infiltration needs computer resources just like this, and there is reason to believe the NCIC system would be used for surveillance data.
(3) NCIC could easily be used in the administration's preventive detention program and in gathering data for future "conspiracy" indictments.
(4) The FBI runs NCIC. Its large scale undercover surveillance activities force one to view the FBI's ethics with suspicion, to say the least.
(5) Computers are notorious for making mistakes themselves as well as transmitting unevaluated data, while policemen may well believe "anything a computer tells them."

### Who Pays for NCIC? Who Sells It?

The cost of NCIC equipment and operations, along with its substantial dangers to human rights, could hardly be ignored by responsible town officials in deciding whether to hook their police up to this sytem. The financing structure seems to be designed to circumvent this foible of democracy.

Towns in Massachusetts pay only their individual Teletype rental, about $2000 annually, to join NCIC. To ease towns in painlessly, a 40% federal subsidy is provided to reduce this rental cost. (Now that 131 towns are connected to NCIC, the subsidy is ending.) Expenses borne by the state, including phone lines and computer center operation, are also subsidized federally. The rest of NCIC, including development of SEARCH, is 100% federally funded, primarily by the so-called Safe Streets Act of 1968. We all pay for NCIC, of course. But the fragmentation of payments fosters a carefree feeling among budget-minded local and state officials that "somebody else" is paying.

Perhaps officials might be attracted to NCIC by its apparent bargain price, but still question its merits. To minimize this problem in our state, the sales staff of New England Telephone Company (supplier of lines and Teletypes) visited 117 towns in Massachusetts last year to educate local boards and committees on the need for NCIC in modern police operations. Quite by accident, I heard one of those sales talks. It was very smooth and professional indeed. Human rights were not mentioned. The officials present agreed "the advantages outweigh the disadvantages," and incorporated NCIC in their town's budget.

Because of indirect financing and professional selling, NCIC has begun operating almost entirely without the knowledge or approval of the public it fundamentally affects.

### A Challenge to NCIC in a Town Meeting

After I was defeated in an attempt to delete the NCIC budget line pending further investigation and a full explanation, I introduced the following motion on the floor of the Wayland, Mass., Town Meeting on March 8, 1971:

> MOVED: That the Police Department be directed to include in next year's Annual Report a statistical

tabulation of its usage of the NCIC computer system, including the following information if at all possible:

(1) number of inquiries by type of inquiry and reason for inquiry;
(2) results of inquiries, including arrests and known convictions;
(3) a similar summary of information *entered* by Wayland police; and
(4) troubles encountered (down-time, false arrest, invasion of rights, etc.).

Despite angry opposition, the motion was carried by a majority vote of those present.

The reporting should accomplish one or more of the following objectives in addition to generating a list of features and how and why they are used:

(1) stimulate discussion and questioning of NCIC by exposure to the public of its existence;
(2) abate the chilling effect on free speech, association, etc., by removing the veil of mystery from NCIC operations.
(3) deter questionable operations by the police by requiring an accounting of such operations (thereby opening them to criticism and veto);
(4) convey the doubts of concerned citizens about NCIC to town fathers, police, state officials, legislators, and Congressmen;
(5) stimulate public realization of the sham of the entire so-called "criminal justice system" in which NCIC is grounded; and
(6) give people courage to demand public accountability of all governmental functions, computerized or not.

These objectives could be served even if the police misconstrue or falsify the required report! Actually, the report will be difficult to falsify because all NCIC transactions are logged verbatim at the state level, thus facilitating cross-checking.

Finally, if town officials actually fail to report as directed, perhaps because of secrecy statutes, then outraged citizens can demand removal of NCIC from the police department. (Wayland officials have indicated they intend to cooperate at the present time.)

Among the voters with whom I spoke, a tremendous number of factors affected their thinking on the issue of NCIC. Some of these factors include:

(1) teenage offspring suffering police harassment;
(2) Senator Ervin's hearings on data banks;
(3) Arthur Miller's book and TV appearances;[12]
(4) unemployment and blackballing;
(5) runaway military actions, the war in Vietnam;
(6) suspicious assassinations;
(7) conspiracy indictments;
(8) corrupt, vindictive auto registry practices;
(9) police brutality and dishonesty;
(10) computerized credit rating and billing;
(11) the 1970 census;
(12) Nazi Germany;
(13) distrust of Nixon-Agnew-Hoover-Mitchell-Burger-Blackmun;
(14) preventive detention and no-knock;
(15) official lies; and
(16) general principles of public disclosure.

In fact, all repression and manipulation of the public trust could be related in one way or another to this alleged anticrime computer system.[13]

Personally, I think our souls felt a sense of renewal when we debated NCIC in our Town Meeting and we saw some hope of controlling or at least influencing, the widespread implementation of this system.[14] □

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6. See *The Quality of Justice in the Lower Criminal Courts of Metropolitan Boston,* Lawyers Committee for Civil Rights Under Law, 15 Broad Street, Boston (1970). This booklet describes a rigorous statistical analysis of police and court discrimination against poor and black people. Readers should also examine "conspiracy" cases all over the country, now in progress.
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14. Shortly after this article was written, Massachusetts officials reportedly decided to "hold off" joining the FBI arrest record system, building instead a far more modest, "limited" statewide arrest record network. (Although reported April 13, 1971, in *The Cambridge Phoenix,* state officials have refused to confirm these facts for me – while accusing me of not knowing what I'm talking about! Finally I obtained confirmation from a highly-placed clandestine source.) Their reasons were "92% financial and 8% moral," according to my unquotable secret source. Their moral objections would be met by restricting reporting to *conviction* of *"serious"* offenses only, and establishing formal control by *state* law enforcement groups instead of the FBI. I regard these changes as half-baked reforms; they ignore the basic political discrimination and repression fostered by arrest and "correction" reporting. For example, demonstrators who are beaten by police are often *convicted* of "assault on a police officer"; antiwar organizers are *convicted* of "conspiracy to incite riot"; and on and on – these are "serious" crimes. Moreover, the door seems open for 92% reconciliation with the FBI through negotiation of a subsidy. In short, NCIC is still dangerous.

# I. THE DECLINE—AND POSSIBLE FALL—OF CONSTITUTIONAL DEMOCRACY IN AMERICA

*Senator J. William Fulbright*
*Chairman of the Foreign Relations Committee*
*U.S. Senate*
*Washington, D.C.*

*"To those who have developed an appreciation of the capacity of people in high places for doing stupid things, there is much to be said for institutional processes which compel people to think things over before plunging into action. . . . I cannot emphasize too strongly my belief that a legislative body's accomplishments consist as much in what it prevents as in what it enacts."*

There is no better measure of a country's belief in its own professed values than the ease or difficulty with which it betrays them. America is having an exceedingly difficult time in repudiating the ideals of Jefferson, Lincoln and Wilson in favor of the new militarism which our leaders say is our destiny and responsibility. This shows the authenticity of our attachment to democracy, but it does not guarantee democracy's survival. The outcome of the present crisis in our affairs – whether we are to remain a constitutional democracy or degenerate into an imperial dictatorship – is beyond our present range of vision. All that we know for certain is that, if we do give up on democracy, if we do turn our backs on the humane, rationalist values of our tradition, we will not have done it easily, or gladly – or, most ironically, with any real knowledge of what we were doing.

### The Jurisprudence of Crisis

Perspective is easily lost in time of crisis: you do what you think you have to do to meet a threat or seize an opportunity – with little regard for procedure or precedent. Ends give way to means, law is subordinated to policy, in an atmosphere of urgency, real or contrived. In 1940 President Roosevelt usurped the treaty power of the Senate by his "destroyer deal" with Great Britain, and then, in 1941, he circumvented the war power of the Congress – by engaging in an undeclared naval war on the Atlantic – not because he wished to set himself up as a dictator but because he judged the nation to be endangered by Germany and Japan – as indeed it was – and he needed to act in a hurry. In 1950 President Truman committed the country, for its first time in history, to a full scale war without the benefit of Congressional authorization; he did not do that because he wished to usurp the authority of Congress but because he perceived a clear and present danger in Korea and he needed to act in a hurry. In 1964 President Johnson subverted the Congress by persuading it, on the basis of erroneous information, to adopt the Gulf of Tonkin Resolution, which he invoked later to justify his massive intervention in Vietnam. President Johnson too was in a hurry; he said that he needed an immediate and overwhelming expression of Congressional support and, to our own subsequent regret, we gave it to him.

### The Subordination of Constitutional Process to Political Expedience

These occurrences – and others I could cite – have one common attribute: the subordination of constitutional process to political expediency in an atmosphere of urgency and seeming danger, resulting in each case in an expansion of Presidential power at the expense of Congress. The fact that Roosevelt and Truman were substantially right in their assessment of the national interest in no way diminishes the banefulness of the precedents they set. FDR's deviousness in a good cause made it much easier for LBJ to practice the same kind of deviousness in a bad cause.

The favored euphemisms for executive usurpation is "flexibility." Mr. Katzenbach, as Under Secretary of State, argued for an "essentially political approach to the conduct of our foreign affairs," leaving controversies over the division of authority between the executive and legislative branches of government to be resolved by "the instinct of the nation and its leaders for political responsibility."[1] If the rule of law must depend on a President's "instinct for political responsibility" – especially when he goes into his vainglorious role as Commander-in-Chief – then we are all about as secure as gazelles in a tiger cage; our only hope is that the tiger may not be hungry at the moment. Secretary of State Acheson pretty well summed up the "jurisprudence" of crisis when he told the Senate in 1951 that it ought not to quibble over "who has the power to do this, that, or the other thing," in this "very critical hour."

" 'Not only has the president the authority to use the Armed Forces in carrying out the Broad foreign policy of the United States and implementing treaties,' [Acheson contended], but it is equally clear that this authority may not be interfered with by the Congress in the exercise of

Only if one subscribes to the cult of the "strong"

Note: This article, and the one following, "A New Internationalism", are based on two speeches by Senator Fulbright. The first was delivered to the annual banquet of the Yale Law Journal on April 3; the second was delivered to the Yale Political Union on April 4.

powers which it has under the Congress in the exercise of powers which it has under the Constitution."[2]

Twenty years – and many a critical hour – have passed since President Truman sent the troops to Europe, and arguments about "who has the power to do this, that or the other thing" still arouse intense distaste in the executive branch of our government. It is best – so we are still told – to leave matters of decision making in foreign policy to be resolved according to the requirements of the moment, and who can doubt what the requirements of any given moment are going to be: the President is to be left unencumbered to make war or commitments abroad essentially as he sees fit, drawing Congress into the decision making insofar as he finds it useful and convenient. Besides, in this time of crisis – permanent, institutionalized crisis as it has developed – appeasing Congress would surely be interpreted as a dangerous sign of Presidential "weakness," which could only lead to further demands for power and participation. Is this after all not the lesson of Munich? Burdened as he is with weighty responsibilities in a dangerous world, a President simply cannot afford to appear as a "pitiful, helpless giant" – no more to the Senate than to the North Vietnamese themselves.

### Power Should Be Mistrusted, Checked, and Balanced

Only if one subscribes to the cult of the "strong" presidency which mesmerized American political science in the fifties and early sixties can one look with complacency on the growth of presidential dictatorship in foreign affairs. In those days, when the magic glow of FDR still flickered in our memories, when Eisenhower reigned with paternal benignancy, and the Kennedys appeared on white chargers with promises of Camelot, it was possible to forget the wisdom of the Founding Fathers who had taught us to mistrust power, to check it and balance it, and never to yield up the means of thwarting it. Now, after bitter experience, we are having to learn all over again that no single man or institution can ever be counted upon as a reliable or predictable repository of wisdom and benevolence; that the possession of great power can impair a man's judgment and cloud his perception of reality; and that our only protection against the misuse of power is the institutionalized interaction of a diversity of independent opinions. In this Constitutional frame of reference, a good Executive is not one who strengthens his own office by exercising his powers to the legal utmost and beyond, but one who, by respecting the limits of his own authority, contributes to the vitality of the constitutional system as a whole.

### Foreign Policy Has Become Subversive

When, as in recent years, the conduct of foreign policy is thought to necessitate the steady attrition of established constitutional processes, that foreign policy has become subversive of the very ends it is meant to serve. Why after all do we engage in foreign relations if not for the purpose of securing certain values, including the preservation of our constitutional democracy? The values of democracy are in large part the *processes* of democracy – the *way* in which we pass laws, the *way* in which we administer justice, the *way* in which government deals with individuals. When the exigencies of foreign policy are thought to necessitate the suspension of these processes, repeatedly and over a long period of time, such a foreign policy is not only inefficient but utterly irrational and self-defeating. I am willing to predict with reasonable confidence that, if democracy is destroyed in America in the lifetime of the present university generation, it will not be the work of the Russians, or of the Chinese, and certainly not of the Vietnamese Communists; the totalitarianism toward which we are heading will be a home grown product. Like the American major in Vietnam who found it necessary to "destroy Ben Tre in order to save it," we may find some day, without quite knowing when or how or why it happened, that we have destroyed our own constitutional democracy – in order to save it.

I used to puzzle over the question of how American democracy could be adapted to the kind of role we have come to play in the world. I think I now know the answer: it cannot be done. Congress can adopt palliative measures such as the Cooper-Church amendment or any of a number of possible bills designed to regulate the President's use of the armed forces, and these are all to the good. But they will not of themselves either stop the war, restore the Constitutional authority of Congress, or arrest the long term trend toward authoritarian government. That trend, I am now convinced, is irreversible as long as we continue to play the kind of role we are now playing in the world, as long as our course remains one of great power militarism. The real question is not whether we can adapt democracy to the kind of role we are now playing in the world – I am sure that we cannot – but whether we can devise a new foreign policy which will be compatible with our traditional values, a foreign policy which will give us security in our foreign relations without subverting democracy at home.

* * *

[Mr. Fullbright suggests a broad outline for such a new American foreign policy in "A New Internationalism", also published in this issue of *Computers and Automation.*]

### The Decline of Congress

The distinguishing virtue of legislative bodies is neither wisdom nor virtue nor prescience. Individual members may sometimes possess these qualities, but no legislative body as such has ever been endowed with evangelical or inspirational qualities; no Congress has ever been thought to possess "charisma." The American Congress is indeed a slow-moving and sometimes inefficient body, widely criticized for procedures which are said to be antiquated and undemocratic. There is no doubt in the world that our Congress is less efficient thatn the legislatures of certain parliamentary democracies, and far less efficient than the sham legislatures of totalitarian states.

If efficiency were the sole criterion of a good legislature, there would be everything to be said for dismantling the Congress, or at least for revamping its procedures and introducing a system of strict party discipline. That is what many reformers say they want to do, in the apparent belief that decision is always better than delay and action better than inaction – a dubious assumption indeed, rooted in a utopian view of human nature. To those of us who have developed an appreciation of the capacity of people in high places for doing stupid things, there is much to be said for institutional processes which compel people to think things over before plunging into action. The SST is a case in point; the decision of both houses of Congress last week to lay that costly white elephant to rest would not have been possible if Senator Proxmire had not led a group of us in a salutary filibuster last December. But for that extended

debate, the SST would now be a going concern.

I for one am not much distressed by the charge that Congress is not an up-to-date institution. In this age of the SST, the ABM, the MIRV, and the Indochina war, being "behind the times" may indeed be a mark of wisdom. And "efficiency," as that term is applied to legislatures, sounds very much to my ear like a euphemism for obedience to an Executive. I cannot emphasize too strongly my belief, that a legislative body's accomplishments consist as much in what it prevents as in what it enacts. As Justice Brandeis pointed out: "The doctrine of the separation of powers was adopted by the convention of 1787, not to promote efficiency but to preclude the exercise of arbitrary power. The purpose was, not to avoid friction, but, by means of the inevitable friction incident to the distribution of the governmental powers among three departments, to save the people from autocracy."[3]

### Results of Executive Incursion on the Foreign Policy Powers of Congress

Executive incursions upon Congress's foreign policy powers have had three main results: First, the authority to initiate war, which the Constitution vested solely in Congress, has passed into the hands of the Executive. Second, the treaty power, which was meant to give the Senate final authority over significant foreign commitments, has been reduced to a near nullity, sometimes by resort to executive agreements and simple declarations, sometimes by the simple device of reinterpreting treaties in such a way as to impute to them meanings which were wholly unintended, if not explicitly disavowed, at the time they were contracted. Third, the "advise and consent" function has been so diminished that little or no cognizance is now taken of the Senate's counsel, while "consultation" is commonly used to refer to ceremonial briefings which are provided from time to time in order to acquaint Senators with decisions which have already been made. In the words of one distinguished historian, with reference both to public and Congressional opinion, "Presidents Johnson and Nixon have made almost a virtue of unresponsiveness."[4]

The gradual takeover by the Executive of the war and treaty powers of Congress is part of a broader process of expanding Presidential authority which is by no means confined to foreign relations. Indeed, the trend toward militarized, authoritarian government has already penetrated broad areas of our domestic life. The Justice Department and the Army itself have engaged in spying and surveillance to anyone and everyone, including Senators, who, according to the peculiar lights of these agencies, may be considered "subversive." Our economy has been distorted by the development of a permeating military-industrial-labor union-academic complex, built around the fact that violence has become our country's leading industry. I particularly regret the unhealthy relationship which has grown up between many academic institutions and the Department of Defense and other government agencies.

Even when these arrangements are entirely without strings or prior conditions – as I am inclined to believe they are for the most part – they are intellectually disruptive and their thrust is anti-democratic. Lacking a use for poetry and philosophy, the Department of Defense and the CIA offer no funds for these disciplines; the Government is a patron only of the more lethal arts.

### A Basic Change in National Outlook Is Needed

The only reliable cure for these evils is a basic change in our national outlook, including the adoption of a new foreign policy which will be compatible with rather than antithetical to our traditional democratic values. Until that change can be accomplished – if it can – our best defense against creeping authoritarianism is an assertive, independent legislature, supported as it must be by a responsible educated electorate. The virtues of Congress are inseparable from its faults; slow and unwieldy as it may be in accomplishing desirable reforms, Congress is equally unsuited to the task of depriving people of their liberties. If war and crisis should someday give rise to an aggressive, anti-libertarian Congressional majority, that majority would likely find itself hobbled by the Senate filibuster and the tortuous workings of the committee system.

The greatest single virtue of a strong legislature is not what it can do but what it can prevent. Incapable by reason of its size and diversity of imposing an authoritarianism of its own, the American Congress, with all its irrationalities, remains the strongest institutional barrier to Presidential dictatorship. But it can perform this vital service only as long as it is willing to exercise its legislative authority in foreign as well as domestic affairs, and only if it is willing to accept the responsibility for thwarting the Commander-in-Chief when it seems necessary, bearing in mind the words of Justice Holmes, that "We do not lose our right to condemn either measures or men because the country is at war."[5]

### The Cult of the Presidency

As long as the President's capacity to dominate foreign policy remained an unrealized potentiality, as was the case until the twentieth century, and as long as that power, once it did begin to take form, was exercised in a way that won the approval of progressive-minded scholars and politicians, criticism of the Presidential office was confined to a handful of conservative Senators and academics who were dismissed as reactionary mossbacks. Hardly anyone, for example, took serious notice in 1950 when Senator Watkins of Utah questioned the authority of President Truman to commit the country to war in Korea without consulting Congress, and said that, if he were President, he ". . . would have sent a message to the Congress of the United States setting forth the situation and asking for authority to go ahead and do whatever was necessary to protect the situation."[6] In retrospect, the so-called mossbacks seem like prescient constitutionalists.

With all due respect for the failures of judgment of recent Presidents, some rather fundamental defects seem to be inherent in the office itself, and in the electoral process as it has evolved in recent decades. Building on Madison's premise that "all men having power ought to be mistrusted," we are probably justified in extending our mistrust – or at least a certain wariness – toward any man who desires power so much as to be willing to do all the arduous things a man has to do to become President of the United States.

### Politics as a Profession

The qualities of a good candidate are not identical with those of a good leader. Indeed, an individual of perspective

and sensitivity who might make an excellent President is hardly likely to have the taste for political rough and tumble that a successful candidate requires. The packaging, the image-making, the fraud, the huckstering, the extravagant, thorough-going irrationality of modern political campaigns, cannot fail to be distasteful to individuals of judgment and sensitivity. At the outset of our history as an independent republic, with a population of hardly more than five million, we were governed by men of distinction. Surely among a population of 200 million there must be individuals of the caliber of Washington, Adams, Jefferson and Madison. Wherever else they are, few indeed seem to have chosen politics as their profession.

Among the shortcomings of the Presidential office, the most important appears to be the unique capacity of the office to isolate and deceive its occupant. So, at least, writes George Reedy, who served as President Johnson's press secretary and special assistant, in one of the most thoughtful and disturbing books on the Presidency of recent years. Encased from the day he takes office in an atmosphere of privilege and deference that amounts to royalty, the President is steadily divested of a politician's primary requirement, the maintenance of contact with reality, so much so, in fact, that, in Reedy's view, ". . . the White House is an institution which dulls the sensitivity of political men and ultimately reduces them to bungling amateurs in their basic craft – the art of politics."[7]

### Isolation of the Apex of Power

The essential cause of the difficulty is the isolation of the President at the apex of power. No one speaks to him unless spoken to; no one, as Reedy points out, ever invites him to "go soak his head;" no one in his presence ever addresses himself to anyone except the President, and always in terms of reverential respect. No one is his peer, certainly not his White House assistants, nor the Cabinet members who are his political servants, nor even Senators and Congressmen when they meet the President on his home ground. Even the most independent-minded Senator, says Reedy, ". . . enters cautiously, dressed in his Sunday best and with a respectful, almost pious, look on his face," because "The aura of reverence that surrounds the President when he is in the Mansion is so universal that the slightest hint of criticism automatically labels a man as a colossal lout."[8]

Perhaps the single most important difference between an American President and a British Prime Minister is that the latter is compelled to meet his critics face to face, giving him a lever on reality that the American President is denied. "Under the American system" as one political scientist, Professor Alexander Groth, points out, "the Executive is virtually prevented from engaging in public debate on policy by the Institutional setting of his office; under the British system he is expected and, in fact, *compelled* to engage continually in it."[9] Every Thursday afternoon the Prime Minister is obliged to descend into the arena of the House of Commons where he has to answer questions, respond to criticisms, and endure whatever barbs and insults the Opposition chooses to throw at him. His appearance in the House is not a state occasion like the President's infrequent visits to the Congress, which are steeped in pomp and ceremony but usually quite lacking in political substance. The Prime Minister cannot barricade himself behind a phalanx of assistants and advisers; he is obliged to think and speak for himself. As Professor Groth points out, it is not the power to vote no confidence and compel the Prime Minister's resignation which gives the House of Commons its decisive influence, but rather its ability to compel the Prime Minister and his Cabinet colleagues continually to explain and justify their policies to an informed and critical body of colleagues. It is not "confidence" in its technical sense that a British Prime Minister must retain but confidence in its ordinary sense – confidence in his judgment, competence and responsibility.

### The Sham of Communication

The President, by contrast, is more nearly in the position of the British Monarch, except for the crucial fact that he has power and she does not. When the President speaks, it is always from a pedestal. His annual State of the Union message is seldom a serious analysis of the nation's problems and prospects; more commonly, it is a self-serving catalogue of the Administration's alleged triumphs, interlarded with a lot of vacuous eloquence about "driving dreams," or a "second American revolution" which turns out to be a plan for some bureaucratic reshuffling. On other occasions – notably when his standing in the polls sinks alarmingly low – the President is likely to use his near-monopoly of the television to speak "directly" to the American people; on these occasions, it is usually not a new policy that the President wishes to convey but a new "image" – an image of honesty or strength or sincerity, or even an image of indifference to "images." The total effect of all this indirect and inauthentic sham "communication" is to defraud the people of one of their most basic rights and the President of one of his most basic needs: the knowledge of each other's thinking.

### War Breeds Dictatorship

Many promising correctives have been proposed of late; they range from a number of excellent bills designed to regulate the President's use of the armed forces to my own proposal for restrictions on secrecy in the name of "executive privilege." But in the long run, even the most energetic and ingenious means of reasserting Congressional prerogative will of themselves prove insufficient for the preservation of constitutional government. As Tocqueville pointed out, war breeds dictatorship. I for one am fairly well convinced that neither constitutional government nor democratic freedoms can survive indefinitely in a country chronically at war as America has been for the last three decades. Sooner or later, war will lead to dictatorship. Important though it is for Congress to assert its prerogatives and to devise new means of enforcing them, the issue ultimately will turn on questions outside of the legislative process, on questions of the allocation of resources between domestic needs and foreign involvements, questions of our willingness, whenever possible, to rely on the United Nations rather than our own military power, questions having to do with the kind of country we want America to be and the kind of role we wish it to play in the world.

### The Undermining of the Rule of Law

The worst single consequence for our society of this long era of crisis and war has been the steady undermining of the

rule of law. From the White House to the university campuses legal inhibitions have been giving way to faith and fervor, to that terrible irrational certainty of one's own rightness which leads men to break through the barriers of civilized restraint. Outraged as they have had every right to be by dishonesty, deviousness, and lack of restraint on the part of people in high office, many of our young people have seen fit, most regretably, to imitate rather than repudiate the example. Supposing that they, in their purity of motive and intent, could right the injustices wrought by unworthy leaders, they seem unwilling to recognize that it has not been conscious malice or greed or hunger for power that has led the leaders of this country to make the terrible mistakes that have been made in these unhappy times, but that very same quality of mind which many young people themselves exhibit – a supreme, arrogant confidence in the rightness of their own opinions.

That has been the worst of it: the breakdown of law – really not of law itself but the state of mind in which people value and respect law. We seem to be moving into an era of uninhibited conscience, casting aside the insights of Freud, and of the framers of the the American Constitution: that nothing can more surely deceive a man than his own uninhibited conscience; that the human mind is limited and imperfect in its perceptions of morality; that law is the closest approximation of institutionalized morality of which a human community is capable.

The founders of our country understood these things, and that is why they mistrusted power. "Confidence," said Jefferson, "is everywhere the parent of despotism – free government is founded in jealousy; . . . it is jealousy and not confidence which prescribes limited constitutions, to bind down those we are obliged to trust with power. . . . In questions of power, then, let no more be heard of confidence in man, but bind him down from mischief by the chains of the Constitution. . . ."[10]

To arrest and reverse the decline of democratic government in America, we are going to have to recover our mistrust of power – in the Presidency and wherever else it is found. □

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[9] Alexander J. Groth, "Britain and America: Some Requisites of Executive Leadership Compared," *Political Science* Quarterly, June 1970, p. 218.

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# II. A NEW INTERNATIONALISM


*Senator J. William Fulbright*
*Chairman of the Foreign Relations Committee*
*U.S. Senate*
*Washington, D.C.*


*"Our involvement in Southeast Asia became so great a disaster because of our inexperience in world affairs, our obsessive fear of communism and the obscure causes of that fear, the bitterness of our disillusionment with the United Nations and the supposition that we could substitute ourselves for it, the infatuation with science which caused us to suppose that we could make foreign policy – and wars – with computers; and, perhaps most important, that self-righteous certitude of a nation at the peak of its power which I have called the arrogance of power."*

In one of his many recent interviews, President Nixon said that he doubted we would ever have another war, that Vietnam "is probably the very last one." Unless the President meant that he expected the present war to finish us off once and for all – which I doubt was his meaning – I see little basis indeed for his hopeful prediction. My pessimism arises from the absence of convincing evidence that we, or any other major nation, are willing to do the things we would have to do to make lasting peace a real possibility.

We would need, for a start, to reconsider our most basic assumptions about international relations. In the same interview the President showed that he himself has not the slightest inclination to engage in such an exercise, that, indeed, he perceives no alternative to the foreign policy of power politics which has always led to war in the past. Mr. Nixon said, for instance, that "for the next twenty-five years the United States is destined to play this superpower role as both an economic and a nuclear giant. We just have to do this. We cannot dodge our responsibilities."[1]

Note: This article, and the one preceding, "The Decline – and Possible Fall – of Constitutional Democracy in America", are based on two speeches by Senator Fulbright: this article, on a speech delivered to the Yale Political Union on April 4; and the other article, on a speech delivered to the annual banquet of the Yale Law Journal on April 3.

This outlook is illustrative of what Professor Marcuse described as the "totalitarian dictatorship of the established fact." Lost to view is the real possibility that things may be as they are not because they *have* to be but because they *happen* to be.[2] We *"have to"* play this superpower role, says the President – as if the matter were patently beyond the range of human choice, as if some heavenly force had decreed it. With minds locked into this kind of certitude, we cannot even grasp the notion of other possibilities. We are compelled to do things in the disastrous, self-defeating way we have done them in the past because we have locked all other possibilities out of our minds. "Realism" is reduced to the blind repetition of behavior patterns that have been *proven* to be disastrous. Anything else is "unreal" – not because it has to be but because our minds are in thrall to a bleak and fragmented conception of "reality."

### Internationalism, Old and New

Drawn as it is from long experience, the conception of international politics as an endless, mindless, purposeless struggle for power is by no means a false or fanciful one. It is after all a fairly accurate description of the normal behavior of nations, especially big nations. The very fact that, in international relations, nations refer to themselves as "powers" – not as countries or communities – is itself indicative of the nature of international politics. Behind the grandiose euphemisms about somebody's "place in the sun," or the more current "responsibilities of power," is the simple assumption that nations engage in international relations in order to acquire power, and the more you get of it, the more it is your duty or destiny to use it. It can never be permitted to go unused; if you *can* be a bully, then you must be – on pain of being thought a "pitiful, helpless giant."

This conception is false not in the sense of misrepresenting human experience but in the more important sense of its dangerous obsoleteness, and its utter irrelevance to valid human needs. Even the most dazzling success in the game of power politics does nothing to make life more meaningful or gratifying for anybody except the tiny handful of strategists and empire builders who have the exhilarating experience of manipulating whole societies like pawns on a chessboard. It is rather less fun for ordinary citizens, whose sons are sent to useless wars, and whose earnings are diverted from their real needs, like schools and homes and community services. And, if you happen to be an American GI, or a Vietnamese peasant, the "responsibilities of power" do very little indeed to make life interesting or gratifying – even if you succeed in staying alive.

### Basic Antagonism: A Natural Condition of the World?

In his book *Six Crisis* President Nixon refers to his hesitation as a young man to enter the *"warfare of politics."*[3] The conception of politics as warfare seems to have shaped the outlook not only of Mr. Nixon's Administration but, as far as international relations is concerned, of every Administration since World War II. It is assumed, *a priori,* that the natural and inevitable condition of the world is one of basic antagonism. Generalizing from the monstrously atypical experience of Hitler and Nazi Germany, we have assumed that China is determined to conquer and communize Asia, that the Russians have an unshakeable ambition to overrun Western Europe and destroy the United States, and that the only thing that stops the Communist countries from executing their evil designs is the intimidating effect of American military power. I do not contend that this assessment of Russian and Chinese ambitions is untrue, but only that it is not *necessarily* true, that, as Mark Twain would have said, we may have derived from the experience of World War II more wisdom than was in it. My own belief is that Russian and Chinese behavior is as much influenced by suspicion of our intentions as ours is by suspicion of theirs. This would mean that we have great influence on their behavior, that, by treating them as hostile, we assure their hostility. If indeed politics is warfare, it is not because the Lord decreed it but because nations, including our own, have made it so.

In the same interview which I quoted earlier President Nixon expressed dismay at what he perceives as the conversion of "former internationalists" into "neo-isolationists." This raises the question of what an authentic internationalist is. It is true that many of us who supported the United Nations Charter, the Marshall Plan and the NATO treaty have become critical of our worldwide military involvements and of bilateral foreign aid. Nonetheless, I still consider myself as an internationalist. I believe that we should honor all of our duly contracted treaties, both in their requirements of military support as in the case of NATO, and in their requirements of non-intervention as in the case of the Charter of the Organization of American States. I further believe that, even at this late date, we should be doing everything in our power – and that there is a great deal we can do – toward building the United Nations into a genuine world security organization.

### The United Nations Idea

There has been in this century one great new idea in the field of international relations, one great break in the "totalitarian dictatorship of the established fact:" the idea of an international organization with permanent processes for the peaceful settlement of international disputes, the idea of an international legal instrument through which someday we might hope to replace the "warfare of politics" with something more civilized and humane.

That is the conception of internationalism which was held by Presidents Wilson and Franklin Roosevelt and the entire generation who led the United States out of its nineteenth century isolation. It arose not only out of the obsoleteness of isolationism but, far more importantly, out of an active repudiation of the power politics which had culminated in two world wars. Both might go under the name of "internationalism," but they are radically different conceptions: the one represents the outlook of Wilson and Roosevelt; the other reverts to Bismarck and Metternich. Having participated in the hopeful initiation of the United Nations Charter and then in the bitter disillusion of hot and cold wars, the people who are now being called "neo-isolationists" are by and large those who make a distinction between the new internationalism and the old, who regret the reversion to the old power politics, and who retain some faith in the validity and viability of the United Nations idea.

### Indochina: The Old Politics and Worse

Like a virulent organism in an otherwise healthy body, the war in Vietnam has drained our society of confidence and hope. This war cannot adequately be characterized as a reversion to the old power politics; Metternich and Bis-

marck were at least rational in their amorality; it is hard to conceive of them persisting in anything so stupid and self-defeating. I do not really feel adequate to the task of gauging the meaning of Vietnam in the context of American history and world politics, but if I had to try to sum it up, I would judge that it represents a grotesquely miscarried effort to apply traditional American values of self-determination and collective security. Americans will be debating for many years how and why the involvement in Southeast Asia became so great a disaster. The obvious factors include the simple fact of our inexperience in world affairs; our obsessive fear of communism and the obscure causes of that fear; the bitterness of our disillusion with the United Nations and the supposition that we could substitute ourselves for it; the infatuation with science which caused us to suppose that we could make foreign policy – and wars – with computers; and, perhaps most important, that self righteous certitude of a nation at the peak of its power which I have called the arrogance of power.

### The Real Meaning of Vietnamization

Although different tactics have been employed, the objective of the Nixon Administration in Indochina is by all available evidence the same as that of the Johnson Administration: to win the war in the sense of establishing viable anti-Communist regimes in South Vietnam, Cambodia and probably Laos. A compromise political settlement, which could only mean a sharing of power between Communists and noncommunists, or an arrangement leaving all the indigenous forces some opportunity for power, has been effectively ruled out. That is why the Paris negotiations have failed – because there has been nothing to negotiate from the standpoint of the North Vietnamese and the Vietcong, except the terms of their surrender.

It insults the intelligence of the American people to tell them that we had to invade Cambodia and Laos simply in order to cover our withdrawal; I do not think the North Vietnamese and the Vietcong would be so stupid as to try to interfere with an authentic, total American withdrawal. Indeed, it is only in a political atmosphere dense with obfuscation and mendacity that it becomes necessary to deal with this argument at all. The real meaning of "Vietnamization," and of the expansion of the war into Cambodia and Laos, is that, for President Nixon as for President Johnson, the objective is military victory.

Once again, with the military disaster in Laos, the mirage of victory has receded from our grasp. When the "incursion" began, President Nixon suggested that decisive battles might be at hand, and he predicted that the North Vietnamese will "have to fight here or give up the struggle to conquer South Vietnam. . . ."[4] Now that the operation has ended in a "mobile maneuver" – which is Pentagonese for "headlong retreat" – it appears that the North Vietnamese will *not* have to give up the struggle, that indeed it will go on for as long as the South Vietnamese Army can continue – in Mr. Nixon's felicitous term – to "hack it," for as long, perhaps, as the tortured peoples of Indochina have blood to shed.

The American troop withdrawals will no doubt continue – they are, at the very least a political necessity here at home. It is also true, no doubt, that, to one degree or another, the invasion of Laos delayed and disrupted the flow of North Vietnamese supplies along the Ho Chi Minh Trail. Time, however, is on the enemy's side. As American strength is reduced toward whatever residual force the President contemplates, an improved but still shaky South Vietnamese Army – all the more so since the defeat in Laos – will face an undefeated North Vietnamese Army in firm control of its supply lines. At best, from the standpoint of Presidents Nixon and Thieu, the prospect is for a war of indefinite duration, with Asians doing the fighting on the ground while Americans provide air power, supplies and money. At worst, if the South Vietnamese Army falters, they and the residual American Force will be confronted with military disaster – the very specter of "humiliation and defeat" that has so preoccupied the President for the last two years.

What would we then do? hastily pull out our remaining forces or raise the stakes by launching an all-out attack on North Vietnam? The President has repudiated any intention of using nuclear weapons – and for that we must be grateful – but it must also be remembered that people are least likely to behave rationally when their backs are to the wall, and President Nixon himself has not always responded prudently in conditions of adversity.

### The "Wasted People" of War

Never to be forgotten either – for people who wish to preserve the United States as a humane democratic society – is that the morals of this war are as twisted as its strategy. Our leaders point with pride, when they can, to reduced American casualties, but they have little to say about the million or more South Vietnamese civilian casualties since the war began, of whom at least 300,000 have died; these in the cruel military phrase, are the "wasted" people – some killed by Vietcong terror, many times more by American fragmentation bombs, gunships, and napalm. Indochinese peasants never actually see a B-52 because it flies so high, but they know well what it can do. "We hear nothing, nothing at all," a South Vietnamese farmer told an American reporter recently. "Then a thunder louder than the loudest rainstorm strikes, the earth shakes . . . and we wait to see who dies."[5]

Nor have we heard very much from the White House or the Pentagon about enormous South Vietnamese losses in Laos, where casualties ran to at least 25 percent and perhaps 50 percent, where large numbers of wounded were left behind, begging their friends to shoot them or to leave them hand grenades so that they could commit suicide before the North Vietnamese got to them or before they were blown to bits by B-52 bombs.[6]

Having done damage beyond calculation to ourselves and to the people of Indochina, we compound the self-deception by talking about this war as if its objectives were to be compared with those for which we fought in two world wars. For all the reasons I have offered and many others, this war is not a war for self-determination, or for the prevention of future wars, much less of *all* future wars as President Nixon has suggested. This war is a tragic mistake – that is all it is or ever was – and the only rational objective for our policy is to stop the war and begin to repair the damage, at home and abroad.

### The Middle East: A Chance for the New Politics

In the Middle East there is a chance – though probably only a small one – that Americans, Russians and others

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# WHO'S WHO IN COMPUTERS AND DATA PROCESSING

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## Supplement 1, Part 1, AAG to HOL, Published June 1971

The Fifth Edition of "Who's Who in Computers and Data Processing", in three volumes, totaling over 1000 pages and containing over 15,000 capsule biographies, was published in March 1971.

The following Part 1 of Supplement 1 consists of updating information (including new entries and corrections of prior entries) for the Fifth Edition, for last names beginning AAG to HOL.

Three types of information are published here:

[no asterisk] Entirely new capsule biography entry

* Change(s) in, or confirmation of, the entry in the Fifth Edition

** Entire capsule biography entry which replaces the corresponding entry in the Fifth Edition

The changes reported here are based on information kindly sent to us by entrants: (1) which updates or corrects the information previously published; or (2) which was received by us before publication of the Fifth Edition but too late for inclusion in it; or (3) which was sent to us after publication of the Fifth Edition.

It is hoped that this supplement will be helpful to users of the Fifth Edition. Any purchaser of a complete set (3 volumes) of the Fifth Edition and who has entered (or enters) with us a standing order for the Sixth and later editions will be sent supplement 1, Part 1, FREE on request. Any other purchaser of one or more volumes of the Fifth Edition may order Supplement 1, Part 1, at 50 cents (please send amount with order to avoid bookkeeping costs).

It is anticipated that Part 2 of Supplement 1, will be published in the July issue of "Computers and Automation".

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Abbreviations include:

b: born
ed: education
ent: entered computer field
m-i: main interests
t: title
org: organization
pb-h: publications, honors; memberships, other distinctions
h: home address
v: volume number

Main Interests:

| | | | |
|---|---|---|---|
| A | Applications | Mg | Management |
| B | Business | Ma | Mathematics |
| C | Construction | P | Programming |
| D | Design | Sa | Sales |
| L | Logic | Sy | Systems |

*C 71: Information compiled or checked in 1971 (similarly for other years)

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### A

**AAGAARD, James S. / educator / b: 1930 / ed: PhD, electrical engineering / ent: 1964 / m-i: P Sy / t: assoc prof electrical engineering & computer sciences / org: Northwestern Univ, Evanston, IL 60201 / pb-h: IEEE, ACM / h: 744 Lenox Lane, Glenview, IL 60025 / v: 3 / *C 71

*AAGARD, James S. — replace by AAGAARD, James S., which see

*ABBOTT, Charles R. / v: 2 / *C 71

**ABBOTT, Richard E. / manager information processing / b: 1925 / ed: BA, economics / ent: 1957 / m-i: Mg / t: manager / org: General Electric Process Computer Products Dept, 2244 W Desert Cove, Phoenix, AZ 85029 / pb-h: - / h: 918 W Wagon Wheel Dr, Phoenix, AZ 85021 / v: 2 / *C 71

ABERNETHY, Robert J. / defense, aerospace / b: 1940 / ed: BS, EE & math, MBA / ent: 1962 / m-i: B Mg / t: asst prgm mgr / org: Hughes Aircraft Co, Culver City, CA 90230 / pb-h: CDP / h: 436 28 St, Manhattan Beach, CA 90266 / v: 2 / *C 70

*ABRAHAMSON, Earl A. / v: 3 / *C 71

*ABRAHAMSON, Edward / t: manager international operations / h: 119 Glendale Rd, Sharon, MA 02067 / v: 2 / *C 71

**ABRAMS, Sumner M. / engineer / b: 1935 / ed: MIT / ent: 1957 / m-i: A D L P Sy / t: product development manager / org: Honeywell Information Systems and Components Operations, Old Connecticut Path, Framingham, MA 01701 / pb-h: IEEE / h: 13 Duggan Dr, Framingham, MA 01701 / v: 1 / *C 71

*ACKERLIND, Erik / pb-h: AAAS, AIAA, IMS, IEEE, ORSE, ORSA, Sigma Xi, Eta Kappa Nu; 6 patents, author & co-author 4 publns / v: 3 / *C 71

*ADAMS, Alexander / m-i: Sy / t: chief, systems requirement BR / h: 137 Westway Pl, Battle Creek, MI 49015 / v: 1 / *C 71

*AHRENSDORF, Robert E. / v: 2 / *C 71

ALBASINY, Ernest L. / numerical and mathematical analysis / b: 1931 / ed: MA, Cambridge Univ / ent: 1954 / m-i: Ma, numerical analysis / t: senior principal scientific officer / org: National Physical Laboratory, Teddington, Middlesex, England / pb-h: FIMA, over 20 papers on numerical and applied mathematical topics / h: 46, Tranmere Rd, Whitton, Middlesex, England / v: 3 / *C 70

*ALBERT, Joseph / pb-h: past chmn Southeast chapter ACM; papers for ASTME, CIRP, ASQC / v: 2 / *C 71

*ALBRIGHT, Harvey C. / t: telecommunications coordinator / pb-h: ACM, CDP, ICA, vice-chairman of JUG, papers published on management of computer installations / v: 2 / *C 71

ALEXANDER, Andrew B. / systems programmer / b: 1942 / ed: Univ of Kentucky / ent: 1965 / m-i: A B D L Mg P Sy; operations / t: systems programmer / org: Dynafacts, Inc, 2228 Young Dr, Lexington, KY 40505 / pb-h: DPMA, ASM / h: 564 Freeman Dr, Lexington, KY 40505 / v: 1 / *C 70

*ALEXANDER, F. Lynn / head of systems software & commercial applications / ed: AB, math, Cornell; JD, George Washington Univ / t: technical supervisor / pb-h: member, District of Columbia Bar / v: 1 / *C 71

*ALLEN, Eugene V. / manager of computer operations / org: So California Gas Co, 1801 S Atlantic Blvd, Monterey Pk, CA 91754 / v: 2 / *C 71

ALLEN, Murray W. / educator / b: 1927 / ed: BE, PhD / m-i: D Mg / t: professor / org: School of Elect Eng, Univ of N.S.W., PO 1 Kensington 2033, NSW Australia / pb-h: - / h: 8 Milray St, Lindfield, NSW 2070, Australia / v: 3 / *C 70

*ALTER, Ralph / senior computer scientist / t: senior computer scientist / org: Bolt Beranek & Newman, Inc, 50 Moulton St, Cambridge, MA 02138 / v: 2 / *C 71

*AMBROSE, John A. / t: assistant vice pres / v: 2 / *C 71

*ANDERS, Edward B. / pb-h: MAA, AMS, ACM; author 1 book, several articles / v: 3 / *C 71

*ANDERSON, Alfred O. / v: 1 / *C 71

*ANDERSON, G. Ernest, Jr. / pb-h: past pres AEDS, ACM, AERA, Psychometric Soc; many articles, 1 monograph on university scheduling / v: 3 / *C 71

ANDERSON, Frederick L. / DP administrator / b: 1938 / ed: BSEE, MSIE / ent: 1963 / m-i: A D P Sy / t: dir computer services for regional campuses / org: Indiana Univ, Bloomington, IN 47401 / pb-h: ACM / h: 800 N Smith Rd, A8, Bloomington, IN 47401 / v: 1 2 / *C 71

ANDERSON, William P. / director / b: 1925 / ed: BA, Macalester; MS, Univ of Minnesota / ent: 1955 / m-i: A Mg Ma Sy; languages / t: director, computer center / org: San Fernando Valley State College, Northridge, CA 91324 / pb-h: ACM, MAA / h: 12322 23rd Helena Dr, Los Angeles, CA 90049 / v: 2 / *C 70

*ANDERT, D. J. / h: 410 Meadow, Anaheim, CA 92803 / v: 2 / *C 71

*ANDRESEN, Kenneth W. / ed: BS, MSEE, IIT / org: K-WARE, Inc, 3100 S Mich Ave, Chicago, IL 60616 / v: 3 / *C 71

*ANDRESS, Claude J. / pb-h: DPMA / v: 2 / *C 71

*ANDREWS, Peter B. / pb-h: 1 book, 5 articles / v: 3 / *C 71

ANGLEMYFR, Lawrence Lee / programmer, systems designer / b: 1933 / ed: BA, bus admin / ent: 1957 / m-i: B D Mg Sa / t: programmer systems analyst / org: The Boeing Co, 3801 S Oliver, Wichita, KS 67210 / pb-h: - / h: R #1, Augusta, KS 67010 / v: 1 2 / *C 70

ANTHONY, Michael / manager DP / b: 1934 / ed: BEE / ent: 1958 / m-i: A D Mg Sy / t: coordinator of computer services / org: Caltex Oil Pty, Ltd, 167 Kent St, Sydney 2000 Australia / pb-h: Fellow, Aus Computer Soc (FACS), BCS / h: 7 Beauchamp Ave, Chatswood, NSW 2067, Australia / v: 2 3 / *C 70

*APPELBAUM, Lawrence T. / ed: Univ of Notre Dame; St. Louis Univ; Univ of Virginia / v: 3 / *C 71

*APPLEBAUM, Frank H. / pb-h: treasurer Annual National Information Retrieval Colloquium, ACM, IEEE; "Sorting in the RCA 501", ACM conference, 1959 / v: 1 / *C 71

**APPLEQUIST, H. Duane / management / b: 1924 / ed: Univ of Cincinnati / ent: 1959 / m-i: A B Mg / t: plant superintendent / org: Standard Oil Co (Ohio), No 2 Refinery, Cleveland OH 44127 / pb-h: Production & Inventory Control Handbook (APICS), IMS, registered professional engineer in Ohio / h: 701 Walnut Dr, Euclid, OH 44132 / v: 2 / *C 71

*ARCHER, Donald V. / h: 3699 E Nobles Rd, Littleton, CO 80122 / v: 2 / *C 71

*ARCHIBALD, Russell D. / org: ITT Corp, 320 Park Ave, New York, NY 10022 / pb-h: co-author Network Based Management Systems (PERT/CPM); 40 papers; AIAA; TIMS; VP Project Management Inst / h: 8 River Lane, Westport, CT 06880 / v: 3 / *C 71

*ARMBRUSTER, Larry F. / h: PO Box 262, Charlton Heights, WV 25040 / v: 2 / *C 71

*ARNETTE, Ruth / v: 1 3 / *C 71

*ARNOLD, Dorothy G. / v: 1 / *C 71

*ARNOLD, Herbert, III / executive / ed: BS, SMU / t: vice president / org: DPA, Inc, 2636 Farrington, Dallas, TX 75207 / h: 7209 Fernmeadow Dr, Dallas, TX 75240 / v: 3 / *C 71

*ARNOLD, L. Wayne / ed: JD, Detroit College of Law / pb-h: Amer Jurisprudence Award, 1969 - Simulation Councils, Amer Soc of Intnl Law, Intnl Studies Assoc, APSA, Peace Research Soc (Intnl), World Peace Through Law Center / v: 3 / *C 71

*ARNONE, Patrick J. / org: Computer Network Corp, 5185 MacArthur Blvd, NW, Washington, DC 20016 / v: 2 / *C 71

*ARNOTT, Richard D. / pb-h: first insurance company payroll application on IBM 650, national director and officer, IASA / h: 701 Warren Ave, Washington CH, OH 43160 / v: 2 / *C 71

*ARON, Joel D. / v: 1 2 / *C 71

*ARRINGTON, J. L., II / ed: BScEE, USN Post Graduate School; MSEE / t: manager, process computers / v: 2 / *C 71

*ARRINGTON, Wendell S. / org: Wyeth Labs, PO Box 8299, Philadelphia, PA 19101 / v: 2 / *C 71

*ASHKINOS, Stanley / v: 2 / *C 71

*ASTRAHAN, Morton M. / t: research staff member / org: IBM Research Div, Monterey & Cottle Rds, San Jose, CA 95114 / pb-h: first chmn, IRE PGEC ('51-53); chmn, National Joint Computer Committee ('56-58), fellow of the IEEE (1969), chmn of AFIPS Joint Computer Conference Committee ('66-69) / v: 1 / *C 71

*AUFENKAMP, Darrel Don / t: head, computer applications in research / h: 2942 Hewitt Ave, Silver Spring, MD 20906 / v: 3 / *C 71

*AULT, J. Gilbert / org: Ranger Insurance, 5333 Westheimer, Houston, TX 77027 / v: 2 / *C 71

*AUSLANDER, David M. / m-i: A Sy / v: 3 / *C 71

*AUSTIN, Hubert / ed: BSEd, MA, EdD / h: 1929 Woodmont Dr, Muncie, IN 47304 / v: 2 / *C 71

## B

*BACA, Apolonio / project manager / t: project manager / pb-h: DPMA, SPE, Texas Society Professional Engineers / v: 2 / *C 71

*BACHHUBER, John J. / h: 1818 E Lindbergh St / v: 1 2 / *C 71

*BAER, Daniel J. / v: 3 / *C 71

BAILEY, Robert E. / executive / b: 1949 / ed: AS, science / ent: 1969 / m-i: P Mg / t: president / org: Analex Programs Inc, N Country Rd, Wading River, NY 11792 / pb-h: - / h: Box 448, Wading River, NY 11792 / v: 1 / *C 70

*BAILEY, William S., Jr. / t: programmer, analyst / pb-h: AMA, ACM, DPMA, registered business programmer by DPMA / h: 5650 Del Monte, Houston, TX 77027 / v: 1 / *C 71

*BAIN, Dennis A. / org: Transport Clearings, PO Box 3220, St Paul, MN 55101 / v: 2 / *C 71

*BAKER, Jack / v: 2 / *C 71

*BAKER, Ronald A. / org: Coty Div of Pfizer, Inc, 235 E 42 St, New York, NY 10017 / pb-h: CDP, DPMA / v: 2 / *C 71

**BAKER, William A. / director EDP research / b: 1936 / ed: AB, political science, Duke Univ / ent: 1961 / m-i: B Mg P Sy; software & hardware / t: director / org: Aetna Life & Casualty, 151 Farmington Ave, Hartford, CT 06115 / pb-h: CDP, chmn of GUIDE Remote Computing Group, past pres of Telecomputer Applications Group / 26 Wolcott Ln, Vernon, CT 06066 / v: 2 / *C 71

*BALDWIN, George L. / m-i: Mg Sy / t: director, computing technology center / org: Bell Telephone Labs, Murray Hill, NJ 07974 / pb-h: IEEE, ACM / v: 2 / *C 71

*BALDWIN, Ruth C. / v: 1 / *C 71

*BANKS, F. E. / pb-h: CDP, past pres Akron chapter and international director ASM, lecturer Univ of Akron, 3 papers / v: 2 / *C 71

BARBER, D. L. A. / systems programmer / b: 1929 / ed: London BS; C Engrg; MIEE / ent: 1954 / m-i: Mg Sy / t: head, information systems branch / org: Ministry of Technology, Computer Science Div, NPL, Teddington, Middlesex, England / pb-h: - / h: 26 Gordon Rd, Shepperton, Middlesex, England / v: 3 / *C 70

*BARGER, Kenneth R. / h: 12244 Pointer Hill Ct, Ellicott City, MD 21043 / v: 1 / *C 71

*BARNETT, Arnold / m-i: A B Mg Sa Sy; education &

consulting / pb-h: ACM, ASM, DPMA, ACPA, ASIS, AMS, IMS (science), ASTD (development), SMIS, CPA, CDP; books: Effective Systems Development & Effective Data Systems Development / v: 3 / *C 71

*BARNICLE, John F. / senior director / t: senior director, mgmt info services / org: Triangle Industries, 550 Broad St, Newark, NJ 07102 / pb-h: intnl dir SPA, chapter vice pres NAA, numerous articles, speaker at AMA & professional meetings, CDP / v: 2 / *C 71

*BAROLET, John A. / aircraft weapons systems testing / org: Systems Analysis Group, Weapons Systems Test Div, Naval Air Test Center, Patuxent River, MD 20670 / h: 108 Elliott Ct, California, MD 20619 / v: 3 / *C 71

*BARON, Thomas M. / h: 3514 White Ave, LaVerne, CA 91750 / v: 1 / *C 71

**BARTELL, Kenneth N. / staff coordinator computer systems / b: 1941 / ed: BS, Univ of Calif, Berkeley; MPA Calif State Coll, Hayward / ent: 1969 / m-i: Sa Sy; sales forecasting, mgmt information systems design, mini-computer mktg / t: staff coordinator computer systems / org: Moore Business Forms, Inc, 2950 Peralta Oaks Ct, Oakland, CA 94605 / pb-h: - / h: 2123 Raven Rd, Pleasanton, CA 94566 / v: 3 / *C 71

*BARTON, Samuel G., III / v: 2 / *C 71

*BASHKOW, T. R. / org: Dept of Electrical Engineering & Computer Science, Columbia Univ, New York, NY 10027 / pb-h: Sigma Xi, Tau Beta Pi, Eta Kappa Nu, 11 published papers, edited book for Academic Press / h: Jay St, Katonah, NY 10536 / v: 3 / *C 71

*BASS, William B. / systems analyst / t: admin asst information systems / v: 1 / *C 71

*BASTIAN, Dale W. / v: 2 / *C 71

*BAXTER, Wallace C. Jr. / manager / org: USMC Hoague-Sprague Div, 130 Eastern Ave, Lynn, MA 01903 / h: 149 Burril St, Swampscott, MA 01907 / v: 2 / *C 71

**BAYLES, Richard U. / research & development mgmt / b: 1942 / ed: BSCh / ent: 1960 / m-i: Mg / t: vice pres research & development / org: National CSS, Inc, 460 Summer St, Stamford, CT / pb-h: ACM, SHARE, IBM Outstanding Contribution Award 1968 / h: 18 Calvin Rd, Weston, CT 06880 / v: 1 2 / *C 71

*BEATH, Paul R. / v: 3 / *C 71

*BEATON, Albert Eugene / t: director, office of data analysis research / v: 3 / *C 71

*BEAVEN, Arthur H. — (replacing BGAVEN, Arthur H.) / pb-h: MBCS, author LANGUAGE H Programming Manual / h: 1265 Brainard Woods Dr, Dayton, OH 45459 / v: 1 / *C 71

*BECKER, Edward Charles, Jr. / pb-h: pres DPMA; VP, Sales & Marketing Assoc / v: 2 / *C 71

*BEELER, Leon E. / v: 1 2 / *C 71

*BEGEDDOV, Aharon G. / h: Weizmann Institute of Science, Rehovot, Israel / v: 1 3 / *C 71

*BEIN, Donald H. / division general manager / t: manager data systems div / v: 2 / *C 71

*BELL, C. Gordon / t: professor / pb-h: ACM, IEEE, Eta Kappa Nu; articles, co-author 1 book / v: 3 / *C 71

*BELL, James R. / m-i: D P / v: 1 2 / *C 71

*BELLI, Barth J. / h: 196 Maplewood Ave, Clifton, NJ 07013 / v: 2 3 / *C 71

*BELLOMY, Fred L. / t: manager / org: UC Library, Santa Barbara, CA 93106 / pb-h: past chmn IEEE nuclear science group, ACM, SID "Digital Differential Analyzer" "Systems Approach", IEEE Santa Barbara Section, chmn 70-71; Pub Mgmt Planning for Lib Syst Dev in Jola / h: 5150 Vista Bahia, Santa Barbara, CA 93105 / v: 2 / *C 71

*BENIMA, Benno / h: 82 Kingswood Rd, Auburndale, MA 02166 / v: 1 2 / *C 71

*BENNETT, James H. / b: 1938 / h: Rt 518 Blawenburg, NJ 08504 / v: 2 / *C 71

*BERG, Hans S. / h: 12560 Woodley Ave, Granada Hills, CA 91344 / v: 1 3 / *C 71

BERGER, Alan / manager-systems support / m-i: A L Mg Sy / t: manager-systems & applic support / v: 1 / *C 71

BERGES, George A., Jr. / research associate / b: 1942 / ed: PhD, elec engrg / ent: 1966 / m-i: A / t: research assoc / org: Montana State Univ, Bozeman, MT 59715 / pb-h: ACM, IEEE, SID / h: 1448 Ash, Bozeman, MT 59715 / v: 3 / *C 70

*BERGMAN, Ray Eldon / org: Naval Civil Engineering Lab, Code L53, Port Hueneme, CA 93043 / pb-h: NYAS, AAAS, 12 publns in numerical methods for computers, simulation & math modeling of large physical & organizational systems, American Men of Science, Who's Who in the West / h: 1572 E Prima Ct, Camarillo, CA 93010 / v: 1 3 / *C 71

*BERGQUIST, J. William (Dr.) / v: 3 / *C 71

*BERGSTRESSER, Richard V. / org: IBM, 1133 Westchester Ave, White Plains, NY 10604 / v: 2 / *C 71

*BERKELEY, Edmund Callis / b: 1909 / v: 1 2 3 / *C 71

*BERNARD, Robert H. / ent: 1958 / t: chmn / org: Natl CSS, Inc, 460 Summer St, Stamford, CT 06901 / v: 1 2 / *C 71

*BERRY, J. Douglass / v: 2 / *C 71

*BERTONE, C. M. / ed: PhD, psychology / org: Bunker Ramo Corp, 31717 La Tienda Dr, Westlake Village, CA 91360 / v: 3 / *C 71

BESSIS, George / educator / b: 1931 / ed: doctorates sciences physiques / ent: 1958 / m-i: Ma P; theoretical physics / t: professor / org: Faculte des Sciences de Lyon, 69 Villeurbaune, France / pb-h: APS; over 20 publns / h: - / v: 3 / *C 70

*BETTS, Joseph M., Jr. / pb-h: AERA, AAAS, ACM, ADIS; 12 papers / h: 103 W George Mason Rd, Falls Church, VA 22046 / v: 1 / *C 71

*BICK, Ellis T. / pb-h: ASM (Mgmt), CDP / v: 2 / *C 71

*BICKFORD, Paul A. / h: 205 Spring St, Apt 1, Greencastle, IL 46135 / v: 2 / *C 71

*BIERMAN, Kenneth John / pb-h: ALA; ASIS; several publns / h: 1824 Cameron Ave, Moore, OK 73060 / v: 2 / *C 71

*BIGELOW, Richard / pb-h: NCTM, AAAS / v: 2 / *C 71

*BIRD, Richard M. / v: 2 / *C 71

*BISHOP, Ronald A. / ed: business school; mgmt course, Univ of Nebraska at Omaha / v: 2 / *C 71

*BLALOCK, James E. / org: Naval Ship Research & Development Center, Washington, DC 20034 / pb-h: officer ALWAC users assn, XDS users assn / v: 3 / *C 71

*BLEDSOE, Lewis J. / h: 2918 Deon Dr, Ft Collins, CO 80521 / v: 1 / *C 71

*BLESSUM, William T. / t: assistant professor, acting director-Biometrics Lab / h: 2792 Vireo, Costa Mesa, CA 92626 / v: 3 / *C 71

*BLISHAK, Theodore L. / t: manager, electronics development / org: SCM Radiation Lab, 3210 Porter Dr, Palo Alto, CA 94304 / h: 430 Claremont Way, Menlo Pk, CA 94025 / v: 3 / *C 71

*BLOCK, Charles / v: 2 / *C 71

*BLUE, Allan G. / org: Advanced Research Projects Agency, DOD, RM 730, 1400 Wilson Blvd, Arlington, VA 22209 / v: 2 / *C 71

*BLUMBERG, Samuel / org: US Government, Dept of Defense, Defense Documentation Center, Bldg #5, Cameron Station, Alexandria, VA 22314 / pb-h: CDP, designed & taught course in basic programming; authored Defense Documentation Center Report on Computer-Output-Microfilm (AD 708-600) / h: 6168 Edsall Rd, #23, Alexandria, VA 22304 / v: 1 / *C 71

*BLUMENSTEIN, Brent A. / h: 1501 Clairmont Rd, Decatur, GA 30033 / v: 1 2 / *C 71

*BOCKELMAN, Melvin / h: 6020 Main, Kansas City, MO 64113 / v: 2 / *C 71

*BOCKIAN, James B. / t: principal consultant; manager

of systems services / org: McDonnell Douglas Automation Co, 666 Park Ave, East Orange, NJ 07017 / v: 3 / *C 71

*BOESCH, Kenneth C. / t: corporate systems and O/R mgr / org: Anaconda Aluminum Co, PO Box 1654, Louisville, KY 40201 / pb-h: SPA, ASM / h: 10602 Sunderland Rd, Louisville, KY 40243 / v: 2 / *C 71

**BOGAN, Thomas M. / systems supervisor / b: 1941 / ed: BA, philosophy, MBA, administrative science / ent: 1962 / m-i: A B Mg P Sy / t: supervisor systems / org: Chrysler Corp, SIPC, Highland Pk, MI 48203 / pb-h: CDP / h: 27071 Arden Pk Circle, Farmington, MI 48024 / v: 2 / *C 71

*BOLL, William L. / executive / t: vice president / org: Automatic Data Processing of S W Conn, Inc, 264 Atlantic St, Stamford, CT 06901 / pb-h: - / h: 8 Dibble St, Rowayton, CT 06853 / v: 2 / *C 71

*BOND, Richard A. / t: department manager / org: Systems Development Corp, PO Box C, Whippany, NJ 07981 / v: 2 / *C 71

*BOOKE, Henry M. / manager technical support staff / ed: BIE, North Carolina State Univ / v: 2 / *C 71

*BORST, Richard / computing center director / t: director, computing center / v: 2 / *C 71

*BOST, John D. / h: 4372 Motor Ave, Culver City, CA 90230 / v: 1 / *C 71

*BOWDEN, John C. / v: 2 / *C 71

*BRADY, David A. / v: 1 2 / *C 71

*BRANDT, Ronald J. / pb-h: CDP, DPMA, ASM, pres Madison Chapter SAM, Fellow LOMAI / v: 2 / *C 71

*BRASS, Ivan / ed: BS, New York Univ; MBA, Adelphi Univ / v: 1 / *C 71

*BRAY, Thomas A. / org: Boeing Scientific Research Labs, PO Box 3981, Seattle, WA 98124 / v: 1 / *C 71

BRECHER, Mary Louise / programmer, analyst / b: 1944 / ed: BS, math, Carnegie Mellon Univ / ent: 1966 / m-i: A D P Sa / t: systems engineer / org: Westinghouse Tele-Computer Systems Corp, 2040 Ardmore Blvd, Pittsburgh, PA 15221 / pb-h: Pi Delta Epsilon / h: 305 Michael Dr, Irwin, PA 15642 / v: 1 / *C 71

*BREMER, John P. / b: 1926 / t: principal / org: Systemation Assoc Inc, 36 Washington St, Wellesley Hills, MA 02181 / h: 25 Marlborough St, Boston, MA 02116 / v: 2 / *C 71

*BREMNER, Richard W. / t: project manager / v: 2 / *C 71

*BREWER, Bob R. / org: Dept of Labor & Industries, Washington State, Olympia, WA 98501 / h: 1123 Homann Dr, Lacey, WA 98501 / v: 1 / *C 71

*BRIDGES, Robert G. / pb-h: ASM / v: 2 / *C 71

*BRIDGHAM, Minot R. / ed: BSCE, MIT; MCE, Brooklyn Polytechnic Inst / pb-h: ACM, CDP, ex-Assoc SOA / v: 3 / *C 71

*BROCK, John J. / engineering manager / t: department manager / v: 1 / *C 71

*BROMBERG, Howard / m-i: B P; proprietary packages, pre-compilers, standards / t: president / pb-h: chief U S delegate to the ISO Technical Comm on Programming Languages Standardization; chmn ANSI COBOL Comm; ACM, SIGPLAN, BCS, CODASYL, USASI, AFIPS; many published articles / v: 2 / *C 71

**BROOKS, Frederick Phillips, Jr / professor / b: 1931 / ed: BA, physics, Duke Univ; SM, PhD, applied math, Harvard Univ / ent: - / m-i: education / t: professor, chmn dept of com sci / org: Univ of North Carolina, Chapel Hill, NC 27514 / pb-h: ACM, AAAS, Fellow, IEEE; Phi Beta Kappa, Sigma Xi, 5 patents, 5 computer designs, film, numerous books, papers, & lectures, McDowell Award, DPMA "Man of the Year" / h: - / v: 2 3 / *C 71

*BROOKS, Warren B. / manager, computer & telecommunications dept / org: Mobil Oil Corp, 150 E 42nd St, New York, NY 10017 / v: 2 / *C 71

*BROWN, Donald Meeker / v: 1 / *C 71

*BROWN, Francis J. / t: assistant professor / pb-h: DPMA, ISA, AEDS, NBEA, Delta Pi Epsilon, Iota Lamda Sigma / h: 1410 N Wash Ave, Royal Oak, MI 48067 / v: 3 / *C 71

*BROWN, George J. / systems-mgmt / t: mgmt analyst / org: Executive Office of the President, Office of Mgmt & Budget, Washington, DC 20503 / h: 1203 Fourth St, SW, Washington, DC 20024 / v: 1 / *C 71

*BROWN, Ira B. / v: 2 3 / *C 71

*BROWN, Lawtence / v: 1 / *C 71

*BROWN, Robert J. / ed: BSEE, Univ of Illinois; MBA cand, Indiana Univ / h: R R 8, Columbus, IN 47201 / v: 2 / *C 71

BROWN, Robert R. / computer scientist / b: 1926 / ed: PhD, math, UCLA / ent: 1952 / m-i: A Ma / t: vice pres / org: Arcata National, 2750 Sand Hill Rd, Menlo Park, CA 94025 / pb-h: - / h: 495 Arbor Rd, Menlo Park, CA 94025 / v: 2 / *C 70

*BROWNE, James C. / v: 3 / *C 71

*BRUCKS, Norman / executive / org: Brucks Personnel Corp, 2541 Monroe Ave, Rochester, NY 14618 / v: 2 / *C 71

*BRYANT, Howard W. / h: 568 Jordan Rd, McFarland, WI 53558 / v: 2 / *C 71

*BUFFORD, Robert E. / h: 361 Greenmore, Ballwin, MO 63011 / v: 2 / *C 71

BULGREN, William G. / educator / b: 1937 / ed: BA, MS, PhD, Iowa / ent: 1959 / m-i: A Ma P Sy, simulation / t: assoc prof cmptr sci / org: Univ of Kansas, Lawrence, KS 66044 / pb-h: 2 books, 15 papers / h: 515 Kasold Dr, Lawrence, KS 66044 / v: 3 / *C 70

*BULGRIN, James G., Jr. / h: 835B Country Club Dr, Libertyville, IL 60048 / v: 2 / *C 71

*BUNN, A. Owen / t: asst vice pres / pb-h: DPMA / v: 2 / *C 71

*BURGER, Norman A. / executive / t: president / org: Corporate Computers Inc, 420 Lexington Ave, New York, NY 10017 / v: 2 / *C 71

*BURNETT, Barbara / t: assoc operations research mathematician / v: 1 / *C 71

*BUTLER, Donovan W. / pb-h: Operations Comm, Bank Admin Inst / h: 1011 Court Dr, Charlotte, NC 28211 / v: 2 / *C 71

BUTLER, James Earl / system analyst / b: 1943 / ed: ScB, chem / ent: 1966 / m-i: A B D Sa / t: system analyst / org: B.F. Goodrich Co, 500 S Main St, Akron, OH 44318 / pb-h: - / h: 1320 Lake Roger Dr, Kent OH 44240 / v: 1 / *C 71

*BUTLER, Kenneth, Jr. / v: 3 / *C 71

## C

*CADY, Lee Dr. / t: adjunct prof med (biomath) / v: 3 / *C 71

*CALDWELL, R. Dean / org: Data Systems, Inc, Hennepin Square, 2021 E Hennepin Ave, Minneapolis, MN 55413 / h: 5874 Hackmann Ave, Minneapolis MN 55432 / v: 2 / *C 71

*CALLAHAN, William P. / org: Holyoke Works, Compressor & Engine Intn'l, Div. of Worthington Corp, 37 Appleton St, Holyoke, MA 01040 / v: 2 / *C 71

CALLAWAY, Royce, L. / product manager / b: 1934 / ed: BS geology, math / eng: 1959 / m-i: medium systems/ t: product manager/ org: Burroughs Corp, 460 Sierra Madre Villa, Pasadena, CA 91107 / pb-h: - / h: 3626 Tilden Ave, Los Angeles, CA 90034 / v: 2 / *C 70

*CAMPBELL, Rex R. / t: director of demographic data service / v: 3 / *C 71

*CANDLIN, Hugh / m-i: A B L P Sy / org: Blue Cross Assoc, 520 N Dearborn, Chicago, IL 60610 / h: 1455 W Highland Ave, Chicago, IL 60626 / v: 1 / *C 71

*CANNON, Francis R. / v: 1 3 / *C 71

*CANTER, John D. / m-i: P Sy; information theory, heuristics, information storage & retrieval, bio-

medical computing, graphics / pb-h: Phi Beta Kappa, 8 publns / v: 3 / *C 71

*CANTOR, David G / pb-h: ACM, MMA, AMS, Sloan fellow, numerous research papers / h: 20259 Inland La, Malibu, CA 90265 / v: 2 / *C 71

*CARELLI, Ralph, Jr. / v: 2 / *C 71

*CARLEY, William F. / org: Data Systems Analysts Inc, Pennsauken, NJ 08109 / h: Gomorushof 102, Hilversum, Netherlands / v: 1 / *C 71

CAROL, Bernard/ statistical consultant / b: 1914 / ed; BA, MS in ed; MA, math stat / ent: 1953 / m-i: A / t: biomathematician / org: Montefiore Hospital & Medical Center, 111 E 210 St, Bronx, NY 10467 / pb-h: 22 articles on theory & practice of statistics with computer application / h: 15 Linden St, Great Neck, NY 11021 / v: 3 / *C 70

*CARROLL, Robert L. / h: 619 Addison St, Philadelphia, PA 19147 / v: 2 / *C 71

*CARSON, Doyne J. / t: general mgr - corp dp / pb-h: CDP, registered business programmer / v: 2 / *C 71

*CARTER, Harvey P. / v: 2 / *C 71

*CARTER, Launor F. / v: 2 / *C 71

*CARTER, Robert L., Jr. / eng: 1956 / t: chief / org: LTV Aerospace Corp. Vought Aeronautics Co, POB 5907, Dallas, TX 75222 / h: 1724 Ridgeview Dr, Arlingt, TX 76012 / v: 2 / *C 71

*CARTER, William Caswell / pb-h: SIAM, IEEE, national lecturer ACM, American Men of Science, Phi Beta Kappa, Sigma Xi, American Assn of Rhodes Scholars, 32 technical papers, 13 patents / v: 3 / *C 71

*CASALI, Harold O. / t: director of DP / org: State of West Va, Dept. of Finance & Admin, Charleston, WV 25305 / h: 721 Canterbury Dr, Charleston, WV 23514 / v: 1 2 / *C 71

*CATANZARO, Thomas P. / m-i: A B L Mg P Sa Sy / v: 1 2 / *C 71

*CATRAMBONE, Joseph A. / administrator / v: 2 / *C 71

*CAVES, William E. / ed: BA, physics, The George Washington Univ / v: 3 / *C 71

*CAYLOR, Myron G. / t: control manager / org: MDC Data Centers Inc, 26 Fellowship Rd, Cherry Hill, NJ 08034 / v: 3 / *C 71

*CELMINS, Airvars/ ed: Dr rer nat Clausthal, Germany / v: 3 / *C 71

*CHAITIN, Leonard J. / m-i: A Mg P Sy; compilers, time-sharing, real time, artificial intelligence, on line MIS / t: senior systems programmer / v: 1 / *C 71

*CHAMBERS, Robert L. / org: Westinghouse Electric Corp, 700 Bradock Ave, 7L47, East Pittsburgh, PA 15112 / pb-h: past chmn Pittsburgh chapter ACM, ASME, IEEE, Pennsylvania PE; 3 transaction papers / h: 348 Long Rd, Pittsburgh, PA 15235 / v: 2 / *C 71

CHAN, Shu-Park, Dr. / educator / b: 1929 / ed: PhD, in EE, Univ. of Ill. / ent: 1960 / m-i: A Ma / t: professor & chairman of EE Dept / org: Univ of Santa Clara, Dept of Elec Engrg, Santa Clara, CA 95053 / pb-h: Introductory Topological Analysis of Electrical Networks, numerous papers, Tau Beta Pi, Eta Kappa Nu, Pi Mu Epsilon, Phi Kappa Phi, Sigma Xi, IEEE / h: 2085 Denise Dr, Santa Clara, CA 95050 / v: 1 3 / *C 70

*CHAPIN, Ned / pb-h: 5 books & more than 50 papers; memberships in more than a dozen associations; CDP, RBT, PE / v: 3 / *C 71

**CHASE, Milton / supervisory computer systems analyst / b: 1928 / ed: Temple Univ / ent: 1956 / m-i: A B Mg P Sy / t: chief, applications analysis division / org: USA Electronics Command, 225 S 18th St, Philadelphia, PA 19103 / pb-h: ORS, Assoc of US Army, US Naval Institute / h: 2033 Nester St, Philadelphia, PA 19115 / v: 2 1 / *C 71

*CHASE, Peter Paul / pb-h: ACM, Pi Mu Epsilon, 3 papers / h: 3044 Matilda St, Coconut Grove, FL 33133 / v: 3 / *C 71

*CHENEY, Philip W. / h: 20 Old Village Rd, Acton, MA 01720 / v: 2 / *C 71

CHENG, George C. / research and managing / b: 1929 / ed: BA, economics, MSEE / ent:1959 / m-i: A D Mg Sy / t: biomathematics div head / org: National Biomedical Research Foundation, Silver Spring, MD 20901 / pb-h: over 30 publns / h: 11200 Lockwood Dr, Apt 118, Silver Spring, MD 20901 / v: 2 3 / *C 70

*CHEYDLEUR, Benjamin F. / v: 2 / *C 71

*CHI, Benjamin E. / t: chairman / v: 3 / *C 71

**CHIAPPINELLI, A., Jr. / consultant-EDP / b: 1932 / ed: BA; grad studies in statistics / ent: 1956 / m-i: Mg Sy / t: pres / org: Computer Methods Corp, 470 Mamaroneck Ave, White Plains, NY 10605 / pb-h: lecturer AMA, ACM, DPMA, ASM, SRI / h: Allison Rd, Katonah, NY 10536 / v: 2 3 / *C 71

CHICOREL, Marietta / executive and educator / b: - / ed: MA, Lib Sci / ent:1964 / m-i: B; publishing, consultant, education / t: pres, asst prof / org: Chicorel Library Publg Corp, 330 W 58 St, New York, NY 10019; Queens College, Flushing, NY / pb-h: - / h: 315 W 57 St, New York, NY 10019 / v: 3 / *C 71

*CHRISMAN, Campbell H., Jr. / t: branch head, data systems branch / org: US Naval Research Lab, Code 7930, Washington, DC 20025 / v: 3 / *C 71

**CHRIST, Duane M. / programmer / b: 1932 / ed: BS, Iowa State; MA, Univ of Minnesota / ent: 1960 / m-i: A D Ma P Sy / t: staff programmer / org: IBM, New York, NY 10020 / pb-h: ACM, ORSA, SIAM / h: 502 W 122 St, New York, NY 10027 / v: 1 / *C 71

*CHUANG, Yin Huang / t: associate professor / h: 12538 Fee Fee Rd, Creve Coeur, MO 63141 / v: 3 / *C 71

CICCHETTI, John B. / v: 3 / *C 71

**CICONE, Ralph J. / data processing manager / b: 1923 / ed: AS, data processing / ent: 1957 / m-i: B D L Mg P Sy / t: dir of mgmt information sys / org: Philip A Hunt Chemical Corp, Roosevelt Place, Palisades Park, NJ 07650 / pb-h: pres Honeywell Users Org Eastern Region; pres DPMA Garden State Chapter / h: 17 Marcy St, Bloomfield, NJ 07003 / v: 2 / *C 71

*CLAFFEY, William J. / pb-h: texts Principles of Data Processing Dickenson Publ, '67; Principles of Programming the IBM 1620 Dickenson Publ, '68 Keypunch Operation Dickenson Publ, '69 / v: 3 / *C 71

**CLARK, John R. / teacher / b: 1932 / ed: MS, Univ of Kansas, M Ed, Harvard / eng: 1957 / mi: Ma P; teaching techniques, Computer Assisted Instruction / t: Consultant Computer Assisted Instruction / org: Coast Community College District, Costa Mesa, CA 92626 / pb-h: "Comments and Curricula Related to Third Generation Data Processing and Specifically IBM S/360"; RPG I and RPG II Programming for S/360 and S/3"; ACM, APL Users Group, MAA, NCTM / h: 2701 Fairview Rd, Costa Mesa, CA 92626 / v: 2 3 / *C 71

*CLARK, Linda M. / consultant / t: president / pb-h: vice pres Chicago chapter ASA (Stat) 1970-71, director, Chicago chapter ASA (Stat) 1971-72, lecturer AMA (Mgmt) seminar on Computer-based Data Systems for Market Research; author 2 articles on computer use in medical research / v: 3 / *C 71

*CLARKE, Alfred L. / manager / pb-h: Chairman COM policy committee, NMA / v: 2 / *C 71

CLARKE, Richard W. / executive / b: 1930 / ed: BME; BS, Univ of Minn/ ent: 1956 / m-i: Mg / t: president / org: Data Action Corp, 4445 W 77 St, Minneapolis, MN 55435 / pb-h: Tau Beta Pi, Pi Tau Sigma; patented flying head device / h: 16535 Ninth Ave North, Wayzata, MN 55391 / v: 3 / *C 70

*CLAY, James R. / pb-h: AMS, MAA, Sigma Xi, American Men of Science, Who's Who in the West, numerous publications / h: 2201 Frannea Dr, Tucson, AZ 85712 / v: 3 / *C 71

*CLIPPINGER, R. F. / h: 41 Joellen Dr, Merrimack, NH 03054 / v: 3 / *C 71

*CLOVER, H. Dick / executive / t: vice president, GSA & Master Agreements / h: 2201 E Old Shakopee Rd, Bloomington, MN 55420 / v: 2 / *C 71

*CLUTTERHAM, David R. / v: 3 / *C 71

**COADY, Edward R. / computer systems administrator / b: 1931 / ent: BS, MS / eng: 1956 / M-i: Mg / t: chief, EDP branch / org: Social Security Adm, Rm 20A-10, 6401 Security Blvd, Baltimore, MD 21235 / pb-h: "Selection & Training of Computer Personnel at Social Security Adm" (paper delvd at SJCC-70 IFIP World Conference on Computer Education, 1970), ACM / h: 1629 Kirkwood Rd, Baltimore, MD 21207 / v: 2 / *C 71

*COFFMAN, T. Edgar / M-i: A B Mg P Sy / t: technical services manager / pb-h: CDP, ASM / v: 2 / *C 71

*COHAN, Morton D. / t: manager computer science / org: E. R. Squibb & Sons, 25 Kennedy Blvd., E Brunswick, NJ 08816 / h: 43 Sudbury Rd, Morganville, NJ 07751 / v: 2 / *C 71

*COHEN, Edwin / v: 3 / *C 71

*COHN, Charles E. / pb-h: Phi Beta Kappa, Sigma Xi, ANS, APS, MENSA; 14 publications / v: 3 / *C 71

*COHN, Marius / pb-h: "Redundancy in Complex Computers", NAECON 1956, Axiomatic Majority Decision Logic", IRE PGEC Transactions 1961 / v: 2 3 / *C 71

*COLEMAN, Thomas F. / t: pres / org: Coleman & Assoc, 1136 Terminal Tower, Cleveland, OH 44113 / pb-h: ACM, ASM, CDP, RBP / h: 1212 Cranford, Lake-Wood, OH 44107 / v: 3 / *C 71

*COLES, L. Stephen / v: 1 / *C 71

*COLLEN, Morris F. / h: 4155 Walnut Blvd, Walnut Creek, CA 94598 / v: 3 / *C 71

*COLLIER, Richard H. / m-i: P Sy / t: systems programmer / h: Salem Rd, N Billerica, MA 01861 / v: 1 / *C 71

**COLLINS, Eugene J. / executive / b: 1933 / ed: BS, bus admin, Univ of Maryland / ent: 1956 / m-i: Mg Sa Sy / t: vice pres, plans / org: Computer Data Systems, Inc, 8121 Georgia Ave, Silver Spring, MD 20910 / pb-h: LADV, JAC, AMA, ACM / h: 610 E Capitol St, Washington, DC 20002 / v: 2 / *C 71

COLLINS, Patrick M. / h: 211 E Avondale Dr, Greensboro, NC 27403 / v: 3 / *C 71

*COLLINS, Robert C. / v: 1 2 / *C 71

*COMBES, J. H. / t: controller / v: 2 / *C 71

*COMBS, Walter H. / ed: acctg diploma, LaSalle; executive training, Univ of Mich; AB, math / v: 2 / *C 71

*COMPARETTA, Guy F. / t: sr computer programmer / org: New York State Dept Social Services, 1450 Western Ave, Albany, NY 12203 / h: 3 Northgage Dr, Albany, NY 12203 / v: 1 / *C 71

*CONGDON, Frank P., Jr. / pb-h: distinguished service award and international vice-president ASM, charter member SMIS, DPMA / v: 2 / *C 71

*CONKLING, Charles R., Jr. / org: Logos Designs, Inc, PO Box 310, Shoreham, NY 11786 / v: 2 3 / *C 71

*CONLEY, G. Emery / org: Conley Resources & Cybernetics Corp, Suite 28, 7801 E Belleview, Englewood, CO 80110 / v: 3 / *C 71

*CONROY, Robert J. / t: director, computer systems / v: 2 / *C 71

*COOLEY, Paul R. / h: 2525 Kelton Ave, Los Angeles, CA 90064 / v: 1 / *C 71

*COOPER, Stanley B. / h: 11637 Lockwood Dr, Apt 204, Silver Spring, MD 20904 / v: 3 / *C 71

**CORY, J. P. / advanced planning / b: 1931 / ed: AB, MS / ent: 1956 / m-i: A B Mg Sy / t: advisory requirements administrator / org: IBM, 1133 Westchester Ave, White Plains, NY 10604 / pb-h: Articles in American Banker, Frankfurter Allegemeine Zeitung, Diebold Management Practices, IBM Technical Information Exchange, ACM / h: 2 Meadowbank Rd, Old Greenwich, CT 06870 / v: 1 2 / *C 71

COSTELLO, Paul A. / project analyst / b: 1924 / ed: MBA, accounting / ent: 1956 / m-i: A B Mg P Sy; data input preparation / t: pres, chmn of the board / org: US Data Corp, 300 N. Tamiami Trail, Sarasota, FL 33577 / pb-h: DPMA (past pres) / h: 853 Tarawitt Dr, Longboat Key, FL 33548 / v: 1 2 / *C 70

*COURTENAY, Adrian / h: 507 E 87 St, New York, NY 10028 / v: 2 / *C 71

*COWAN, Thomas R. / org: Foster & Marshall Inc, 205 Columbia, Seattle, WA 98104 / h: 15611 SE 24, Bellevue, WA 98008 / v: 2 / *C 71

*CRAMER, Elliot M. / m-i: A Ma; education / t: assoc professor / v: 2 3 / *C 71

*CRANDALL, Richard Leonard / t: president / pb-h: IEEE, ACM, ASQC, chairman FCC Inquiry Committee ADAPSO; several publications / v: 2 / *C 71

*CRAVEN, Frank M. / m-i: B Mg / t: systems manager / v: 1 / *C 71

*CRISP, R. M. Dr. / pb-h: AIIE, ORSA, TIMS, ASEE, 10 publns / h: 2136 Juneway, Fayetteville, AR 72701 / v: 3 / *C 71

*CROCKER, Elizabeth L. Mrs. / ed: BA Univ of Calif at Berkeley, M Ed Univ of Missouri / v: 1 / *C 71

*CROWTHER, R. L. / t: manager, advanced engineering / org: Nuclear Energy Div, General Electric Co, 175 Curtner Ave, MC 151, San Jose, CA 95125 / pb-h: ACM, chairman, 2 committees, ANS; 35 publications / h: 20788 Norada Ct, Saratoga, CA 95070 / v: 3 / *C 71

*CRUZ, Leonardo V. / t: project engineer / h: 79-11 41st Ave, Jackson Heights, NY 11373 / v: 1 / *C 71

*CRUZAN, Marvin C. / t: system programmer / pb-h: ACM, MENSA, SMIS / h: 11622 Greenwood Rd, Kansas City, MO 64134 / v: 1 / *C 71

CULBERTSON, Don Stuart / consultant/ b: 1927 / ed: AB, psychology, Albion Coll; MA, librarianship, Univ of Denver / ent: 1961 / m-i: A D Mg; automation and mgmt systems for libraries and info science / t: executive secretary / org: Information Science and Automation Div - American Library Assoc, 50 E Huron St, Chicago, IL 60611 / pb-h: 10 articles and reports; 6 reviews / h: 530 Hinman, Apt 4-B, Evanston, IL 60202 / v: 3 / *C 70

*CUNNINGHAM, Alan J. / t: computer technical specialist / pb-h: DPMA, ASM, CDP, RBP / v: 2 / *C 71

*CURRIE, John Alan / t: assistant dean / org: School of Engineering, MIT, 77 Mass Ave, Cambridge, MA 02139 / h: 600 High Rock St, Needham, MA 02191 / v: 3 / *C 71

*CUTAIA, Anthony J. / v: 3 / *C 71

CUTHBERTSON, Raymond P. / mktg manager / b: 1923 / ed: Amherst College / ent: 1964 / m-i: total engineering, design and construction of computer rooms / t: environmental marketing manager / org: Created Space Inc, 16 W 40 St, New York, NY 10018 / pb-h: - / h: 10 Nannahagan Rd, Pleasantville, NY 10570 / v: 3 / *C 70

*CUTLER, William C. / executive / t: vice pres information processing div / org: Informatics Tisco, Inc, 6811 Kenilworth Ave, Riverdale, MD 20840 / pb-h: ACM / v: 2 / *C 71

*CYPRUS, Joel H. / org: Texas Instruments Inc, PO Box 1444, Houston, TX 77001 / v: 1 / *C 71

**DACEY, John J., Jr. / programmer / b: 1946 / ed: BA, Northeastern Univ / ent: 1965 / m-i: B L P Sy / t: systems programmer / org: PHI Computer Services Inc, 800 Mass Ave, Arlington, MA 02174 / pb-h: ACM / h: 169 W Brookline St, Boston, MA 02118 / v: 1 / *C 71

*DADD, Robert F. /technical systems manager / t: manager, technical systems & communications / v: 2 / *C 71

DALLAIRE, Rene M. / programmer analyst / b: 1945 / ed: Assoc DPM / ent: 1967 / m-i: A B D L P Sy / t: programmer analyst / org: Arthur D. Little, Inc, 20A Acorn Pk, Cambridge, MA 02140 / pb-h: National Honor Soc, Legion of Honor awards / h: 125 Bowdoin St, Lawrence, MA 01843 / v: 1 / *C 71

*DALPHIN, John F. / educator / t: associate professor, chmn / v: 3 / *C 71

*DATZ, I. M. / pb-h: ACM ORSA, AAAS, AOA, Marine Technology Society, Intl Cargo Handling Coordination Assn, Society of Naval Architects & Marine Engineers, Danish Operations Research Society, numerous publns, book reviewer Journal Marine Technology Society, listed Who's Who in the East, Dictionary of International Biography / v: 3 / *C 71

*DAVIDSON, Leon / org: Metroprocessing Corp of America, 64 Prospect St, White Plains, NY 10606 / pb-h: chmn ACM chapter, Sigma Xi, AIChE, listed in American Men of Science; numerous publications / v: 3 / *C 71

**DAVIS, Perry J. / computer coordinator / b: 1932 / ed: MBA, NYU; AB, Dartmouth / ent: 1962 / m-i: B Mg Sy / t: director of systems & data processing /org: Pepsi-Cola Co, Purchase, NY 10577 / pb-h: ASM, SMIS, AMA Speaker / h: 97 Brook Run Lane, Stamford, CT 06905 / v: 2 / *C 71

*DAVISON, Gerald A. / t: staff programmer / org: IBM Corp, Dept. 928, Bldg 005-3, South Rd, Poughkeepsie, NY 12601 / v: 1 / *C 71

*DAY, William A. / systems-programmer / t: systems manager / v: 1 / *C 71

*DEGEORGE, Peter V. / executive / m-i: B P Mg; operations / t: second vice president / h: Hearthstone Dr, Medfield, MA 02052 / v: 2 / *C 71

DeGIOIA, Joseph / personnel consultant / b: 1942 / ed: BS, Industrial Relations, New York Univ / ent: 1965 / m-i: executive search, personnel recruitment / t: associate / org: Alden Associates, Inc, 414 Hungerford Dr, Rockville, MD 20850 / pb-h: - / h: 48 Fence Line Dr, Gaithersburg, MD 20760 / v: 3 / *C 71

*DEISHER, Richard M. product marketing / v: 3 / *C 71

DEKOM, Anton K. / manager / b: 1926 / ed: BS, BA / ent: 1954 / m-i: Mg / t: director, inform services/ org: Universal Oil Products Co, 30 Algonquin, Des Plaines, IL 60016 / pb-h: The Internal Consultant, articles in Financial Exec, Office, Journal of Amer Safety Engrs, etc. / h: 134 James Ct, Glenview, IL 60025 / v: 2 / *C 70

*DELLER, Steven R. / ed: BS, MS, chemistry / t: systems programmer / pb-h: ACM, ACS, co-author & author of several publications / h: 7138 S Coles Ave, Chicago, IL 60649 / v: 1 / *C 71

*DEMPSEY, Walter T., Jr. / v: 2 / *C 71

*DENIS, Jean-Pierre / org: Daniel Mann Johnson & Mendenhall, 3325 Wilshire Blvd, Los Angeles, CA 90005 / pb-h: DPMA / v: 2 / *C 71

*DERRER, William Lloyd / ed: BBA, Univ of Miami / v: 2 / *C 71

*DERRY, James F. / ed: BS, chemical engineering, Northwestern Univ; MS, polymer chemistry, Univ of Akron / org: Goodyear Tire & Rubber Co, Corporate Engineering, Dept 109 E, Plant 1, Akron, OH 44316 / v: 1 / *C 71

*DEUTSCH, Edna W. / h: 'Struan', Booher Hill Rd, Geneseo, NY 14454 / v: 2 / *C 71

*DEUTSCH, Joseph / h: 1753 Centella Pl, Newport Beach, CA 92660 / v: 1 3 / *C 71

*DEVANEY, Marjorie J. / m-i: Sy / h: 4792 Sandia Dr, Los Alamos, NM 87544 / v: 1 / *C 71

DEVINE, Donald J. / executive / b: 1939 / ed: BA, Univ of Penn; Case Inst of Technology / ent: 1957 / m-i: A Mg P Sy / t: executive vice pres & treas / org: Trilog Associates Inc, 1700 Market St, Philadelphia, PA 19103 / pb-h: ACM, DPMA, Amer Anthropology Assoc, CDP; past chmn CODASYL; JCC "Outstanding Young Men of America", 1965; 3 papers of decision tables / h: The Plaza, Apt. 4N, 18 & Parkway, Philadelphia, PA 19103 / v: 2 / *C 70

*DeWALD, John M. / t: supervisor of data processing / h: 5407 Cresthill Dr, Ft Wayne, IN 46804 / v: 2 / *C 71

*DEWAR, Walter S. / t: vice pres / org: Great Southern Life Insurance Co, 3121 Buffalo Spdwy, Houston, TX 77006 / pb-h: fellow, Society of Actuaries; fellow, AAA; chartered Life Underwriter; past pres, Actuaries' Club of the Southwest / v: 2 3 / *C 71

*diROCCAFERRERA, Giuseppe Ferrero / v: 3 / *C 71

*DOEDE, John H. / t: vice pres / org: Heizer Corp, 20 N Wacker Dr, Chicago, IL 60606 / h: 995 S Waveland Rd, Lake Forest, IL 60045 / v: 2 / *C 71

*DOLKAS, James B. / manager, user services / b: 1931 / ed: BA / ent: 1960 / m-i: A B Mg P Sy; software communications / t: manager, computer users, communications and services / org: Stanford Research Inst, 333 Ravenswood Ave, Menlo Pk, CA 94025 / pb-h: several documents; vice chmn ACM conference 1969; advisor, exec council, ITS; vice chmn, publns FJCC, 1968; gen chmn, ITS (San Francisco), 1968; ACM; IEEE, STWP / h: 3422 Shady Spring Lane, Mountain View, CA 94040 / v: 1 2 / *C 71

*DOLOTTA, T. A. / ed: BA, physics; BSEP, MA, MS, PhD, electrical engineering, Princeton, Univ / ent: 1955 / m-i: A D Mg P Sy / h: - / v: 3 / *C 71

*DOONAN, J. Peter / h: 7 Shady Lane, West Boylston, MA 01583 / v: 2 / *C 71

*DORN, Philip H. / t: consultant, management information services dept / pb-h: past chairman Detroit chapter ACM, past pres SHARE, IEEE Computer Group; several articles and papers; ACM national lecturer 1969 / v: 2 / *C 71

DOUCETTE, David Robert / college instructor, project manager / b: 1946 / ed: BSEE, MSEE, Polytechnic Inst / ent: 1966 / m-i: P Sy, microprogramming, compilers / org: Polytechnic Inst of Brooklyn, 333 Jay St, Brooklyn, NY 11201 / pb-h: Tau Beta Pi, Eta Kappa Nu, IEEE, ACM, two papers / h: 146 Washington Ave, Garden City, NY 11530 / v: 2 / *C 70

*DOUGAN, Roger R. / org: Westinghouse Electric Corp, 1911 Jeff Davis Hwy, Arlington, VA 22202 / h: 1400 S Joyce St, Arlington, VA 22202 / v: 1 / *C 71

*DRUCKENMILLER, Richard T. / t: senior consultant / org: Greenwich Data Systems, Inc, 165 W Putnam Ave, Greenwich, CT 06830 / v: 2 3 / *C 71

*DUDZIAK, Walter F. / v: 2 / *C 71

*DUNN, Jeffrey S. / t: systems coordinator / h: 6020 N Kent Ave, Milwaukee, WI 53217 / v: 1 / *C 71

DUNNE, George T. / executive / b: 1935 / ed: AB, Boston Coll / ent: 1954 / m-i: A B Mg Sa / t: president / org: Dunne Associates, Inc., 4418 Prudential Tower, Boston, MA 02199 / pb-h: CDP / h: 22 Trowbridge Cir, Stoughton, MA 02072 / v: 2 3 / *C 70

**DWYER, J. R. / programmer & analyst / b: 1942 / ed: BS, math / ent: 1966 / m-i: P Sy / t: sr systems programmer / org: Panhandle Eastern, 3444 Broadway, Kansas City, MO 64141 / pb-h: ACM, CDP / h: 9730 Slater, Overland Park, KS 66212 / v: 1 / *C 71

*DYER, John J. / lead systems programmer / t: mgr tech svcs / pb-h: DPMA; ASM; AMA / h: 1817 Franklin St, Irving, TX 75060 / v: 1 / *C 71

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*EADIE, Donald / pb-h: IEEE, registered engineer of Florida, Introduction to the Basic Computer, Prentice-Hall 1968, Modern Data Processors and Systems, Prentice-Hall 1971; several articles / v: 1 / *C 71

*EBERHARD, P. Dean / v: 2 / *C 71

*ECKERT, Lee A. / t: director of marketing / org: Logicon Inc, Wells Fargo Bank Bldg., Torrance, CA 90503 / v: 2 / *C 71

*ECKOLS, Howard L. / v: 2 / *C 71

*EDMISTON, Richard D. / h: 4009 Sinclair Ave, Austin, TX 78756 / v: 3 / *C 71

*EGAN, James / systems director / t: systems & EDP director / v: 1 / *C 71

*EICHELBERGER, William H. / t: manager computer center and director systems development / h: 95 Emerson, Denver, CO 80218 / v: 2 / *C 71

*EISNER, Elmer / pb-h: APS, AMS, AAAS; 2 patents, several publications / v: 3 / *C 71

*ELGAR, G. P. / m-i: A B Mg / org: Mnemotech Computer Systems Inc, 55 Liberty St, New York, NY 10005 / v: 2 / *C 71

*ELLIOTT, Thomas M. / h: 1229 Zevan Rd RD #1, Johnson City, NY 13790 / v: 1 / *C 71

*ELLIS, Jonas (Dr.) / t: manager engineering / h: 4665 W Maple Rd, Birmingham, MI 48010 / v: 2 3 / *C 71

*ELSIK, Carolyn A. / ed: BA, math, Rice Inst; MS, Industrial Engrg, Univ of Houston / org: Shell Oil Co, PO Box 20127, Houston, TX 77025 / h: 406 Westmoreland, Apt. 5, Houston, TX 77006 / v: 1 / *C 71

*ENGEL, Frank, Jr. / t: sub-dept head / pb-h: SHARE; ACM National Program Comm; editorial staff, Computing Review; ANSI X3J3 FORTRAN, chmn; X3JI PL/I; X3J44 COBOL Audit Programs; chmn FORTRAN Forums I & II; ACM SIGPLAN studies coordinator / v: 1 / *C 71

*ENNALA, R. / t: management sciences consultant / org: Indepdnent Consultant, 820 West End Ave, New York, NY 10025 / h: 820 West End Ave, New York, NY 10025 / v: 1 3 / *C 71

**EPSTEIN, George / mathematician / b: 1934 / ed: BS, Cal Tech; MS, Univ of Ill; PhD, UCLA / ent: 1957 / m-i: D L Ma / t: senior staff scientist / org: ITT, Gilfillan, 7821 Orion Ave, Van Nuys, CA 91406 / pb-h: IEEE, ACM, AMA, Intern'l Society for General Semantics, ASL, AMS, Pi Mu Epsilon, Sigma Xi, over 20 publns in math, engineering, poetry philosophy, cybernetics, psychology; 4 patent applns / h: 3726 Seahorn Dr, Malibu, CA 90265 / v: 3 (change from 1) / *C 71

ERVIN, Dr. Frank R. / research director / b: 1926 / ed: BA, Univ of Texas; MD, Tulane Univ Sch of Med / ent: 1960 / m-i: A / t: assoc prof / org: Harvard Medical; Mass Genl Hosp; Cyber Inc, 276 Third St, Cambridge, MA 02141 / pb-h: AAAS, IEEE, ACM, Boston Soc of Psychiatry and Neurology, Intertl League Against Epilepsy, Interntl Soc of Research in Stereoencephalotomy, Interntl Journal of Psychiatry, assoc editor; Mass Soc for Research in Psychiatry, Soc for Biological Psychiatry, World Federation for Medical Electronics; 6 publications / h: 46 Kendal Comm Rd, Weston, MA 02193 / v: 3 / *C 70

*ESTRIN, Gerald / pb-h: Fellow, IEEE, Guggenheim Fellowships 1961 and 1967; National Lecturer, ACM 1966-1967; Distinguished Speaker, 1969 / v: 3 / *C 71

EVANS, Robert L. / executive / b: 1934 / ed: BA / ent: 1956 / m-i: Mg / t: corp dir information sys / org: Union Camp Corp, 1600 Valley Rd, Wayne, NJ 07470 / pb-h: - / h: 76 Edgemont Rd, Up Montclair, NJ 07043 / v: 2 / *C 70

*EVANS, W. Buell / v: 2 / *C 71

*EXCELL, Richard O. / pb-h: CDP, ORSA, TIMS, ACM, ASA, AMS, SIAM; guest lecturer at local chapters & educational institutions / v: 3 / *C 71

F

*FABER, Jack H. / t: financial control manager / pb-h: - / h: 89 Fuller Rd, Briarcliff Manor, NY 10510 / v: 2 / *C 71

*FALOR, Kenneth / executive / t: vice pres / org: Cullinane Corp, One Boston Place, Boston, MA 02108 / pb-h: many articles in trade publications / v: 2 / *C 71

FARMER, John / systems analyst / b: 1915 / ed: BS, SUNY; Mgmt Studies, NYU; GSBA / eng: 1945 / m-i: A B Mg Sy; increment research / t: education systems coordinator / org: Board of Cooperative Educational Services, 61 Parrott Rd, W Nyack, NY 10960 / pb-h: DPMA, NYSAEDS / h: 3-2E Salisbury Manor, S Nyack, NY 10960 / v: 1 / *C 70

FAST, David R. / systems analyst, manager / b: 1941 / ed: BS marketing / ent: 1962 / m-i: D P Sy / t: software development mgr / org: Computers for Medicine, 730 Welch Rd, Palo Alto, CA 94304 / pb-h: ACM / h: 22571 Neston Way, Los Altos, CA 94022 / v: 1 2 / *C 71

*FEURZEIG, Wallace / org: Bolt Beranek & Newman Inc, 50 Moulton St, Cambridge, MA 02138 / v: 1 2 / *C 71

*FIDDLER, Robert Mark / ed: 4 yrs college / ent: 1968 / t: asst dp mgr / v: 1 2 / *C 71

FINCHAM, William / educator / b: 1930 / ed: BS, PhD / ent: 1958 / m-i: Sy, biological signal analysis, on-line control of plant / t: professor / org: Queen Mary Coll, Mile End Rd, London, E1, Eng / pb-h: MIEE, DIC, ACGI; several publications / h: - / v: 3 / *C 70

*FINLAY, Frank A., Jr. / owner and manager / org: Direction Systems Corp, 4546 El Camino Real, Los Altos, CA 94022 / v: 2 / *C 71

*FINN, T. Paul / manager / t: manager, fulfillment services and systems / h: 7388 Creekbrook Dr, Indianapolis, IN 46227 / v: 1 2 / *C 71

*FIRESTONE, Roger M. / programmer / b: 1945 / ed: Brown Univ; Sc. M, Brown Univ; MS New York Univ; PhD New York Univ / t: principal programmer / org: UNIVAC Div Sperry Rand Corp, MS 4953, 2276 Highcrest Dr, Roseville, MN 55113 / v: 1 3 / *C 71

*FISCHBACH, Joseph W. / v: 2 3 / *C 71

*FISCHLER, Martin A. / t: staff scientist / v: 3 / *C 71

*FITTS, Charles H. / t: vice pres / org: Burlington Management Services Co, 3330 W Friendly Rd, Greensboro, NC 27420 / h: 30007-E Patriot Way, Greensboro, NC 27408 / v: 3 / *C 71

*FLEISHER, Dr. Harold / t: program manager / pb-h: over 30 patents; Fellow, IEEE; bookchapters, IEEE proc / v: 2 3 / *C 71

*FLETCHER, Jerald L. / v: 1 / *C 71

*FOGELSON, Paul N. / ed: BA, MBA / pb-h: ASM, TIMS, SMIS / v: 2 / *C 71

*FOGLE, Ben P. / t: mgr operations and tech support / pb-h: ACM, DPMA / v: 1 / *C 71

*FOK, John S. / system designer / h: 515 Faraday Rd, Hockessin, DE 19707 / v: 1 3 / *C 71
*FOK, Thomas D. Y. / v: 2 3 / *C 71
*FONG, Russell S. / m-i: A B Mg Ma Sy; management sciences / t: mgr DPSC / org: State of Calif, Dept General Services, 915 Cap Mall, Sacramento, CA 95814 / v: 1 2 / *C 71
*FORMAN, Andrew M. / org: S L Optner & Associates, 11661 San Vicente Blvd, Los Angeles, CA 90049 / v: 3 / *C 71
*FRANKE, Ernest A. / t: professor; dean, school of engineering / v: 3 / *C 71
*FRANKFELDT, Chester / pb-h: ACM, TAPPI, former chapter pres DPMA, CDP, Phi Beta Kappa, Tau Kappa Alpha / v: 3 / *C 71
*FRANKLIN, Mark / org: Lumbermans Mutual Casualty Co, Long Grove, IL 60047 / h: 405 E Highland, Mt. Prospect, IL 60056 / v: 1 / *C 71
*FRAZER, Leonard L. / v: 2 / *C 71
*FREDERICK, John / director / t: director / org: Jackson Area Educational Data Center, Jackson County Intermediate School District, 290 W Mich Ave., Jackson, MI 49201 / v: 2 / *C 71
*FREDETTE, Richard C. / t: manager programming language standards / org: US Navy, Pentagon, Rm 2C319, Washington, DC 20350 / pb-h: "The Case for Higher Level Languages in the Navy", "Navy Audit Routines Show Flaws in COBOL Compilers"; lecturer on standards in data processing, DPMA chapter speaker / v: 1 / *C 71
*FREELAND, L. Paul / banker, comptroller's staff / v: 2 / *C 71
*FREILICH, Arthur / executive / t: pres / v: 3 / *C 71
*FREIREICH, Ira / executive / t: vice pres, data processing / h: 287 Weaver St, Larchmont, NY 10538 / v: 2 / *C 71
*FREITAG, Harlow — (in place of Freitay, Harlow) / t: manager, sub-systems & integration / v: 1 2 / *C 71
*FRYE, Sister Ignatia / v: 3 / *C 71

## G

*GALLIE, Thomas M., Jr. / professor of computer science / v: 3 / *C 71
*GALUMBECK, Dennis R. / t: asst vice pres and dir, advanced systems planning / pb-h: ASM, SMIS / v: 1 / *C 71
*GARDNER, Stanley A. / t: senior specialist / pb-h: ACM, TIMS / h: 627 Fourth Ave, Westfield, NJ 07090 / v: 3 / *C 71
*GARVIN, Paul L. / org: Dept of Linguistics, State Univ of New York at Buffalo, 302 Hayes Hall, Buffalo, NY 14214 / pb-h: past pres AMCTL; five books, many articles and reviews / v: 3 / *C 71
*GAUGHRAN, Stephen J. / v: 2 / *C 71
**GEIGER, John H. / pres / b: 1923 / ed: BS Rutgers Univ; MCP Mass Inst of Tech / ent: 1955 / m-i: A B L Ma Sy; game theory simulation, theory of graphs / t: pres / org: John H. Geiger & Assoc, Inc, and Metroplan, Inc, 57 N Maple Ave, Basking Ridge, NJ 07920 / pb-h: gaming simulation hardware for metropolitan land development patent, various copyrights / h: - / v: 2 / *C 71
GEISENHEIMER, Norman K. / electronic sales, marketing / b: 1940 / ed: AIM / ent: 1968 / m-i: B; sales order entry, sales analysis / t: supv, mktg svcs / org: Allen-Bradley Co, 1201 S 2nd St, Milwaukee, WI 53204 / pb-h: Vanguard User Award, Systems Dept, Allen-Bradley Co / h: 6599 Kipling Dr, Hales Corners, WI 53130 / v: 3 / *C 70
GIBBONS, Greg / teacher / b: 1941 / ed: Carnegie Mellon / ent: 1963 / m-i: artifical intelligence / t: asst prof / org: Penn State Univ, University Pk, PA 16802 / pb-h: ACM / h: 248 E Prospect, State College, PA 16801 / v: 3 / *C 70
GIBBS, Edward Henry / head, systems devt br, EDP Div / b: 1920 / ed: BCom, Melbourne / ent: 1958 / m-i: A Mg Sy / t: assistant secretary (EDP) / org: Australian Dept of Defence, Canberra, A.C.T. 2600, Australia / pb-h: 6 papers; Canberra Computer Soc; execut comm, Australian Computer Soc; assoc editor "The Australian Computer Journal", Fellow Australian Computer Soc / h: 120 Mackenzie St, Hackett, A.C.T. 2600, Australia / v: 2 / *C 70
*GIEGER, John H. — replace by GEIGER, John H., which see
GILDEA, Robert A. J. / info processing specialist / b: 1924 / ed: BS, physics; MS applied math / ent: 1953 / m-i: information processing / t: technical staff / org: The Mitre Corp, PO Box 208, Bedford, MA 01730 / pb-h: CDP by DPMA; Editor, Newsletter for Blind Computer Programmers; ACM Professional Activities of the Blind Conf, Pgm Chmn; article in SBANE / h: 6 Parker St, Lexington, MA 02173 / v: 3 / *C 70
*GLAUZ, Robert D. / pb-h: AMS, MAA, ACM, BCS, SIAM; 9 papers / h: 3363 Club House Dr, El Macero, CA 95618 / v: 3 / *C 71
*GOETZ, Martin A. / v: 2 / *C 71
*GOLDBERG, I. Bennett / staff programming planner / t: staff programming planner / h: Haddon View Apts, 1016-E, Westmont, NJ 08108 / v: 1 / *C 71
*GOLDBERG, Jay N. / h: 162 W 54 St, New York, NY 10019 / v: 2 / *C 71
*GOLDBERG, Leonard / h: 212 Auburn St, Auburndale, MA 02166 / v: 3 / *C 71
GOLDMAN, Benton A. / systems analyst / b: 1931 / ed: BBA, MA, economics / ent: 1962 / m-i: Mg; education / t: manager, Honeywell Institutes of Information Sciences / org: Honeywell EDP Div, 120 S Riverside Plaza, Chicago, IL 60606 / pb-h: AMA, ASTD / h: 2519 Sherman Ave, Evanston, IL 60201 / v: 1 / *C 71
*GOSSETT, Doris E. / h: 13124 Superior St, Rockville, MD 20853 / v: 1 / *C 71
*GRABER, Glen G. / t: senior systems analyst / h: 5525 N Winthrop #406A, Chicago, IL 60640 / v: 1 / *C 71
*GRABILL, Wilson F., Jr. / h: 204 Springwood Dr, Oxford, OH 45056 / v: 2 / *C 71
*GREEN, Claude Cordell / org: Advanced Research Projects Agency, 1400 Wilson Blvd., Arlington, VA 22209 / v: 2 / *C 71
GREEN, Robert / controller / b: 1921 / ed: BME / ent: 1960 / m-i: A B Mg Sy / t: controller of admin services / org: Falk Corp, PO Box 492, Milwaukee, WI 53201 / pb-h: - / h: 6441 N Elm Tree Rd, Milwaukee, WI 53209 / v: 3 / *C 70
*GRIFFIN, Thomas J. / h: 8282 Imperial Dr, Laurel, MD 20810 / v: 1 / *C 71
GRIFFITH, Arnold K. / researcher / b: 1942 / ed: BA, Swarthmore College; PhD, MIT / ent: 1961 / m-i: A Ma / t: staff member, division of sponsored research / org: Project MAC, MIT, Cambridge, MA 02139 / pb-h: Phi Beta Kappa, Cum Laude Society, Sigma Xi, ACM, AMS (Math) / h: 57 Commonwealth Ave, Boston, MA 02116 / v: 3 / *C 70
*GRIGGS, Thomas S. / t: director of data processing / pb-h: ACM, DPMA, CDP / h: 142 Bird La, Milford CT 06460 / v: 2 / *C 71
*GROSS, Louis / ed: Univ of Chicago, Northeastern Univ, Mass Inst of Technology / m-i: A P Sy / h: 28 Russell St, Arlington, MA 02174 / v: 1 / *C 71
*GRUNINGER, George W. / t: senior systems analyst / org: Texaco Inc, 135 E 42 St, New York, NY 10017 / v: 1 / *C 71

*GUBSER, Robert A. / pb-h: IEEE, Toastmasters International, CAD in Integrated Circuits, "Solution to Accounting on Time Shared Computer" / h: 3623 E Sunnyside Dr, Phoenix, AZ 85028 / v: 3 / *C 71
*GUSTAVSON, Fred G. / pb-h: 15 papers, Sigma Xi, Pi Mu Epsilon, MAA; IBM Outstanding Contribution Award / v: 3 / *C 71

## H

*HAGSTROM, Stanley / t: assoc director, research computer center; assoc prof of chemistry; assoc prof of computer science / v: 3 / *C 71
*HAIR, Robert H. / v: 2 / *C 71
*HAJJAN, Frederick E. — see HAJJAR, Frederick E.
*HAJJAR, Frederick E. -- (instead of HAJJAN, Frederick E. which is a duplicate entry in Volume 1, pg 83)
*HALE, Michael Robert / manager, marketing research division / t: manager marketing research divisions / v: 2 / *C 71
HALL, Frederick Leonard / manager / b: 1923 / ed: BEc, Adelaide Univ; Assoc Bankers Inst of Australia / ent: 1959 / m-i: Mg Sa / t: deputy general manager / org: IBM World Trade Corp, PO Box 2557, Wellington, New Zealand / pb-h: Fellow, Australian Computer Society, Fellow, Royal Economic Soc, Australian Inst of Management / h: 10 Sheather Ave, St Ives, New South Wales 2075, Australia / v: 2 / *C 70
*HALL, Harold L. / pb-h: chrmn, DP curriculum, Univ of Kentucky Lexington Tech Inst; Pres, Louisville and Central Kentucky ASM (Mgmt); 3 papers / v: 1 / *C 71
*HANSON, Lyle C. / ent: 1962 / v: 2 / *C 71
HANSON, Phillip J. / manager / b: 1933 / ed: BA, languages / ent: 1958 / m-i: D Sa / t: manager, information systems / org: Los Angeles Technical Services Corp, 3600 Wilshire Blvd, Los Angeles, CA 90005 / pb-h: - / h: 6232D Tapia Dr, Malibu, CA 90265 / v: 1 2 / *C 70
*HARDEY, Jack A. / v: 2 / *C 71
*HARDING, Harold R. / b: 1930 / org: Systemation Assoc Inc, 36 Washington St, Wellesley Hills, MA 02181 / v: 3 / *C 71
*HARPER, Fielding F. / systems analyst / org: Shell Oil, Information & Computer Services, PO Box 20127, Houston, TX 77025 / v: 1 / *C 71
*HARPER, George W. / t: asst vice pres of data proc / h: 5812 Walnut Rd, North Little Rock, AR 72116 / v: 2 / *C 71
*HARRISON, Joseph O., Jr. / v: 3 / *C 71
HARSCH, Albert F. / manager / b: 1935 / ed: BSEE, MSEE, Carnegie-Mellon Univ / ent: 1959 / m-i: A Mg Ma P Sy; supervisory control direct digital control, process control computers / t: manager, software systems / org: Westinghouse Tele-Computer Systems Corp, 2040 Ardmore Blvd, Pittsburgh, PA 15221 / pb-h: Eta Kappa Nu, ACM; several publns, co-holder of two patents (pending) / h: 108 Loretta Ct, Irwin, PA 15642 / v: 1 2 / *C 71
*HARTHORN, William G. / h: 200 E 84 St, New York, NY 10028 / v: 2 / *C 71
HARTLEY, H. O. / administrator, professor / b: 1912 / ed: PhD, magna cum laude in math, Berlin Univ; PhD, math statistics, Cambridge Univ; DSc, math statistics, Univ of London / ent: - / m-i: A Ma / t: director / org: Institute of Statistics, Texas A&M Univ, College Station, TX 77843 / pb-h: Fellow, IMS; Fellow, ASA (Stat); Int'l Statistical Inst; pres, Eastern North American Region, Biometric Soc; Fellow, Texas Academy of Science; 5 books, 85 papers / h: 1600 Dominik Dr, College Station, TX 77840 / v: 3 / *C 70
*HARTMANN, David P. / v: 3 / *C 71
*HARTMANN, Svend E. / org: Time Brokers Inc, 500 Executive Blvd, Elmsford, NY 10523 / v: 2 / *C 71
*HARTWEG, William J. / t: design engineer, terminal and central telegraph office design / org: RCA Global Communications Inc, 66 Broad St, New York, NY 10004 / h: - / v: 1 / *C 71
HARVEY, Samuel B. / executive / b: 1925 / ed: BS, Penn State; Temple Univ grad schl / ent: 1953 / m-i: A B D Mg P Sy / t: assist VP / org: The Singer Co, 30 Rockfeller Plaza, New York, NY 10020 / pb-h: - / h: 100 Jefferson Ave, Haddonfield, NJ 08033 / v: 2 / *C 70
*HATTERY, Lowell H. / org: The American Univ, Ward Circle Bldg, Washington, DC 20016 / pb-h: ACM, IMS; author or editor of 11 books and monographs, author of over 40 periodical articles, chapters in books and other publications / v: 3 / *C 71
*HAYDEN, Lawrence B. / org: DP Div, Eastern Iowa Community College, 601 West Second St, Davenport, IA 52801 / v: 1 3 / *C 71
*HAZEL, Karl E. / v: 2 / *C 71
*HEALY, William H. / t: manager computer operations / pb-h: CDP, AMS (Mgmt) / v: 2 / *C 71
*HEAVILON, Ernest B. / ent: 1937 / org: Ernest B. Heavilon & Assoc, Box 239, Cedar Grove, NJ 07009 / h: 65 N Fullerton Ave, #44, Montclair, NJ 07042 / v: 3 / *C 71
*HEGAN, William P. / org: Time Brokers Inc, 500 Executive Blvd, Elmsford, NY 10523 / pb-h: Tau Kappa Alpha, Eta Mu Pi, several articles on time brokerage; lecturer for AMA / h: RR 1 Fox Den Rd, Mt Kisco, NY 10549 / v: 2 / *C 71
*HELLDORFER, C. Gerard / org: Planning Research Corp, 7600 Old Springhouse Rd, McLean, VA 22101 / v: 1 / *C 71
*HENDERSON, Ronald V. / t: vice president, computer systems / pb-h: DPMA, URISA / h: 2600 Bushnell Ave, #12, Cincinnati, OH 45204 / v: 2 / *C 71
*HENRY, Andrew F. / h: 611 Conewango Ave, Warren, PA 16365 / v: 2 / *C 71
*HERBSTER, James R. / m-i: A B Mg Ma Sy / t: section head / pb-h: CDP / v: 1 / *C 71
**HERZING, John M. / manager / b: 1928 / ed: BS / ent: 1952 / m-i: A B Mg Sy / t: manager, grp info systems office / org: Xerox Corp, Rochester, NY 14603 / pb-h: SPA, DPMA; several publns in professional journals / h: 611 Clover Hills Dr, Rochester, NY 14618 / v: 2 / *C 71
*HESSLER, William G. / pb-h: CDP / v: 1 / *C 71
*HESTENES, A. D. / manager / v: 2 / *C 71
*HEVENOR, Charles M. / pb-h: 1 paper; ASME Gas Turbine Power Award for best paper 1968 / v: 1 / *C 71
*HIGHT, J. C. / t: asst vice pres, MIS administration / org: Zale Corp, 3000 Diamond Pk, Dallas, TX 75247 / v: 2 / *C 71
HILL, J. Carver / system architect / b: 1939 / ed: BSEE, Clemson; MSEE, PhD, Oregon State Univ / ent: 1963 / m-i: D L; system architecture / t: systems engineer / org: Lawrence Radiation Lab, Box 808, L-48, Livermore, CA 94550 / pb-h: Phi Eta Sigma, Tau Beta Pi, Phi Kappa Phi; several publns / h: 1054 Dolores St, #16, Livermore, CA 94550 / v: 1 / *C 70
*HINRICHS, Karl / org: Lockheed Electronics Co, 6201 E Randolph St, Los Angeles, CA 90040 / v: 1 / *C 71
*HOCKMAN, John H. / h: 245 Mt Pleasant Ave, Mamaroneck, NY 10543 / v: 1 2 / *C 71
*HOLTH, Joan / systems programming / ed: MS / v: 1 / *C 71

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| | | | | |
|---|---|---|---|---|
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| Business | ( ) | Management | ( ) | _____ |
| Construction | ( ) | Mathematics | ( ) | _____ |
| Design | ( ) | Programming | ( ) | |
| | | Sales | ( ) | |
| | | Systems | ( ) | |

7. Year of Birth?_____ 8. Education and Degrees?_____

9. Year Entered Computer Field?_____ 10. Your Present Occupation?_____

11. Publications, Honors, Memberships, and other Distinctions?_____

_____

(attach paper if needed)

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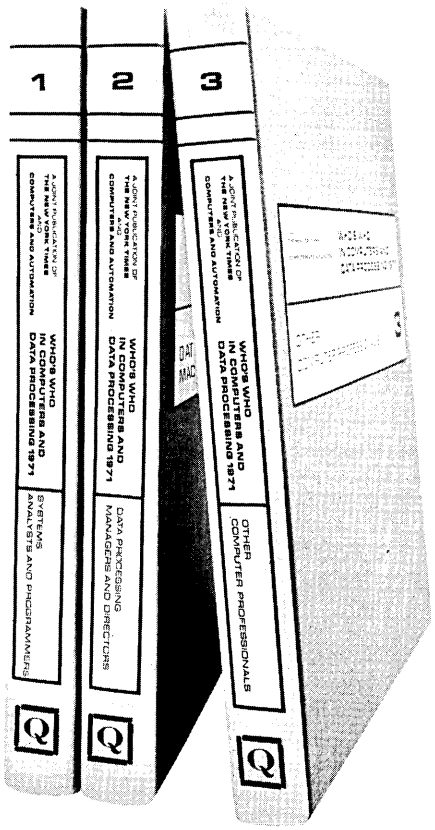


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Fulbright (Continued from page 26)
may actually come together to facilitate a settlement through the procedures of the United Nations. It need not be an "imposed" settlement – although I myself am not as shocked by that term as are some of my Senate colleagues, inasmuch as the United Nations Charter, to which we are a party by act of the Senate in 1945, provides quite explicitly for certain kinds of "imposed" settlements. Be that as it may, Secretary Rogers, it seems to me, is pursuing an intelligent policy of encouraging a voluntary agreement between Arabs and Israelis, which he would then have enforced by a United Nations peace force in which both Russians and Americans might participate.

For reasons which may warrant our sympathy, but not our support, Israel pursues a policy of antiquated – and to a great degree delusional – self-reliance. As Foreign Minister Eban expressed it, "a nation must be capable of tenacious solitude."[7] In fact, neither Israel nor any other nation is capable of so profound an isolationism in our time. Israel is heavily dependent on the United States for both arms and economic assistance. Only last December Congress appropriated a half billion dollars for military assistance to Israel. Since 1948 the United States Government has provided $1.4 billion in direct economic assistance to Israel; this does not include military aid. Since 1948 private American citizens have provided another $3 billion in tax-deductible contributions and regularly purchase between $3 and $400 million a year in Israeli bonds. Included in the massive American military aid, which has increased greatly since the 1967 war, have been aircraft, missiles and electronic systems more advanced than those provided to the countries with whom we are allied in NATO or SEATO. I do not see how this can be reconciled with a policy on Israel's part of "tenacious solitude."

### Our Stake in the Arab-Israeli Crisis

Even more important than Israel's dependency upon us is the fact that we ourselves have a crucial stake in the Middle East – the avoidance of conflict with the Soviet Union. It takes no great feat of imagination to conjure up some new Arab-Israeli crisis in which the two sides managed to draw their respective patrons into a head-on conflict. Premier Meir says that we ought not to press for Israeli withdrawal from the conquered Arab territories because, as she puts it, "This is not the border of the USA. . . ."[8] If indeed that were the whole of the matter, if Israel, as the Premier says, really were prepared to "stand up for itself" without involving others, it might make sense to let the Arabs and Israelis work out their differences, or fight them out, and come to their own solution. We all know, however, that that is not the case, that American interests of the most crucial nature are involved, that another war in the Middle East might well set us against the Russians, and that, therefore, we have not only the right, but a positive responsibility, to bring an influence to bear.

Israel has a different conception of American interests in the Middle East, an essentially cold war conception. Picturing herself as the bastion of democracy in the Middle East, Israel professes to be defending *American* interests by holding the line against a surging tide of Communist imperialism. Indeed, I recall a television interview last fall in which Foreign Minister Eban professed to believe that the Russians were not interested in destroying Israel but were motivated by a desire to expel American power and influence from the Middle East.

### In the Name of Anti-Communism

Recent visitors to the Middle East assure me that the Israelis are quite sincere in their fear of being "thrown into the sea" and in their conception of the Soviet Union as an insatiable imperialist power, bent, presumably, upon the conquest and communization of the Middle East. Nonetheless, I perceive in this some of the same old Communist-baiting humbuggery that certain other small countries have used to manipulate the United States for their own purposes. When it comes to anti-communism, as we have noted in Vietnam and elsewhere, the United States is highly susceptible, rather like a drug addict, and the world is full of ideological "pushers." It is a fine thing to respect a small country's independence and to abstain from interference in its internal affairs. It is quite another matter when, in the name of these worthy principles – but really because of our continuing obsession with communism – we permit client states like Israel and South Vietnam to manipulate American policy toward purposes contrary to our interests, and probably to theirs as well.

This is not to suggest that the Russians are lacking in ambitions in the Middle East. There is no doubt that they desire to maximize their "influence" in the Arab world and that they derive gratification from sailing their warships around the Mediterranean. This, however, is normal behavior for a great power; it is quite similar to our own. We too keep a fleet in the Mediterranean, which is a good deal farther from our shores than it is from the Soviet Union; and our main objection to Soviet "influence" in the Arab countries is that it detracts from our own. Were it not for the fact that they are Communists – and therefore "bad" people – while we are Americans – and therefore "good" people – our policies would be nearly indistinguishable.

### Can a New Precedent for Resolving International Controversy Be Set?

Despite the inflexibility of the Israelis and the great power rivalry of the Russians and Americans, it appears to me that the situation in the Middle East provides as promising an opportunity as ever we have had to resolve a major international controversy through the procedures of the United Nations and, in so doing, to create a valuable precedent for the future.

The primary, essential factor is the apparent recognition by both the Soviet Union and the United States that they have a surpassing interest in the avoidance of a major confrontation with each other. The Russians, for their part, have consistently counselled their Arab associates against reckless action; they are reported, for instance, to have warned the Egyptians that they would not support a military operation across the Suez Canal. Nor have the Russians ever indicated any expectation of, or desire for, the destruction of Israel; they were indeed among the first to recognize the state of Israel when it came into existence in 1948. The Soviet position now is that Israel should return to the borders of 1967; that is substantially our position as well, and it is consistent with the Security Council Resolution of November 1967, which calls among other things for the "termination of all claims or states of belligerency and respect for and acknowledgment of the sovereignty, territorial integrity and political independence of every state in the area."

### The Arab Attitude

Another promising factor has been the remarkable evolution of Arab attitudes. The Jordanians have long been known to be willing to come to terms with Israel – to end the state of war and recognize Israel's existence as a state in return for the restoration of occupied territory. The United Arab Republic, in its reply of February 16, 1971, to questions put by Ambassador Jarring, stated unequivocally that, if Israel would withdraw from occupied Egyptian territory, Egypt would be prepared to end the state of belligerency, ensure freedom of navigation through the Suez Canal and the Strait of Tiran, establish demilitarized zones, agree to the establishment of a United Nations peace-keeping force, and "enter into a peace agreement with Israel. . . ."

The Egyptian reply concedes to Israel all that she once desired, all that she claimed to be struggling for in three wars. Nonetheless, in its own reply to Ambassador Jarring of February 26, 1971, the Israeli Government stated bluntly that "Israel will not withdraw to the pre-June 5, 1967 lines." Israel, Mrs. Meir subsequently explained, insists upon the retention with her own forces of Sharm el Sheikh; the Gaza Strip; the Golan Heights – because, as the Premier explained. "We paid for it"–; Jerusalem of course; and certain undefined parts of the west bank. In addition, said the Premier, Sinai must be demilitarized, and the demilitarization must be guaranteed by a mixed force including Israelis. The Egyptians too might participate in this force on their own territory. All this, Mrs. Meir conceded, would be painful for President Sadat of Egypt, but people must pay for their deeds.[6]

### Prime Minister Ben Gurion's View

A different view is taken by Israel's wise elder statesman and first Prime Minister, David Ben-Gurion. "Peace," he said recently, "real peace, is now the great necessity for us. It is worth almost any sacrifice. To get it, we must return to the borders before 1967." "As for security," Mr. Ben-Gurion continued, "militarily defensible borders, while desirable, cannot by themselves guarantee our future. Real peace with our Arab neighbors – mutual trust and friendship – that is the only true security."[10]

Mr. Ben-Gurion's outlook is substantially that of Secretary Rogers, whose basic position, reiterated many times since, was expressed in a speech in December 1969 in which he stated, as to the Arab-Israeli borders in the wake of the 1967 war, that ". . . any changes in the preexisting lines should not reflect the weight of conquest and should be confined to insubstantial alterations required for mutual security."[11] Secretary Rogers has also been a consistent supporter of the Security Council Resolution of November 1967, which emphasizes "the inadmissibility of the acquisition of territory by war. . . ." In recent weeks the Secretary has spelled out a position calling as well for American participation in a United Nations peacekeeping force, which could not be removed by anybody's unilateral decision.

### What Does It All Mean?

The principles – and opportunities – involved in this Middle East situation go beyond the fears and ambitions of Israel and the Arab states and their great power mentors. I perceive here an opportunity to breathe life and force into the United Nations by putting it to effective use for the purposes for which it was founded. We have an opportunity to take a single substantive step in the direction of a new kind of politics in the world, toward the purposes spelled out in the Charter itself, "to save succeeding generations from the scourge of war. . . ."

To accomplish this purpose, I would not shrink from applying certain sanctions as a last resort for the preservation of peace. The United Nations Charter, to which every nation involved in the Middle East has voluntarily subscribed, spells out a graduated series of sanctions, from economic to military, for the enforcement of peace. It makes no sense at all for us to shrink in horror at the very notion of an "imposed" solution, not only because we are legally bound by the Charter to accept certain kinds of "imposed" solutions, but because the absolute sovereignty of nations is an outmoded principle; it is indeed a principle of international anarchy. No community can function without some capacity for coercion; as President Wilson said of the Covenant of the League of Nations, "Armed force is in the background . . . if the moral force of the world will not suffice, the physical force of the world shall."[12] The crucial distinction is not between coercion and voluntarism, but between duly constituted force, applied through law and as a last resort, and the arbitrary coercion of the weak by the strong.

The Middle East may provide us with the best opportunity since World War II to make use of the peacekeeping procedures of the United Nations in approximately the manner envisioned by the framers and, in so doing, to create a valuable precedent for the future. I regret that no such prospect is in sight for Indochina, but I would not pass up the opportunity in the Middle East for the sake of a baneful consistency. Perhaps, if the war in Indochina ever does end, as presumably it will, we will have the wisdom in any future "Vietnams" to make it clear at the outset that we will readily act in cooperation with other nations to implement decisions of the United Nations, but that we will not again attempt to substitute ourselves for it. Through positive acts of *abstention* we shall have to make it clear that we are no longer interested in the imperial dream of a *Pax Americana,* that indeed we are neither isolationists nor imperialists, but *internationalists* in the *only* sense in which that term makes either moral or political sense. □

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# THE CASE OF SECRET SERVICE AGENT ABRAHAM W. BOLDEN

## — Who Wanted to Tell the Warren Commission About a Chicago Plot to Kill President Kennedy And Was Jailed Six Years for Trying

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**(Based on a chapter in a forthcoming book by Bernard Fensterwald)**

### An Attempted Phone Call to the Chief Counsel of the Warren Commission

On a sunny Sunday afternoon in May, 1964, a Secret Service guard at the White House quickly and cheerfully admitted an average-looking, youngish Negro in civilian clothes. The guard passed him through with a minimum of formalities, for he knew him as a fellow Secret Service agent who had formerly been a member of the White House detail. The man admitted was Abraham W. Bolden, and he was in Washington to attend a special Secret Service School which was to begin the next morning.

Bolden crossed the White House lawn, and entered the Executive Office Building on the west side of the Mansion. Once inside, Bolden placed a phone call to the home of Mr. J. Lee Rankin, the Chief Counsel of the Warren Commission but he got no answer. After a short while Bolden left the White House, and returned to his hotel.

His failure to reach Rankin made him apprehensive, for Bolden had noted that all of his activities that afternoon were being carefully observed by another Agent, Garry McLeod, who was also from Chicago, and who was rooming with Bolden in Washington while they both were attending the Special School. At 2:30 a.m. on Monday, Agent McLeod received a mysterious phone call which he declined to discuss with Bolden.

At 7:00 a.m., Agents Bolden and McLeod arose, dressed, breakfasted, and departed for school. During an intermission between classes, Bolden was suddenly approached by the Special Agent in charge of personnel, Howard Anderson, who told him that the Secret Service Office in Chicago had just discovered a counterfeiter's printing plant in a suburb of Chicago, and that all Chicago agents were to return to Chicago immediately to assist in the investigation. Bolden and McLeod were driven to Dulles airport by Anderson and put on a plane to Chicago.

### Arrest of Abraham Bolden

Upon their arrival, instead of being taken to the Secret Service office, the Agents were taken to the Office of the United States Attorney Hanrahan. Although, as Bolden later learned, a warrant had been sworn out for his arrest, it wasn't served on him. Nevertheless, Bolden was held incommunicado from early afternoon until midnight, charged with solicitation of a bribe, and was, moreover, denied the right to counsel.

Finally, at midnight, he was formally placed under arrest, and permitted to call a lawyer. He was incarcerated in the Du Page county jail, Wheaton, Illinois, on the night of May 18-19, and taken before U. S. Commissioner C.S.B. Pike, in Chicago, on May 19th, almost 24 hours after he had unwittingly, but in fact, been placed in criminal custody. That his trip to Chicago was "under pretext" (and in effect constituted a kidnapping), that he was held incommunicado, that he was denied the right of counsel have all been conceded by the government as set forth in an opinion of the U.S. Court of Appeals for the Seventh Circuit denying him a new trial.

Who is Abraham W. Bolden and what had he done to warrant such harsh and unconstitutional treatment?

### Background

Abe Bolden grew up in one of the toughest sections of East St. Louis, Illinois, one of the toughest cities in the United States. Despite the handicaps of his racial and economic background, he worked his way through college, graduating cum laude from Lincoln University at Jefferson City, Missouri. Even in college, Bolden showed stubborn traits of character that were to get him into deep trouble later. A college classmate has written of him:

> ...he may be classified as foolish or as a man of courage, depending upon one's views. For example, I will recall a few incidents from his college days. During freshman hazing all of us did as we were told, whether it was trying to blow out a light bulb, marching in a straight line, or staying away from co-ed dormitories. Bolden did not conform, he defied upperclassmen and refused to do anything that was not included in the school manual. Before entering college Bolden had won several medals as a trumpet player in Illinois. One of our college instructors teasingly referred to him as "Medals". Whereas most of us would have been afraid to say or do anything, Bolden emphatically let the instructor know that he would not be called "Medals" again. Once he wrote a letter to the campus editor criticizing the granting of scholarships to men who were poor scholars but good athletes. Since Lincoln takes pride in its athletic teams, the entire student body became enraged, and several times he was threatened with violence. In spite of it all, Bolden never compromised his stand.

Upon graduation from college in 1955, Abe Bolden worked for the Pinkerton Detective Agency for a year and then spent four years as an Illinois State Trooper. His record was so outstanding that he became an Eisenhower appointee to the United States Secret Service in 1960, and subsequently President Kennedy made him the first Negro member of the Secret Service White House detail.

### Unpopularity for Being Stubbornly Honest

Bolden's stubborn traits of honesty and "playing it by the book" soon began to make him very unpopular with his fellow agents. While on duty at the Hyannisport Compound, he voiced strong objection to what he characterized as laxity of the protection being given to President Kennedy. He refused to drink and play cards with his fellow agents, and deeply resented Southern agents' talk about "niggers".

As a result of his dissatisfaction, he was transferred out of the White House detail and sent to Chicago for less glamorous anti-counterfeiting duty. As it turned out, however, he was not long to be free from duties with respect to Presidential protection, because John F. Kennedy scheduled a visit to Chicago for November 1, 1963, to come to an Army-Air Force football game. The visit had political implications, as JFK had "stood-up" Mayor Daley on a similiarly scheduled visit the previous year...and the President was most anxious to mend his political fences before the next year's election.

### Plan for Assassinating President Kennedy in Chicago

Mayor Daley had big plans for the President, including an eleven mile parade from the airport to the stadium. This parade caused considerable misgivings to the Secret Service agents in Chicago who had primary responsibility for the President's safety. Their misgivings were greatly heightened by a call to Agent-in-charge Martineau from Secret Service Chief Rowley in Washington. Rowley told Martineau that the Secret Service had word of an assassination plot which was supposed to be executed during JFK's coming visit to Chicago. According to Rowley, four men had come or were to come to Chicago to carry out the death plot.

Martineau called in all men under his command in Chicago, took them off all other assignments, and gave them these rather unusual instructions: (1) there were to be no written reports; all information was to be given to Martineau orally; (2) nothing was to be sent to Washington by TWX; Martineau was to report to Rowley personally by phone; and (3) no file number was to be given to this case. All agents in Chicago were shown photos and given names and descriptions of four men who were allegedly involved in the plot.

After a quick but intensive investigation, the agents reported back that the plot was genuine. They had located at least two men in a North Clark Street boarding house who fit the descriptions given them. As a result of their finds, President Kennedy was persuaded at the very last moment to cancel his plans for Chicago, although the plane Air Force I, full of other dignitaries, did come to Chicago and the scheduled festivities. The extraneous excuse, a Far East crisis which demanded his presence in Washington was concocted to explain the President's absence. It is interesting to note, however, that this Far East crisis consisted of the overthrow and assassination of Premier Diem of South Vietnam by "the generals" with the foreknowledge, if not the assistance, of the United States Central Intelligence Agency.

Mayor Daley was predictably upset, but the President lived three weeks longer than he might otherwise have lived.

### Preempting of the Secret Service by the FBI

President Kennedy was actually assassinated in Dallas on November 22, 1963. For weeks afterwards, the Secret Service in Chicago, as elsewhere, did little else than work at tracking down assassination leads.

On the night of November 22nd, or possibly the 23rd, Bolden received a call at home from a Dallas agent who wanted "instant information" on (1) Klein's Sporting Goods store and Oswald's rifle, and (2) the possibility that Oswald received money from Chicago, as alleged by the Chicago American. Ironically, it turned out that neither Bolden, nor any other Secret Service agent, could get any information on either lead as they were preempted by the FBI, who had gotten to Klein's and the newspaper first, and who had warned all concerned to talk to no one, including the Secret Service. Subsequently, an Inspector Kelley came to Chicago, and Agent-in-charge Martineau accompanied him on a trip to the North Clark Street address where the suspects had holed up.

Shortly thereafter, Martineau called in all his agents and instructed them to talk to no federal agents about the assassination, especially the FBI, who, according to Martineau, were anxious to take over the role of Presidential protector. Furthermore, all Secret Service agents were required to turn in their I.D. cards, an unheard-of procedure. This strange occurence indicates that the Secret Service took seriously the persistent rumors that certain phoney Secret Service badges had been flashed in Dealey Plaza on the day of the assassination.

### Bolden's Desire to Testify Before the Warren Commission

After the appointment of the Warren Commission, Bolden expressed a desire to testify if no one else from the Secret Service was going to tell of the plot investigated in Chicago in late October. He felt that this testimony was not only relevant but also essential to the work of the Commission. He also wished to tell the Commission of the laxity he had observed in the Service, especially with regard to the White House detail.

When his request for permission to testify was turned down by his superiors, and when he was told that no one from the Secret Service was to so testify about the Chicago plot, Bolden discussed the matter at length with his fellow Negro agent, Conrad Cross.

Then when Bolden went to Washington for the Secret Service School on May 17th, he was accompanied by a "baby sitter", agent McLeod, who overheard his attempted call to Commission Counsel Rankin. This was the beginning of the end for Bolden. He was hustled out of Washington the next morning on the pretext that he was needed in Chicago.

### Bolden Indicted

After being held incommunicado, denied the right to counsel, and questioned for twelve hours without being formally arrested or arraigned, he was charged with the solicitation of a bribe. What were the facts according to the indictment?

Bolden was charged with having offered to sell the secret government file on an indicted counterfeiter, named Joseph Spagnoli, for $50,000. The money, according to the charge, was to be split with one Frank William Jones, another counterfeiter, who had been previously arrested by Bolden but who had been selected as go-between in the solici-

tation of Spagnoli. And it was Jones who gave the sworn statement which resulted in Bolden's arrest.

### The Two Witnesses Against Bolden Were Counterfeiters

The only witnesses against Bolden were two counterfeiters, one of whom was currently under indictment, the other of whom had previously been arrested by Bolden himself. Yet on the basis of their statements, Bolden was brought to trial before Federal Judge Joseph Sam Perry.

On July 12, 1964, after the first jury before whom he was tried reached an impasse, Judge Perry called the jurors back into the courtroom and stated, "In my opinion, the defendant is guilty of counts one, two, and three of the indictment," adding clearly, however, that the jury could entirely disregard his opinion. Some of the jurors apparently did, as they remained deadlocked and a mistrial was declared.

Judge Perry scheduled a new trial almost immediately. As would be expected, Bolden's lawyer asked that Judge Perry excuse himself as prejudiced and let the case be tried before another judge. Judge Perry refused, stating: "Maybe, I'll give you a fair trial the next time. Maybe the evidence won't show that he's guilty this time."

On the second trial Bolden was convicted, and on August 12, 1964, he was sentenced by Judge Perry to a term of six years in prison.

### One of the Witnesses Admitted He Lied About Bolden at the Request of the Prosecutor

Subsequently, Spagnoli was brought to trial for counterfeiting. In the course of the trial, again before Judge Perry, Spagnoli admitted under oath that he had perjured himself when he testified against Bolden. In fact Spagnoli stated that he perjured himself at the request of the prosecutor, Richard Sikes. And a yellow sheet of legal paper, in the handwriting of Sikes, was submitted into evidence to verify Spagnoli's allegations.

### The Appeals Court Dismissed the Motion for a New Trial

All of this notwithstanding, the Seventh Circuit Court of Appeals turned down Bolden's plea for a new trial and sent him off to the Federal Penitentiary in Springfield, Missouri, to serve his term.

The Appeals Court dismissed the propriety of a second trial before Judge Perry by saying that "an opinion as to what the evidence has demonstrated cannot be equated with personal bias."

As to the constitutional questions raised, the Court admitted the following: "In this posture, we must accept as fact (1) that the defendant requested the aid of counsel, (2) that his request fell on deaf ears, and (3) that certain inculpatory statements were made thereafter."

Having admitted all of this, the court dismissed it with the following wave of the hand: "The voluntary character of the defendant's statement, of course, would in no way excuse the failure of the law enforcement officials to grant him an opportunity to consult with his attorney upon request. The importance of timely legal guidance to even the most sophisticated layman is unquestioned. However, the denial of a request for counsel, as a constitutional violation, must in turn be judged according to the particular circumstances in the case and by the prejudice resulting therefrom. Escobedo v. Illinois, 378 U.S. 478, 491 (1964)".

The unusual circumstances of Bolden's return to Chicago, as well as his newly discovered evidence (i.e., the admitted perjury of the principal witness (Spagnoli) against Bolden) and the subornation of perjury by the prosecutor failed to persuade the Appeals Court; and Judge Perry's denial of a motion for a new trial was affirmed.

On June 20, 1966, the Supreme Court of the United States (with the Warren Commission's Chairman as its Chief Justice) declined to review the case. And thus might have ended the tale of Abe Bolden.

### Solitary Confinement Following Publicity

In December of 1967, Bolden was visited at Springfield by his new, court appointed lawyer, John Hosmer, accompanied by an Assistant District Attorney from New Orleans and by Mark Lane, a lawyer known for his books critical of the Warren Commission Report. As a result of this visit, Bolden's "story" was given world-wide circulation; yet, instead of this resulting in his case getting a new hearing, he was put into solitary confinement.

### Attacks on His Family

If Bolden's own tragedy were not sufficient, what had befallen his family is equally shocking. In October, 1966, an attempt was made to bomb and/or burn his home. On another occasion, his garage was burned down. On December 31, 1966, a shot was fired through the window of his home. His wife has been followed, and a brick has been heaved through the window of her car.

The only ray of hope so far for Bolden is the interest taken in his case by Federal Judge William R. Collinson of Kansas City. Tiring of appealing to Judge Perry in Chicago, Bolden filed a writ of habeas corpus with Judge Collinson. Technically such a writ must go back through Judge Perry; so, Judge Collinson couldn't be of immediate help. However, he was so impressed with the merits of Bolden's appeal that he appointed John Hosmer of Springfield as Bolden's lawyer. In his letter to the lawyer, he enclosed a personal letter to Bolden which said: "I will, of course, enter judgement in your habeas corpus matter in order that you may perfect your appeal to the Eighth Circuit. However, I will be in Springfield next week and would like to see if Mr. Hosmer would wish to file an amended application setting forth any grounds which his investigation may have uncovered in order that you may have a full record to go before the Eighth Circuit."

### Bolden Now Out of Prison, Having Served His Term

Yet, thus far, neither Judge Collinson nor John Hosmer have had any luck in getting justice for Abraham Bolden. He has now served his term and is out of prison, but he has never been able to get a new trial.

After all, he did threaten to tell the Warren Commission about a previous conspiracy to kill President Kennedy in Chicago three weeks before Kennedy was murdered in Dallas; and this might have invited further criticism of the Warren Commission report which is the establishment's official version of what happened. And he was outspoken in his criticism of the establishment's agents, a perilous course of action in recent years.

Panthers *(Continued from page 7)*

the defendants included conspiracy to bomb police stations and other public places, plotting to kill policemen, and possession of weapons and explosives. The defense contended that the Panthers were merely "blusterers".

The case was the longest criminal proceeding in the history of New York State. It began in April 1969 with the arrest of the defendants and the indictment of 22 persons. The case cost an estimated two million dollars.

*2. From the Editor*

This case interested "Computers and Automation" as soon as we found out about the involvement of a computer professional, when the case was described by Computer People for Peace at the national meeting of the Association for Computing Machinery, on Sept. 1, 1970, in New York. CPP said that a computer programmer, Clark Squire, was one of the defendants.

In the November 1970 issue of C&A we printed an article, "The Life and Times of Clark Squire: Computer Programmer, Black Panther, Prisoner", by Joseph Hanlon.

In the January 1971 issue of C&A we published a letter by Clark Squire confirming the substantial accuracy of Hanlon's article, but making a few minor corrections.

In the February 1971 issue we published "The Case of Clark Squire: Computer Programmer, Black Panther, Prisoner — Interim Report" by George Capsis, Kenneth M. King, Monroe Newborn, Computer People for Peace, Michael B. Griswold, E.C. Witt, and the Editor.

This report stated that after $50,000 bail had at last been raised for getting Clark Squire out of jail on bail, Judge Murtagh had thereupon raised the bail of Clark Squire to $100,000 so that he had to stay in jail. In my part of the interim report, I quoted two articles of the Bill of Rights of the Constitution of the United States (right to a speedy trial; right to nonexcessive bail); and I pointed out that Judge Murtagh had violated those two articles. I also said that:

> The behavior of Judge Murtagh is a disgrace to the Constitution of the United States and to the traditional English and American system of even-handed justice begun with Magna Carta in 1216.

After the February issue had gone to press, on January 27, I watched court proceedings in Judge Murtagh's courtroom for about 2 and 1/2 hours. During this time, a paid informer testified for the district attorney in regard to some of the Black Panthers on trial. This informer could not remember most of the details that he was supposed to testify to. So with the full approval of Judge Murtagh, this informer over and over again consulted a previous written record given to him on the witness stand by the district attorney — which he (the informer) looked at and consulted to try to refresh his memory. Though I am no lawyer, it appalled me that this way of putting words into a witness's mouth was tolerated by Judge Murtagh.

Apparently though, the jury was not fooled — the twelve members reaching a unanimous verdict on the first ballot, "not guilty".

Although the defendants have been acquitted, certain issues raised by this trial are not disposed of. These important questions, at least, remain:

1. What indemnity is to be given to these 13 persons held in jail for over 25 months without bail? Nothing?

2. Does New York (city or county or state) now pay the cost of the defense lawyers, or not?

3. Why was such a flimsy case brought up in the first place? Was it an attempt by the district attorney to make himself famous at the expense of some Black Panthers? Was it part of a federal government plot against the Black Panthers? Was it both?

4. Who decided it was worth $2 million (in these days of urban poverty) to press this case?

5. Is Judge Murtagh to be unimpeached, untried, and unpunished for violating the Constitution and laws of the United States?

## DATA PROCESSING EDUCATION VS. DATA PROCESSING EXPERIENCE

*Phyllis Little*
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I'm a freshman at College of the Mainland. I'm considering making the two-year Data Processing program my major.

I'm writing this letter to request additional information about this particular field. I was looking through the "Occupation Outlook Handbook 70-71", and it indicated that beginners hired for this particular field are transferred from other positions in their firms, and are seldom expected to have specific training as operators.

My real question is what advantage will an A.A.S. degree in Data Processing give me over an untrained person already employed by a given firm?

*From the Editor*

You ask "What advantage will an A.A.S. degree in Data Processing give me, over an untrained person already employed by a given firm?"

The only adequate answer that can be given, it seems to me, is simply "it all depends". If your courses are good courses and well taught, and if you get high marks in them, and if you pass with flying colors a data processing aptitude test that your prospective employer gives you when you apply for a job, then I think it is quite likely that you will have a substantial advantage over an untrained person already employed by the firm, — but again your advantage depends on the capacities and knowledge of that person, your unknown competitor.

There is no doubt that education is a very substantial help in preparing oneself for future jobs — but there remain variables of tremendous importance — such as power to observe, capacity to use common sense, ability to catch on fast, etc. Real competence in any field requires a lot of hard work.

# THE ISSUE IS HYPOCRISY

*"Each day someone has to give up his life so that the United States doesn't have to admit something that the entire world already knows, – that we have made a mistake. Someone has to die so that President Nixon won't be, and these are his words, " the first president to lose a war".*

*John Kerry, Chairman*
*Vietnam Veterans Against the War*
*Waltham, MA 02154*

Following is the text of the speech given by Former Navy Lieutenant John Kerry of Waltham, Mass. before the Foreign Relations Committee of the United States Senate on April 22, 1971.

Kerry spoke on behalf of the organization, Vietnam Veterans Against the War; he is at present a Yale Law student, and is 27 years old.

This talk is published here in accordance with the continuing policy of "Computers and Automation" to deal with the truthfulness of information about important controversial subjects.

The degree of truth of input data profoundly affects the fulfillment by computer professionals of their mission to apply computers in all sorts and varieties of problems, including those where distortion, misrepresentation, bias, and lies have occurred.

**Outline**



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Kerry: Thank you very much, Senator Fulbright, Senator Javits, Senator Symington, Senator Pell. I would like to say for the record, and also for the men behind me who are also wearing the uniform and their medals, that my sitting here is really symbolic. I am not here as John Kerry. I am here as one member of the group of 1000, which is a small representation of a very much larger group of veterans in this country, and were it possible for all of them to sit at this table they would be here and have the same kind of testimony.

I would simply like to speak in very general terms. I apologize if my statement is general because I received notification yesterday you would hear me and I am afraid because of the injunction I was up most of the night and haven't had a great deal of chance to prepare.

### 1. Investigation in Detroit on War Crimes

I would like to talk, representing all those veterans, and say that several months ago in Detroit, we had an investigation at which over 150 honorably discharged and many very highly decorated veterans testified to war crimes committed in Southeat Asia, not isolated incidents but crimes committed on a day-to-day basis with the full awareness of officers at all levels of command.

It is impossible to describe to you exactly what did happen in Detroit: the emotions in the room, the

feelings of the men who were reliving their experiences in Vietnam; but they did, they relived the absolute horror of what this country, in a sense, made them do.

### 2. Raped, Cut Off Ears, Cut Off Heads ...

They told the stories: at times they had personally raped, cut off ears, cut off heads, taped wires from portable telephones to human genitals and turned up the power, cut off limbs, blown up bodies, randomly shot at civilians, razed villages in fashion reminiscent of Genghis Khan, shot cattle and dogs for fun, poisoned food stocks, and generally ravaged the countryside of South Vietnam in addition to the normal ravage of war, and the normal and very particular ravaging which is done by the applied bombing power of this country.

### 3. The Winter Soldiers, Who Did Not Desert at Valley Forge

We call this investigation the Winter Soldier Investigation. The term "winter soldier" is a play on words of Thomas Paine's in 1776 when he spoke of the "sunshine patriot" and "summer time soldiers" who deserted at Valley Forge because the going was rough.

We who have come here to Washington have come here because we feel we have to be winter soldiers now. We could come back to this country, we could be quiet, we could hold our silence, we could not tell what went on in Vietnam but we feel because of what threatens this country, the fact that the crimes threaten it, not Reds and not redcoats but the crimes which we are committing that threaten it that we have to speak out.

### 4. Millions of Men Who Have Been Taught to Trade in Violence

I would like to talk to you a little bit about what the result is of the feelings these men carry with them after coming back from Vietnam. The country doesn't know it yet but it has created a monster, a monster in the form of millions of men who have been taught to deal and to trade in violence, and who are given the chance to die for the biggest nothing in history, men who have returned with a sense of anger, and a sense of betrayal which no one has yet grasped.

### 5. Angry, Because We Feel We Have Been Used

As a veteran and one who feels this anger I would like to talk about it. We are angry because we feel we have been used in the worst fashion by the Administration of this country.

### 6. Agnew's "Misfits"

In 1970 at West Point Vice President Agnew said "Some glamorize the criminal misfits of society while our best men die in Asian rice paddies to preserve the freedom which most of those misfits abuse," and this was used as a rallying point for our effort in Vietnam.

### 7. Quadriplegics and Amputees Forgotten in the VA Hospitals

But for us, as boys in Asia whom the country was supposed to support, his statement is a terrible distortion from which we can only draw a very deep sense of revulsion, and hence the anger of some of the men who are here in Washington today. It is a distortion because we in no way consider ourselves the best men of this country, because those he calls misfits were standing up for us in a way that nobody else in this country dared to, because so many who have died would have returned to this country to join the misfits in their efforts to ask for an immediate withdrawal from South Vietnam, because so many of those best men have returned as quadriplegics and amputees, and they lie forgotten in Veterans Administration hospitals in this country which fly the flag which so many have chosen as their own personal symbol, and we cannot consider ourselves America's best men when we are ashamed of and hated what we were called on to do in Southeast Asia.

### 8. Nothing in South Vietnam Which Realistically Threatens the U.S.A.

In our opinion, and from our experience, there is nothing in South Vietnam, nothing which could happen that realistically threatens the United States of America. And to attempt to justify the loss of one American life in Vietnam, Cambodia or Laos by linking such loss to the preservation of freedom, which those misfits supposedly abuse, is to us the height of criminal hypocrisy, and it is that kind of hypocrisy which we feel has torn this country apart.

We are probably much more angry than that, and I don't want to go into the foreign policy aspects because I am outclassed here. I know that all of you talk about every possible alternative to getting out of Vietnam. We understand that. We know you have considered the seriousness of the aspects to the utmost level, and I am not going to try to dwell on that. But I want to relate to you the feeling that many of the men who have returned to this country express because we are probably angriest about all that we were told about Vietnam and about the mystical war against communism.

### 9. Most Vietnamese Did Not Even Know the Difference Between Communism and Democracy

We found that not only was it a civil war, an effort by a people who had for years been seeking their liberation from any colonial influence whatsoever, but also we found that the Vietnamese, whom we had enthusiastically molded after our own image, were hard put to take up the fight against the threat we were supposedly saving them from.

We found most people didn't even know the difference between communism and democracy. They only wanted to work in rice paddies without helicopters strafing them and bombs with napalm burning their villages and tearing their country apart. They wanted everything to do with the war, particularly with this foreign presence of the United States of America, to leave them alone in peace, and they practiced the art of survival by siding with whichever military force was present at a particular time, be it Viet Cong, North Vietnamese or American.

### 10. American Men Dying in Paddies for Want of Support from Their Allies

We found also that all too often American men were dying in those rice paddies for want of support from their allies. We saw first-hand how monies from American taxes were used for a corrupt dictatorial regime. We saw that many people

in this country had a one-sided idea of who was kept free by our flag, as blacks provided the highest percentage of casualties. We saw Vietnam ravaged equally by American bombs as well as by search-and-destroy missions, as well as by Viet Cong terrorism, and yet we listened while this country tried to blame all of the havoc on the Viet Cong.

### 11. Destroying Villages "In Order to Save Them"

We rationalized destroying villages in order to save them. We saw America lose her sense of morality as she accepted very coolly a My Lai and refused to give up the image of American soldiers who hand out chocolate bars and chewing gum.

### 12. Cheapness of Lives of Orientals

We learned the meaning of free fire zones, shooting anything that moves, and we watched while America placed a cheapness on the lives of Orientals.

### 13. Falsification of Body Counts

We watched the United States' falsification of body counts, in fact the glorification of body counts. We listened while month after month we were told the back of the enemy was about to break. We fought using weapons against "oriental human beings," with quotation marks around that; we fought using weapons against those people which I do not believe this country would dream of using were we fighting in the European Theater or let us say a non-Third World people theater; and so we watched while men charged up hills because a general said that hill has to be taken, and after losing one platoon or two platoons they marched away to leave the high for the re-occupation by the North Vietnamese because we watched pride allow the most unimportant of battles to be blown into extravaganzas, because we couldn't lose, and we couldn't retreat, and because it didn't matter how many American bodies were lost to prove that point, and so there were Hamburger Hills and Khe Sanh's and Hill 881's and Fire Base 6's and so many others.

### 14. Incredible Arrogance of "Vietnamizing" the Vietnamese

Now we are told that the men who fought there must watch quietly while American lives are lost so that we can exercise the incredible arrogance of Vietnamizing the Vietnamese.

Each day (applause) —

Chairman: I hope you won't interrupt. He is making a very significant statement. Let him proceed.

### 15. Each Day Someone Dying So That the U.S. Does Not Have to Admit a Mistake

Kerry: Each day, to facilitate the process by which the United States washes her hands of Vietnam, someone has to give up his life so that the United States doesn't have to admit something that the entire world already knows, so that we can't say that we have made a mistake. Someone has to die so that President Nixon won't be, and these are his words, "the first President to lose a war."

### 16. The Last Man to Die for a Mistake

We are asking Americans to think about that because how do you ask a man to be the last man to die for a mistake? But we are trying to do that, and we are doing it with thousands of rationalizations, and if you read carefully the President's last speech to the people of this country, you can see that he says and says clearly: "But the issue, gentlemen, the issue is communism, and the question is whether or not we will leave that country to the communists or whether or not we will try to give it hope to be a free people." But the point is they are not a free people now under us, they are not a free people, and we cannot fight communism all over the world, and I think we should have learned that lesson by now.

### 17. Veterans Not Really Wanted — 22% Unemployment

But the problem of veterans goes beyond this personal problem, because you think about a poster in this country with a picture of Uncle Sam and the picture says: "I Want You." And a young man comes out of high school and says: "That is fine, I am going to serve my country." and he goes to Vietnam and he shoots and he kills and he does his job or maybe he doesn't kill, maybe he just goes and he comes back and when he gets back to this country, he finds that he isn't really wanted because the largest unemployment figure in the country, it varies depending on who you get it from, the VA Administration 15 percent, various other sources 22 percent, but the largest corps of unemployed in this country are veterans of this war, and of those veterans 33 percent of the unemployed are black. That means one out of every 10 of the nation's unemployed is a veteran of Vietnam.

### 18. Deaths in VA Hospital Because Nobody is There to Take Care of Them

The hospitals across the country won't or can't meet their demands. It is not a question of not trying: they haven't got the appropriations. A man recently died after he had a tracheotomy in California, not because of the operation but because there weren't enough personnel to clean the mucus out of his tube and he suffocated to death.

Another young man just died in a New York VA hospital the other day; a friend of mine was lying in a bed two beds away and tried to help him but he couldn't. He rang a bell and there was nobody there to service that man and so he died of convulsions.

### 19. 27% of Veterans in VA Hospitals Have Tried Suicide

57 percent, I understand 57 percent, of all those entering the VA hospitals talk about suicide. Some 27 percent have tried, and they try because they come back to this country and they have to face what they did in Vietnam, and then they come back and find the indifference of a country that doesn't really care, that doesn't really care.

### 20. Shrugging Off the Loss of Lives — Because of Being Exhausted by Past Indignations

Suddenly we are faced with a very sickening situation in this country, because there is no moral indignation and, if there is, it comes from people who are almost exhausted by their past indignations, and I know that many of them are sitting in front of me. The country seems to have lain down and shrugged off something as serious as Laos, just as we calmly shrugged off the loss of 700,000 lives in Pakistan, the so-called greatest disaster of all times.

But we are here as veterans to say we think we are in the midst of the greatest disaster of all times now because they are still dying over there, and not just Americans, Vietnamese, and we are rationalizing leaving that country so that those people can go on killing each other for years to come.

Americans seem to have accepted the idea that the war is winding down, at least for Americans, and they have also allowed the bodies which were once used by a President for statistics to prove that we were winning that war, to be used as evidence against a man who followed orders and who interpreted those orders no differently than hundreds of other men in Vietnam.

### 21. No Difference Between Ground Troops and Helicopter Crews

We veterans can only look with amazement on the fact that this country has been unable to see there is absolutely no difference between ground troops and a helicopter crew, and yet people have accepted a differentiation fed them by the Administration.

### 22. No Ground Troops in Laos – So It Is All Right to Kill

No ground troops are in Laos so it is all right to kill Laotians by remote control. But, believe me, the helicopter crews fill the same body bags and they wreak the same kind of damage on the Vietnamese and Laotian countryside as anybody else, and the President is talking about allowing that to go on for many years to come. One can only ask if we will really be satisfied only when the troops march into Hanoi.

### 23. We Are Asking for Action from Congress

We are asking here in Washington for some action, action from the Congress of the United States of America which has the power to raise and maintain armies, and which by the Constitution also has the power to declare war.

We have come here, not to the President, because we believe that this body can be responsive to the will of the people, and we believe that the will of the people says that we should be out of Vietnam now.

### 24. The Issue is Hypocrisy

We are here in Washington also to say that the problem of this war is not just a question of war and diplomacy. It is part and parcel of everything that we are trying as human beings to communicate to people in this country: the question of racism, which is rampant in the military, and so many other questions. Also, the use of weapons, the hypocrisy in our taking umbrage in the Geneva Conventions and using that as justification for a continuation of this war, when we are more guilty than any other body of violations of those Geneva Conventions, in the use of free fire zones, harassment interdiction fire, search-and-destroy missions, the bombings: the torture of prisoners, the killing of prisoners, accepted policy by many units in South Vietnam. That is what we are trying to say. It is part and parcel of everything.

### 25. An American Indian Soldier in Vietnam: "My God, I am doing to these people the same thing that was done to mine" – and He Stopped

An American Indian friend of mine who lives in the Indian nation of Alcatraz put it to me very succinctly. He told me how as a boy on an Indian reservation he had watched television and he used to cheer the cowboys when they came in and shot the Indians, and then suddenly one day he stopped in Vietnam and he said: "My God, I am doing to these people the very same thing that was done to my people," and he stopped. And that is what we are trying to say, that we think this thing has to end.

### 26. Where Are McNamara, Rostow, Bundy, Gilpatric ... ?

We are also here to ask, we are here to ask, and we are here to ask vehemently: Where are the leaders of our country, where is the leadership? We are here to ask where McNamara, Rostow, Bundy, Gilpatric and so many others, where are they now that we, the men whom they sent off to war, have returned? These are commanders who have deserted their troops, and there is no more serious crime in the law of war. The Army says they never leave their wounded.

### 27. These Men Have Left the Casualties: They Are Commanders Who Have Deserted Their Troops; They Have Retreated Behind a Shield of Public Rectitude

The Marines say they never leave even their dead. These men have left all the casualties and retreated behind a pious shield of public rectitude.

They have left the real stuff of their reputations bleaching behind them in the sun in this country.

### 28. The Ultimate Dishonor – Disowning Us

Finally, this Administration has done us the ultimate dishonor. They have attempted to disown us and the sacrifices we made for this country. In their blindness and fear they have tried to deny that we are veterans or that we served in Nam. We do not need their testimony. Our own scars and stumps of limbs are witness enough for others and for ourselves.

### 29. We Wish a Merciful God Could Wipe Away Our Memories

We wish that a merciful God could wipe away our own memories of that service as easily as this Administration has wiped their memories of us.

### 30. Our Determination to Search and Destroy the Last Vestige of This Barbaric War

But all that they have done and all that they can do by this denial is to make more clear than ever our own determination to undertake one last mission, to search out and destroy the last vestige of this barbaric war, to pacify our own hearts, to conquer the hate and the fear that have driven this country these last 10 years and more, and so when in 30 years from now our brothers go down the street without a leg, without an arm, or a face, and small boys ask why, we will be able to say "Vietnam" and not mean a desert, not a filthy obscene memory but mean instead the place where America finally turned and where soldiers like us helped it in the turning.

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**Following is an Associated Press dispatch describing what happened after Kerry's speech to the Foreign Relations Committee.**

WASHINGTON — The 27-year-old former Navy Lieutenant, his shaggy black hair curling over the collar

of his green fatigues, talked in quiet tones of Vietnam horrors carried out by GIs "in the fashion of Genghis Khan."

When John Kerry, a Yale law student who heads the Vietnam Veterans Against the War, finished, members of the Senate Foreign Relations Committee were nearly speechless.

"You have a Silver Star?" asked Sen. Stuart Symington (D-Mo.).

"Yes, sir", said Kerry who was wearing the Army's third highest award for valor at the top of four rows of campaign ribbons.

"You have a Purple Heart with two clusters?" asked Symington.

"Yes, sir."

"You were wounded three times?"

"Yes sir."

"I have no further questions," said the senator.

"Credentials are something we always think about," said Sen. Jacob K. Javits (R-N.Y.) "Your credentials couldn't be higher."

As it has been since the committee opened hearings on proposals to end the war Tuesday, the room was packed with some 120 green-clad veterans, youthful peace demonstrators, tourists.

They applauded Kerry more than a dozen times as, in the New England tones of his native Waltham, Mass., he denounced two administrations and predicted growing numbers of GIs would refuse to fight unless Congress acts to halt the war.

"There's a GI movement within this country as well as over there," he said. "We're going to change doctors. We're going to take our prescriptions to someone else. We're not going to fight."

Kerry spoke for 30 minutes or so when the hearing opened. Then, looking each senator straight in the eye, he answered questions with an unhesitating style that brought the responses out in measured paragraphs, not just sentences.

On President Nixon's policy: "What we are trying to do when we talk of getting out with honor is we are trying to whitewash ourselves. You cannot talk about peace when you are arming a people and tell them to go on fighting. That's not peace, that's war."

On the conviction of Lt. William L. Calley Jr.: "What he did quite obviously was a horrible, horrible, horrible thing. I have no bone to pick with the fact he was prosecuted.

"But the responsibility lies elsewhere ... If you are going to try Calley, you must at the same time try those other people who have responsibility."

On congressional efforts to end the war: "Too many members of this body have failed to take a gutsy position. To many have refused to face any question other than their own re-election."

On why the veterans came to Washington: "We have one last mission: To search out and destroy the last vestige of this war." □

# C.a PROBLEM CORNER

Walter Penney, CDP
Problem Editor
Computers and Automation

## PROBLEM 716: A STRING OF BITS

"How come you're writing down all those bits?" asked Joe, looking at the string of 1's and 0's Pete had written: 1 0 1 1 0 1 0 0 1 0 1 1 1 0 1 1. "Hey, they're 1 0 1 1 except for that second group of four and that's the complement."

"You're very observant," said Pete. "Yes, this is a stream formed from an original 1 0 1 1 by replacing each 1 by 1 0 1 1 and each 0 by 0 1 0 0. Now, I'll do the same thing with this stream, getting one 64 bits long."

"What's the point?"

"Well, I'm trying to figure out what I'd get if I repeated this operation any number of times."

"You could write a program to do that, couldn't you?"

"Yes, but I'd just get a number for a particular configuration repeated a certain number of times", said Joe. "I'm after the general solution."

"Won't the length of the initial stretch and the distribution of the 1's and 0's play a part in this?"

"The number of bits will affect the total, but not the way they're distributed."

"Say you start with a 1's and b 0's, how many of each will you have after n steps?"

"Now you've got the idea. That's what I'm trying to determine." How many 1's and 0's will there be?

### Solution to Problem 715: A Run Around the Bases

Call the base B; then we have, from $10.01 \times 100.01 = 1010.0001$ that $(B + 1/B^2)(B^2 + 1/B^2) = B^3 + B + 1/B^4$, from which $B^2 - B - 1 = 0$, or $B = \frac{1}{2} \pm \frac{1}{2}(5)^{1/2}$. The base is then either $\frac{1}{2} + \frac{1}{2}(5)^{1/2}$ (approximately 1.61803) or $\frac{1}{2} - \frac{1}{2}(5)^{1/2}$ approximately -.61803) and there is no way of determining which. The two examples represented $2 \times 3 = 6$ and $5 + 6 = 11$.

*Readers are invited to submit problems (and their solutions) for publication in this column to: Problem Editor, Computers and Automation, 815 Washington St., Newtonville, Mass. 02160.*

**CORRECTIONS**

In the May 1971 issue of Computers and Automation, the following corrections should be made:

Page 3, The C&A Notebook on Common SENSE, ELEMENTARY AND ADVANCED; under Purposes:
Col. 1, last line: replace "wise me" with "wise men"

Page 4, "Departments": Include "45 Books and Publications"

Page 7, Editorial: In the last line, replace "page 29" with "page 32"

Page 26, "Numbles": In the last line of Numble 715, replace "+ O F I E F I" with "= O F I E F I"

# ACROSS THE EDITOR'S DESK

## APPLICATIONS

### OSU PROFESSOR USES COMPUTER TO CREATE "LIVE" DRAWINGS

An Ohio State University professor has developed a computer technique for creating "live" three-dimensional illustrations that change size and shape, and duplicate the movements of objects they depict. The drawings, which are etched with an electron beam on the face of a computer's video tube, respond when the artist instructs the computer to induce movement, follow a prescribed path or change from one shape to another.

For example, a helicopter drawn on the TV-like screen of the terminal hovers and moves in any direction — its two blades turning at different speeds. The artist executes changes in movement of the object with the electron beam called a "light pen," and a special keyboard. The photo below, which employs a double exposure to show the helicopter movement, depicts the electronically created drawing as it would be seen from inside the terminal looking out.

The technique was developed under a National Science Foundation grant by OSU's Charles Csuri (shown holding the "light pen"), professor in the University's College of Arts. The program employs an IBM 1130 computing system and an IBM 2250 graphic display unit.

To capture drawings made with the system, a black and white video tape is made of the moving object, right from the screen of the computer terminal. By processing the tape through a special converter, it's possible to produce a second tape that introduces any color or combination of colors to the drawings.

The technique of electronic animation has visual aid potential for education, business, medicine and the arts, including the TV and film industries.

### UNIVERSITY OF ILLINOIS USES COMPUTER TO AID TREATMENT OF ACCIDENT VICTIMS

A computer at the University of Illinois Medical Center Campus in Chicago is being transformed into a life-saving medical instrument to combat a $20 billion health problem that kills more than 115,000 persons annually in the United States. The Medical Center Campus and Cook County Hospital's trauma unit, which have pooled their efforts through the work of Dr. David R. Boyd, assistant professor of surgery, in the U. of I. College of Medicine, have established a computerized trauma registry to collect detailed information on the types and treatment of trauma cases, such as industrial and auto accidents.

Using an IBM System 360/Model 44 computer in the Research Resources Laboratory at the Medical Center Campus, data is stored daily on epidemiologic and medical research of clinical treatment and the total delivery of emergency health care. The computer is programmed to store data electronically sent via telephone lines, and to feedback information over the same lines. Doctors will receive the data on small display terminals linked to the computer.

The registry is capable of providing numerous types of reports, including individual patient histories, clinical summaries for given injuries and results of specific treatment. An English language system and uniform diagnostic coding are used, enabling physicians and other health care professionals to utilize the registry without any special computer training. Dataphones are being used to input information by ordinary telephone hook up.

A lack of comprehensive information and time lags between accidents and treatment have plagued emergency care in the past and contributed to the heavy death toll. The registry directly addresses itself to these problems. The registry is receiving state and federal support, including a $56,146 grant from the National Institutes of Health. It is part of a statewide program to provide fast, expert care for accident victims throughout Illinois.

### IBM COMPUTER AND TV HELP TRUCKING COMPANY SOLVE 'SHORTAGE' PROBLEM

Glosson Motor Lines, Inc. of Lexington, N.C., is using closed-circuit television and an IBM System/3 Model 10 to help solve the problem of "shortages" — the biggest problem facing the nation's trucking industry. Each year this $7 billion industry loses nearly $600 million through "shortages" — the loss of shipped goods by theft and by errors in order handling. For Glosson alone, the annual loss exceeds $100,000 according to the company's controller, Melton B. Dobson.

Glosson's is using their System/3 Model 10 to plan for a new inventory control system that will help keep track of each piece of furniture from the time it arrives from the manufacturer until it's on the way to customers. A computer card is punched for each piece of furniture picked-up from a manufacturer. The card is attached to the carton when it's unloaded at Glosson's warehouse and is removed when the carton is loaded back onto a truck for customer delivery. Information from the card keeps track of inventory and helps the company prepare bills and shipping instructions.

Television cameras trained on the front gate and on the nearly 600-foot-long conveyor in the warehouse also monitor each shipment as it moves through the distribution cycle. Unauthorized trucks in the shipping yard or people in the warehouse can be quickly spotted.

### ASTRONOMERS MAP NEW STARS WITH COMPUTER'S HELP

Astronomers staring into the depths of outer space are using an IBM computer to find stars which can't be seen from Earth. Information from NASA's Orbiting Astronomical Observatory is fed into the University of Toledo's (Ohio) System/360 Model 44 and a "map" of the universe is created in the computer memory.

Dr. Adolph Witt, assistant professor of astronomy, uses the university's 40-inch telescope to observe stars thousands of light years from the Earth. His current research includes the study of life on other planets by examining the material floating in space between stars. A recent discovery found amino acids on a meteor which landed on Earth. These acids — which com-

bine to form protein, the building block of life — existed on the meteor in combinations much different from those normally found on Earth.

"Most astronomers," Dr. Witt said, "feel that the laws of probability indicate life of one form or another most certainly exists elsewhere in the universe. The computer is enabling us to determine more precisely where such life might exist.

### UNITED AIR LINES BAGGAGE HANDLING SYSTEM USES MINICOMPUTERS TO REMEMBER SUITCASES' DESTINATIONS

Baggage handlers at O'Hare International Airport, Chicago, Illinois, now are operating minicomputers to make sure passengers and their luggage depart on the same flight. The new United Air Lines baggage handling system uses a Varian Data Machines 620/i minicomputer to remember the destination of as many as 12,000 suitcases an hour. The automated system expedites handling of luggage of any size or shape, including golf bags and even mail sacks.

Physically, the computer-operated material handling system consists of a giant triangular network of conveyers — each side of the triangle measuring 300 feet in length. As the tagged luggage whizzes by two corners of the triangle at the rate of up to 200 pieces per minute, a dispatcher at each corner enters the destination code of each bag into the minicomputer terminal keyboard. From this point, each piece of luggage is transported on its own sorter tray to the destination accumulation conveyor.

The sorting system, known as a "controlled tilt tray sorter," allows each tray to tilt under remote command. The Varian 620/i instructs the tilt tray mechanism to divert each piece to the proper accumulation lane. Here, baggage handlers load the luggage onto baggage carts destined for every aircraft scheduled to depart during the next two hours.

Under peak conditions, UAL said, the average time elapsed between the acquisition of a piece of baggage into the system and its delivery to the appropriate inbound chute is from four to six minutes. As each flight departs, the minicomputer is automatically updated.

The system was designed by the Industrial Systems Division of Aerojet-General Corp., Frederick, Md.

### TRADITIONAL STOCK CERTIFICATE BEING REPLACED BY COMPUTER-PRODUCED PUNCHED CARDS

Reliable Investors Corp. of Madison, Wisconsin, has broken with a tradition which in recent years has become an increasingly difficult problem for Wall Street. The Wisconsin corporation is using an IBM System/360 Model 20 to produce punched card stock certificates, thereby eliminating the traditional engraved, larger-sized certificate.

"The stock exchanges have been researching the possibility of transferring all of their stocks to punched card certificates for some time," said George Stewart, president. "But as far as we know, we are the only company presently issuing certificates on punched cards.


Certificate printing costs, for the firm, have been reduced by about 60%. A one-time savings of over $40,000 was realized in a recent reissue of stocks. There have been a number of other cost-saving byproducts from the new system, including a stock register for filing with various regulatory bodies.

"The punched card is simple and efficient," Mr. Stewart said, "and it has reduced our stock certificate storage requirements by 75 per cent. The ease of entering information into the certificate file and getting it out again is fantastic."

### COMPUTER HELPS INDUSTRY PROLONG FOREST BEAUTY

In the forests of Michigan's upper peninsula, a computer is showing industry how it can profit and still enable the public to enjoy a forest's beauty. A computerized forest inventory has shown that forests that are cut frequently for short-growth pulpwood crops, can be enjoyed longer aesthetically, and produce greater dollar return by a switch to the longer-term investment in hardwood logs used to make fine furniture. This is just one of several new forest management ideas formulated by foresters at Michigan Tech University (Houghton).

Professor James W. Meteer, research forester at Michigan Tech's Ford Forestry Center, said, "We've shown that changes in forest management can be good for both the economy and public enjoyment of the land. Simply growing wood fiber is a borderline proposition with our short growing season and minimum rainfall, and right now there is a surplus of pulpwood."

The inventory is based on a sampling technique of trees in a 4,000 acre research forest. The center keeps records on each of 30 to 40 trees in 1,000 one-fifth-acre plots. Field workers classify the trees, soil conditions and rainfall on each plot. They measure and record tree growth and note mortality of overmature trees. All of this information is placed in an IBM System/360 Model 44 which completes statistical analysis of the sample and projects data to cover the entire forest. In a real way, the computer is contributing to better management of a natural resource by optimizing the variables of the forest and relating them to both productivity and public enjoyment, Professor Meteer noted.

"...the forest is a long-term investment...Continuous production of higher-value, longer-growing hardwood species will boost both the economy and the beauty of the area. In this age of ecological awareness, we think that's important."

## EDUCATION NEWS

### DARTMOUTH COLLEGE — NATION'S PACEMAKER IN EDUCATIONAL USE OF COMPUTING

Dartmouth College (Hanover, N.H.) through its multi-million dollar Kiewit Computation Center, is providing high-speed computer services to a network of colleges and high schools in seven eastern states as well as to its own undergraduates and graduate students. As of early 1971, thousands of miles of telephone lines and sophisticated circuitry connected 30 high schools and 20 colleges in New York, New Jersey, and five New England States, to the Kiewit Network. At the heart of the system are two Honeywell-635 central computers, two Datanet 30 communications computers which can take orders from as many as 145 persons simultaneously, and some 600 telephone circuits connected to more than 200 consoles located at Dartmouth and off-campus.

While the 3,250 undergraduates, 600 graduate students and 500 faculty members at Dartmouth automatically are elegible users of the

system, more than 7,500 high school students also have user accounts, while the balance of users are students and faculty members at other colleges in the Kiewit Network. Last year, more than 13,400 persons used the Center; of these 10,300 were students and teachers at schools outside of Dartmouth. During a single day in December 1970, the computer performed nearly 20,000 jobs in a 17-hour period. The Kiewit Network now is in operation more than 100 hours a week.

The ability of the Kiewit Computer to service this growing network, to handle more than 100 users simultaneously, to converse in any one of seven languages ranging from BASIC to LISP, and to perform over 500,000 calculations a second, makes the Dartmouth Time-Sharing System (DTSS) one of the largest educational computing facilities in the world.

The most commonly used computer language on the system is BASIC, authored in 1963 by Dartmouth President John G. Kemeny and Mathematics Professor Thomas E. Kurtz, director of Kiewit. BASIC is easy to learn, even by an elementary school pupil, and enables the user to communicate with the computer in a conversational manner, yet also is a vehicle of highly complex computerized research.

There are more than 500 programs in the Kiewit Computer library ranging from language drills in German to football games and computerized art. Once considered by some as a waste of time, recreational game playing now is recognized as a way in which the reluctant or apprehensive beginning user may overcome any fears he might have of the computer. "It takes 15 minutes to play the simulated football game, but it takes the computer only about one and one-half seconds of computing time," President Kemeny said. "After you play one football game, the mystery and fear of the computer suddenly are gone."

Reinforcing the original philosophy that the DTSS system should be used primarily as a learning tool, a recent survey of on-campus use showed that 57% of the total computer time was dedicated to course assignments and only 16% to research. The remaining 27% of the computer time was used by students and others for recreational purposes.

Although Dartmouth students and faculty account for only 31% of the total user population, they consume more than 68% of the terminal hours, 85% of the computing time, and 90% of the storage capacity of the computer. Indeed, as an academic tool, the computer has been so thoroughly integrated into the course or research work of literally all departments that nearly 90% of all Dartmouth's undergraduates gain familiarity with computing prior to graduating.

Off-campus use of the Kiewit Computer continues to grow. Why Dartmouth provides such widespread computer services is best described by President Kemeny:

"When we set out to develop a time-sharing system in 1963, it was with the conviction that knowledge and use of the high-speed electronic brain should be an integral part of every student's basic education. It was also our intention that the system be designed to handle thousands of people with small jobs for the computer rather than hundreds of people with large jobs.

"The end result was the Dartmouth Time-Sharing System, which became the first freely accessible and easily usable system in the nation to serve a large number of small users."

It also has made Dartmouth a pacemaker for the nation in educational use of computing — a tool whose potential President Kemeny believes has only been scratched in extending the horizons of the mind of man. (The first duplicate of the DTSS system was installed in February 1971 at the U.S. Naval Academy at Annapolis, Md., and provides time-sharing computer services for 4,200 midshipmen.)

### POLYTECHNIC UNDERGRADS TO GET EXECUTIVE EXPERIENCE BY COMPUTER

Next fall at Polytechnic Institute of Brooklyn (New York), a new "Decision-Making Laboratory" will use computer simulation of business operations to give senior System Engineering students the opportunity to make executive-level decisions. The class will be divided into rival "companies" competing for customers in the same market area. Working from initial information concerning their companies, market areas and the general economy, they will use the computer to forecast sales, allocate resources and prepare profit statements. The student-executives will decide how much to charge for their products, how much to produce, how much to spend on advertising, and how much overtime should be worked.

At the end of the semester, boards of directors — consisting of graduate students, faculty members and industrial executives — will listen while members of each team (company) explain reasons for decisions they have made. Participants in the one-credit course will be graded on oral and written reports.

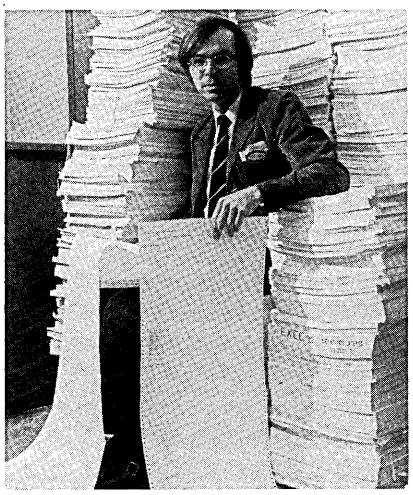
While some other colleges and universities also have offered this kind of class, it usually has been on the graduate rather than undergraduate level, and in the field of business engineering.

## MISCELLANEOUS

### LOCKHEED TO RECYCLE MILES OF COMPUTER PAPER

Lockheed Missiles & Space Co. (Sunnyvale, Calif.) is going to recycle the thousands of miles of printout paper it uses each year. The Sunnyvale missiles and space company, producer of the Polaris and Poseidon missiles and the Agena satellite, buys 5,426 miles of computer printout paper each year. Approximately 100 acres of forest are needed to produce this amount of paper. By recycling, that much timber could be preserved.

The idea came from young computer programmer, Timothy M. Ames, shown surrounded by a small part of the computer printout paper which his company will recycle for new paper after use. An ardent conservationist, Ames saw a means of reusing a natural resource, the pulp that goes into computer readout paper.



This "easy chair" represents a half-day's consumption of the high quality paper used by Lockheed in its computer printout machines. After the data has been used, and the paper becomes waste, it will go to the BJ Services of San Francisco, with whom Lockheed has singed a pilot contract for recycling into new computer paper, bonded paper or other high quality products.

# NEW PRODUCTS AND SERVICES

| NAME/MODEL NO. | DESCRIPTION | FOR MORE INFORMATION |
|---|---|---|
| **Digital** | | |
| Micro 1600 Minicomputer | Operates in a variety of applications through micro-programming / configurations include both single and dual CPU; three control memory configurations are available / micromemory capacity up to 16,384 words / cycle time 200 nsec / core memory expands to a 65K x 8 capacity with 1.0 msec cycle time | Microdata Corporation<br>644 East Young St.<br>Santa Ana, CA 92705<br>Attn: Robert Oakley |
| 1900S Series Computers | Four computers — 1906S, 1904S, 1903S 1902S / fully compatible members of 1900 Series / major increases in performance over corresponding A series / on-site upgrading of A Series | Rex Berry<br>Suite 1202<br>595 Madison Ave.<br>New York, NY 10022 |
| P-359 minicomputer | Latest member of P-350 series for the small to medium business or decentralized departments of larger operations / has 762-digit magnetic ledger card system and a 30-inch split platen for larger forms / 800- or 1,200 word core memory available / modular concept permits compatible growth with user's expanding requirements | Phillips Business Systems Inc.<br>292 Madison Ave.<br>New York, NY 10017 |
| PDP-15/50 system | For scientific batch processing; also for use in real-time applications / 16,384 words of core memory / disk pack system stores to 10 million words of data / floating point processor enables arithmetic operations to be completed 10 times faster than by software routines | Digital Equipment Corp.<br>Maynard, MA 01754<br>Attn: Dennis C. Goss |
| **Special Purpose Systems** | | |
| ADAPTS (measurement and control system) | For use in science and industry / modular data acquisition system providing real-time analog and digital processing and testing / uses Varian 620 16-bit-word minicomputer; Varian Extended BASIC language controlls all functions and subroutines / four configurations, all with choice of either 750-nsec Varian 620/f or Varian 620/L, both with 12,288-word memories | Varian Data Machines, G/DS<br>611 Hansen Way<br>Palo Alto, CA 94303<br>Attn: John Koudela, Jr. |
| MUMPS (Massachusetts General Hospital Utility Multi-Programming System) | For handling patient medical records / uses DEC's PDP-15 and a general-purpose language also called MUMPS / can be operated by up to 22 persons simultaneously requiring access to a common data base / developed by Laboratory of Computer Sciences of Mass. Gen'l Hospital, Harvard Medical School, Boston | Digital Equipment Corp.<br>Maynard, MA 01754<br>Attn: William D. Hirst |
| Search Brokerage House System (SBHS) | Turn-key data processing system designed to eliminate front and back office paper work problems for small brokerage houses / developed by Search, Inc., a Connecticut-based systems designer / includes PDP-8/L computer, a Search printer, magnetic tape deck storage unit, and a Search data source terminal / automates variety of tasks | Digital Equipment Corp.<br>Maynard, MA 01754<br>Attn: Howard Steiner |
| 704 Data Acquisition and Control System | Off-the-shelf system for wide variety of data gathering, logging, processing, storage, and control functions / includes elements for multiplexed A-to-D and D-to-A conversion and input-output of discrete events / all functions of basic system are expandable | Baytheon Data Systems Co.<br>1415 Boston-Providence Tpke.<br>Norwood, MA 02062 |
| **Memories** | | |
| CorPak 8 Memory System | Add-on core memory for DEC PDP-8/I / provides up to 28K words of additional core memory / available in 4K x 12 increments for total of 28K x 12 add-on memory | Information Control Corp.<br>9610 Bellanca Ave.<br>Los Angeles, CA 90045 |
| Model 560 Multi-Channel Tape Reader | Provides random access, read-only batch memory system for minicomputers, process control systems, automatic typewriters, other devices accepting digital input / stores up to 100 different, varying length programs on an endless-loop tape | Data Test Corp.<br>822 Challenge Drive<br>Concord, CA 94520 |
| Models ARM-30 and ARM 2365 core memories | Designed to replace main-frame core memories of IBMs 360/30, /65, /67 and /75 computers at lower cost / no equipment or software modification; matches IBMs in speed and capacity / both models are modular-expandable | Marketing Communications, MS 7-13<br>Ampex Corp.<br>401 Broadway<br>Redwood City, CA 94063 |

| NAME/MODEL NO. | DESCRIPTION | FOR MORE INFORMATION |
|---|---|---|
| (Memories, continued) | | |
| Model DTU-250, miniature magnetic tape recorder | For use in avionics and field computer diagnostics systems / bit-serial system has per track capacity of 2,400,000 data bits on 250 ft. 1/4 inch magnetic tape / totally sealed cartridge maintains tape in its own clean room / size, complete with electronics for 2 tracks write/read or 4 tracks of write or read, is 8"L x 5"W x 3.5"H; 6 lbs including tape / options for expansion available | Circuit Systems Corporation<br>816 East Edna Place<br>Covina, CA 91722 |
| NM-6000 family | Electrically alterable read only memory (EAROM) / uses NW-100 plated wire as basic memory element / speeds are read access 180ns, read time 300 ns, write time 500 ns, and read/write 650 ns / operates in non-destructive read out mode (NDRO) / maximum capacity 81,920 bits | Nemonic Data Systems, Inc.<br>1301 West Third Avenue<br>Denver, CO 80223<br>Attn: Robert A. Fillingham |
| PDP-8 ROM | For present PDP-8I and PDP-8L users / provides from 2,048 to 32,768 additional words of storage / includes all controls for interacing and user software system / memory access within 1.6 usec; data transfer rate up to 1.6 usec per word | Memory Technology, Inc.<br>83 Boston Post Road<br>Sudbury, MA 01776<br>Attn: Paul Rosenbaum |
| Terabit Memory (TBM) | Uses videotape recording techniques to provide on-line random access to as many as 400 billion bytes (3 trillion bits) of computer data / expandable from a minimum system of 11 billion bytes / can be plug-compatible with any presently available commercial computer / requires no change in computer or its basic programming, although special access programs will be needed | Marketing Communications, MS 7-13<br>Ampex Corporation<br>401 Broadway<br>Redwood City, CA 94063 |
| XMD-2100 minicomputer mass memory system | Disk drive system (similiar to the IBM 2310) offering 10 million bits of storage / standard disk is 1025 bit-per-inch / system includes coupler, disk controller, all necessary cables and power supplies and one disk drive / software includes a maintenance program, disk formatter, and I/O driver / options available | Xebec Systems, Inc.<br>918 North Rengstorff Ave.<br>Mountain View, CA 94040 |
| **Software** | | |
| CPS-1 (Contour Plotting System) | A modular verb-oriented programming language requiring little or no computer background / for use on medium-to-large computers equipped for graphics output / designed to expand with user's requirements / a variety of options available for specialized plotting applications | Unitech, Inc.<br>1005 East St. Elmo Road<br>Austin, TX 78745 |
| CEMIS (Client-Employee Management Information System) | For professional firms, e.g., lawyers, accountants, consulting engineers / generates reports of business activity, statement issuance, internal profitability and client or project profitability / operational on IBM and Honeywell computers | Peter J. Oeth<br>VP Marketing<br>Western Data Sciences<br>5055 North 12th Street<br>Phoenix, 85014 |
| COSYBUG | Permits on-line symbolic debugging of COBOL programs / syntax of simple command language closely related to COBOL's English-like structure; no knowledge of machine language is required | PDA Systems, Inc.<br>12 East 86th Street<br>New York, NY 10028 |
| DUO/360/370 | Allows IBM computer users to operate most IBM DOS/360 programs under either OS/360 or OS/370 without reprogramming / provided at no extra cost to CT center clients; may be leased or purchased by System/360 or System/370 user for use at own center | University Computing Co.<br>1500 UCC Tower<br>P.O. Box 6228<br>Dallas, TX 75222 |
| MIAS (Management Information and Accounting System) | A real time "total business package library" for use on any computer that supports COBOL or FORTRAN IV / approximately 40 programs / operate in either batch mode or conversationally from control console or console CRT | Computing Corp. International, Inc.<br>3375 South Bannock<br>Englewood, CO 80110 |
| MINI-SIM | Programming method utilizing large computers to develop programs for minicomputers / portion of large computer simulates selected minicomputer; rest of computer, and peripherals, develop and test program that will be fully operational, ready to load directly into minicomputer | Mr. J. David Ellis<br>Trippe Systems Inc.<br>120 Montgomery Street<br>San Francisco, CA 94104 |
| PI SORT 2 program | Now compatible with IBM SORT#483 / retains advantages of "plug compatibility" / sorts fixed-length records about 30% faster than other available sorts / sorts a file with 1/2 disk work area required by SORT 483 or sort SMI / 30-day free trial; then month-by-month lease | Programmatics Inc.<br>11661 San Vicente Blvd.<br>Los Angeles, CA 90049 |

| NAME/MODEL NO. | DESCRIPTION | FOR MORE INFORMATION |
|---|---|---|
| (Software, continued) | | |
| Tire Registration Program | Software application package for tire retreading firms, manufacturers and tire brand name owners / will maintain records of tire sales and leases and provide periodic reports required by new federal regulations / available at 40 NCR data centers throughout the U.S. | The National Cash Register Company<br>Dayton, OH 45409 |
| **Peripheral Equipment** | | |
| BR-700 Information System | For management information and control, both industrial-commercial and military / accepts masses of data; data can be retrieved, changed, communicated to matching systems or other output devices, without using a computer | Electronic Systems Division<br>The Bunker-Ramo Corp.<br>31717 La Tienda Drive<br>Westlake Village, CA 91361 |
| Cassette Magnetic Tape Operating System (CMTOS) | For Data General, Digital Equipment, or Hewlett-Packard computer user / replaces all system paper tape functions / one transport contains entire system library; second transport handles source information; object program is written on third transport / operation is fully automatic | Dicom Industries<br>715 N. Pastoria Ave.<br>Sunnyvale, CA 94086 |
| Data Terminal | Portable, remote computer terminal / 128 ASCII characters in transmit mode; prints full 64 characters ASCII Dense Sub-set / multi-copy printout uses ordinary paper and standard typewriter ribbon / acoustic coupler requires only telephone and 115 v AC power outlet for full operation | David Mendelsohn<br>Compudata Corp., Inc.<br>100 Manton Avenue<br>Providence, RI 02909 |
| LP 3500 line printer | Speeds from 1240 to 1500 lpm using 48 characters and 132 columns / character fonts may be changed from 48 to 96, or 64 to 128 characters, by simply exchanging chain modules / numeric, alphanumeric, and symbolic character sets available / standard fanfold paper, from 4 to 18 1/2" W; maximum length, 22" | Potter Instrument Co., Inc.<br>532 Broad Hollow Road<br>Melville, NY 11746 |
| Line printer for 700-Series computers | Free-standing, desk-top device prints 356 80-column lines per minute / 8" W print area / multi-copies to six parts / all 64 ASCII characters / complete software package available / computer requires one level of priority interrupt to interface with line printer | Raytheon Data Systems Co.<br>1415 Boston-Providence Hwy.<br>Norwood, MA 02062 |
| Model 720 Ledger Card Reader | For Victor Series 800 small-scale billing and accounting computers / provides automatic data input at rate of up to 30,000 digits per minute / magnetic ledter cards utilized add up to 1024 digits of alphanumeric data storage / cards also provide hard copy | Victor Comptometer Corp.<br>3900 N. Rockwell St.<br>Chicago, IL 60618 |
| Source Text Editor | For Varian 620/i users who have a COI LINC Tape Mass Memory Peripheral / provides capability to generate and edit source text on LINC Tape / Editor is both line number and context oriented | Computer Operations, Inc.<br>10774 Tucker St.<br>Beltsville, MD 20705<br>Attn: Marketing Dept. |
| Tycom® 35/37 console send-receive (CSR) | Hard-copy terminal for direct use with Digital Equipment's PDP-8 minicomputers / can operate at 15 cps / has 92-character set, full upper and lower case / 27 different font elements including OCR | Terminal Equipment Corp.<br>750 Hamburg Turnpike<br>Pompton Lakes, NJ 07442 |
| **Data Processing Accessories** | | |
| Magnetic Tape Preserver | Special carrying case for magnetic tape / prevents "Magnetic Pollution" caused by numerous everyday items (e.g., air conditioners, elevators, electric storms) during storage or transportation / two models available / special configurations for specific applications are in design | Data Processing Security, Inc.<br>1550 Northwest Highway<br>Park Ridge, IL 60068 |
| **Computer-Related Services** | | |
| Developing new language compiler | Produce PL/1-based code for any available computer / recent version (under $50K) operates on IBM/360; generates code for NOVA or SUPERNOVA minicomputer; includes almost all features of standard IBM PL/1 Lanugage Subset for TOS/DOS/service offered to all computer users | SofTech<br>391 Totten Pond Road<br>Waltham, MA 02154<br>Attn: Cornelium Peterson |
| International broking and sales network | Specializingin sale of refurbished, used computers and peripheral equipment / wide range of 2nd and 3rd generation computer equipment completely refurbished and working to specification of original manufacturer | Computer Sales & Service Ltd.<br>49/53 Pancras Road<br>London NWI, England |

# NEW CONTRACTS

| TO | FROM | FOR | AMOUNT |
|---|---|---|---|
| Univac Defense Systems Div. St. Paul, Minn. | Federal Aviation Admn., Washington, DC | Sixty-two ARTS III systems; first has been installed at Chicago's OHare Int'l Airport; 25 more scheduled to be installed during 1971 in FAA's program to increase efficiency and improve safety at high and medium density airports throughout the nation | $30.7 million |
| Incoterm Corp., Marlborough, Mass. | Transac Div. of Cit-Alcatel (a CGE Co.) France | Common market sales of INCOTERM© products over next 48 months; agreement calls for completion by late '71 of French manufacturing facility for licensed production by TRANSAC of INCOTERM computer terminals | $15 million |
| Burroughs Corp., Detroit, Mich. | Philco-Ford Corp., Philadelphia, Pa. | A sixth Burroughs computer, a B 6700 data processing system; systems are used for DP services in inventory control, payroll, industrial relations, engineering, financial reports | $3.5 million |
| Tri-Data Corp., Mountain View, Calif. | Data Products Div. of Lockheed Electronics Co., Inc, Los Angeles, Calif. | Minicomputer magnetic tape systems for incorporation in Lockheed Electronics MAC 16 computers | $2.5 million |
| Integrated Systems Support, Inc., Virginia Beach, Va. | Navy's Fleet Computer Programming Center, Atlantic | Development, production and maintenance of computer programs as well as studies and development of concepts for Naval Tactical Data System (NTDS) | $2.5 million (approximate) |
| Tracor Data Systems, Inc., Austin, Texas | General Services Administration | Rental and installation of TDS-711 and TDS-733 Disc Drives, and TDS-833 Controllers; will replace IBM's disk storage systems, operating in conjunction with computer systems at U.S. Army, U.S. Air Force and Government agencies located throughout country | $2.1 million |
| National Sharedata Corp., Dallas, Texas | Citizens National Bank, Lubbock, Texas | Assume management of the bank's data processing operation and computer center for five-year period | $2 million (approximate) |
| International Computers (USA) Limited, New York, N.Y. | Farrington Manufacturing Co., Falls Church, Va. | Purchase of ICL pneumatic transports, for handling paper and card stock documents | $2 million (approximate) |
| Information Storage Systems, Cupertino, Calif. | Logic Corp., Cherry Hill, N. J. | Renewal of previous contract; provides for increased quantities of ISS 714 and ISS 701 disk drives for use in KeyDisc systems | $1+ million |
| Ampex Corp., Culver City, Calif. | Rohr Corp., Inglewood, Calif. | Four Model ECM-65 extended core memories to increase throughput and capacity of two IBM 360/65 computer systems. | $900,00+ |
| Data Systems Analysts, Inc., Pennsauken, N. J. | Defense Communications Agency of the U.S. Dept. of Defense | Computer programming to enhance operation of overseas portion of AUTODIN network; originally programmed by the firm in 1966 | $715,000 |
| Ampex Corp., Culver City, Calif. | Hughes Aircraft Co., Fullerton, Calif. | Militarized core memory stacks to be used in systems for Phase II of Defense Dept's 407L Tactical Air Control System program | $700,000 |
| Corporation S, Dallas, Texas | Marathon Oil, Houston, Texas | A conversion of Marathon existing optical scanning credit card processes to a Recognition Equipment Inc. system; calls for hardware, all necessary software and assistance with systems development | $700,000+ |
| Bunker-Ramo Corp., Westlake Village, Calif. | Naval Electronic Systems Command, Washington, D.C. | Three BR-700's for an input/output data display message processing systems and a fourth BR-700 for a data management and retrieval system; field engineering and support services for both systems | $535,000 |
| Mnemotech Computer Systems, Inc., New York, N.Y. | Edwards & Hanly, New York, N.Y. | Processing E & H's brokerage back office | $500,000 |
| Librascope Div. of The Singer Co., Glendale, Calif. | The Boeing Co., Seattle, Wash. | Manufacture of data printer for Air Force's Short Range Attack Millile (SRAM) program; it will plug into launch aircraft's computer and print out stored data to provide profile of SRAM training flights | $375,000 |
| Computing and Software, Inc., Los Angeles, Calif. | Southern Arizona Bank, Tucson, Ariz. | Operating portion of bank's computer facilities, providing a variety of internal data processing functions and program application services for outside customers | $30,000 |
| Cambridge Memories, Inc., Newton, Mass. | Teradyne, Inc., Boston, Mass. | ExpandaCore 18 memory systems for use in digital IC test system, one of which is SLOT (Sequential LOgic Tester) Machine | $250,000+ |
| Interdata, Inc., Oceanport, N.J. | Ford Motor Co., Rawsonville, Mich. | Four Model 5 computers; 3 will monitor and control production testing of carburetor subassemblies; one will be used as a communications processor | $230,000 |
| Moshman Associates, Inc., Washington, D.C. | Federal Judicial Center, Washington, D.C. | A study and preparation of alternative geographic reorganizations of the U.S. Circuit Courts of Appeal; more options and greater sensitivity in current version of legislative redistricting program used in 1965 for Illinois and California | — |

# NEW INSTALLATIONS

| OF | AT | FOR |
|---|---|---|
| Burroughs B2500 system | Advance Schools, Inc., Chicago, Ill. | Accounting, payroll, inventories, purchasing, and complete student record and student processing |
| | Birmingham Small Arms Co., Inc., Verona, N.J. | Inventory control, billing, accounts receivable, statistical reporting; future plans include a data communications network by end of 1971 (system valued at over $517,000) |
| | Bunker Hill Co., Kellogg, Idaho | Payroll, cost accounting, mining applications, metallurgical accounting, a forecasting application |
| | Texas Rehabilitation Commission Austin, Texas | Caseload management accounting, payroll, personnel, purchasing, equipment inventory; also a data bank for processing client statistical information from 150 field offices throughout the state |
| | University of the Pacific, Stockton, Calif. | Educational, research and business applications (system valued at over $481,000) |
| Burroughs B3500 system | Citizens National Bank, Tenafly, N.J. | More efficient performance of present banking applications via systems multiprocessing capabilities (system valued at over $780,000) |
| | Technicolor, Inc., Information Systems Div., Hollywood, Calif. | Applications including service packages to CATV system operators, market research services for broadcasters and advertisers, and all internal computer services to six other Technicolor divisions (system valued at over $1,500,000) |
| Control Data 3300 system | Taiwan Railway Administration (TRA) | Automating business data processing functions and increasing efficiency of railroad operations (system valued at $900,000) |
| Control Data 6400 system | University of Calgary, Calgary, Alberta, Canada | Academic instruction, general research and student training |
| Honeywell Model 110 system | Interphase Computer Systems, Salt Lake City, Utah | Stock brokerage accounting and stock transfer as well as general accounting purposes |
| Honeywell Model 115 system | Merchants Shipper Credit Corp., Bellevue, Wash. | A billing service for the transportation industry |
| | Mine and Smelter Supply Co., Denver, Colo. | Sales order processing, sales analysis, accounts payable and accounts receivable |
| | Western American Bank (Europe), Ltd., London, England | All major aspects of its business, including loans and deposits, foreign exchange, Eurodollar, bond dealings |
| Honeywell Model 125 system | Midwest Life Nebraska, Lincoln, Neb. | Processing over 70,000 life and health insurance policies |
| Honeywell Model 1250 system | Borough of Hammersmith, London, England | Handling an expanding load of non-financial work for the town, including an electors' register of 126,000 persons, and a library catalog system |
| Honeywell Model 2200 system | Associated Container Transportation, London, England | Handling paperwork related to its through-transport container services between the UK/Europe and Australia and between Australia/New Zealand and the East Coast of the U.S.; replaces smaller H-200 |
| NCR Century 100 system | Upstate Milk Co-op, Buffalo, N.Y. | Route accounting, preparing wholesale and retail billings, payroll, miscellaneous data proc'g work |
| NCR Century 200 system | Process Consulting and Computing, Inc., San Diego, Calif. | Retail store accounting services and large volume billing operations |
| IBM System/3 Model 6 | A&E Messenger Service, Houston, Texas | Keeping track of fleet of delivery trucks, logging day's activities, preparing customer invoices, etc. |
| | Four Winds Forwarding, Inc., San Diego, Calif. | Tracking any of 6,000 shipping containers used to ship household goods when Americans move abroad or return to United States |
| | Massey-Ferguson Inc., Des Moines, Iowa | Financial analysis; also analyze sales and inventory volumes, product acceptance projects, and others |
| IBM System/3 Model 10 | Citizens National Bank & Trust Co., Towanda, Pa. | Demand deposits, savings accounts, installment loans, Christmas Club and Ready-Credit |
| | Wooster Community Hospital, Wooster, Ohio | Providing floor-by-floor census of the 195-bed hospital, including a count of patients, their bed assignments, dates of admission and attending doctors; also patient billing, payroll, general accounting |
| IBM System/360 Model 50 | Provident Life and Accident Insurance Co., Chattanooga, Tenn. | Entering information from new life insurance applications and keeping track of the status of pending applications |
| IBM System/370 Model 155 | Liberty National Life Insurance Co., Birmingham, Ala. | Core of remote field accounting service; terminals link 145 offices in 7 states; will handle other applications including corporate accounting |
| | McDonnell Douglas Automation Co., St. Louis, Mo. | Handling company's Information Management System (IMS); replaces a System/360 |
| UNIVAC 1106 system | Geocom, Houston, Texas | Geophysical data processing (system valued at about $1.9 million) |
| UNIVAC 1108 and 418-III systems | Western Union, Information Services Computer System Center, Middletown, Va. (three 1108s; three 418-IIIs) | Enhancement of Telex, TWX and MAILGRAM services; also in conjunction with modernization of WU's public message services (systems' value exceeds several million dollars) |
| UNIVAC 9200 system | Morrison Steel Co., New Brunswick, N.J. | Billing, accounts receivable, accounts payable, general accounting |
| UNIVAC 9400 system | General Logics Inc., Dallas, Texas | Real time pricing system for photo-finishers; system will show exact status of all film being processed, at any time |

# MONTHLY COMPUTER CENSUS

Neil Macdonald
Survey Editor
COMPUTERS AND AUTOMATION

The following is a summary made by COMPUTERS AND AUTOMATION of reports and estimates of the number of general purpose electronic digital computers manufactured and installed, or to be manufactured and on order. These figures are mailed to individual computer manufacturers from time to time for their information and review, and for any updating or comments they may care to provide. Please note the variation in dates and reliability of the information. Several important manufacturers refuse to give out, confirm, or comment on any figures.

Our census seeks to include all digital computers manufactured anywhere. We invite all manufacturers located anywhere to submit information for this census. We invite all our readers to submit information that would help make these figures as accurate and complete as possible.

Part I of the Monthly Computer Census contains reports for United States manufacturers. Part II contains reports for manufacturers outside of the United States. The two parts are published in alternate months.

The following abbreviations apply:

(A) -- authoritative figures, derived essentially from information sent by the manufacturer directly to COMPUTERS AND AUTOMATION
C -- figure is combined in a total
(D) -- acknowledgment is given to DP Focus, Marlboro, Mass., for their help in estimating many of these figures
E -- figure estimated by COMPUTERS AND AUTOMATION
(N) -- manufacturer refuses to give any figures on number of installations or of orders, and refuses to comment in any way on those numbers stated here
(R) -- figures derived all or in part from information released indirectly by the manufacturer, or from reports by other sources likely to be informed
(S) -- sale only, and sale (not rental) price is stated
X -- no longer in production
\- -- information not obtained at press time

SUMMARY AS OF APRIL 15, 1971

| NAME OF MANUFACTURER | NAME OF COMPUTER | DATE OF FIRST INSTALLATION | AVERAGE OR RANGE OF MONTHLY RENTAL $(000) | NUMBER OF INSTALLATIONS In U.S.A. | Outside U.S.A. | In World | NUMBER OF UNFILLED ORDERS |
|---|---|---|---|---|---|---|---|
| Part II. Manufacturers Outside United States | | | | | | | |
| A/S Norsk Data Elektronikk | NORD-1 | 8/68 | 2.0 | 0 | 43 | 43 | 15 |
| Oslo, Norway | NORD-2B | 8/69 | 4.0 (S) | 0 | 5 | 5 | 9 |
| (A) (Apr. 1971) | NORD-5 | - | - | 0 | 0 | 0 | 1 |
| A/S Regnecentralen | GIER | 12/60 | 2.3-7.5 | 0 | 40 | 40 | 0 |
| Copenhagen, Denmark | RC 4000 | 6/67 | 3.0-20.0 | 0 | 16 | 16 | 3 |
| (A) (Apr. 1971) | | | | | | | |
| Elbit Computers Ltd. | Elbit-100 | 10/67 | 4.9 (S) | - | - | 225 | 50 |
| Haifa, Israel | | | | | | | |
| (A) (Feb. 1971) | | | | | | | |
| GEC-AEI Automation Ltd. | Series 90-2/10/20 | | | | | | |
| New Parks, Leicester, England | 25/30/40/300 | 1/66 | - | - | - | 13 | X |
| (R) | S-Two | 3/68 | - | - | - | 1 | X |
| (Jan. 1969) | 130 | 12/64 | - | - | - | 2 | X |
| | 330 | 3/64 | - | - | - | 9 | X |
| | 959 | -/65 | - | - | - | 1 | X |
| | 1010 | 12/61 | - | - | - | 8 | X |
| | 1040 | 7/63 | - | - | - | 1 | X |
| | CON/PAC 4020 | - | - | - | - | 0 | X |
| | CON/PAC 4040 | 5/66 | - | - | - | 9 | - |
| | CON/PAC 4060 | 12/66 | - | - | - | 5 | - |
| International Computers, Ltd. (ICL) | Atlas 1 & 2 | 1/62 | 65.0 | 0 | 6 | 6 | X |
| London, England | Deuce | 4/55 | - | 0 | 7 | 7 | X |
| (A) | KDF 6-10 | 9/61 | 10-36 | 0 | 58 | 58 | X |
| (Apr. 1971) | KDN 2 | 4/63 | - | 0 | 1 | 1 | X |
| | Leo 1, 2, 3 | -/53 | 10-24 | 0 | 59 | 59 | X |
| | Mercury | -/57 | - | 0 | 13 | 13 | X |
| | Orion 1 & 2 | 1/63 | 20.0 | 0 | 17 | 17 | X |
| | Pegasus | 4/55 | - | 0 | 30 | 30 | X |
| | Sirius | -/61 | - | 0 | 22 | 22 | X |
| | 503 | -/64 | - | 0 | 16 | 16 | X |
| | 803 A, B, C | 12/60 | - | 0 | 83 | 83 | X |
| | 1100/1 | -/60 | 5.0 | 0 | 22 | 22 | X |
| | 1200/1/2 | -/55 | 3.9 | 0 | 68 | 68 | X |
| | 1300/1/2 | -/62 | 4.0 | 0 | 196 | 196 | X |
| | 1500 | 7/62 | 6.0 | 0 | 110 | 110 | X |
| | 2400 | 12/61 | 23.0 | 0 | 4 | 4 | X |
| | 1900-1909 | 12/64 | 3-54 | 0 | 1950 | 1950 | C |
| | Elliott 4120/4130 | 10/65 | 2.4-11.4 | 0 | 160 | 160 | C |
| | System 4-30 to 4-75 | 10/67 | 5.2-54 | 0 | 150 | 150 | C |
| | | | | | | | Total: 400 |
| Japanese Mfrs. | (Mfrs. of various models include: Nippon Electric Co., Fujitsu, | | | | | | |
| (N) (Sept. 1970) | Hitachi, Ltd., Toshiba, Oki Electric Industry Co., and Mitsubishi Electric Corp.) | | | | | Total: 4150 E | Total: 800E |
| Marconi Co., Ltd. | Myriad I | 3/66 | £36.0-£66.0 (S) | 0 | 37 | 37 | 9 |
| Chelmsford, Essex, England | Myriad II | 10/67 | £22.0-£42.5 (S) | 0 | 17 | 17 | 12 |
| (A) (Jan. 1970) | | | | | | | |
| N.V. Philips Electrologica | P1000 | 8/68 | 7.2-35.8 | - | - | 48 | 70 |
| Apeldoorn, The Netherlands | P9200 | 3/68 | - | - | - | 269 | 50 |
| (A) | P9200 t.s. | 3/70 | - | - | - | 4 | 3 |
| (Apr. 1971) | P800 | 9/70 | - | - | - | 9 | 55 |
| | ELX1 | 5/58 | 12.0 | - | - | 22 | - |
| | ELX2/8 | 3/65 | 6-21 | - | - | 27 | - |
| | DS714 | -/67 | - | - | - | 27 | 8 |
| | PR8000 | 1/66 | - | - | - | 23 | - |
| Redifon Limited | R2000 | 7/70 | - | 0 | 10 | 10 | 6 |
| Crawley, Sussex, England | | | | | | | |
| (A) (Apr. 1971) | | | | | | | |
| Saab-Scania Aktiebolag | D21 | 12/62 | 7.0 | 0 | 38 | 38 | - |
| Linkoping, Sweden | D22 | 11/68 | 15.0 | 0 | 22 | 22 | 4 |
| (A) (Mar. 1971) | D220 | 4/69 | 10.0 | 0 | 10 | 10 | 5 |
| Selenia S.p.A. | GP-16 | 7/69 | 10.9 (S) | 0 | 44 | 44 | 20 |
| Roma, Italy | GP-16R | 6/70 | 8.0 (S) | 0 | 1 | 1 | 1 |
| (A) (Mar. 1971) | | | | | | | |

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|---|---|---|---|---|---|---|---|
| Siemens | 301 | 11/68 | 0.75 | - | - | 82 | C |
| Munich, Germany | 302 | 9/67 | 1.3 | - | - | 28 | C |
| (A) | 303 | 4/65 | 2.0 | - | - | 70 | C |
| (Apr. 1971) | 304 | 5/68 | 2.8 | - | - | 61 | C |
| | 305 | 11/67 | 4.5 | - | - | 93 | C |
| | 306 | - | 6.5 | - | - | - | C |
| | 2002 | 6/59 | 13.5 | - | - | 39 | C |
| | 3003 | 12/63 | 13.0 | - | - | 31 | C |
| | 4004/15/16 | 10/65 | 5.0 | - | - | 100 | C |
| | 4004/25/26 | 1/66 | 8.3 | - | - | 53 | C |
| | 4004/35 | 2/67 | 11.8 | - | - | 182 | C |
| | 4004/135 | - | 17.1 | - | - | - | C |
| | 4004/45 | 7/66 | 22.5 | - | - | 242 | C |
| | 4004/46 | 4/69 | 34.0 | - | - | 10 | C |
| | 4004/55 | 12/66 | 31.3 | - | - | 22 | C |
| | 4004/150 | - | 41.0 | - | - | - | C |
| | 4004/151 | - | 51.5 | - | - | - | C |
| | 404/3 | - | 1.9 | - | - | - | C |
| | 404/6 | 11/69 | 4.1 | - | - | 6 | C |
| | | | | | | Total: | 298 |
| USSR | BESM 4 | - | - | - | - | C | C |
| (N) | BESM 6 | - | - | - | - | C | C |
| (May 1969) | MINSK 2 | - | - | - | - | C | C |
| | MINSK 22 | - | - | - | - | C | C |
| | MIR | - | - | - | - | C | C |
| | NAIR 1 | - | - | - | - | C | C |
| | ONEGA 1 | - | - | - | - | C | C |
| | ONEGA 2 | - | - | - | - | C | C |
| | URAL 11/14/16 and others | - | - | - | - | C | C |
| | | | | | | Total: 6000 E | Total: 2000 E |

# CALENDAR OF COMING EVENTS

**June 1-4, 1971: Seventh Annual Data Processing and Automation Conference,** National Rural Electric Cooperative Association, The Riviera Hotel, Atlanta, Ga. / contact: C. E. Aultz, NRECA, 2000 Florida Ave., N.W., Washington, D.C. 20009

**June 2-5, 1971: 3rd IFAC/IFIP Conference on Digital Computer Applications to Process Control,** Technical University, Otaniemi, Finland / contact: 3rd IFAC/IFIP Conference, Box 10192, Helsinki 10, Finland

**June 3-5, 1971: Conference on Area-Wide Health Data Network,** School of Medicine, State Univ. of New York at Buffalo, Buffalo, N.Y. / contact: Continuing Medical Education, 2211 Main St., Buffalo, N.Y. 14214

**June 21-22, 1971: Ninth Annual Conference of the Special Interest Group on Computer Personnel Research of the Association for Computing Machinery,** Center for Continuing Education, Univ. of Chicago, Ill. / contact: Fred A. Gluckson, EDP Systems Dept., National Bank of Detroit, Detroit, Mich. 48232

**June 24, 1971: Tenth Annual Technical Symposium,** Washington, D. C. Chapter ACM, National Bureau of Standards, Gaithersburg, Md. / contact: Association for Computing Machinery, c/o J. D. Madden, Exec. Director, 1133 Ave. of the Americas, New York, N.Y. 10036

**July 19-21, 1971: 1971 Summer Computer Simulation Conference.** Sheraton-Boston Hotel, Boston, Mass. / contact Donald H. Niesse, McDonnell Automation Co., Dept. K676, Box 516, St. Louis, Mo. 63166, or, Peter Stein, McGraw-Hill Publishing Co., 607 Boylston St., Boston, Mass. 02116

**July 19-23, 1971: Conference on Computers in Chemical Education and Research,** Northern Illinois Univ., DeKalb, Ill. / contact: Dr. F. M. Miller, Dept. of Chemistry, Northern Illinois Univ., DeKalb, Ill. 60115

**July 26-29, 1971: First International Computer Exposition for Latin America,** sponsored by the Computer Society of Mexico, Camino Real Hotel, Mexico City, Mexico / contact: Bernard Lane, Computer Exposition, Inc., 254 West 31st St., New York, N.Y. 10001

**Aug. 3-5, 1971: ACM '71 "Decade of Dialogue",** Conrad Hilton Hotel, Chicago, Ill. / contact: Al Hawkes, Computer Horizons, 53 West Jackson Blvd., Chicago, Ill. 60604

**Aug. 3-6, 1971: IFAC Symposium on The Operator, Engineer and Management Interface with the Process Control Computer,** Purdue University, Lafayette, Ind. / contact: Dr. Theodore J. Williams, Purdue Laboratory for Applied Industrial Control, Purdue University, Lafayette, Ind. 47907

**Aug. 11-13, 1971: Joint Automatic Control Conference,** Washington Univ., St. Louis, Mo. / contact: R. W. Brockett, Pierce Hall, Harvard Univ., Cambridge, Mass. 02138

**Aug. 16-19, 1971: International Symposium on the Theory of Machines and Computations,** Technion — Israel Institute of Technology, Haifa, Israel / contact: Sheldon B. Akers, Secretary, IEEE Technical Comm. on Switching and Automata Theory, General Electric Co., Bldg. 3, Room 226, Electronics Park, Syracuse, N.Y. 13201

**Aug. 16-20, 1971: Jerusalem Conference on Information Technology,** Jerusalem, Israel / contact: The Jerusalem Conference on Information Technology, P.O.B. 7170, Jerusalem, Israel

**Aug. 24-27, 1971: Western Electronic Show & Convention (WESCON),** San Francisco Hilton & Cow Palace, San Francisco, Calif. / contact: WESCON Office, 3600 Wilshire Blvd., Los Angeles, Calif. 90005

**Aug. 30-Sept. 10, 1971: International Advanced Summer Institute on Microprogramming,** Saint Raphael, French Riviera / contact: Guy Boulaye and Jean Mermet, Institute de Mathematiques Appliquees, Cedex 53, 38 - Grenoble/Gare, France

**Sept. 1-3, 1971: Second International Joint Conference on Artificial Intelligence,** Imperial College, London, England / contact: The British Computer Society, Conference Department, 29 Portland Place, London, W.1., U.K.

**Sept. 7-9, 1971: IEE 1971 Conference on Computers for Analysis and Control in Medical and Biological Research,** University of Sheffield, Sheffield, England / contact: Manager, Conference Dept., IEE, Savoy Place, London WC2R OBL, England

**Sept. 14-17, 1971: Canadian Information Processing Society (CIPS) Annual National Conference,** Royal York Hotel, Toronto, Canada / contact: Jack McCaugherty, James Lovick Ltd., Vancouver, British Columbia, Canada

**Sept. 6-10, 1971: IFAC (International Federation of Automatic Control) Symposium on Digital Simulation of Continuous Processes,** Budapest, Hungary / contact: The Organizing Committee, Symposium on Simulation, Budapest 112, POB 63, Hungary

**Sept. 27-29, 1971: Elettronica '71 — 1st International Conference on Applications of Electronics in the Industry,** 21st International Technical Exhibition, Turin, Italy / contact: Dr. Ing. Giovanni Villa, Elettronica 71, Corso Massimo d'Azeglio 15, 10126 Turin, Italy

**Oct. 18-20, 1971: 27th Annual National Electronics Conference and Exhibition (NEC/71),** Pick-Congress Hotel, McCormick Place, Chicago, Ill. / contact: NEC, Oakbrook Executive Plaza #2, 1211 W. 22nd St., Oak Brook, Ill. 60521

# REPORT FROM GREAT BRITAIN

*Ted Schoeters*
*Stanmore, Middlesex*
*England*

We have eleven months of a new right-wing government behind us as well as a disastrous postal strike and the truly shameful collapse of Rolls-Royce, a leader in all present-day technologies in Britain, including computing and a major force in the development of PLI.

Since the new regime came in, sectors of the data processing market have gone sour, some because the prime influence in them has come from a number of American companies who have been forced to cut back, some because there has been a sharp reduction in new capital outlays by British industry as a result of Government policies closely akin to President Nixon's less successful economic measures, and finally, some as a result of the crass incompetence of the people venturing into the particular area of the market under the impression that to put "computing" into their company title amounted to a license to print money.

There is no sharp downturn, yet. But there are a number of signs that the second half of 1971 and possibly a large chunk of 1972 will see tight belts on hitherto "fat cats" and many more closures or cheap takeovers than at any time before — it has to come; there are an estimated 450 bodies providing some form of EDP "service" in Britain.

Beginning with the main frame makers: IBM has made its first move towards really significant production in Britain for international markets of equipment which could sell in the thousands. I mean the 370/135, produced at Havant for Europe and Commonwealth countries as well as a number of other areas outside America and Japan.

Customary caution prompted Eddie Nixon, head of IBM(UK) not to make any guess as to annual output from Britain. But he will be providing processors (the 165 as well) to a market in which three countries — Germany, Britain and France — each take over 1000 machines a year. Add 2000 for the remainder and remember that IBM's slice of this 5000 a year cake is around 65 per cent and you can see how the pendulum is swinging towards Britain.

It needs to. Britain's deficit in overseas trading in computers and support equipment for 1970 is a heavy $170 million. This year it could easily go to $250 million. The trouble lies in massive imports of computer peripherals such as discs, drums and printers and of parts for computers and peripherals, including read-only memories.

This stems from recent computer history in Britain since only six years ago as many as six small companies were fighting hard for each one's minuscule portion of a then insignificant domestic market, concentrating practically all their efforts on "clever" processor design, taking swinging price cuts with a smile just to get into the business and then — surprise, surprise — having just about enough money left over to do a little of the necessary software work. Peripherals only too often were acquired from "good names". Now the lack of real, across-the-board peripheral competence has come home to roost with a vengeance.

International Computers, Britain's white hope resulting from mergers of the above six companies or their data processing branches, is performing prodigies of export deliveries. It sends 40 per cent of output overseas, in 1970 exporting close on $50 million more than it imported. It accounts for 40 percent of Britain's exports of computing equipment and for only 7 per cent of imports.

But the political climate has changed considerably for ICL as I predicted it would. Direct R & D aid is coming to an end and while the Government has not been able to wriggle out of the commitment its predecessor became involved in under an unprecedented Act of Parliament providing for government participation directly in a private company through subscription to stock of that company, it has undoubtedly tried to get out from under.

Replacing the R & D contribution of about $6 million a year is a rather nebulous offer of "development contracts" on the US problem. But the promise made recently by a Minister whose lack of experience is painfully obvious is worth ... what?

There is also a chance that support funds could come through the Advanced Computer Technology Project, but to make any significant effects the money allocated through this means will have to be stepped up way above the $5 million or so a year at which it has been running.

Its own ideas as to what development contracts should embody do not appear to be any more precise than those of HM Government.

Meanwhile, ICL has launched its own answer to the new IBM equipment under the name of the 1900S series. Much faster in operation than the machines they replace, the four models are completely program-compatible with the 3000 or so computers of the same stable ICL has sold with great success since 1964. An interesting aspect of the introduction is the indication that it provides of what the ultimate series, to be brought out in one or two years' time, is likely to be. It should be compatible with the System-4 machines of Spectra 70 architecture, as well as the 1900, and the expectations are that the new equipment will gradually emerge from the S range, starting at the top and coping with compatibility problems through translators, computers, emulators and the like.

Another important feature in the S range, absent from the 370 development, is the provision of a small front-end processor to facilitate time-sharing work, for which a fast and compact remote printer also has been evolved.

So much for ICL. The other manufacturers with plants in Britain do not appear to be very happy and, for instance, Honeywell's forward orders have dipped. Burroughs still is embroiled in a difficult situation with two major banks, who have had to call in top-level systems and programming support. NCR's sales of Century machines are a disappointment after the success of the admittedly quite different 500's. All three have cut back personnel on the manufacturing side.

Univac, with its new Scottish plant, undoubtedly will have the opportunity of picking up all the fully-trained staff it needs.

Turning to the service bureaus, official figures indicate a growth in 1970 and early 71 of 35 to 40 per cent. Senior bureau staff do not believe this and estimate true growth at 20 per cent. The upsurge is due partly to decimalisation of the UK currency in February and partly to a cut-back in new purchases by capital-conscious users.

Software houses, after a flourishing period of demand from the hard-pressed DIP managers needing to convert sterling programs to decimal, are facing a very lean period and many good men are coming on to the market, particularly since the collapse of the big Systems International service and software organisation — SI was largely founded by Rolls-Royce.

Forward ordering for the rest of the year seems to have dropped to between 10 and 15 per cent for hardware. In subsequent years, the growth should recover to over 20 per cent.

All in all, the UK market, on the eve of entry into the European Community, is far healthier than an American EDP man would ever expect.

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## NUMBLE HONOR ROLL

*G. P. Petersen*
*General Electric Co.*
*PO Box 11508*
*St. Petersburg, FL 33733*

Following is the Honor Roll for solving Numbles, beginning with the Numble in April 1969 and ending with the Numble in December 1970.

To be eligible for this Honor Roll, one must have correctly submitted the solutions for five Numbles.

| | |
|---|---|
| A. S. Brown | 19 |
| T. P. Finn | 19 |
| R. R. Weden | 19 |
| G. P. Petersen | 14 |
| L. J. Simon | 9 |
| D. F. Stevens | 5 |
| A. O. Varma | 5 |

## TAX TREATMENT OF SOFTWARE – PROPOSED RULING BY THE INTERNAL REVENUE SERVICE OPPOSED

*Data Processing Management Association*
*505 Busse Highway*
*Park Ridge, IL 60068*

The U.S. Internal Revenue Service is about to issue a ruling which may be detrimental to the data processing profession. We have requested IRS to delay the decision until all interested parties are heard.

We believe IRS is about to issue a technical information release to all IRS agents, regarding the tax treatment of software costs under its revision procedure 69-21.

The crux of the new ruling is that systems engineering and programming service performed for the taxpayer will no longer be allowed as a business expense by the taxpayer. Instead, the taxpayer must capitalize such costs as an intangible cost and write them off over a five-year period for tax purposes.

Thus, programming and systems design work performed by the taxpayer's employee is tax deductible in the year incurred. The same work performed by an outsider (non-employee) will be deductible over a five-year period. In effect, expense for research and development in information sciences will be treated differently from research and development costs in other sciences, under Section 174 of the Code.

We contend research and development software to be sold or leased to others or software for a company's own internal use which is done by research institute foundations, software companies, and others should not be treated differently.

The new ruling if issued will produce a severe hardship for thousands of service bureaus, software houses, and others, as well as computer manufacturers who supply such services.

It would also be a hardship on smaller companies who cannot afford their own systems and programming staff, and those that must always have others create or modify software packages for them.

In May, 1969, we participated in hearings by IRS on the tax treatment of software. At that time we took the position that software development work should be treated as research and development under section 174 of the IRS code.

In the following October, IRS issued guidelines atating that software development costs fall within the purview of Section 174.

Since then, we understand that a taxpayer has requested an IRS ruling on the tax treatment of software, and has received a private ruling letter.

The ruling to be issued reportedly will deny the application of provisions under Section 174 for software development costs paid to outsiders (non-employees).

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## CLASSIFIED ADVERTISEMENT



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## ADVERTISING INDEX

Following is the index of advertisements. Each item contains: name and address of the advertiser / page number where the advertisement appears / name of agency, if any


# At ACM'71 in Chicago August 3-5, he'll meet the men who designed it.

Mel Schwartz manages software development and teaches computer science at Northwestern University. He's an active ACM member and Technical Program Chairman of ACM'71, our annual conference to be held August 3-5 in Chicago.

Reading about computers is almost a hobby to Mel. "Even before I joined ACM, I borrowed and read every copy of *Communications* I could lay my hands on," he says. "I think I've read most of the classic articles on computing. Now I'll get a chance to meet most of the authors–at ACM'71.

"It'll be like a gathering of eagles, with every 'name' in computing you can think of, including Eckert and Mauchly, who designed Univac I.

"Meeting people you've read and respected is the best part of a conference," says Mel. "And asking an author questions he probably didn't think of himself when he wrote a paper or an article. At ACM'71, we're introducing new technical session formats to maximize this kind of interaction."

A conference like ACM'71 isn't the only reason to join ACM. There are many others. Like technical publications, seminars and special interest groups. And the pride of belonging to the oldest, most respected professional society in the field.

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