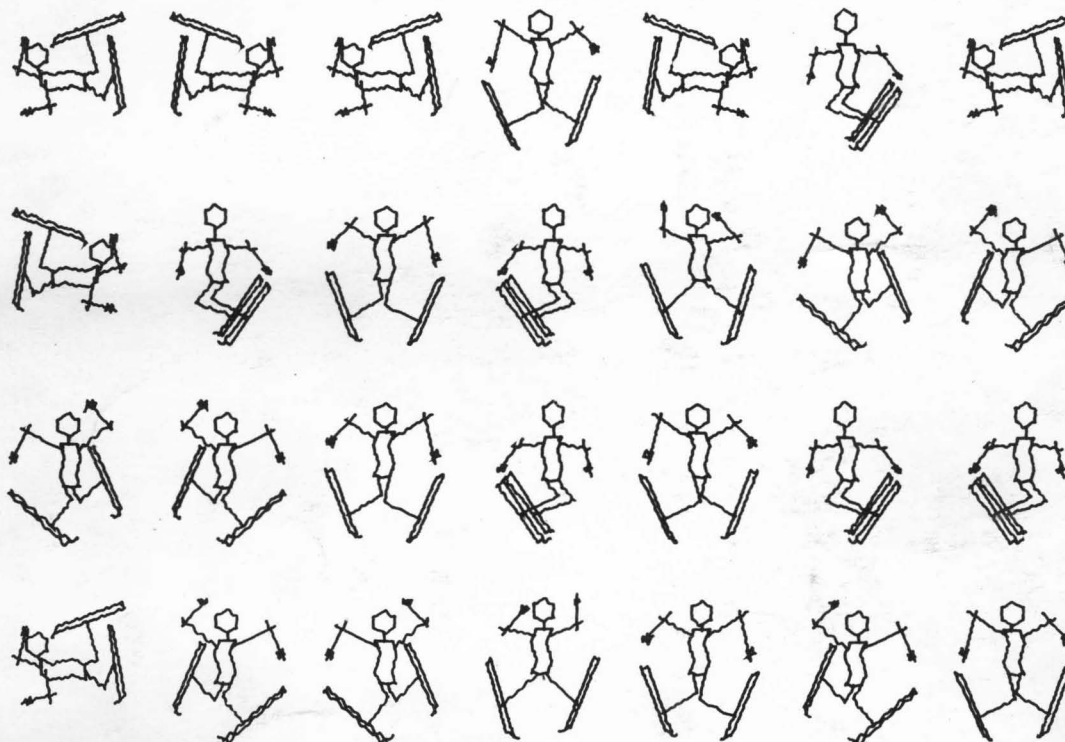


UNTIL DECEMBER 31, 1973

computers and automation

STARTING JANUARY 1, 1974

computers and people



THE JOYS OF SKIING

Cathy Ohl

- The NCIC and Massachusetts
- The Prospects of "Information Tyranny"
- Privacy vs. the Computer Revolution
- Babson College: More Computing, Less Cost
- At Penn Central: Communications and Computers
- The Attempted Framing of Jim Garrison
- Paraguayan Atrocities Condoned by the United States Government

- Governor Francis W. Sargent
- Dr. Jerome B. Wiesner
- Thomas Land
- Edgar T. Canty, Jr.
- William H. Moore
- Richard E. Sprague
- Richard Arens and Senator James Abourezk

5106049 01 D P 7501 206912
 TECHNICAL SERVICES
 180 W SAN CARLOS ST 023
 SAN JOSE CA 95113

A fabulous gift for Christmas:

"RIDE THE EAST WIND: Parables of Yesterday and Today"

by Edmund C. Berkeley, Author and Anthologist

Over fifty parables (including anecdotes, allegories, and fables) by Berkeley and many other authors, modern and ancient, dealing with famous problems, modern, classic, or ageless. Many parables are decorated by a bouquet of proverbs and quotations — for readers who like to choose which variety of lesson appeals to them. A short guide to some patches of common sense and wisdom. An ideal gift. Illustrated. Hard cover. 224 pages.



The eagle in the great forest flew swiftly, but the Eastwind flew more swiftly still

Do you remember the story of the fox and the grapes? illustrating a principle of such timeless value that the phrase "sour grapes" has been used and understood by millions of people for 2000 years?

Well, why not make a collection of ideas and principles of common sense and wisdom — and why not illustrate them with fables, allegories, and anecdotes of enormous impact?

That was the plan of this book.

It comes right out of our work on the "Notebook on Common Sense and Wisdom, Elementary and Advanced" — which we have been talking about for two years to anyone who would listen.

Some of the issues of the Notebook roused the interest of the president of Quadrangle Books — and this book is one of the results.

You can't lose by taking a look at this book:

- You might enjoy it.
- You might find much of it humorous and imaginative — as did Aesop's listeners.
- You might find it instructive, philosophical, worth thinking about, and more besides.

You can see it, read it, keep it for 7 days, return it, and back comes the full price of the book.

How can you lose?

We want only satisfied customers.

"RIDE THE EAST WIND:
Parables of Yesterday and Today"

Table of Contents

Part 1. *The Condition of Man*

Pandora and the Mysterious Box / H. A. Guerber
The Garden of Paradise* / Hans Christian Andersen
*to which the King's son was transported by the East Wind
The History of the Doasyoulikes / Charles Kingsley
The Locksmith and the Stranger / Edmund C. Berkeley (B)
The Elephant and the Donkey / James Reston
Where that Superhighway Runs, There Used to be a
Cornfield / Robert Redfield
The Fire Squirrels / B

Part 2. *On Flattery and Persuasion*

The Crow and the Fox / Jean de La Fontaine
The Visitor who Got a Lot for Three Dollars /
George Ade
The Cuckoo and the Eagle / Ivan A. Kriloff
The Wind and the Sun / Aesop
The Lion in Love / Aesop
The Crow and the Mussel / Aesop, B
The Two Raccoons and the Button / B

Part 3. *On Perseverance and Resourcefulness*

The Crow and the Pitcher / Aesop
Robert Bruce and the Spider / Sir Walter Scott
Hannibal Mouse and the Other End of the World / B
The Fly, the Spider, and the Hornet / B

Part 4. *Behavior — Moral and Otherwise*

A Small Wharf of Stones / Benjamin Franklin
The Three Bricklayers / B
The Good Samaritan / St. Luke
Much Obligated, Dear Lord / Fulton Oursler
The Fisherman, the Farmer, and the Peddler / B

Part 5. *The Problem of Truth*

On Being a Reasonable Creature / Benjamin Franklin
The Monkey and the Spectacles / Ivan A. Kriloff
The Golden Trumpets of Yap Yap / Mike Quin
The Barrels and the Pittsburgh Manufacturer / B
The Empty Column / William J. Wiswesser
The Differences in Two Strains of Corn / Edgar Anderson
The Six Blind Men of Nepal / B
The Sighting of a Whale / B
The Stars and the Young Rabbit / B
The Ocean of Truth / Sir Isaac Newton

Part 6. *On Common Sense*

The Lark and her Young Ones / Aesop
The Bear and the Young Dog / B
The Bear and the Young Calf / B
The Bear and the Young Beaver / B
The Wasps and the Honey Pot / Sir Roger l'Estrange
The Six-Day War and the Gulf of Dong / B
The Deceived Eagle / James Northcote

The Fox of Mt. Etna and the Grapes

Once there was a Fox who lived on the lower slopes of Mt. Etna, the great volcano in Sicily. These slopes are extremely fertile; the grapes that grow there may well be the most delicious in the world; and of all the farmers there, Farmer Mario was probably the best. And this Fox longed and longed for some of Farmer Mario's grapes. But they grew very high on arbors, and all the arbors were inside a vineyard with high walls, and the Fox had a problem. Of course, the Fox of Mt Etna had utterly no use for his famous ancestor, who leaping for grapes that he could not reach, called them sour, and went away.

The Fox decided that what he needed was Engineering Technology. So he went to a retired Engineer who lived on the slopes of Mt. Etna, because he liked the balmy climate and the view of the Mediterranean Sea and the excitement of watching his instruments that measured the degree of sleeping or waking of Mt. Etna. The Fox put his problem before the Engineer. . . .

Missile Alarm from Grunelandt / B
The National Security of Adularia / B
Doomsday in St. Pierre, Martinique / B

Part 7. *Problem Solving*

The Wolf and the Dog of Sherwood / Aesop, B
The Three Earthworms / B
The Hippopotamus and the Bricks / B
The Cricket that Made Music / Jean de La Fontaine, B
The Fox of Mt. Etna and the Grapes / B
The Mice of Cambridge in Council / Aesop, B
Brer Badger's Old Motor Car that Wouldn't Go / B
The First Climbing of the Highest Mountain in the
World / Sir John Hunt, B
The Evening Star and the Princess / B

Notes

Some Collections of Parables and Fables

To be published in December 1973 by Quadrangle /
The New York Times Book Co., hard cover, \$6.95

RETURNABLE IN 7 DAYS IF NOT SATISFACTORY

(You can read it all in 7 days — and keep it only if
you think it is worth keeping.)

(may be copied on any piece of paper)

To: Computers and Automation
815 Washington St., Dept. CA11, Newtonville, Mass. 02160

() Please send me when published (December publication
expected) _____ copy(ies) of *Ride the East Wind:
Parables of Yesterday and Today* by Edmund C.
Berkeley, Author and Anthologist. I enclose \$7.25
(Publication price + Postage and Handling) per copy.

Total enclosed _____ (Prepayment is necessary)

**RETURNABLE IN 7 DAYS FOR FULL REFUND
IF NOT SATISFACTORY**

My name and address are attached.

Editor Edmund C. Berkeley

Assistant Editors Barbara L. Chaffee
Linda Ladd Lovett
Neil D. Macdonald

Art Director Grace C. Hertlein

Software Editor Stewart B. Nelson

Advertising Director Edmund C. Berkeley

Contributing Editors John Bennett
Moses M. Berlin
Andrew D. Booth
John W. Carr III
Ned Chapin
George M. Luhowy
Leslie Mezei
Bernhard W. Romberg
Ted Schoeters
Richard E. Sprague

Advisory Committee Ed Burnett
James J. Cryan
Bernard Quint

Editorial Offices Berkeley Enterprises, Inc.
815 Washington St.
Newtonville, Mass. 02160
617-332-5453

Advertising Contact The Publisher
Berkeley Enterprises, Inc.
815 Washington St.
Newtonville, Mass. 02160
617-332-5453

"Computers and Automation" is published monthly, 12 issues per year, at 815 Washington St., Newtonville, Mass. 02160, by Berkeley Enterprises, Inc. Printed in U.S.A. Second Class Postage paid at Boston, Mass., and additional mailing points.

Subscription rates: United States, \$11.50 for one year, \$22.00 for two years. Canada: add \$1 a year; foreign, add \$6 a year.

NOTE: The above rates do not include our publication "The Computer Directory and Buyers' Guide". If you elect to receive "The Computer Directory and Buyers' Guide", please add \$12.00 per year to your subscription rate in U.S. and Canada, and \$15.00 per year elsewhere.

Please address all mail to: Berkeley Enterprises, Inc., 815 Washington St., Newtonville, Mass. 02160.

Postmaster: Please send all forms 3579 to Berkeley Enterprises, Inc., 815 Washington St., Newtonville, Mass. 02160.

© Copyright 1973, by Berkeley Enterprises, Inc.

Change of address: If your address changes, please send us both your new address and your old address (as it appears on the magazine address imprint), and allow three weeks for the change to be made.

computers and automation

STARTING JANUARY 1, 1974

computers and people

Computers and Management

21 At Penn Central: Communications and Computers [NT A]

by William H. Moore, President, Penn Central Transportation Co., Philadelphia, Pa.

How the Penn Central Railroad has improved and modernized its systems for communication and computing, and thereby achieved a net saving of over \$8 million — in spite of serious obstacles.

Computers, Education, and Time Sharing

17 Babson College: More Computing, Less Cost [T A]

by Edgar T. Canty, Jr., Babson College, Babson Park, Mass.

How Babson College has built an effective computer service over five years, providing much more computing service at far lower cost to the college (and associated educational institutions) as the years have gone by — and an invitation by the author to share the know-how.

Computers and "Information Tyranny"

7 The National Crime Information Center and Massachusetts [NT A]

by Francis W. Sargent, Governor, The Commonwealth of Massachusetts, Boston, Mass.

How and why the records of the Commonwealth of Massachusetts have been denied to the National Crime Information Center — on grounds of principle — and how the Federal government has retaliated.

11 The Prospects of "Information Tyranny" [T A]

by Jerome B. Wiesner, President, Massachusetts Institute of Technology, Cambridge, Mass.

How new technological devices in communications are producing unforeseen and uncontrolled social impacts — in ways that could make it impossible for citizens in a democracy to retain control of their destiny.

14 Privacy vs. the Computer Revolution [NT A]

by Thomas Land, London, England

The Watergate scandal in the United States, Lord Lambton's sex-and-drugs affair in Britain, and widespread telephone tapping in Europe have at last brought out into the open the insecurity of information.

The magazine of the design, applications, and implications of information processing systems – and the pursuit of truth in input, output, and processing, for the benefit of people.

The Profession of Information Engineer and the Pursuit of Truth

33 Unsettling, Disturbing, Critical [NT F]
Statement of policy by *Computers and Automation*

23 The Attempted Framing of Jim Garrison [NT A]
by Richard E. Sprague, Hartsdale, N.Y., and Edmund C. Berkeley, Editor

How Jim Garrison, District Attorney of New Orleans, was tried on false charges brought by the U.S. Department of Justice that he received bribes; how the trial proceeded – making use of a bought judge, fabricated evidence, and spliced tapes; how the jury found Garrison innocent on the first ballot, and how the United States press almost entirely suppressed the true story – constituting evidence of a continuing conspiracy by a portion of the establishment in the United States.

30 Paraguayan Atrocities Condoned by the United States [NT A]
Government / 1. Genocide in Paraguay: A Problem in American Complicity / 2. Paraguayan Indian Liquidation / 3. Paraguayan Indian Hunt / 4. Whitewash

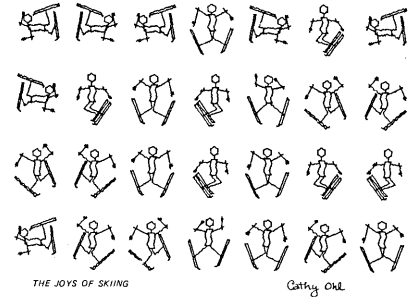
by Richard Arens, Temple University, Philadelphia, Pa.; Senator James Abourezk, U.S. Senate, Washington, D.C.; and Jack B. Kubisch, Dept. of State, Washington, D.C.
How the Paraguayan regime of Gen. Alfredo Stroessner is systematically liquidating the Aché Indian nation, in a process of genocide – a regime which “regards” the American ambassador as “a member of the cabinet”.

6 The Limits to Growth, and the Crunch [NT E]
by Edmund C. Berkeley, Editor, *Computers and Automation*
Many diverse pressures are making life considerably harder for many people and this magazine – but the crunch if analyzed sensibly may perhaps result in at least some advantages.

Computers, Games and Puzzles

29 Numbles [T C]
by Neil Macdonald

NOTICE: The name of this magazine from 1953 through 1973 has been *Computers and Automation*. Starting January 1, 1974, the name of this magazine will be *Computers and People*.



Front Cover Picture

The computer art shown on the cover was produced by Cathy Ohl (B.S. in mathematics), a graduate student in the Department of Computer Science, California State University-Chico, Chico, Calif. Her instructor in computer art is Grace C. Hertlein, Assistant Professor there, and Art Director of *Computers and Automation*.

Departments

- 34 Across the Editor's Desk – Computing and Data Processing Newsletter**
- 42 Advertising Index**
- 42 Calendar of Coming Events**
- 40 Monthly Computer Census**
- 38 New Contracts**
- 39 New Installations**

Key

- [A] – Article
- [C] – Monthly Column
- [E] – Editorial
- [F] – Forum
- [G] – The Golden Trumpet
- [NT] – Not Technical
- [T] – Technical

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.

The Limits to Growth, and the Crunch

Item: A recent report in the "Boston Globe" said that out of 8000 unemployed engineers and Ph.D.'s who used to be employed in the electronics and high technology industries in the Boston suburban area, fewer than 800 had been reemployed.

Item: Another recent report asserted that only 20% of jobs in the United States required a college education, and yet 60% of young people in the United States are obtaining a college education.

Item: Prices for many commodities including food and other necessities included in the standard of living have risen over 20% in the last 12 months, and prices show no sign of decreasing.

Item: All the people and businesses of the United States have been asked by the government to save oil, gasoline, and other energy resources.

Item: The United States spent over \$100 billion in undeclared and declared war in Indochina 1962-73 seeking among other objectives to establish South Vietnam as an independent nation. But the United States signed a cease-fire agreement in January acknowledging that North and South Vietnam were one indivisible nation. This war poured taxpayers' money into the pockets of the military-industrial complex, but it has impoverished the people of the United States; and the harm that this war has done is almost incalculable, including sending the dollar off the gold standard.

Are "the limits to growth" being reached in the United States not 30 years from now but currently?

I think the answer to this question is clearly "yes".

It is becoming clearer and clearer as the months and years pass that, in the United States, and in country after country at different times, people, businesses, and organizations, are coming up against and hitting limits to growth:

- limits to population;
- limits to expansion of industry;
- exhaustion of resources;
- deterioration of the environment.

What shall we do?

Basically, we need to adjust to changed circumstances and to explore other alternatives. Among the things to do are:

- Eliminate waste;
- Recycle what would otherwise be thrown away;
- Cut down losses of many kinds;
- Convert the crunch where possible into a stimulus to gaining advantage.

For example:

Packaging: Nowhere in the world, so far as I know, is there so much waste in packaging as there is in the United

States. If you go into a grocery store in Switzerland to buy something, they give you your purchase unpackaged, unwrapped, and you carry it out of the store in your own shopping bag (purchasable in the store), made of netting, with handles - maximum strength, minimum weight, maximum convenience, and no paper wasted.

Heat: In my suburban house in the Boston area, with windows on all sides, we already have an outer storm window over each window. But I plan to buy fiberglass roll insulation (or the equivalent), and hang sections of it over the wallpaper on each room wall that is an exterior wall. In this way we should lose much less heat through the walls to the outdoors. When April comes, I can take these sections down again and store them in the cellar until next November.

Leaves: A great plenty of fallen autumn leaves is an earmark of New England. I shall put all my fallen leaves on two raspberry beds by two sides of my house, where I hope they will become mulch and help my raspberries grow.

The crunch is also affecting our magazine ("Computers and Automation" until December 31, "Computers and People" starting January 1).

We have been told by our printers that sheets of the shiny white paper which is called "50 pound coated off-set" are no longer available to be run on their sheet-fed presses. So we shall have to pay higher prices for inferior paper, starting in January. Crunch!

One useful step is to reduce the usual number of pages in our magazine from 52 to 44, because the number of words needed to express all the important ideas can often be economically reduced.

Sometimes the amount of possible reduction is extraordinary. For example, in this issue we publish a short biography of one of our distinguished authors, Dr. Jerome B. Wiesner. To prepare this, we received a release consisting of 4-1/2 typewritten pages from the university public relations office; it contained 48 sentences. We produced a capsule biography of 3/4 of a typewritten page containing 5 sentences, selecting what seemed to us the important information to accompany Dr. Wiesner's article.

We hope to apply the crunch principle in "Computers and Automation" ("Computers and People" starting January 1) so as to give our readers more ideas, more interesting information, in less space and requiring less reading time.

Edmund C. Berkeley

Edmund C. Berkeley
Editor

The National Crime Information Center and Massachusetts

Francis W. Sargent, Governor
The Commonwealth of Massachusetts
State House
Boston, Mass. 02133

"We believe that those persons found innocent of a crime in a court of law are not to be considered criminals; and so arrest records should not be entered unless followed by convictions."

1. August 2, 1973

Today I petition on behalf of the citizens of the Commonwealth of Massachusetts.

I do so as their Governor.

I do so not so much to attack a policy of the federal government but rather to defend the rights of the people of my state.

And we have already paid a price for this defense.

First let the record be clear. In 1967 when the President's Crime Commission Report urged the use of computer technology to improve our efforts to fight crime, I supported that effort. We in Massachusetts have invested heavily with both state and federal funds to build an effective statewide criminal information system. We did so with the intent of tying into the national system.

However, we have heeded a warning in that same President's Crime Commission Report — that the use of computer technology requires "special precautionary steps" to guarantee individual privacy and civil rights.

We have taken those special steps in Massachusetts.

In 1972 I signed into law an act establishing our computer system governing criminal history records. But that law specifically spelled out procedures to safeguard and protect individual rights.

It defined what information could go into the computer and who could have access to it.

We still believe that those persons found innocent of a crime in a court of law are not to be considered criminals; and so arrest records are prohibited from being entered unless followed by convictions.

And while we provide full access to this information to all agencies engaged in combatting crime, we are careful to prohibit access by individuals or organizations who could use this information for inappropriate purposes.

We have also established a special Privacy and Security Council — citizen-controlled — to guard against abuse and protect the rights of citizens.

Unfortunately, no similar steps have been taken by Congress or the Justice Department.

No similar safeguards exist to govern the National Criminal Information Center — to control what information may go in and who can gain access to it.

We have been careful in Massachusetts, but what good are our controls — our safeguards — our protections of citizens' rights-in-Massachusetts — once we plug into this uncontrolled national system?

Yet I am asked to tie into the national system and jeopardize the rights of our citizens.

As Governor, I refuse to do so — I will continue to refuse — until proper safeguards and protections are placed on the national system.

And so on June 13 I formally advised the Attorney General that Massachusetts would not participate until this was done.

I said earlier that we have paid a price for this defense of our people's rights. The Small Business Administration threatened to withhold thirty million in loans and direct aid unless Massachusetts ties into the system.

The Defense Investigative Service has frozen 2400 jobs in Massachusetts — at a time of high unemployment — unless Massachusetts ties into the system.

And a suit has been brought in the federal court to compel Massachusetts to tie into the federal system.

ALL THIS AND YET WE REFUSE — AND WE SHALL CONTINUE TO DO SO.

This is why I join the petition today to protect the people of my state from what has now become one of the biggest threats to our democratic system — the invasion of one's privacy.

We are not against a national computer system to share accurate computer offender data with other agencies and other states in our mutual effort to fight crime. We encourage it.

We are against a flawed system that permits the abuse of one's rights and invasion of one's privacy.

Just 100 steps from my office in our state capital in Boston lies a small plaque marking the spot where the victims of the Boston Massacre fell.

Supplied by the Office of the Governor of the Commonwealth of Massachusetts

Too many people have died in this country to win freedoms for us to give them up now in the name of technological progress.

Massachusetts will join with the national system when those freedoms are protected.

Until that is done, we will not be bullied into joining no matter how many threats — no matter how many law suits.

I hope this petition is acted upon positively and swiftly.

2. September 14, 1973

(Letter to the governors of the states of the U.S.)

I am writing to alert you to a very serious matter which threatens the rights and privacy of American citizens and compromises an extremely important tool in the fight against crime. I refer to the Computerized Criminal History Program of the National Crime Information Center (NCIC) administered by the Federal Bureau of Investigation.

I know we all vigorously support the application of modern computer technology in aiding our law enforcement agencies in the fight against crime. However, I think we must also be very concerned that this program as it is presently administered poses a very real threat to those inalienable rights guaranteed to American citizens by the United States Constitution.

Presently, the names of thousands of innocent citizens who have never committed any crimes are included with listings of convicted criminal offenders. Furthermore, this confidential information is not being restricted to law enforcement and crime fighting agencies alone but is finding its way to private businesses, credit rating companies, educational institutions and other non-law enforcement interests. In addition, individuals are not able to see the material collected about themselves or to have that information corrected which is inaccurate or incomplete.

Yet states are being asked to join this program, even though many states have rightly enacted strict laws to protect their citizens against the potential abuses inherent in massive data banks of this kind. Once a state joins NCIC, a state's laws and procedures become ineffective as the state files are copied and stored for national dissemination from Washington to anyone who has access to a network that will soon consist of 45,000 separate NCIC computer terminals across the country.

In order to protect the precious rights of our citizens and help to make this program an effective crime-fighting tool for law enforcement, I urge you to review this situation carefully and join with Massachusetts and a number of other states in petitioning the Justice Department and the Congress to take immediate legislative and administrative actions to safeguard this program against abuse.

If you would like more information, please feel free to call me or have your staff get in touch with Mr. Andrew Klein on my staff at 617-727-7238.

3. September 19, 1973

The governor released today the following text written by a citizen of Massachusetts in a letter to the governor:

"A scary thing happened to me last spring.

"A relative of mine got a job as a deputy sheriff. One bored night on dispatcher duty, he ran his family through the National Crime Information Center. Ten out of eleven of us were listed.

"His mother was listed because, when she was 18, neighbors complained of a noisy sorority party. (No arrests.)

"His stepfather, a respected businessman, was listed because he complained to the police that he had received a bad check.

"Ten out of eleven of us! No criminal record. But we are on the files of the NCIC!

"P.S., I'll probably be listed again for writing this letter."

4. September 26, 1973

Testimony of Governor Sargent before the House Judiciary Subcommittee on Sept. 26, 1973 regarding bill H.R. 9783, on legislation designed to safeguard all federally funded criminal data banks, including the FBI's National Crime Information Center. This testimony was submitted to the Committee before Governor Sargent was informed that the Justice Department is dropping its suit against Massachusetts for its refusal to join the NCIC until the NCIC adopts sufficient safeguards.

The United States is among the last of the advanced nations of the "Free World" to address itself to the challenge raised by the information technology revolution of the past several decades to our democratic institutions.

Sweden, West Germany, Canada

Sweden, for example, has passed into law strong, comprehensive measures to protect all Swedish citizens against any possible encroachment caused by personal data banks. West Germany has established a federal office of a "Hessischer Datenschutzbeauftragter," an ombudsman "watchdog" agency to safeguard the rights and privacy of its citizens.

Across our northern border, four of the ten Canadian provinces have already moved to protect their citizens against possible abuse of data banks used for employment, credit and insurance purposes. And their federal government is expected to pass legislation to cover the security of information stored in personal data banks and the right of citizens to inspect information contained on themselves.

Throughout the Western World, there has been widespread debate and national sensitivity to this admittedly complex matter.

We are just beginning to raise these issues in this country. The recent Health, Education and Welfare study report, Records, Computers and the Rights of Citizens, was a tentative, but excellent first step.

H.R. 9783 is another.

A Great Threat to Social and Legal Institutions

Though H.R. 9783 addresses itself only to criminal data banks, these constitute at this time a very great threat to our social and legal institutions.

In addition, criminal data banks, particularly the expanding Computerized Criminal History Program of the National Crime Information Center, as administered by the Federal Bureau of Investigation, are in immediate need of regulation in order to protect

individual rights and privacy guaranteed us as American citizens.

Information from these criminal data banks can help destroy a person's life, and certainly limit a person's options if abused. The harm, for example, of an arrest record available for checking by a government or private employer is incalculable.

The President's Commission on Federal Statistics, in a report completed in 1971, documents that a job applicant who lists a previous arrest faces "at best a second trial in which, without procedural safeguards, he must prove his innocence; at worst the listing of the arrest disqualifies him per se."

Derogatory Information without Verification

And as you know, existing criminal data banks contain other derogatory information, with no check as to its accuracy, on thousands and thousands of individuals who have never even been arrested, much less convicted of a serious crime.

Let me state at the outset, however, I vigorously support the application of computer technology to aid the crime-fighting capacity of the Federal Bureau of Investigation and all other law enforcement agencies. But I believe we can have effective law enforcement without sacrificing any of our rights and privacy.

Let me explain.

In Massachusetts we have utilized computer technology to build a modern, efficient computerized criminal offender data bank. This bank links the records of our courts, our probation, corrections and parole departments, with those of our state and municipal police.

With this system, the histories of criminal offenders are available at a touch of a finger to those officials who have a need for this information.

Unlike the program of the National Crime Information Center (NCIC) and its component systems across the country, this does not include officials of credit rating bureaus, real estate or employment agencies, insurance companies, educational institutions, or even myself, Governor of the Commonwealth of Massachusetts.

(For this committee's information, I attach a list of all those agencies denied access to our system, as well as those granted access.)

Raw Intelligence

As important, the information in our system does not include raw intelligence data on "suspected shoplifters," persons with overdue parking tickets, individuals with a history of mental disturbances (who are not criminals), children who have exhibited "delinquent tendencies" in grade school, students thought to have participated in college disturbances, or "potential troublemakers".

Nor does our system include data on persons arrested but not convicted in a court of law.

Unfortunately, all of the above data is to be found in existing criminal data banks, most of them hooked up to the NCIC.

"Potential Trouble Makers"

A 1971 Law Enforcement Assistance Administration report found that half of the 108 computer projects

underway at that time were collecting data on "potential trouble makers".

Let me repeat, not in Massachusetts.

Sealed Arrest Records

In fact, I recently signed into law legislation which specifically provides for the sealing of all arrest records wherein the defendant has been found not guilty by a court or jury, or a no bill has been returned by the grand jury, or a finding of no probable cause has been made by the court.

Such sealed records, by this law, are prohibited to operate to disqualify a person in any examination, appointment or application for public employment. In addition, private employers are required to inform all applicants for employment in writing that any applicant for employment with a sealed record may answer "no record" with respect to an inquiry relative to prior arrests or criminal court appearances.

Further, again by this law, no non-law enforcement agency may be informed that such sealed records even exist.

(I attach a copy of this law, Chapter 322 of the Acts of 1973, for this committee's information.)

Individual Reported On Can Inspect Record

Our criminal data bank — though closed to those non-law enforcement agencies without specific statutory authority for access — are open to inspection by individuals on whom data is contained.

If an individual or his lawyers finds any data contained to be incorrect or incomplete, a procedure is established by law to correct the data or purge it from the file.

And more, our system's safeguards go beyond limiting what information can go into our computer and who has access to it.

Supervisory Council

Again, unlike the NCIC, our system is governed by an independent board whose only duty is to safeguard the system's overall integrity. And we have a "Privacy and Security Council" which serves as a citizen watchdog to insure the system is not abused or abusive.

In short, I believe our criminal databank strikes a proper balance between protecting individual rights and privacy on the one hand and providing an effective crime-fighting tool on the other without compromising either. I believe that any criminal data bank that does not have similar safeguards constitutes an intolerable and unnecessary threat to our privacy and rights — no matter how well intentioned, no matter for what worthy goals it has been established.

H.R. 9783 generally does address itself to these safeguards. For this reason, I support this legislation for what it attempts to accomplish, though I would like to take this opportunity to touch upon a few areas where I think this legislation could be strengthened.

Where H.R. 9783 Could Be Strengthened

1. Because of the very loose understanding of what defines "criminal" data, as demonstrated by the vari-

ety of data in existing criminal data banks, this legislation should provide a blanket prohibition of all data except that specifically agreed upon and spelled out in legislation.

2. Because the misuse or abuse of these sensitive data banks can seriously affect the rights and privacy of our citizens, this legislation should include regulations of privately as well as publicly financed criminal data banks.

I have been informed, for example, of a privately maintained criminal data bank for various private companies and businesses where data is collected from an exhaustive newspaper clipping service. I am sure I do not have to inform this committee of the additional problems raised by such a data bank. Newspapers are just not the most accurate vehicle for collecting such information.

3. Because the nature of data included in any criminal data bank will vary, regulations, especially pertaining to access, must vary accordingly.

Separation of Kinds of Intelligence

For example, raw intelligence information should not be mixed with other criminal history data, nor be shared with the same constellation of officials.

Arrest information should be handled differently from information on arrests followed by convictions. Information on criminal offenders who have been convicted of violating the law repeatedly should be treated differently from information on first offenders. Finally, information on misdemeanor convictions should be employed differently from felony convictions.

4. Because a right is not enough if the means to achieve it are too difficult or costly, this legislation should establish a procedure spelled out in law for individuals to have data on themselves expunged or corrected.

5. The Attorney General should not only be required to act within a reasonable time period to formulate rules and regulations under the federal register procedures to carry out the provisions of this legislation, but should be required to consult with and seek the advice of professionals outside the area of law enforcement.

As I wrote the Attorney General last June, I have serious doubts that internal controls and self-policing by line operating agencies or administrators can guarantee the integrity of something as sensitive and potentially abusive as an interfacing national/state criminal data bank system.

6. Finally, not only should the agencies that contribute data into a criminal data bank be responsible for the accuracy of that data, but the agency which administers the entire system should share similar responsibility and liability.

It may very well prove to be the case that such strictures might make it difficult for the Criminal History Program of the NCIC to operate in its present form. I don't believe this should deter us. If a nationally centralized criminal data bank cannot be secured that protects individual rights and privacy, then that system ought to be abandoned.

I know that this committee will hear a lot more testimony from witnesses more expert than myself. The chairman of our Criminal History System Board,

Mr. Arnold Rosenfeld, will testify before you. He can go into more details and fill in the specifics of my remarks.

Concern in Massachusetts

Though I am not an expert in this matter, I do know when the citizens I serve are concerned. And no recent issue has stirred as much concern and comment in my state as the threat posed by inadequately regulated and safeguarded criminal data banks.

And from outside of Massachusetts, I have received letters and telegrams on the same subject from citizens from every state represented by members on this committee.

It is for this concern that Massachusetts has become the only state in the nation to refuse to join NCIC until safeguards are instituted by the Justice Department or the Congress to protect individual rights and privacy affected by this program.

Despite substantial threats of federal retribution, despite a law suit filed against the Commonwealth by the Justice Department, despite the loss of several thousand defense related jobs, despite all of this, Massachusetts will not compromise the rights and privacy of her citizens in the name of technological progress.

On behalf of all citizens of this country, I urge this committee to strengthen H.R. 9783 where necessary and report it out favorably.

Thank you.

5. September 25, 1973

Today the citizens of Massachusetts won a major battle with the federal government.

We were fighting to protect our right to privacy.

I say major for there is no greater issue today than the right of the individual to be protected from all unwarranted invasion of his private affairs.

Today I have been notified that the Justice Department will drop its law suit against Massachusetts. That suit attempted to force this state to feed unprotected private information into the National Criminal Data Bank.

Our policy is...and has been...clear. We have a state criminal history information system used to combat crime.

We want to become partners with the federal government. We want to join the National Crime Information Center. But we insist there must be rigid guidelines.

There must be a safe way to determine what information goes into the system and who has access to that information.

In Massachusetts we have a policy which fights crime and still protects the individual. We have insisted that the federal government adopt similar safeguards. But unfortunately up until now they have not acted.

It was for that reason that I notified the Justice Department on June 13th that Massachusetts would not join the national system until safeguards were adopted.

(please turn to page 20)

The Prospects of "Information Tyranny"

Jerome B. Wiesner, President
Massachusetts Institute of Technology
Cambridge, Mass. 02139

"Because I believe that an 'information tyranny' poses a very serious threat to the survival of a free society in our country, I urge that we all act vigorously to take whatever steps are necessary to protect the Bill of Rights."

Erosion of Freedom

Communications is a creative and dynamic industry. Great technical advances have been made, even during the last year, as exemplified by the improvements in international communications.

But those very advances, and others on the horizon, are intimately related to serious questions that are being raised by people all over the world about the impact of technology on society, which they fear is continuously eroding the freedom of individuals. The communications industry obviously has some responsibility.

One only has to recall the color television pictures from Peking that we saw last summer or recall that there are now several ocean-spanning, real-time data networks in daily operation to realize the current rate of progress, or at least, change.

Furthermore:

- the advances in the power of mini-computers, making them useful for a variety of data processing chores,
- the availability of large-scale integration for the creation of complex circuitry,
- the development of communications satellites for internal use,
- light pipes capable of carrying thousands of megacycles of bandwidth, and many other new data handling devices,



make it obvious that the potential for vast expansion in telecommunications capacity remains wide open, and that more change is coming. In fact, I believe that in spite of our impressive accomplishments we have just begun to realize the potential of electronic communications.

Opportunities for Improved Telecommunications

In every field of application — entertainment, providing information for the individual citizen, communicating for business purposes, or providing effective management of our society at the local, national and international level — the opportunities for improved telecommunication services abound. Some of these opportunities are obvious, such as those provided by cable video systems, video cassette systems, satellite systems for data distribution, etc. Devices for some other applications are

Dr. Jerome B. Wiesner, president of Massachusetts Institute of Technology since 1971, was Special Assistant for Science and Technology to both President John F. Kennedy and President Lyndon B. Johnson, in the period from 1961 to early 1964. He holds the faculty rank of Institute Professor; at M.I.T. he has been previously director of the Research Laboratory of Electronics, acting head of the Electrical Engineering Department, dean of science in the School of Science, and provost of the university.

His interests and specialties include: national policies and programs relating to science and technology; international negotiations to deter nuclear war; radio transmission by scatter techniques; radio and radar propagation; micro-wave theory; communications engineering; and social problems such as medical and health care, urban decay, hunger, mass transportation, and housing.

He is the author of numerous articles in professional journals; author of the book Where Science and Politics Meet (New York, McGraw-Hill, 1961); and coauthor of the book ABM: An Evaluation of the Decision to Deploy an Anti-Ballistic Missile System (New York, Harper and Row, 1969). He received his Ph.D. from the University of Michigan at Ann Arbor in 1950.

Based on a talk presented at the International Communications Association Conference, May 1973.

less advanced in development — perhaps not even invented — and challenge our wildest and best technical imaginations. Here I list:

- The uses of communication systems and computer systems in education,
- The use of computers and communications devices to improve the delivery of health care and for direct customer information services,
- Electrical communications to replace the mail system for many purposes and
- Ultimately, the use of communication facilities as a substitute for that long-distance travel which is undertaken primarily for the purpose of making possible communication between individuals or groups of individuals —

but not, I suppose, as a substitute for "ritual meetings" where the going and being is much more important than the saying. And most important of all, the use of communications to make the pleasures of city living available in the countryside, and so hopefully reverse the mad rush to the metropolitan areas that is creating impossible living conditions in large cities all over the world.

With such trends it is certain that societies are going to be more, not less dependent upon electrical communications, computers and the many other information processing devices, for their proper functioning.

Total Transformation of the World

In less than a century, man has moved from a world in which human capabilities, muscle power and brain power were his primary resources, to a dependence upon machines which multiply his speed and power factors by millions. These devices have totally transformed our world, without anyone consciously deciding on the changes.

We have invented the process of invention. As a consequence an endless stream of individual creations have brought about an entirely new world, a man-made world, a synthetic world, a rapidly changing world, a world that is sometimes in harmony with nature and man's psychic and spiritual needs, but a world in which parts are frequently very disjointed, and in which many individuals have come to believe that it is impossible to understand, control or communicate.

Pace of Advance, and Impact

Two aspects of modern technology in particular are the cause for much concern. One is the pace at which it advances and requires individuals to adapt. The second is the scale of its impact, which frequently seems to be overwhelming. Because of my present job, I am frequently challenged to defend what we call "technological progress"; so I have spent a good deal of time trying to understand the questions involved. I should say here that I am convinced that the benefits people in advanced societies have derived from technology far outweigh its negative aspects, which I define as the problems that the widespread uses of technology have generated and their associated costs. It would be impossible to maintain the quality of life we have achieved, much less improve it, without continuing technological developments. Nonetheless, one cannot deny that there are many unsuspected, undesirable, and very dangerous consequences of a rapidly growing technology. Dealing with such matters properly may be the most difficult task we face in the years ahead, second only to managing man himself.

A subtle Balance

Most of these troubles are the consequence of the large scale use of devices which in their early state present little or no problem. The automobile, fertilizers and pesticides, power-generating station, television, the airplane, computers, maybe even wiretapping devices, all have this characteristic. A particular danger of information technology is that its ready availability puts greater power than ever before available into the hands of both the government and those private interests that have the resources to use it. It threatens to undo that subtle balance achieved in the Constitution between the people and the State which avoids anarchy on the one hand and tyranny on the other. Nowhere is it more true that "knowledge is power". To the degree that the Constitution intended that power to be in the hands of the "governed", the widespread collection of personal information poses a threat to the Constitution itself. Technology can be and has been used to assist in the violation of the Bill of Rights. But it must be remembered that the violations are made by humans, not by machines. To my non-legal mind, there is even the question of whether the Bill of Rights, drafted in a simpler time, is adequate to protect man in his relation to the modern state and, whether there isn't a need for additional amendments providing protection for the individual against possible new infringements of his liberties by men armed with sophisticated devices.

A short time ago — only a few decades — neither fertilizers, power-generating stations, computers, television or data collecting devices were regarded as serious threats to the continued well-being of mankind, for they existed in small numbers. In a very real sense we are the victims of our great success in making the benefits of technology generally available. For a long time hardly anyone was concerned about the problems technology was creating. Even though most of the problems were obvious and were studied and talked about by many individuals, general public apathy about the issues made it impossible to do anything significant about them. The reason is obvious. Not only were the problems tolerable, as already indicated, but they were the result or the consequence of a large number of hard-to-control individual decisions or actions — to buy automobiles, to use fertilizers, to build manufacturing plants that polluted streams, to establish credit-rating systems, to move to the suburbs, etc. Their solutions, on the other hand, require collective action, frequently through legislation and the expenditure of considerable sums of money. Until very recently, activities to counter such social problems were initiated by single individuals or small groups; they were one-man crusades, so to speak.

The Situation is Not Under Control

Today many governmental and private groups are seeking ways of controlling the environmental and social impact of technological creations. But we can hardly claim that the situation is under control. In fact, the situation has been worsened by the elimination of the White House Office of Science and Technology and the President's Science Advisory Committee. This was the principal governmental agency that tried to cope with the problems of science and society in an organized and continuing fashion. Whatever the reason for their demise, the President's Science Advisory Committee, the Office of Science and Technology, and all of the associated panel mechanisms which existed for dealing with science policy problems and which were slowly learning

how to interrelate technology and policy were eliminated during a recent reorganization of the White House Staff, leaving a very large vacuum.

Interest and possible action appear to be shifting to the Congress. During the last session, the House and Senate authorized the establishment of the Office of Technology Assessment (OTA), whose purpose was to review emerging technological developments and to assess their probable impact on the society early enough to avoid repetitions of the major dislocations that we have been trying so hard to correct in recent years. The OTA is not expected to be an operating or a legislative organization, but rather one that provides the relevant committees of the Congress with information which should make it possible for them to do their jobs more effectively. It should also make a vital contribution to the public debates involving science and technology.

Industrial Concern

Many companies have begun to evince a concern with the social impact of their creations. This may be first of all a recognition of a responsibility to itself, a reflection of a desire to stay in business and hopefully to have some voice regarding the regulations which will control their operations. But there is also a growing recognition of a general corporate responsibility to society. Some companies have formed working groups and/or public responsibility committees associated with their boards of directors for the purpose of dealing with the social problems related to their activities. Some of this concern has no doubt been forced by legislation, as in the case of the anti-pollution work in the automobile industry. But much of it is a result of the growing realization that all members of society must share in the search for solutions to these common and massive problems if there are to be balanced, viable solutions that do not leave a whole new set of problems in their wake.

Industrial associations have also begun to make important contributions to the understanding of these problems and to the search for their solutions. For example, the American Petroleum Institute has made a thorough study of the energy problem which might serve as a model for efforts by other groups.

My more general remarks about controlling the environmental and social impact of technological creations have an analogue in the communications industry. We have perhaps been somewhat complaisant because we do not have problems such as pollution — at least not in the usual sense — and the resource we use, namely spectrum, is not used up in the normal way. Even though it may get more and more crowded, it can in principle always be recovered. Furthermore, as an industry we have not yet had to contend with the same vigorous public or congressional criticism as have many others. The criticism has so far been reserved largely for users of information technology.

Impact on Freedom

Nonetheless, our industry poses the most serious problems that society will be required to face during the decades ahead. I say this because communication technology is introducing profound changes in the way we live, work and interact. As I have previously indicated, it is changing the relationships between individuals and the organized society in altogether fundamental ways — in ways which could make it impossible for citizens of a democracy to retain control of their destiny. Individual freedom

and liberty, the hallmark of our society, may be abandoned for the "common good", defined by a technical system that we have all helped create.

Communications technology has extended our senses over the entire globe. Through the computer the capabilities of the human mind are being extended. Through the marriage of these two technologies, the ability to extend both the range and the tightness of control of organizations is being expanded. It is this aspect of technology that most concern those critics who fear a society increasingly dominated by technique. I believe that this is a very real problem.

Efficiency Threat

The threat has two aspects to it. The first, and perhaps most insidious, is that which arises from reasonable and straightforward applications of new technology which make the whole fabric of society more complex and require that we all live and work within narrowly defined norms for the "system" to work effectively, trading individuality for efficiency in industry, government and school.

Surveillance Threat

The second, more immediate, threat comes from the surveillance which modern technology subjects us to. Inter-connected data banks, legal surveillance systems, easily employed and sometimes illicitly employed, and electronics eaves-dropping devices are so common that many people just assume that their telephones are monitored. This was the state of affairs even before the recent revelations regarding the widespread espionage engaged in by persons close to President Nixon. Even before these recent incidents, testimony before the Constitutional Rights Sub-Committee of the Senate Judiciary Committee, chaired by Senator Ervin, showed widespread improper surveillance of many citizens by agencies of the government. The effect of this has been to intimidate many individuals and make them draw back from perfectly legal political and social activities. In a real sense these activities threaten the very guarantees of the Bill of Rights.

Drift into "1984"

For several years I have been concerned that improperly exploited computer and communication technology could so markedly restrict the range of individual rights and initiatives as to eliminate meaningful life as we appreciate it. In other words, George Orwell's "1984" could come to pass unnoticed while we applauded our technical achievements.

The great danger which must be recognized and counteracted is that such a de-personalizing state of affairs could occur without specific overt decisions, without high-level encouragement or support, and totally independent of malicious intent. The great danger is that we could become "information bound", because each step in the development of an "information tyranny" appeared to be constructive and useful.

The Watergate Affair

I used to suspect that it would be much easier to guard against a malicious oppressor than to avoid being slowly but most surely dominated by an information Frankenstein of our own creation. The Watergate affair has demonstrated I was clearly not worried enough about improper uses of technology.

(please turn to page 41)

Privacy vs. the Computer Revolution

Thomas Land
44 Hilltop House
117 Homsey Lane
Highgate
London, N6 5NW,
England

"The transistor and the art of miniaturization have been carried so far that a dentist, for example, can plant a device in a tooth filling for sending a signal strong enough to make a person's movements known from a distance."

Industrial Espionage

The directors of a company in the computer field under a takeover bid were gathering one morning for a crucial conference before meeting the insurgent's board. The boardroom was carefully checked for hidden bugging devices. Then a messenger brought in the papers and failed to take his case with him as he left. You've guessed — the incumbents' strategy was broadcast in detail to the insurgents by the tiny equipment planted in the case.

A solution: wear headsets complete with microphones linked in an intercom system similar to those used by aircrews. "The mouthcap prevents lip reading and cuts sound leakage by 60 db, but that is not enough to beat the best microphones," a specialist explains. "Therefore, the device also includes a microphone jamming system, which issues a loud noise when someone is actually speaking. This correlation with the voice, combined with sound insulation in the headset, means that jamming is totally inaudible to the meeting participants. In addition, the device emits spurious electromagnetic radiation to foil other sorts of detectors ..." The system is expensive and uncomfortable, but sells well.

The Insecurity of Information

The Watergate scandal in the United States, Lord Lambton's sex-and-drug affair in Britain, and widespread telephone tapping in France and Germany have at last brought out into the open the plain insecurity of information, whether exchanged in spoken word or stored in computers, from common theft. Legislation is currently being prepared on both sides of the Atlantic to make industrial espionage unprofitable in terms of fines for the first time. The Pro-

tection of Privacy Bill in Ottawa, a forthcoming White Paper in Britain, and a draft law soon to be put before the Council of Europe for ratification answer the deep and hidden anxieties of business, for long reluctant to admit the immense losses due to industrial espionage for fear of endangering the confidence of shareholders.

A far greater danger is that these welcome current legislative measures may bypass the vital, related sphere of the legitimate collection and possible misuse of personal information stored in giant computer data banks, undermining the finest virtue of the Western democratic system: personal liberty. It is perhaps no mere coincidence that the strongest measures for the control of personal information entrusted to data banks have been put forward in the country which has also developed the most sophisticated computer technology.

"With recent advances in the surveillance field," Otto Lang, the Canadian Minister of Justice, recently told Parliament in Ottawa on re-introducing his Protection of Privacy Bill, "it has become possible for almost anyone to penetrate the privacy of offices and homes and to listen in on conversations." His words echo the findings of two recent authoritative specialist surveys, carried out by the United Nations and the International Commission of Jurists.

Hitherto Unimaginable Equipment

It is now possible to record people's conversations, without their knowledge, by the use of hitherto unimaginable equipment such as very high frequency antennae capable of picking up your words (and not words only) from within a closed room a block away in spite of intervening walls, or laser microphones which can be used over a distance of several

miles. The transistor and the art of miniaturization have been carried to such lengths that a dentist, for example, can plant a device in a tooth filling for sending a signal strong enough to make a person's movements known from a distance. There is also a wide range of equipment for visual surveillance: small telescopic devices capable of photographing a typewritten page at 100 yards away, and optical "scanners" hooked up to a computer for permanent and automatic cover.

The Jurists' report commissioned by UNESCO also shows how computers and data banks, which offer infinite benefits to mankind, can become an insidious threat to certain fundamental rights and liberties of the individual. It illustrates the need for legal measures against the pernicious use of modern technology for the collection, storage and distribution of personal information. The question posed to society by the emergence of the giant data bank is not limited to whether people should allow government and business bureaucracy to build up intimate personal profiles from a vast range of data available for storage in computers. There is also the issue of the security of such information sought, for example, by private investigation agencies.

Canada's Approach

Canada's legislative approach is so far the most advanced with proposals to establish one's right to privacy "which has to be recognized and protected from invasion." The Bill would make it a criminal offense wilfully to listen in or record a private conversation by electromagnetic, acoustic or mechanical devices. The law would also make it a criminal offense to possess, sell or purchase any such device knowing that it was primarily useful for invading privacy. Similarly, anyone revealing information obtained unlawfully would be guilty of an offense. The Bill would not prevent surveillance by the state, but it makes provisions for substantial damages from anyone convicted under the legislation, and for prison terms of up to five years.

The Canadian Provinces of Manitoba, Saskatchewan and Quebec have already enacted, and Ontario has introduced, legislation to protect the consumer from malpractices by computerized private information agencies reporting on credit ratings and other personal affairs.

One important feature, for long sought by concerned individuals and organizations on both sides of the Atlantic, is provision enabling the consumer to answer back — and to compel reporting agencies to correct erroneous data included on their confidential files. These measures, spurred by the American Fair Credit Reporting Act of 1970, are primarily concerned with the reliability of personal data commonly used for the evaluation of applications for employment, credit facilities, insurance services, and the like. They do not, however, conflict with proposals for the establishment of a computer data bank system for the storage of patient prescription profiles listing an array of sensitive personal information.

Great Britain's Approach

By contrast, Britain does not intend legally to establish the citizen's basic right to privacy. Instead, a distinguished committee of inquiry, whose recent findings are to serve as the basis for legislation towards the end of this year, aimed to outlaw a long list of specific abuses. The present law on privacy in Britain (and in most countries of the

Western world) is scarcely more sophisticated than the so-called Peeping Tom Act of 1361, one commentator observes, while the apparatus and techniques of investigators, both governmental and private, have deployed the vast achievements of science to aid the Peeping Toms. Indeed, one of Britain's top designers of spying and anti-spying equipment, whose business is likely to be severely curbed by the new law, was once doing special engineering for films such as James Bond before deciding to try the real thing.

"There is a funny parallel," as he put it, "between motion pictures and selling goods. On one side, you create the fantasies of some writer; on the other, you meet people around the world who want the articles created by those fantasies ..."

Britain is likely to outlaw the private use of these expensive toys; establish the individual's right of access to computerized personal information held by reporting agencies; and prescribe specific codes of behaviour for members of selected trades and professions dealing with personal information, such as medicine, banking and private investigation. The mass communication media — which recently brought down Lord Lambton, a British minister of government trapped in the company of two prostitutes by a hidden camera — is also likely to be restrained by a compulsory code from certain types of intrusion into people's private lives.

Investigative Reporting

Predictably, the British press is already fighting these proposals, championing the cause of investigative reporting in the public interest. In the sober words of The Financial Times of London, "Many people would be glad of legislation designed to prevent the kinds of bugging that are currently making news in America; but on the other hand the present state of British law is such that, if there were a Watergate over here, newspapers would find it difficult if not impossible to bring the matter into the open in the way the press has done over there. The Official Secrets Act, combined with British laws on libel, make it nearly impossible for newspapers to carry out the function of watchdog over the public interest. This is not to say that the country needs a press that is constantly prying into the private lives of public persons; the contrary is true. But the public would be better protected if it were less difficult to publish information that is unarguably in its interest. The real need is to tighten up the law to protect privacy, and relax the law that prevents necessary publication."

European Approach

Whatever the final form of the British government's legislative proposals, it is to be in accord with a related draft law soon to be put before the Council of Europe for ratification before the spring. Eight years of work by specialist lawyers have gone into the draft — officially a "restricted" document — whose content is anxiously awaited by the business community. Their annual losses due to industrial espionage are estimated at hundreds of millions of pounds in Europe alone. The completion of the proposals, drawn up in close consultation with the member governments, has been accelerated by the recent spectacular revelations of espionage on both sides of the Atlantic.

One who ought to know predicts that "it will be a short, intelligible law which we believe can be made to bite. If it is accepted, it would provide for

finer and punishments to such a realistic extent that they would make industrial espionage unprofitable for the first time ... In broad terms, it would make illegal all improper acquisitions of those items of research which cannot be protected by patents or trade marks." The new laws prepared in North America and Western Europe could thus end the need realistically felt but carefully unvoiced by industry to spend huge sums on espionage and counter-espionage operations; they may not, however, effectively touch a related sphere of personal security in the computer age which could in the long-term prove to be of far greater importance.

Medical Data Bank

"Thomas Eagleton, McGovern's first vice-presidential candidate, would never have been nominated in Britain for we have a national computer data bank that allows us to check and see if a person has ever been in a mental hospital," says the authoritative weekly "New Scientist" of London. "And the Lambton scandal may not be repeated, because Scotland Yard is compiling a national data bank of 250,000 suspected pot smokers. Criminal records: available in the computer terminal at your local police station in three years. Medical records: it depends on where you live ... Naturally, none of this information is available just by asking. A subpoena secures some of it, money under the table will release more, and gentle hints about national security or urgent police inquiries should obtain most of the rest."

The data bank can store, for example, the facts of a million credit card holders' lives. As a British Member of Parliament recently put it to a Senate sub-committee in Washington, "I foresee the day when a single terminal in, for example, a police station, might reveal every detail of the employment and social security, health and welfare records of an individual. I am particularly concerned at the possible integration of the rapidly multiplying local authority and government computers ... I accept and welcome the almost unlimited ways in which such machines can reduce the drudgery and tedium of our lives. But computers must be our servants and not our masters, and their development must not be allowed to move in advance of any framework of legislation."

Defense for the Individual

A specialist explains that the scattered nature of the present computer files gives the individual two levels of defense: searches through diverse files are difficult and control usually rests with the people who created the files and who are interested in the maintenance of security. But the computer data bank shifts control to bureaucrats who have neither personal interest nor yet any legislation to control them. In addition, the data banks now being built "all have one thing in common: they do not use the fancy technologic locks devised to provide computer security for commercially valuable information. Instead, they depend on the integrity of the people who use them. The failure of this system is already shown in Britain by the fact that a detective agency will find out a criminal record for only six guineas."

Privacy in the U.S.A.

An influential government advisory committee in the U.S. concludes: "The net effect of computerization is that it is becoming much easier for record-keeping systems to affect people than for people to affect record-keeping systems. ... An individual's

control over the use that is made of personal data he gives to an organization, or that an organization obtains about him, is lessening." The U.S. Department of Health, Education and Welfare Secretary's advisory committee on automated personal data systems has called for five basic principles, attracting much attention from specialists in Europe as well as North America.

"Under current law," the committee warns, "a person's privacy is poorly protected against arbitrary or abusive record-keeping practices." Its principles would rule out the use of secret data-recording systems; allow an individual knowledge of personal information being held and the way it is used; establish that information obtained from an individual for a specific purpose would not be used for another without his consent; empower an individual to correct or amend identifiable information about him on record; and hold responsible any organization creating, maintaining, using or disseminating records of identifiable personal data to assure the reliability of the information and to make precautions to prevent its misuse.

Health Data Banks

Such reforms would come none too soon. Canada, for example, is currently considering the establishment of computer data banks of patient prescription profiles listing the drug consumption of individual patients. The scheme is designed to prevent drug abuse, undesirable interaction of conflicting drugs and the interference of certain drugs with allergies. All pharmacists would have access to the data bank either by telephone or terminal. Information likely to be recorded on computer files would include the name and address of the patient, his drug insurance scheme number if any, his dependents, allergies, needs of special medication, his reaction to penicillin, his physician's authorization of repeat prescriptions and the price and date of each drug purchase.

A related, though somewhat more advanced, scheme has brought out medical doctors at four British hospitals in rebellion against the Department of Health, refusing to supply personal information about their patients for file in a data bank. The issue, raised by the Aylesbury medical advisory committee of more than 50 consultants, focuses not only on the sensitive, confidential relationship between doctor and patient, but also on the measure of privacy to which one is entitled in the computer age. The scheme against which the doctors are rebelling is for the collation of all the medical records of patients in the area together with such background information on employment and related matters that might be given to a general practitioner.

The Department of Health backing the scheme insists that the linking of records is merely part of a limited experiment with no intention "at present" to extend its scope. But the doctors believe that it would lead to the establishment of a national data bank. Confidential information on thousands of patients has already been stored without their knowledge. The doctors' spokesman explains: "We are refusing to co-operate with this experiment because it is a breach of our ethics to reveal information about our patients without their written permission. If this national computer/data bank is set up — and we are convinced that this is the intention — it would mean a whole lot of power in the hands of a few unidentifiable people and no control over what they can do with it. We have seen what happened in America when a government decided it wants to discredit someone." □

Babson College: More Computing, Less Cost

Edgar T. Canty, Jr., Director
Academic Computer Services
Babson College
Babson Park, Mass. 02157

"The reliability of the system, the size of the program library, and general satisfaction with the system, persuaded three new schools to join in the fall of 1971."

The Babson Computer Center Currently

Seven students sat crammed into a corner of a small room. They were writing computer programs for a macroeconomics class.

Ten more hovered over a pile of flow charts detailing results from a marketing assignment. Other students waited for a chance to use one of several teletype terminals.

At Babson College many courses in management and liberal arts require that students write computer programs, conduct independent research projects, and use a variety of pre-written simulations.

New areas of the curriculum — such as systems analysis and leadership development — will be making use of the computer for the first time. Everyone is getting into the act.

But the Babson Computer Center hasn't always been this busy. In fact, in 1967 there was no computer center at all. No computer, no teletype terminals, no flow charts, and only one course that even mentioned the word "computer".

How did Babson build an effective computer service in such a short time?

Where It All Began

Babson College, a school of business management with approximately 1300 students, is located about 18 miles west of Boston. As early as 1962 Babson began discussing the use of the computer in its curriculum. But it was not until 1967 that the school introduced its first computer course. That course, Computer Fundamentals, was an important first step in the future growth of the computer center even though the students only saw and used a computer on one field trip.

In the spring of 1968 the faculty at Babson decided to implement the curriculum with the use of the computer wherever feasible. A full time director of academic computer services was hired in May of 1968. His first job was to propose how this implementation could best be carried out.

In May, 1968, there were many ways in which the students and faculty could be provided the use of a computer. The major ways were time sharing on a remote computer or punching cards on campus, then



Edgar T. Canty, Jr. has been director of Academic Computer Services at Babson College since 1968, and director of the Academic Computer Group (ACCOMP) since it was formed. His duties at Babson College include the development of computer programs and their implementation with faculty and students. He has previously been employed with RCA-Aero Space, in Burlington, Mass., with the IBM Corporate Division in Poughkeepsie, N.Y., and with A. C. Nielsen in Clinton, Iowa. He received a B.S. from the Univ. of Massachusetts at Amherst in 1951, and an M.S. from Purdue Univ. in 1957.

either carrying the cards to a remote computer or using a remote batch terminal. The problems of using punched cards were mainly costs and delays.

Not to be neglected was the problem of programming language. Because the aim of the use of the computer was to help the students (mostly non-mathematically inclined) become aware of the many ways in which a computer could and should be used by management, three major languages were considered: FORTRAN, COBOL, and BASIC. FORTRAN was generally batch-oriented and had the advantage of widespread general acceptance by the business and scientific communities. Textbooks were available covering a wide variety of subjects from the computer itself to specific business applications. But FORTRAN was rejected as a first language because it would appear to be too mathematical, building on a background

that most students did not have. COBOL seemed a natural choice for the College as a language developed and accepted by the business community. It was an easy language to learn and apply in file-oriented systems. However, it was rejected because of the costs of implementation and the difficulty in handling generalized programs. BASIC, a time-sharing-oriented language, which was a new commercial use of the computer, was experiencing an upsurge in use by both the business and scientific communities. Dartmouth's experience demonstrated its ease of use and general acceptance by a variety of students. For these reasons BASIC was chosen.

Time-sharing terminals were available on short notice; contracts for both the terminals and the time-sharing vendors were easy to initiate. Because the school was embarking on an entirely new venture, it was not enthusiastic about getting involved in long-term contracts for services which could prove unsatisfactory. Time-sharing and BASIC therefore seemed the logical choice. Two ASR33 terminals were installed on the campus in September of 1968. They used acoustical couplers on the regular telephone dial network to reach IBM's CALL/360 G.E.'s MARK I, and the New England Merchants National Bank CALL-A-COMPUTER.

The Year 1968-1969

In preparation for the installation, classes were held in August for the faculty at the General Electric office in Wellesley Hills. By the time classes began, some of the faculty had become acquainted with the computer center. The next project was to introduce the center to the students.

The College required the freshman class to take a noncredit programming course, but there was a very poor reaction from the students. They saw no immediate use of the computer, regardless of what the faculty said, and could not understand why they should carry this burden of an extra noncredit class. As the 1968-69 academic year progressed, the use of the computer expanded to several courses and by June the entire freshman class had been introduced to some computer use.

A total of 1100 hours of connect time was used by the school during its first year of computer operations. This was due to two major factors. First, the mathematics department as a whole was dedicated to the implementation of the computer in the curriculum, and used the computer whenever and wherever feasible. Second, a number of students were hired to write programs for the faculty as needed and to help other students over the initial difficulties of the use of a time-shared computer. Costs were high during this first year. A total of \$14,500 was spent for time-sharing; half was for computer time and half for storage. It amounted to \$13.18 per connect hour.

The Year 1969-1970

In the second year of operation the computer center expanded to three ASR33's and the list of suppliers grew from three to ten including Time Share of Hanover, Comp-Utility, ITT, Com-Share, Leasco, and Multicomp. It was hoped that the availability of large and diverse libraries would interest the faculty, but it didn't work out that way. The difficulties of a multitude of sign-on procedures, retrieving programs, and data requirements proved to be a burden to most of the faculty so that a lion's share of the use was with Leasco and G.E. These two vendors had programs in their libraries to meet most needs.

All freshmen were exposed to BASIC programming in their first course in math, which is calculus; they were then required to use this knowledge in their next math course, probability and statistics. Although the attitude of the students was changing to a wider acceptance, there was still a great deal of apathy. Nevertheless, overall use grew from the 1100 connect hours of the previous year to 1800.

As the Babson computer service began to grow, so did the costs. Nevertheless Babson was committed to develop use of the computer in its curriculum, which is directed toward business management. At the same time, the high costs of operating a college were beginning to tighten the computer center's budget.

The 1969-1970 expenses from time-sharing rose to \$22,690 or \$7,563 per terminal — an increase of 56% over the previous year. It amounted to \$12.60 per connect hour. Although the dollars being spent on computer services were not high by many standards, the costs mounted and indicated that they would soon pass the college's ability to pay for time-shared services provided by commercial vendors. The larger schools in the Boston area had their own problems and could not be asked for help.

1970-71: The Pivotal Year — Creation of ACCOMP

1970 was more than just the beginning of a decade; it seemed nearly the end for a sagging American economy. Because of the difficult economic times, many colleges began to worry over their rising computer costs. Babson decided not to wait for a catastrophe.

In the winter of 1970, Babson President, Dr. Henry A. Kriebel, invited several other Boston area college presidents to meet and discuss their mutual computer problems. The idea behind the meeting was to establish some type of computer consortium. This concept was not unique: many other colleges and high schools across the country were forming cooperatives to cope with rising costs.

While the idea was obviously appealing, a local cooperative would face one unusual problem; it would have to get started without any outside funding; i.e., the National Science Foundation and other government agencies which were contacted were not interested in supporting the proposal. The local consortium would operate exclusively on the shares paid by each member school.

After several meetings, six colleges — Babson, Bentley, Boston College, Curry, Regis, and Simmons — and one secondary school, Milton Academy, joined to form the Academic Computer Group (ACCOMP).

ACCOMP's first job was to select a director and a center for the cooperative effort. Babson was selected as the central computer site and the academic computing services director of Babson became head of ACCOMP. ACCOMP chose to use a Hewlett-Packard 2000A computer because of its availability, low cost, reliability, and adaptability to the needs of ACCOMP.

Babson College was convinced that the consortium approach was sound. The College offered to handle the finances of the consortium and provide the necessary space at no charge as well as cover any potential losses. The College also agreed to act as agent for the cooperative, and, as such, ordered the HP-2000A installed on its campus. A cancellable lease-purchase agreement was signed by Babson with Hewlett-Packard, so that if the approach proved successful, the computer could be bought cooperatively,

but if not, the College would not suffer any undue financial losses.

In order to maintain simplicity of accounting and assure that funds were available to pay expenses, it was decided to charge a flat annual rate of \$2700 per on-line terminal. That is, even if a school had 20 terminals on campus, one on-line terminal meant that there would be only one terminal at any one time using the password of that school. However, to allow for peak usage, members were allowed to add more on-line terminals for short periods. The members were charged at the rate of \$50/month/extra terminal, plus \$2/hour for all time from that school over a total computed on a basis of 150 hours/month for each terminal contracted by the school on an annual basis. This served to fill temporary needs without the extreme financial burden of another full year's commitment. Several schools chose this option.

The Year 1970-71: The Installation of the Computer

The installation of the computer in September, 1970 immediately began to change the role of the computer in the member schools. More courses included computer use and terminal usage increased across the board. Babson's use alone jumped from 1800 connect hours the previous year to 6400.

The way in which the faculty used the computer varied depending on the instructor's sophistication and interest, and the availability of suitable programs in the library. At first most instructors depended on pre-written programs stored in the library provided by either H-P or written by another faculty member. BASIC proved again that it was an easy language and soon a number of instructors were writing their own programs. It varied from one school to another as to which area became creatively involved. Mostly it was mathematics, but chemistry and physics used it too.

At the end of the first year the operating expenses for ACCOMP were \$33,232 for about 10,000 hours of connect time. On the other hand, Babson spent \$8,100 (3 times \$2700/terminal/year) with ACCOMP for 6400 hours, and \$5,400 for 740 hours from commercial vendors. The following table summarizes the hourly costs for 1970-71:

Source	Cost/connect hour
ACCOMP — all members	\$2.97
ACCOMP — Babson only	\$1.26
Time-sharing vendors — Babson only	\$7.30
Overall — Babson only	\$1.90

The costs were down about 40% from the \$22,690 in 1969-70 to \$13,500 in 1970-71, while usage went up 300% from 1800 connect hours to 7140.

The Year 1971-1972

The reliability of the system, the size of the library, and general satisfaction with the system persuaded three new schools to join in the fall of 1971. They were Perkins School for the Blind, Dean Junior College, and Suffolk University.

The membership fee was kept at the same level, \$2700/year/terminal, and the increased income provided 180 hours per month for the members to share on the Dartmouth time-shared system for larger systems packages such as CRIII (Computer Research Involving Investment Information) and IMPRESS (Interdisciplinary Machine Processing for Research and Education in the Social Sciences) as well as for the use of FORTRAN.

During the year 1971-72, interest grew in cooperating and sharing not only the computer but also the knowledge useful in particular subject areas. Therefore, a regular monthly seminar schedule was established. It included finance, economics, computer science, and simulation. Secondary benefits were derived from the seminars because these faculty members had a chance to discuss their ideas and plans with colleagues. Computer differences produced no problem because everyone used the same computer; and schools shared programs.

Policy decisions were made at regular monthly meetings of representatives from each member school.

The increased use by the members required an addition to the memory of the system, increasing it from 6M bits to 19M bits. In November of 1971 the consortium published its own library handbook cataloging over 170 programs as well as descriptions for their use. Because so many programs filtered into the system during the year a supplement of over 100 programs was published in June of 1972.

For some reason the use of the Dartmouth System by the members was extremely low after the initial exploratory surge. It amounted to less than 500 hours for the year. This low figure implied that the BASIC system provided by ACCOMP and the library of programs available was sufficient to meet the members' needs. It was decided not to provide further access to the Dartmouth System.

At the end of the second year, the operating expenses for ACCOMP were \$41,436 for about 22,000 connect hours. On the other hand Babson spent \$13,500 (5 times \$2,700/terminal/year) with ACCOMP for 9800 connect hours and eliminated outside time-sharing vendors. The following table summarizes the hourly costs for 1971-72:

Source	Cost/connect hour
ACCOMP — all members w/Dartmouth	\$1.84
ACCOMP — all members without Dartmouth	\$1.58
Babson only	\$1.38

The Year 1972-1973

Apparently the consortium needed to grow further in 1972-73; so an HP-2000C' was installed in November 1972. It doubled the CPU (central computer) memory and added 4.8M characters of disc storage. Four new schools joined the consortium: Massachusetts College of Pharmacy, Newton College, North Shore Community College, and St. Sebastian's Country Day School. The seminar program is being attended better; the library is growing dramatically.

Encouraged by this activity, one of the member schools, Bentley College, installed its own in-house time-sharing system, which is a RSTS-11/45 made by Digital Equipment Corp., to handle the bulk of its student needs. It depended on the HP-2000C' at Babson for larger and more specialized programs.

Overall use of the system was 27,300 connect hours at a total cost of \$59,000, or \$2.16/connect hour.

The use at Babson was about the same number of connect hours; i.e., 10,968. Thus the connect hours cost for six terminals was

$$16,200 \div 10,968 = \$1.47.$$

However, neither of the above figures are truly comparable with previous values in the article. This discrepancy is due to the use by Babson of four 30 cps. (30-characters-per-second) terminals (2 National Cash Register C260 and 2 UNIVAC DCT 500) beginning in February 1973, while previously all terminals were operating at 10cps. The increase in throughput is unknown. However if we assume that one half-hour using a 30 cps. terminal is equivalent to one hour using a 10 cps. terminal, with this as an adjustment factor, the system cost would now be \$1.77/connect hour for 33,294 hours, and for Babson \$.96/connect hour for 16,962 hours.

The Year 1973-1974

The beginning of this year was a pleasure as three more of the Massachusetts Community Colleges (Massachusetts Bay, Massasoit, and Middlesex) as well as Cohasset Public Schools joined the consortium. However, we were sorry to lose Dean Junior College, who bought a NOVA 840 computer from Data General, and Bentley College who found their needs too great to stay, considering the telephone connection costs.

It should be noted that the forecasted cumulative surplus for four years of operation will be about \$800, while the system has more than doubled in size, and the cost per terminal has been kept the same.

Many specialized programs have been added to the library including a computer assisted instruction author language — IDF, a math drill and practice for grades 1 through 6, a generalized statistical package, and an information storage and retrieval system.

The current equipment available 24 hours per day to students is three INFOTON VISTAR/GT video terminals switched through a National Cash Register C260 (NCR C260) as a printer; two NCR C260's as terminals; and two ASR 33 teletypes. The INFOTON terminals will operate at 120 cps.; the NCR's at 30 cps.; and the ASR 33's at 10 cps. While the use of the INFOTON terminals and printer is not unique, the cost is. The three terminals, switch, and printer are less than \$6600.

Other Cooperative Activities

ACCOMP has done the job that it set out to do, i.e., demonstrate that small private schools can have a reliable time-shared system of substantial capabilities within their budget and without outside funding.

However, ACCOMP is not the total answer; it provides only academic services and there are a great many non-academic needs not being met. For that reason a subsidiary operation was launched to look into the administrative area.

Thus, in 1970, the Intercollegiate Computing Society, Inc. (ICSI) was formed. Members of ICSI are Babson, Bentley, Brandeis, Curry, Dean, Lesley, Regis, Salem State, and Suffolk University.

There is a great deal more effort to getting an administrative system going than there is with an academic one. In the academic environment one can teach programming and develop one's own programs as necessary if a suitable library program is not available. The academic computer can be effective and still be relatively small. However, only after careful planning can a computer large enough to handle administrative data processing for a consortium be established. Whereas Babson was willing to

absorb potential loss of the ACCOMP Group, it has been impossible to date to find an underwriter for the new system. In 1975 the HP-2000C' will be owned outright by ACCOMP, and the annual operating costs will drop from \$60K to less than \$30K. Perhaps then the schools will consider the possibility of continuing their commitment to computing and instead of reducing the per terminal cost, apply the surplus to the administrative system.

Recommendations

The members of ACCOMP believe that a viable academic computing cooperative has evolved, and that others may follow their example in starting a new consortium.

The key problem is finding a kernel of willing and industrious people on campuses in an area. These people must be willing not only to use the computer as soon as it is available but also willing to persuade their colleagues and business officers of the potential gains of the system. How do you find such people? There is no clear answer. Perhaps a good place to begin, however, is the attendance list at the last several Conferences on the Use of Computers in Undergraduate Curricula. Other places to begin are faculty members of quantitatively oriented disciplines, such as math, physics, and chemistry, and members of societies for computing.

When a group of interested and willing people has been found, the battle is half won. Computer costs are decreasing and experience is growing. It remains to get them together and investigate when and how to get started. That evolves from their commitments to the concept of cooperation.

We would be happy to share our experiences if called on.

Sargent — Continued from page 10

Simultaneously the Justice Department brought suit to force us to provide that information even without those protections.

I still refused.

The federal government's response to our conviction was issued by Assistant U.S. Attorney William A. Brown.

Mr. Brown said that the Small Business Administration would stop processing Massachusetts applications until the SBA gained access to our files.

Mr. Brown further said that the Defense Investigative Services would freeze jobs until they too gained access to our files.

Massachusetts stood to lose 30 million dollars in Small Business Administration loans and 2400 defense related jobs unless we backed down.

Still I refused — we were not prepared to sell our rights to privacy for any amount of money or any number of jobs.

We held out and we have won, but the victory is not just for Massachusetts, but for all persons in this country committed to preserving the rights granted to each and every one of us as American citizens.

The people of Massachusetts can take pride that once again they were in the forefront of an important effort to protect the rights of the individual.

At Penn Central : Communications and Computers

William H. Moore
President and Chief Executive Officer
Penn Central Transportation Company
Philadelphia, Pa. 19104

"In the three years that the present management team has been on the job I've stressed to all our people that our primary function is to give good service — not excuses."

Now, more than at any other time in railroading's history, we need constructive suggestions and whole-hearted support from many groups in order to resolve our problems.

The Status of Penn Central

I'd be skirting the most critical problem facing our industry if I didn't say a few words about the status of Penn Central now.

Both our Trustees and Federal District Court Judge Fullam in Philadelphia, who are the guiding forces of our reorganization, have stated their positions quite plainly. The Penn Central faces liquidation unless the erosion of the estate is stopped almost immediately.

You have heard and will hear statements about the creditors' Constitutional rights — the merits of which I won't attempt to discuss. That's a question for the Court to decide.

But one way or the other, Penn Central is fast approaching a Waterloo, unless something is done.

The Trustees have predicted that by very early next year our cash position will be such that we will be unable to meet the payroll. At that point, there will be no alternatives.

Legislation

There is a way around the "deadlines." I'm sure that everyone is fully aware of efforts being made in Congress to legislate solutions to the crises facing Penn Central and other major bankrupt railroads in the Northeast. We hope such legislation will evolve very soon. We know that it must provide funds to stem erosion and cash losses, as well as plans to resolve the dilemma of the bankrupt railroads. Otherwise, the legislation's positive impact will be of a highly questionable nature.

Communications and Computers

Since many of you are oriented toward the subjects of communications and computers, I think it appropriate to touch on some of Penn Central's major accomplishments in these areas.

During the period between its formation in 1968 and bankruptcy in 1970, Penn Central acquired a reputation throughout the country for giving unsatisfactory freight service. As a result, we lost traffic — which shippers diverted elsewhere.

A First Objective: Restore Shipper Confidence

One of the first objectives of our new post-bankruptcy management was to correct the service prob-

Based on a talk at the annual meeting of the Communication and Signal Section Association of American Railroads, New York, N.Y., Oct. 1, 1973.

lems, restore shipper confidence, recapture the traffic which had been lost, and develop additional traffic on Penn Central. During the past three years, this goal has been realized to a substantial degree.

Penn Central service has improved. Shippers and receivers who use our service and monitor its performance have told us so. Movement records of such traffic verify that it has been moving properly — with reduced transit time and greater reliability.

Steps Taken

Many steps we took have been responsible for our positive results. I'd like to note a few.

- Our entire pattern of freight train schedules and connections was reviewed and overhauled, so as to reduce time in transit.
- Intermediate switching delays were reduced by having trains bypass yards wherever possible.
- Switching was concentrated in our most efficient yard facilities where the job could be done in the least amount of time.
- The concept of running shorter, faster trains was adopted, resulting in the operation of a number of additional trains, and significantly faster delivery of shipments to consignees.
- Locomotives and freight cars were obtained in substantial quantities. However, more cars are needed in order to attain full traffic potential.
- Our computer and communications systems were greatly improved to support the entire transportation function. I want to talk of this in some detail.

Give Service — Not Excuses

First, though, I should point out one other thing that we've changed on the Penn Central. That's our attitude. In the three years plus that the present management team has been on the job I've stressed to all our people that our primary function is to give good service — not excuses. I'm proud to say that everyone from our top and middle management team to our most important people — the men and women who keep our trains moving — have adopted this attitude of persistence to get the job done.

Computer Information

When I first came on Penn Central property in September, 1970, information coming out of our computers concerning railroad operations was six hours old — at best. After reviewing our car reporting systems in late 1970, I charged our new management group with the task of coming up with a real time communications/computer facility for transportation

and freight billing which would equal — if not better — anything in the industry.

Today we are ten months into a two-year implementation phase of a system we call TABS (Transportation and Billing System). And what used to take hours, takes minutes.

We are now able to acquire some 45 per cent of our train and car movement information in only minutes, and by the third quarter of 1974, according to our program, all train and car information will be available to local and system personnel within six minutes after it is transmitted to our computer.

The significance of this achievement should be measured by the volume it covers. For it means that we will be able to keep tabs on some 250,000 car movements and some 1,300 trains which move on our railroad every day — and do so instantaneously.

The technical people here know that only the latest high-speed communications facilities and on-line computers could help us achieve this goal.

Meanwhile, the continuing installation of facilities to implement this plan helps our transportation efficiency and capability grow almost daily.

Speed of Information

Some examples of what this means to our day-to-day operations are worth noting:

- Under our old system it took 35 minutes to print and transmit the data on a 100-car train to our computers. Today, at the new TABS locations we're able to accomplish the same job in just seven minutes.
- Penn Central operates over 1,600 pools of assigned cars, i.e., groups of cars assigned to meet the transportation needs of individual customers. It used to take us at least two days to change an assignment for a given car. Today, thanks to our modernized communications and computer systems, we're able to do the same job in just minutes, including the actual reassignment of the specific car by yard forces.
- Several weeks ago we began a pilot program at four locations on our railroad called RWC (or Repetitive Waybill Code). Utilizing our new high-speed terminals and implementing this new program allows us to both prepare and instantaneously feed waybill information to computers in one-third the time.

This pioneering effort — a first in the railroad industry — allows us, as the waybill information is being prepared, to simultaneously transmit the necessary transportation message and store for future retrieval the data necessary for billing the customer.

Savings

Thanks to this new system, we're going to be able to reduce two days' clerical work to one, save huge sums of money, and at the same time provide our operating people and shippers with more timely information on car movements.

These are but some of the results of our program to modernize our computer and communications operations. As a result, we are beginning to realize a substantial measure of the benefits, which at full implementation, will produce at least \$12 million in annual recurring savings.

At the same time that we've been replacing the antiquated parts of these systems, we've also been attacking another serious problem — that of eliminating unnecessary computer and communications hardware.

Centralization

In establishing our computer and communications people as an independent group responsive to the entire company's needs — as opposed to specific segments — we have been able to save significant sums of money. In the first three months of 1971, we closed two computer centers. Later, we removed computers from four other locations and replaced them with high-speed circuits and terminals plugged into our main computers at Philadelphia. Two more computer centers in outlying areas will be closed by June, 1974. The action we've taken so far has resulted in savings for our operations of more than \$3 million in little more than two and one-half years.

Telephones

On another front, in what was termed by our people as "Moore's war on telephones," we achieved a reduction in telephone expenses of \$1.8 million annually through the elimination of instruments no longer needed and circuits which were under-utilized.

Since undertaking one of the most ambitious programs of modernization of communications and computer systems in the railroad industry, we at Penn Central have been able to achieve a net savings of \$8 million.

This might seem like a proverbial "drop in the bucket" when measured against the railroad's continuing losses. But it's not. For it represents just one facet of the continuing battle we've fought on the Penn Central in the last three years to produce better service, decrease our losses, and modernize our facilities.

Lack of Microwave Systems

For instance, we know that although we've modernized our communications system, it's far from ideal. Penn Central's basic transmission system is composed of telephone company lines, rather than the ultra-modern microwave systems used by many railroads in the South and West.

Expediency — rather than choice — governs our movement in this regard. For it would cost in excess of \$30 million to convert our present transmission system to microwave.

Northeast Quadrant Communications

However, that does not rule out the fact that what we do have to work with is both operable and capable of helping us produce good railroad service in the Northeast. As a matter of fact, I'm sure that no matter what type of railroad system evolves from the present agonies of the Northeast railroads, Penn Central's communications and computer systems will be both the focal point of it and its largest part. In other words, our systems will be readily adaptable to the total requirement for railroad communications systems in the Northeast quadrant.

Struggle to Survive

However, in spite of our success in providing improved service and generating customer satisfaction, the burdens of our present predicament seem too great to surmount. In pure and simple terms, the

(please turn to page 37)

The Attempted Framing of Jim Garrison

"Very few stories about the trial appeared. When something did appear it was usually buried in the back among the shipping page news items. These short stories were all biased heavily against Garrison."

Part 1. Introduction

Edmund C. Berkeley, Editor
Computers and Automation

District Attorney Jim Garrison of New Orleans is probably known all over the world as the attorney who prosecuted a certain Clay L. Shaw in New Orleans in February and March 1969 for participation in a conspiracy to assassinate President John F. Kennedy of the United States in November 1963.

1. The Warren Commission Report

One's attitude towards Garrison's prosecution of Clay Shaw depends on one's attitude about the Warren Commission Report, the report issued September 1964 by a commission appointed by President Lyndon B. Johnson, and headed by Chief Justice Earl Warren, and which concluded that Lee Harvey Oswald was the sole assassin of President Kennedy and that there was no conspiracy.

In view of the authority of the Warren Commission, that conclusion was accepted by many Americans for a long time. But the conclusion must be considered to be not credible, false, a cover-up, and a lie, by every person who carefully considers the evidence.

The basic fact, that it was literally impossible for any man to do what was attributed to Oswald, is clear to anybody who carefully examines:

- the physics of the shooting;
- the timing of the events;
- any of the bootleg copies of the famous color movie taken by Abraham Zapruder showing the entire sequence of the shooting of President John F. Kennedy;
- the "story" of the "magic bullet," Commission Exhibit 399, which supposedly passed through John Kennedy's neck, then through two heavy bones of John B. Connally (at the time, governor of Texas), and then showed up on a stretcher in Parkland Hospital, not dented, not distorted, and almost perfect; and much other important evidence.

2. Author of "Heritage of Stone"

Garrison is also the author of "Heritage of Stone" published by G. P. Putnam's Sons, New York, 1970, a very interesting and important book. In this book he relates how in 1966 he was astonished

to have Senator Russell Long of Louisiana tell him in conversation there was a question about the Warren Commission's inquiry.

So Garrison began to read the 26 volumes of the Warren Commission's Hearings and Evidence. From that information alone, it became clear to Garrison that the official conclusion that Kennedy had been killed by a single man shooting at him from behind was totally impossible. It even began to seem to Garrison that Lee Harvey Oswald quite possibly had not fired any shots, and had been a mere scapegoat. So what was the meaning of these 26 volumes of evidence? Why was the government lying to the people? Who had killed President Kennedy and why?

These questions took Garrison down a long road and involved him in a conflict with what he called an "enormous domestic intelligence organization which would seek to discredit and destroy anyone who dared to challenge its authority".

As Garrison prepared for charging persons who in the New Orleans area had participated in the conspiracy to assassinate President Kennedy, he encountered vast obstruction from the Federal Government and the U.S. Dept. of Justice. They made enormous efforts to prevent a great deal of the truth from being revealed, and to prevent dissemination of the proposition that the conclusion of the Warren Commission Report ("Lee Harvey Oswald was the sole assassin, and operated alone") was an impossibility and a cover-up and a lie.

3. The New Orleans Trial of Clay Shaw

Nevertheless, a large additional installment of new public evidence of the conspiracy to kill President John F. Kennedy came out of three weeks of court testimony given in New Orleans, February and March, 1969, when District Attorney Jim Garrison charged Clay Shaw with having a part in the conspiracy to assassinate President Kennedy.

The trial was accurately and very fully reported in the "New Orleans Times Picayune", February 7, 1969 to March 2, 1969, the leading daily paper in New Orleans, published since 1847. The record of the trial as published in the "Times Picayune" contains much solid evidence that:

1. Clay Shaw did know and meet with Lee Harvey Oswald (dead), David Ferrie (dead), and Jack Ruby (dead), and exchange money with them. Twelve witnesses saw them together in twos and threes, at various times and places.
2. There were at least three gunmen in Dealey Plaza firing at President Kennedy on November 22, 1963, from at least two directions, and therefore there was a conspiracy.

What Garrison failed to prove to the satisfaction of the New Orleans jury was that Clay Shaw was involved in the conspiracy in Dallas.

And one of the reasons that Garrison failed in his efforts at prosecution was that one of the persons on his staff, a certain Pershing Gervais, told much of Garrison's evidence, strategy, and names of witnesses, to the lawyers for Clay Shaw ahead of time. This gave them an opportunity to subvert the witnesses, destroy or distort evidence, etc. Pershing Gervais is a star character in Part 2 of this article.

4. Prosecution of Clay Shaw for Perjury

After the first trial was over, Garrison then sought to prosecute Clay Shaw for perjury, for denying on oath in court that he had never known, seen, or met Lee Harvey Oswald. But in November, 1972, the U.S. Supreme Court denied Garrison the opportunity to prosecute Shaw for perjury.

5. The Latest Persecution of Jim Garrison

The U.S. Department of Justice, under the direction of the administration of President Richard M. Nixon, has engaged in many prosecutions, in the nature of illegal persecutions. These have been trials of persons for alleged offenses against the United States, but actually only offenses against a certain part of the establishment in the United States.

Perhaps the most conspicuous of all of these was the trial of Daniel Ellsberg in Los Angeles for releasing the Pentagon Papers (a frank history of U.S. involvement in the Vietnam War) to the people of the United States. This trial cost the defendants over \$900,000, and among other things revealed that the U.S. Government had burglarized the office of Ellsberg's psychiatrist in Los Angeles, and had offered the Ellsberg trial judge a nomination to the Supreme Court.

Jim Garrison has deeply offended a certain part of the establishment of the United States; he has

refused to accept the Warren Commission Report conclusion as true.

The most recent Federal Government persecution of Garrison is reported in detail in Part 2 of this article by Richard E. Sprague: the U.S. Department of Justice brought charges against Garrison of "accepting bribes to permit continuing illegal operation of pin ball machines in New Orleans".

On September 27, 1973, the jury, on the first ballot, found Garrison innocent.

For additional information about Garrison, see the prior articles relating to Jim Garrison which have been published in "Computers and Automation," as follows:

March 1971, page 45. "District Attorney Jim Garrison on the Assassination of President Kennedy: A Review of 'Heritage of Stone'" by Neil Macdonald, Assistant Editor.

August 1971, page 37. "Jim Garrison, District Attorney, Orleans Parish, vs. the Federal Government" by Bernard Fensterwald, Attorney, Executive Director, National Committee to Investigate Assassinations.

How District Attorney Jim Garrison of New Orleans became interested in the New Orleans phase of the assassination of President Kennedy; and how the Federal Government frustrated and blocked his investigation in more than a dozen ways.

April, May 1973, pages 34 and 30, respectively. "The New Orleans Portion of the Conspiracy to Assassinate President John F. Kennedy — Four Articles": (1) by Edmund C. Berkeley, in the April issue; (2) by Jim Garrison, in the April issue; (3) by F. Irving Dymond, in the May issue; (4) by Jim Garrison, in the May issue.

On November 20, 1972, the Supreme Court of the United States refused to permit Jim Garrison, District Attorney, New Orleans, to prosecute Clay Shaw for perjury. On November 21, Jim Garrison issued a statement commenting on this refusal, which is Article 4 of this set; Article 1 is an introduction; Articles 2 and 3 are opening statements to the trial jury, by Jim Garrison, Prosecutor, and F. Irving Dymond, attorney for the defendant, in the February 1969 trial of Clay Shaw in New Orleans; Clay Shaw was charged by the grand jury with "having conspired with David W. Ferrie and Lee Harvey Oswald to murder President John F. Kennedy" — in regard to which the trial jury found Clay Shaw "not guilty".

Part 2. The Attempted Framing of Jim Garrison

Richard E. Sprague
Hartsdale, N.Y. 10530

Outline

1. The Conspiracy to Murder President John F. Kennedy
2. Why Garrison is "Dangerous"
3. Evidence of a Frame-Up
4. Participation by the Internal Revenue Service
5. Hiding Pershing Gervais, Star Witness
6. Gervais Confesses in Vancouver, Canada, May, 1972
7. The U.S. Justice Department Buys Gervais Back
8. The U.S. Justice Department Bribes the Judge
9. Somehow, the News Media is Controlled
10. Tom Bethell, Turncoat
11. The Trial of Garrison in New Orleans, Aug.-Sept., 1972

12. The Federal Government's Spliced Tapes
13. The Government's Spies
14. News Media Coverage
15. The Guilt of Rosemary James, Reporter
16. Other Guilty Reporters and Newspapers
17. Suppression of the Gervais Confession Tapes
18. After Watergate, It's Much Harder to Fool a Jury
19. High Crimes by the Federal Government and Members Thereof

1. The Conspiracy to Murder President John F. Kennedy

On September 27, 1973, District Attorney Jim Garrison of the Parish of Orleans, New Orleans, Louisiana was found innocent by a Federal district court jury on certain charges. The United States Department of Justice brought the charges against Jim Garrison, that he had accepted bribes to permit continuing illegal operation of pin ball machines in New Orleans.

But the real story of this trial of Jim Garrison has its origins in his discoveries concerning the assassination of President John F. Kennedy. Various individuals in the Central Intelligence Agency, the Federal Bureau of Investigation, the U.S. Department of Justice, the Secret Service, the Internal Revenue Service, and the Executive Office of the President, have since 1963 participated in covering up the truth about that assassination. Jim Garrison's investigation in 1966 through 1969 turned up evidence of the conspiracy to assassinate the President and also evidence of the cover-up. Garrison charged a CIA agent, Clay Shaw, with conspiracy to murder John Kennedy. Shaw was found innocent in early 1969 by a New Orleans jury.

2. Why Garrison is "Dangerous"

Back in 1967, Attorney General Ramsey Clark once said that he might have to send Jim Garrison to jail some day. With the appointment of John Mitchell to succeed Mr. Clark as Attorney General in 1969, that idea seemed to be passed along to the Nixon administration. Following the trial of Clay Shaw in New Orleans for conspiracy to assassinate President Kennedy, Garrison charged Shaw with perjury for denying that he had ever known, seen, or met Lee Harvey Oswald or David Ferrie. The perjury case was carried all the way to the U.S. Supreme Court where it was finally rejected in 1972.

The motive for the government attempting to frame Jim Garrison is not entirely clear. It may have been his continuing investigation into the assassination, or his audacity in prosecuting one of the government's most important agents, or his threats to eventually expose the role of the various branches of the Federal Government in the assassination of President John Kennedy and in the cover up. It may have been his recent lecture tour to college campuses giving young people the truth as he saw it about their government and President Kennedy's death. In any event, Attorney General John Mitchell and his successors decided to frame Jim Garrison, convict him, and send him to jail where they hoped they could silence him completely for a while and perhaps forever. This hope was dashed on Sept. 27, 1973, when a Federal jury in New Orleans found Garrison innocent.

3. Evidence of a Frame-Up

The evidence that Garrison was framed is strong. Briefly, here is how it was accomplished. Attorney General John Mitchell, and a group of his subordinates, including Tom Kennelly, Gerald Shurr, Kathy

Kimbrey, a Mr. McDonald, John Wall, and Gerald Gallinghouse, U.S. Attorney in New Orleans, arranged in 1971 for one of Garrison's former investigators, Pershing Gervais, to frame him.

John Wall personally signed a contract with Gervais to carry out an assignment of planting fake bribe money on Garrison and conducting bugged recorded conversations with Garrison at his house and office which could later be altered to sound as if Garrison were accepting bribes. The frame-up was based on a local ordinance with federal tax implications, which made it illegal to operate certain gambling types of pin ball machines. The FBI and J. Edgar Hoover refused to plant the bug on Gervais; so Shurr and his colleagues talked the Internal Revenue Service into doing it. John Mitchell signed the authorization for the bugging.

4. Participation by the Internal Revenue Service

Five IRS agents participated with Gervais in mounting the microphone on his body, and monitoring his conversations with Garrison, Mrs. Garrison, and Jim's children in Garrison's house.

One of the IRS agents was hidden in the trunk of Gervais' car, parked in front of Garrison's house. Two more IRS agents were parked in a car down the street, and a fourth was hidden in an alley behind the house. All were equipped with radio receivers and tape recorders.

Garrison was helping Governor McKeithen of Louisiana with his re-election campaign at the time. He was also flat on his back with a staphylococcus infection and an aching back. He was under heavy sedation at the time of Gervais' first illegal, bugged entry, having just returned home from a long period in the hospital. Gervais owed Garrison money. His impression of Gervais' visit was a fund raising and debt-paying call. When Gervais handed him \$1,000, Garrison understood it to be a political contribution and debt payment. The taped conversation was general enough to be interpreted any way one would like.

The IRS and Justice Dept. experts then took the tapes, and did an inept job of altering them by inserting other Garrison words in the right places to make the tape record sound like a bribe. This technique was to come back and haunt the framers during the Garrison trial.

5. Hiding Pershing Gervais, Star Witness

After the Gervais' planted and taped framing evidence had been collected, the U.S. Justice Dept. indicted Garrison for bribery. In order to protect their star witness, John Mitchell and Gerald Shurr made elaborate arrangements for him to leave the country and to take on a fake identity. Birth certificates and other fake papers were created for him, his wife and his children under the name of Paul Mason. Shurr arranged for Gervais to cross the border into Canada and drive from the east coast to the west coast.

They got him a job first with a major American oil company with Canadian offices. He was supposed to spy on the Canadian government for the oil company. Subsequently after "Paul Mason" arrived in Vancouver, the conspirators then obtained a cushy, do-nothing job for Gervais with General Motors of Canada, at \$18,000 per year. The Shurr-Mitchell team also paid Gervais \$4,000 per year under the table, cash, tax free. They also paid him \$73 per day in cash for his traveling expenses to Vancouver.

6. Gervais Confesses in Vancouver, Canada, May, 1972

Gervais' family were very unhappy with the fake life and so was he. They all wanted to return to their home in Louisiana. Finally Gervais could stand it no longer and decided to tell the truth publicly. After preliminary discussions with the Canadian press, he granted a long interview, spread over four days, to Rosemary James, the reporter who had broken the Garrison-Kennedy-Conspiracy investigation story in 1967. The interview was video taped and broadcast on TV station WWL in New Orleans on May 22 and 23, 1972. The transcript runs for 30 pages. Portions of it were printed in various newspapers in 1972.

In addition to this taped interview, three other documents confirm the frame-up:

- a letter contract between the Justice Dept. and Pershing Gervais for the frame-up, personally signed by John Wall;
- a transcript of a taped telephone call to Pershing Gervais in Vancouver from Gerald Shurr, prior to his recanting and telling the truth; in it, Shurr offers Gervais, John Mitchell's personal congratulations for what he did in helping to frame Jim Garrison;
- a photograph of the fake birth certificate that Mitchell, Shurr and others had made up for Gervais' exit to Canada.

7. The U.S. Justice Department Buys Gervais Back

After Gervais had told the true story to Rosemary James, he and his family returned to New Orleans. But the administration of President Richard M. Nixon did not drop the case. The people responsible for continuing the cover up of the John Kennedy murder were powerful, and had a great deal at stake with Garrison roaming around free to talk and lecture. So Shurr, Gallinhouse, Wall and others (Mitchell was in trouble by then) in 1972 approached Gervais again. This time they offered him a very large sum of money to come back over to the government side. They moved him and his family to a small town in Mississippi and got him to agree to state that he had been lying to Rosemary James. They also got him to agree to state that Garrison and other lawyers had tried to buy him off. They hoped they would not have to put him on the witness stand since Garrison would then have a chance to cross-examine him about his fake life in Canada and the pay-off by the U.S. Department of Justice.

8. The U.S. Justice Department Bribes the Judge

The next moves of Shurr and Gallinhouse were to pay off the judge. They approached the judge with an offer of a federal judgeship for his son.

9. Somehow, the News Media is Controlled

It is not known yet how the government managed to influence the news media, but there is no question that the coverage was again biased away from Garrison, just as it had been in the Shaw trial in 1969.

One suspicion about how it was done comes from an appearance in the court house during the last week of the trial of none other than Edward Dymond, Clay Shaw's key lawyer. Evidence had developed prior to the Shaw trial that not only was Shaw working for the Central Intelligence Agency, but that his lawyers were being paid by the CIA. Dymond's influence with local news media management is substantial.

10. Tom Bethell, Turncoat

National coverage of Garrison's trial had the strong stench of cover up about it. The trial began on Monday, August 20. The Washington Post ran a story that morning with the by-line of Tom Bethell. It was anti-Garrison all the way, in effect predicting his conviction even before the trial started. Who is Tom Bethell? He worked for Jim Garrison for over two years, and then, without Jim's knowledge, gave all of the important evidence Garrison had accumulated against Clay Shaw, to Shaw's lawyers before the Shaw trial started. Garrison indicted Bethell for this action later on, but did not pursue the case.

Haynes Johnson of the Washington Post, when he was informed about this story of August 20 and the by-line of Tom Bethell, registered complete surprise and checked into the matter. He informed me about two weeks later that the Post had no reporter in New Orleans at the time. They had employed Bethell as a stringer to cover the trial, without checking out his history. The Washington Post did not print any more articles by Tom Bethell on the trial.

11. The Trial of Garrison in New Orleans, Aug.-Sept., 1972

The Garrison trial began on Monday, August 20, 1973 and ended on Thursday, September 27, five and one half weeks later. To one who was not in the courtroom, reading the daily accounts in the New Orleans press, or watching the interviews on TV, or reading the three or four stories in the national press during the 5½ weeks, Jim Garrison seemed beaten before he started. None of the kangaroo courtroom aspects of the way the trial was conducted were apparent from the reporting. Judge Herbert W. Christenberry cooperated fully in a dictatorial manner with U.S. Attorney Gallinhouse.

Jim Garrison handled his own defensive case, and used two lawyers: Fred J. Barnett, from the firm of F. Lee Bailey, and Louis B. Merhige, an associate, from New Orleans; he used them as advisors and for cross-examinations during the prosecution's presentation.

Judge Christenberry overruled nearly every motion and objection made by Garrison and his attorneys. In many cases, Garrison was not even allowed to rise to his full height of 6'4" before the Judge said sternly "objection overruled". On the other hand, Christenberry permitted Gerald Gallinhouse and Michael Ellis, the U.S. Attorneys, to ramble on at great length about nearly everything they wanted to do or say. At times, as I was sitting in on two days of the last week of the trial, it seemed that Judge Christenberry was even leading the government attempt to prosecute and frame Garrison.

A fine example of his rulings came when the jury reported their innocent verdict. He said to the courtroom in general, before the jury read the verdict, "Anyone who cannot restrain himself regardless of the verdict should leave. The court will not tolerate any demonstrations in this courtroom." When the jury said, "We find the defendant Jim Garrison not guilty," Merhige, Garrison's lawyer, was looking at the jury. Apparently his face was conveying an expression of gratitude. He was not moving or saying anything. But Christenberry ordered, "Mr. Merhige, restrain yourself please!"

Jeff Cohen, a reporter for the "University Review," a small New York City newspaper, covered the entire trial. He said, "The main story of this trial was the biased, cantankerous judge. Not one word was uttered by the regular media about the

judge's handling of the case. There were reports about his 'stern reprimands' to Garrison, and about his comments to the press, but not one word about the judge's prosecuting efforts."

Christenberry made sure that all the emphasis in what was presented was on the side of the prosecution. Perhaps his greatest contribution to helping prosecute Garrison was the prevention of the introduction of any testimony, until the very last day, of Pershing Gervais' May 1972 confession about the U.S. Justice Department's efforts to force him to frame Garrison. But Christenberry allowed the prosecution to present every witness and to introduce every piece of evidence they had on hand.

12. The Federal Government Tapes

The bugged tape recordings of Gervais' visits to Garrison were introduced by Gallinghouse during the fourth week of the trial. Apparently fearful that Garrison would present testimony that the tapes were fudged, Gallinghouse introduced an expert witness from the state of Michigan.

Lt. Ernest Nash of the Michigan State police testified that he had examined over 3000 tapes and had never made a single mistake. He said that it would be impossible to splice a tape in such a manner that it could not be detected by an expert like himself. He testified that none of the government's Gervais tapes had been altered in any way.

Garrison introduced his own expert witness when he began his defense: Professor Louis Gerstman from the City College of New York. This expert was at first disqualified by the judge. But the grounds for dismissal were so flimsy that the judge, on second thought, reversed himself and permitted Gerstman to testify.

Gerstman said that he was 99.9% certain that Garrison's voice had been spliced into portions of the first Gervais tape. He testified that in only one fourth of one of the fifty tapes he found three tape alterations. He said that the utterances of Garrison on the tape in one part of the conversation with Gervais were out of context with the rest of the conversation. Noise levels in the spliced section were inconsistent with noise levels in other sections. He also was able to detect switching noises made by starting and stopping of the tape recorder used for the alterations.

13. The Federal Government's Spies

Nearly every one of Garrison's witnesses was known to the Federal prosecutors in advance, and in several cases they were tailed and monitored in New Orleans.

This also happened in the Clay Shaw trial. In that trial William Gurvich, Tom Bethell and others were leaking information to Shaw's lawyers well in advance of their testimony in the trial. In this trial, someone inside Garrison's own organization was obviously leaking information also. The government used every illegal dirty trick in the book to find out in advance what Garrison's strategy and defense was going to be.

14. News Media Coverage

The Washington Post story by Tom Bethell was one of only four stories in the Post during the thirty-eight days of the trial. Coverage by the national news media, contrary to what had happened in the

Shaw trial, was almost nil. No TV, newspaper, radio or magazine coverage at all was provided by national media except for United and Associated Press. All media relied on the local stories or AP and UP for the very few news items reported. The media table at the trial was very small, seating only about eight or ten reporters.

No one was permitted to speak, or to read or write in the rest of the courtroom. I sat in the general audience area for two days, and I was stopped from making notes by the bailiff. The only reporters at the news table were from local TV, radio and newspapers, plus AP and UP. One reporter, Jeff Cohen, sat in the general area and somehow covered the trial for the University Review without taking notes.

Very few stories about the trial appeared in either the Washington Post or The New York Times. When something did appear, it was usually buried in the back among the shipping page news items. These short stories were all biased heavily against Garrison. They created the general impression that the trial was merely a formality in arriving at his conviction. In one case, Iris Kelso, a reporter from the local New Orleans TV station WDSU, sent a story to the Post. WDSU was the station affiliated with NBC, that was not only biased against Garrison during the Shaw trial, but became directly involved in the Shaw case through the efforts of Rick Townley and Walter Sheridan of NBC. Both Townley and Sheridan were indicted by a New Orleans grand jury for interfering with the Shaw trial, for bribing witnesses and other crimes.

It was to be expected then, that WDSU-TV and anyone working for that station would be against Garrison. Iris Kelso treated the entire Garrison trial in a completely biased fashion on local TV and her story for the Post reflected this bias.

15. The Guilt of Rosemary James, Reporter

Perhaps the guiltiest person, after the trial ended, was Rosemary James. In May 1972 she had taken an entire TV crew all the way to Vancouver, Canada, spent four days interviewing Pershing Gervais, his wife, his children, was first hand enough to know that he was telling the truth at that time. Rosemary then participated in the two-part TV broadcast of the interview on WWL-TV on May 22 and 23, 1972. She has known Jim Garrison very well for years.

For weeks Rosemary James sat in the courtroom, and often interviewed Garrison for WWL-TV on the courthouse steps, knowing all that she knew. Not once, not one single time, in all of her stories or interviews during the entire Garrison trial, nor to the best of anyone else's knowledge, in her off-the-record discussions with the other reporters at the table in the courtroom, did Rosemary James ever mention her interview with Pershing Gervais in Vancouver. That seems incredible. Was her silence her own idea? Or did someone buy her off, put pressure on her, or otherwise influence her to thoroughly "erase" the Gervais interview, just as though it had never happened? As in the Soviet Union, history is altered. People are made to forget by not reminding them. No effort was made in New Orleans to replay the James-Gervais video tape. As should be apparent to the reader, any replay of that WWL interview would have had a tremendous impact on the trial.

Rosemary James' smile as Jim Garrison came out of the courtroom following the not guilty verdict has to be considered one of the most hypocritical smiles in history.

16. Other Guilty Reporters and Newspapers

The New Orleans Times Picayune (NOTP), as in the Shaw trial, came closest to reporting what was happening in the Garrison trial. That, however, was not very close. Don Hughes and John McMillan and their editors managed to make Garrison seem guilty in advance of the verdict.

Jeff Cohen said, "For six weeks, the news media here tried to hang Jim Garrison, mostly by omission. They presented Gervais and his tapes, omitting Gervais' background and his confession to Rosemary James. John McMillan of the Times Picayune claimed Garrison was guilty five hours before the verdict came in. When Attorney Merhige took exception to McMillan's statement, made in a group discussion of newspeople and lawyers while waiting for the jury, McMillan left.

The New Orleans States Item (NOSI) was less objective. Their reporters, Alan Katz, Ed Lepoma, Lanny Thomas and Bill Rainey, were at a disadvantage in that their headlines and stories had to be put to bed each day before the trial ended. As a result, some embarrassing headlines appeared. One story dated September 18 appeared with the banner headline, "Garrison Dealt Setback — Voice 'Expert' Rejected". The paper hit the street after the judge had changed his mind in the afternoon and allowed Gerstman to testify. In fact, Gerstman was already giving his testimony about the altered tapes while States Item readers were under the impression that the tape issue was all over.

On September 25, Garrison made his closing argument for three hours, slowly and deliberately demonstrating to the jury what a fake case the government had.

On that day the States Item published three things in an attempt to paint Garrison in the worst possible light and to make Judge Christenberry look human. First, a giant, blaring headline, "D.A. Pleads for Freedom," makes Garrison sound guilty, down on his knees, begging for forgiveness for his sins. Second, the text is highly exaggerated: "His hands shaking, voice quivering and appearing near tears, the district attorney pleaded with the jury of nine men and three women to free him". It sounds as though Lepoma, Katz, Thomas, Rainey and the States Item editor (don't ever forget the editor) were trying to bring the giant, confident, successful man crashing down to the level they believed he should be.

17. Suppression of the Gervais Confession Tape

Judge Christenberry permitted Gallinghouse to introduce over fifty tapes of illegally recorded conversations with Garrison and others. Some of the tapes were altered to make it appear that bribes were being accepted.

Yet Christenberry would not permit Garrison to introduce the one tape that would have destroyed Gervais' house of cards. In fact, it looked as though no testimony about that set of admissions by Gervais was ever going to be admitted. Only when the government was forced to put Pershing Gervais on the witness stand as a rebuttal witness at the very end of the trial was Garrison allowed to introduce that interview, and then only in the form of cross examination questioning.

So the most crucial piece of evidence, the video taped interview by Rosemary James in May 1972 with Gervais and his family, was effectively suppressed

by the judge, the U.S. Attorney, Rosemary James, the local press, and the TV station that owned the tape. The entire story about how the government bought Gervais twice, and created a fake identity for him, forcing him to frame Garrison and then to leave the country and stay out, was never exposed either to the public or to the jury.

18. After Watergate, It is Much Harder to Fool a Jury

However, it is getting to be more and more difficult to fool juries and the people these days. Watergate and related events since the Nixon administration came into power, have been opening the eyes and ears of the average citizen and juror.

The jury was so overwhelmed by the kangaroo court atmosphere, shown by Judge Christenberry, Gallinghouse and others, that they somehow knew this was a frame-up. Some of them may have been tuned in to WWL on May 22 and 23, 1973, and may have remembered the James interview. Some may have remembered the newspaper stories of that time and wondered why no mention was made of Gervais' believable confession during the trial.

Garrison's three hour summary no doubt impressed the jury also. After all, it is difficult to believe that one's federal government is very honest when they plant a microphone on a liar and monitor his private conversation using Internal Revenue Service agents. It is difficult to believe when the liar enters the bedroom of a man flat on his back just out of the hospital and plants money on him. It is difficult to believe when the Justice Department of John Mitchell, Robert Mardian, the Federal strike force, provocateurs, and Gerald Shurr, actually manufacture fake birth certificates and other papers to keep their informer's identity a secret and compel him to leave and stay out of the country.

19. High Crimes by the Federal Government and Members Thereof

Who is guilty and who should be prosecuted?

The high crimes committed in the Garrison frame-up are, in their own way, far more dangerous and insidious than murder, robbery and rape. They strike at the heart of our freedom. They seek to exert power to cover up the truth about what has happened to America since the conspiracy to assassinate John F. Kennedy.

The people responsible for these crimes, like the highest-level people in the Watergate crimes, should be investigated and prosecuted to the fullest extent possible. More importantly, their motives should be thoroughly and openly explored and exposed. The possibility that each person involved knew about, and continues to know about, the cover-up of the conspiracy to assassinate President Kennedy should be explored.

Who are these people? Here is the list.

Judge Herbert W. Christenberry
John Mitchell, former Attorney General
Robert Mardian
Gerald Gallinghouse, U.S. Attorney
Justice Department employees:
Tom Kennelly
Gerald Shurr
Kathy Kimbrey
Mr. McDonald
John Wall, Federal Crime Strike Force
Pershing Gervais, informer
Michael Ellis, U.S. Attorney
Eric Gisleson, Acting Chief of New Orleans Federal Crime Strike Force

Internal Revenue Service agents:

Floyd D. Moore
Arlie G. Puckett
Irving Johnson
Edward Martin
Joel Lanoux
Bruce Miller

In addition, the national and local press should be held responsible for assisting in the frame-up through their biased coverage. In the case of WWL-TV and Rosemary James, an even more serious accusation can be made, "accessory after the fact". She maintained complete silence about the most vital evidence in the case. Why?

As for the U.S. Justice Department, following their performance in the Garrison trial, and the trials of the Gainesville Eight, the trial of the Berrigans, of Daniel Ellsberg, and many others, one thing is certain:

The Nixon administration and the faction in the Justice Department represented by John Mitchell, Robert Mardian, Guy Goodwin, Tom Kennelly, Gerald Shurr, Gerald Gallinghouse, John Wall, Michael Ellis, Eric Gisleson and others, never did give up trying to fool all of the people all of the time. One can hope that the Congressional Committees reviewing the Justice Department performance, will be able to make a change. Hopefully, the Garrison trial will be the last Federal case in which faked evidence, bribed judges, paid informers and provocateurs, and illegal bugging will be used to attempt to fool the people and to convict innocent citizens.

References

Associated Press. "Bribe Case Jury Acquits Garrison." The New York Times, Sept. 28, 1973.
Bethell, Tom. "Garrison Faces U.S. Trial." Washington Post, Aug. 20, 1973.
"D.A. Pleads for Freedom." New Orleans States Item (NOSI), Sept. 25, 1973.
Dryer, Ivan. "Garrison Frame-up." Los Angeles Star, Sept., 1972.
Hughes, Don and John McMillan. "Bribery Defense Halted Just Before Punch Line." NOTP, Sept. 15, 1973.
(same authors). "Garrison, Gervais Trade Heated Oral Fireworks." NOTP, Sept. 21, 1973.
(same authors). "La Garde Reports Paying Ex-Police Chief \$30,000." NOTP, Aug. 30, 1973.
"Informant Says Garrison Allies Tried Bribery on His Testimony." The New York Times, Sept. 21, 1973.
James, Rosemary. "Uncensored: The Garrison Tapes." Figaro (New Orleans), Sept. 19, 1973.
Katz, Allan. "Trial Emphasis Shifts." New Orleans States Item (NOSI), Sept. 1, 1973.
Kelso, Iris. "Jury May get Garrison Case Tuesday." Washington Post, Sept. 24, 1973.
Lepoma, Ed and Lanny Thomas. "Voice Expert Rejected." NOSI, Sept. 18, 1973.
McMillan, John and Don Hughes. "Garrison Asks Acquittal; Jury Retires for Evening." NOTP, Sept. 26, 1973.
(same authors). "Voice of Garrison Said Spliced into Recording." NOTP, Sept. 19, 1973.
Philbin, Walter and Lanny Thomas. "D.A. Won on First Ballot; Jury Didn't Go on Tapes." NOSI, Sept. 28, 1973.
Thomas, Lanny and Ed Lepoma. "La. Law Difficult, 4 ex-DA's Testify." NOSI, Sept. 19, 1973.
"U.S. Jury Weighs Garrison Verdict." The New York Times, Sept. 26, 1973.
"Witness Testifies He Paid Garrison Bribes for 8 Years." The New York Times, Sept. 19, 1973. □

NUMBLES

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 deliberate (but evident) misspellings, 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.

NUMBLE 7312

$$\begin{array}{r} \text{A B O L D} \\ \times \text{H E A R T} \\ \hline \text{B T H S F B} \\ \text{E H L S S R} \\ \text{H F E B E I} \qquad \text{R = D = O} \\ \text{S D B I A L} \\ \text{S I T E F H} \\ \hline = \text{S H L L L T B E E B} \\ \hline 01258 \quad 79234 \quad 59983 \end{array}$$

Solution to Numble 7311

In Numble 7311 in the November issue, the digits 0 through 9 are represented by letters as follows:

- L = 0
- R = 1
- T = 2
- G,C = 3
- F = 4
- Y = 5
- E = 6
- V,U = 7
- I = 8
- O = 9

The message is: If you give, forget it; if you receive, tell it.

Our thanks to the following individuals for submitting their solutions – to Numble 7310: T. P. Finn, Indianapolis, Ind.; Eugene Ligtenberg, Rochester, N.Y.; Abraham Schwartz, Jamaica, N.Y. – to Numble 739: Nihan Lloyd-Thurston, S. Nutfield, Surrey, England.

Paraguayan Atrocities Condoned by the United States Government

"We protest and denounce the perpetration of a policy towards Indians which must be characterized as genocide and which after untold suffering will result in the complete extermination of the afflicted population."
— The Department of Ethnology at the University of Bern, Switzerland

1. GENOCIDE IN PARAGUAY: A PROBLEM IN AMERICAN COMPLICITY

Richard Arens
Temple University
Philadelphia, Pa. 19122

On June 4, 1973, the University of Bern released an open letter to the Government of Paraguay accusing it of an extermination of men, women and children in an operation without precedent since the days of the Nazi genocide of World War II. The letter, which is now reproduced for the first time in America (translated from the German original at Temple University), has remained a "secret" of American journalism.

Paraguay, unlike Chile, has not expropriated United States property. Our multi-million dollar investments in the Paraguayan system of ecopolitical power (a system discreetly protecting such fugitives from Nuremberg justice as the Nazi Dr. Mengele of Auschwitz) remain unaffected by the mass murder of its Indian population by the Paraguayan elite (or for that matter, the torture of its own political prisoners), often with the assistance of U.S. manufactured military vehicles and a militia and police force trained by the United States.

This is the Bern letter:

Bern, 4 June, 1973

To the Consulate-General of the
Republic of Paraguay
Professor Dr. C. Fehr
Munzgraben 6
3011 Bern

To the attention of those in positions of authority
in the Paraguayan government:

As we infer from various sources (especially (1) Munzel, Mark: *The Aché Indians: Genocide in Paraguay* IWGWIA-Document No. 11, Copenhagen 1973; and (2) Chase Sardi, Miguel: *The Present Situation of the Indians in Paraguay*, in "The Situation of the Indian in South America". Ed. W. Dostal. Geneva, World Council of Churches, 1971.), the fundamental human rights as they are defined in the Declaration of Human Rights of the United Nations are being denied to the aboriginal inhabitants of Paraguay.

M. Munzel demonstrates in his report "The Aché Indians: Genocide in Paraguay" that, in the case of the Aché (Guayaki) Indians in Eastern Paraguay, these rights are being denied "not through indifference or neglect, but, rather, by an intentional governmental policy of genocide, cloaked as beneficence". He shows on the basis of a number of specific and well-documented cases, especially from the year of 1973, that, in modern Paraguay, manhunts, cruelty to women and children, pillaging, mass murders, and slave trade are encountered; the perpetrators appear free of any punitive sanctions (for their crimes), precisely because these crimes

are tolerated by those in positions of authority, and, in part, are even supported and encouraged by them.

We refrain from citing concrete examples of criminal offenses of such kind in this letter, for we know that the Paraguayan government is aware of numerous cases, and that they are readily revealed in the report of M. Munzel and in the sources cited by him.

We stand appalled at the inhumanity of the methods with which the "solution" of the "Indian question" in Paraguay is being effected, and which are hardly conducive to the reputation of Paraguay as a civilized member of the world community.

We protest and denounce the perpetration of policy towards Indians which must be characterized as genocide, and which, after untold suffering, will result in the complete extermination of the afflicted population.

Above all, we demand the immediate cessation of the heinous manhunts — which necessitates a change of the present "reservation" policy — the immediate release of all Indians now held as slaves, the reunion of families separated by slavery or deportation to reservations, and the effective improvement of living conditions, especially in respect to nourishment and medicinal help.

We further demand that the culture of the Indians be protected from destruction by the present "reservation" policy and by an irresponsible Department of Indian Affairs.

We demand as self-evident the enunciation and effective protection of the fundamental rights of self-determination of all the inhabitants of Paraguay and observance of the fundamental decencies of freedom from slavery, torture and cultural as well as physical extinction which are now rampant.

Finally, we demand that all persons who are in any way responsible for this genocide, whether by direct participation in these criminal atrocities or by support or silent toleration thereof, or by the neglect of official duties, be called to account to the fullest extent of the law, and, of course, without regard to the political, military, or social position of said persons.

We hope that the government of Paraguay recognizes its responsibility in respect to the original inhabitants of its country, and does not allow these demands, which arise from our deepest concern for the fate of the Indians, to continue to be disregarded.

Respectfully,

The Department of Ethnology at the University of Bern, Switzerland

Copies sent to: — the Permanent Representative of Paraguay at the United Nations in New York, Miguel Solando Lopez, Esq.

- World Council of Churches, Geneva
- International Work Group for Indigenous Affairs, Copenhagen
- Amazind, Geneva
- Survival International, London
- Work Group for Tribal Societies, Erlen, Switzerland
- Group for Tribal Cultures—Ethnic Minorities of the Protestant University Community of Bern
- the Press

(end of the Bern letter)

No American university has so far joined the University of Bern in its declaration of elementary humanity. Nor has any American statesman, with the conspicuous exception of Congressman Charles B. Rangel and Senator James Abourezk.

An American declaration would, alas, have to acknowledge the probable complicity (if by silence alone) of our "aid" officials who assist in that country and demand the immediate termination of aid to the government presided over by General Stroessner.

2. PARAGUAYAN INDIAN LIQUIDATION*

*Senator James Abourezk
U.S. Senate
Washington, D.C. 20510*

In Paraguay we see another pitiful example of the barbarism and inhumanity which exists in countries whose governments are our friends.

The Paraguayan regime of Gen. Alfredo Stroessner is bent on a systematic liquidation of the Aché Indian nation. Achés are being hunted and indiscriminately killed regardless of age, sex, or position. Those willing to accept slavery may be kept alive as work hands without medical attention. The use of their language is discouraged and traditional music is prohibited.

The Paraguayan National Police Force has interred hundreds of political prisoners and continues to use incessant, stomach-turning torture as merely their standard operating procedure. It is reported that ranking members of the Paraguayan Government have attended torture sessions as a matter of course.

This year we are giving the Stroessner regime over \$11.5 million in military and economic aid. Furthermore, we have long been involved in the training of Paraguayan military, para-military and police forces. This year alone we will give Stroessner and his repressive regime \$2.5 million in military assistance, training and advice. Nothing could be more of an incentive to such an inhumane government than a continuing flow of aid.

Perhaps one reason why our aid continues to flow abundantly to this government is the close relationship which exists between General Stroessner and our U.S. Ambassador to Paraguay. Professor Arens reports that General Stroessner once told American reporters that he regarded the U.S. Ambassador as a member of his Cabinet.

I am shocked and appalled at the findings of Professor Arens. For the United States to support a government bent on the genocide of its people certainly makes the United States an "accessory to the crime".

*Reprinted from the *Congressional Record* of October 30, 1973; originally printed in *The Nation*, September 24, 1973

3. PARAGUAYAN INDIAN HUNT*

*Richard Arens
Temple University
Philadelphia, Pa. 19122*

On June 4, 1973, the University of Bern released an open letter to the Paraguayan Government. It charged that carefully organized massacres of Aché Indians (otherwise known as Guayaki, of Tupi linguistic stock), added to the detention of Aché Indians in "reservations" indistinguishable from Nazi concentration camps and calculated to insure physical and psychological collapse, had taken on genocidal proportions and had been carried on with the apparent approval and indeed connivance of Paraguayan governmental agencies.

The picture sketched by the University of Bern leaves one with a sense of horror hitherto induced only by the picture of the Nazi "final solution." In some respects, the picture is indeed more dismal.

Achés are being systematically hunted by armed raiding parties. Men, women and children are being indiscriminately mowed down in such "hunts." The preferred weapon of the massacre is the machete, which saves the expense of bullets.

An exception may be made for Achés who submit to being tamed and trained as killers of their own kindred. Their reward is a diet capable of insuring survival and the assignment of captured Aché women as their "wives." Both the Aché killers and their "wives" may be guaranteed survival during good behavior. Those willing to accept unadulterated slavery may also be kept alive for indefinite periods as work hands at a bare subsistence level and without medical attention. The use of their language is discouraged; their traditional music prohibited. The attendant death rate from diseases of malnutrition and sheer lack of will to survive is decimating them.

This inevitable attrition is accelerated by such acts as that reported by a team of anthropologists — that "about one-half ... [of a] recently captured band [of Achés on a reservation] was liquidated, partly by the conscious withholding of food and medicine."

The rites of their religion are denied the Achés even in death. What is felt by the survivors is pervasive melancholy and a sense of degradation, rarely capable of verbalization, yet occasionally captured in a "weeping song," taped by an anthropologist, in which the singer laments the end of the Aché Nation and "regards himself as no longer an Aché and not even a human being ... [and] as half dead."

Yet another group permitted to survive may be children, largely girls (ranging from 10 years upward). These are being sold as slaves, principally for sexual purpose. And as if in a nightmare world we read of yet another "weeping song," recorded on tape by an anthropologist in March of 1972 in which "the perhaps 30-year-old Aché woman Kanechirigi complains that she does not know what has happened to her daughters, who are now living in the houses of mighty Paraguayans." The price of an Aché girl, quoted by a German anthropologist, whose eyewitness account constitutes one basis of the open letter of the University of Bern, is in the neighborhood of \$5.

Not unreasonably, the open letter of the University of Bern demands the immediate cessation of these crimes and the criminal prosecution of all

*Based on remarks in the *Congressional Record — Senate*, S 19742 and S 19743, October 30, 1973

those responsible, regardless of their station in life.

The Genocide Convention, which has been signed by Paraguay, and which must be viewed as a part of the customary Law of Nations, explicitly encompasses all of the activities described in the Bern indictment.

In addition to genocide, the convention renders "complicity in genocide" subject to punishment as an international crime and declares that persons committing genocide or accomplices therein "shall be punished whether they are constitutionally responsible rulers, public officials or private individuals."

The accusations contained in the open letter by the University of Bern are based upon extensive first-hand observation. The pioneering study in this field has been presented by a German anthropologist, Dr. Mark Munzel, titled "The Aché Indians: Genocide in Paraguay," and published in 1973 by the International Work Group for Indigenous Affairs in Copenhagen, it cites first-hand account upon first-hand account, identifying eyewitnesses located throughout the Americas and Western Europe in a manner satisfying to the most fastidious of legal technicians. Dr. Munzel himself has been an eyewitness to some of these episodes. Photographs included in his report show the bloated bodies of the dying on the reservations. His attempts at persuading the killers, whom he met as they set out for an Indian hunt, to abandon their pursuits, have been fruitless. His denunciation of the practice, led to a strongly worded suggestion by the German diplomatic mission that he return to his German home base at the University of Frankfurt.

Col. Patrick Montgomery, the British Secretary of the Anti-Slavery Society, presented substantially identical allegations before the U.N. Commission on Human Rights in Geneva on March 29, 1973, based upon independent and further first-hand evidence. His report was uncontradicted.

The Roman Catholic Church in Paraguay has acknowledged the existence of these practices and has denounced them. So has the World Council of Churches. The British and German press have at various times featured accounts of the liquidation of these hapless people.

The extermination of the Ache population of Paraguay has been progressing over a period of more than a decade to the point where the Achés are almost extinct and the Anti-Slavery Society of Great Britain voices the apprehension "that plans may already exist for the liquidation of other tribes before the limelight has a chance to prevent it."

Liquidation of the Achés has progressed apace with road building and "settlement" of "civilized" communities upon once virgin soil, in short, with commercial penetration which has been heavily financed from the United States.

The involvement of the Paraguayan Government has been direct and immediate. Its knowledge of these practices is incontrovertible. General Stroessner, the dictator of Paraguay, has himself been repeatedly informed, most recently perhaps by the International Commission of Jurists, which sought to "intervene" with him against these massacres.

Clinching evidence concerning the explicit Paraguayan governmental collaboration in the extermination of the Aché Indians has been furnished by eyewitnesses. The typical hunt leading to the roundup and massacre of the native population was consistently observed to be accompanied either by the mili-

tary vehicles of the Paraguayan armed forces or by trucks "put at the disposal of the Reservation by the Ministry of Public Works and Communication with a soldier as the driver."

Paraguay has been under the iron rule of Gen. Alfredo Stroessner, dictator since 1954. Its nominal governmental structure has from time to time been cosmetized to provide a more tolerable appearance to the outside world.

Hundreds of political prisoners are detained without trial under conditions of the utmost deprivation, degradation and torture. Standard operating procedure for the handling of political prisoners, as reported by Amnesty International, includes "prolonged beating non-stop with whips and sticks, burning of sensitive parts of the body with cigarettes and the removal of fingernails." Further refinements are exemplified by the application of electricity to the body of the prisoner "with a prod-like instrument called picana electrica" and total immersion to the point of near suffocation in a tub filled with excrement. Amnesty International has reported that such torture sessions have been attended by the ranking members of the Paraguayan general staff as well as the 25-year-old son-in-law of General Stroessner. Medical emergencies, appearing to be imminently life-threatening, may be treated at the police hospital, the Policelínico Rigoberto Caballero, though it does not seem clear whether the available medical treatment is designed to be life-saving or to provide more sophisticated forms of coercion. In a manner strangely reminiscent of the situation obtaining in Athens under the rule of the Colonels, this police installation is within easy walking and hearing distance of the U.S. Embassy.

General Stroessner has played host to numerous fugitives from post-World War II Nuremberg justice. In the early years of his regime, a Herr Contric, a former S.S. man, acted in an official and leading advisory capacity in the Paraguayan system of internal repression. Amnesty International has asserted that it has evidence that Dr. Josef Mengele, "the doctor of Auschwitz," had been acting in a similar advisory capacity in Paraguay. So have other Nazi fugitives. It appears that under U.S. pressure, Nazi are no longer visibly engaged within the Paraguayan system of "law and order," though the influence of both Herr Contric and the Herr Doktor is discounted by few objective observers of the Paraguayan scene.

U.S. aid has been flowing into Paraguay, the poorest country in South America, in massive volume significantly since 1954, the year of Alfredo Stroessner's accession to dictatorial power. American investment has been both private and governmental. Standard encyclopedias — ranging from the Americana to the Britannica — point to a multi-million-dollar inflow of U.S. capital. The impoverishment of the Paraguayan masses of course remains unaffected. Members of the general staff thrive, sometimes as in Vietnam, on the proceeds of a heroin traffic directed to the United States.

Statistics published by the Paraguayan treasury reflect 50 per cent of available budgetary expenditures on military and police operations. The U.S. Government, which in 1971 granted \$400,000 in military aid to Paraguay, has been training Paraguayan military personnel and there is every reason to justify the belief that it has participated in the training of paramilitary and police personnel as well. It would not seem unfair to infer that the Paraguayan military vehicles accompanying Ache hunts are of American manufacture.

General Stroessner, of course, has been Washington's man in Asuncion. Widespread military facilities, airstrips and roads leading to them, pushed through inhabited as well as virgin territory once populated by Aches have been made available to the United States.

On a visit to Washington in March 1968, General Stroessner told American reporters that he regarded the United States ambassador as a member of his cabinet. (A similar statement was once made in an unguarded moment by Colonel Papadopoulos in Athens.) General Stroessner used the occasion of his Washington visit to offer the dispatch of Paraguayan troops to Vietnam.

Any assertion of the Nixon Administration that it lacks all knowledge and control of racial and political persecution — and specifically the genocide of the Aché Indians in Paraguay — would seem as credible under these circumstances as its recent protestations of innocence of events in Athens or Saigon.

The release of the University of Bern letter was noted in the Basler Nachrichten and by Swiss radio and television. It was greeted by total silence from the American press, radio and television. The London bureau of The New York Times was explicitly informed and was obviously sympathetic to giving the story the prominence it deserved. Yet no such story appeared.

How explain the silence of the American media while Achés die?

4. WHITEWASH

Letter from the Department of State
October 26, 1973

Honorable Dante B. Fascell, Chairman
Subcommittee on Inter-American Affairs
Committee on Foreign Affairs
House of Representatives

Dear Mr. Fascell:

Thank you for your letter of October 10, 1973, concerning the Aché Indians of Paraguay.

The Aché tribe, which numbers about 1,000 persons, are hunters and gatherers and in general live a very simple life. They have had considerable difficulty in making a transition to agriculture. Several articles have been written about them during the past year including the one which appeared in "The Nation" of September 24, 1973, sent to you by Dr. Richard Arens of Temple University.

There does seem to have been a serious problem concerning the Aché Indians, but from what we have been able to determine, the article in The Nation appears to be over-stated. We have heard of incidents where Ache Indians have been the victims of harsh individual acts at the hands of isolated ranchers in Paraguay. Some of the acts reportedly have occurred when irresponsible ranch hands were said to have been drunk. It has also been reported that some young Indians had been pressed into work by ranchers for little more than subsistence.

The Government of Paraguay has a small reservation established for this Indian tribe. We understand that until recently the administration of the reservation left much to be desired and the administrator was a poor choice. For example, failure to provide adequate medical care apparently contributed to a

number of deaths during an influenza epidemic. This situation has now changed with the appointment of a new, and more suitable administration.

There are now two United States Peace Corps volunteers serving at the reservation. They are helping the Indians in many ways.

Although the treatment of the Aché Indians is basically an internal matter, we have inquired and expressed our concern to Paraguayan officials both in Washington and Asuncion. Other nations have also shown an interest. For example, the matter has been discussed in the Danish Parliament.

Last March a press conference was held in Asuncion, at which the Government denied ever giving tacit approval for the systematic extermination or mistreatment of the Aché Indians as had been alleged in press articles.

We do not believe that there has been a planned or conscious effort on the part of the Government of Paraguay to exterminate, molest or harm the Aché Indians in any way. The unfortunate acts in remote areas seem to have been individual ones.

I hope that the foregoing information is helpful.

With best regards,

Sincerely,

Jack B. Kubisch
Assistant Secretary for
Inter-American Affairs

□

Unsettling, Disturbing, Critical . . .

Computers and Automation, established 1951 and therefore the oldest magazine in the field of computers and data processing, believes that the profession of information engineer includes not only competence in handling information using computers and other means, but also a broad responsibility, in a professional and engineering sense, for:

- The reliability and social significance of pertinent input data;
- The social value and truth of the output results.

In the same way, a bridge engineer takes a professional responsibility for the reliability and significance of the data he uses, and the safety and efficiency of the bridge he builds, for human beings to risk their lives on.

Accordingly, Computers and Automation publishes from time to time articles and other information related to socially useful input and output of data systems in a broad sense. To this end we seek to publish what is unsettling, disturbing, critical — but productive of thought and an improved and safer "house" for all humanity, an earth in which our children and later generations may have a future, instead of facing extinction.

The professional information engineer needs to relate his engineering to the most important and most serious problems in the world today: war, nuclear weapons, pollution, the population explosion, and many more.

ACROSS THE EDITOR'S DESK

Computing and Data Processing Newsletter

Table of Contents

APPLICATIONS "Tomorrow" is Here 34 M.I.T. Computer Analyzes Patients' Body Fluids for Drug Overdose 34 CAI Minicomputer Monitors Bumper Height 35 NEW PRODUCTS TOPAZ, An Aid to Town Planning in Australia 35	M.I.T. Computer Program "Builds" Mechanical Linkages 36 MISCELLANEOUS Computer Executives Question Legality of New AT&T Product 36 Control Data and USSR Committee Sign Computer Technology Agreement 36
--	--

APPLICATIONS

"TOMORROW" IS HERE

*H. R. W. Morrison
 Bell Canada-Computer Communications Group
 11th Floor — 160 Elgin St.
 Ottawa, Ontario K1G 3J4 Canada*

That "tomorrow" when people can dial up a computer from their homes and order goods has arrived. Sears, a mail-order department store, has completed three months of field trials in which almost 500 customers ordered goods using Touch-Tone telephones. The service is still running. The Sears experiment is the first commercially successful example of Touch-Tone ordering from the home.

The project also involved IBM Canada and The Computer Communications Group of Bell Canada. Main elements in the automated ordering system are a 12-button Touch-Tone telephone, plus the necessary programming and telecommunications to get communications in and out of the computer.

A select group of Sears customers were given a "how to" manual on ordering goods by Touch-Tone. The octothorpe (#) and asterisk (*) buttons are used to separate information and to indicate end of transmission. This is the first system in Canada in which the general public has direct access to a computer from their homes.

The Touch-Tone telephone has been used by businessmen for "talking" to computers for a few years. Now — with the success of the Sears pilot system — it is likely that other uses of the Touch-Tone telephone as a home computer access terminal will be developed.

Advanced telephone technology will accelerate the use of Touch-Tone accessing of computers. New Bell Canada central offices have been equipped with computer-compatible switching equipment.

In transmission there are changes too. Analogue transmission — in which signals are amplified — is being replaced by digital transmission. Digital systems reconstruct signals. The major benefit is a reduction of error rate — background noise as in amplification is virtually eliminated. The Group spokesman said that both user demand and advanced switching and transmission facilities will create

a dramatic upswing in the public's direct accessing of computers.

M.I.T. COMPUTER ANALYZES PATIENTS' BODY FLUIDS FOR DRUG OVERDOSE

*News Office
 Massachusetts Institute of Technology
 Cambridge, Mass. 02139*

Boston physicians, confronted with a comatose patient whom they suspect is suffering from a drug overdose, can have the patient's body fluids examined by a computerized drug analysis system at the Massachusetts Institute of Technology. The new technique can automatically determine which of several hundred drugs the patient may have ingested.

The computer system was originally developed by Dr. Klaus Biemann, Professor of Chemistry at M.I.T. to search for organic compounds in lunar soil retrieved by the Apollo moon missions. A miniaturized version of the system will journey to Mars in 1975 to search for organic compounds there.

The system consists of a chemical separatory device known as a gas chromatograph attached to an analytical instrument called a mass spectrometer. This, in turn, is linked to a computer programmed to record and sift through the analytical data. The computer has been programmed to identify any of more than 400 drugs, drug metabolites (breakdown products of drugs in the body), natural body substances, and contaminants. (Dr. Biemann outlined his experience with the system in a paper presented in August at the annual meeting of the American Chemical Society in Chicago.)

During the more than two years the drug analysis instruments have been in operation, blood and other body fluids of several hundred comatose patients have been examined by the technique. "Whenever area physicians encounter a comatose patient whom they suspect has taken a drug overdose", said Dr. Biemann, "they telephone our laboratory in Cambridge or call one of our chemists at home, during non-working hours. We get an average of five to 10 calls per week from such institutions as the Massachusetts General Hospital, the Boston Children's Medical Center, and the Boston Poison Control Center. We analyze samples only from emergency patients, or from those whose symptoms are not fully consistent with the circumstances surrounding their discovery — for instance, if the emergency team could not find pill bottles or other evidence of the source of illness."

"After notifying us, the physician sends samples of the patient's blood, urine, gastric juices or other body fluids to M.I.T. by messenger. The chemist on duty — principally Dr. Catherine Costello of our staff — extracts the organic constituents of the sample with a suitable solvent and injects the extract into the gas chromatograph."

Inside the gas chromatograph, the extract is flushed through a long, thin tube packed with a powder on which a polymeric liquid is adsorbed. The individual substances in the extract separate from one another according to their differing solubilities in the adsorbed liquid. Each kind of molecule, whether drug, metabolite or natural body substance, emerges separately from the tube. As the separate molecules escape from the tubing, they enter the analytical device — the mass spectrometer. This instrument breaks up the molecules into ionized fragments and sorts them according to how they behave in a magnetic field. The array of fragments represents a molecular "fingerprint" which is unique for each substance.

Finally the computer scans the fingerprints emerging from the mass spectrometer, taking four seconds per scan. It then searches its memory for a fingerprint which matches the one it has scanned. The computer examines more than 400 mass spectral fingerprints for every sample, performing more than 400 memory comparisons per fingerprint. As the components of a body fluid sample pass through the mass spectrometer, the computer identifies each substance and prints out its name for the scientists. When the extract has been completely analyzed, the computer lists the body fluid constituents in order of concentration. Usually the drug which is the most highly concentrated substance caused the overdose. After completing the analysis, the findings are telephoned to the physician so he can take remedial action.

According to Dr. Biemann, the system has reduced waiting time for drug analysis from two days to two hours, including transportation of the sample.

The M.I.T. scientist said the system "represents an excellent example of how basic research serendipitously leads to practical applications. When the National Aeronautics and Space Administration commissioned us, in 1962, to develop a technique to search for organic compounds in lunar soils, we had little idea that it would also be useful in medicine. Later, the National Institutes of Health added their support by providing the computer and funding personnel under an NIH training grant. This allowed us to offer our free drug analysis service to Boston hospitals."

CAI MINICOMPUTER MONITORS BUMPER HEIGHTS

*Allen T. LeAnce
Le Ance & Associates
3822 Campus Drive, #217
Newport Beach, Calif. 92660*

A minicomputer is working in a General Motors Assembly plant, helping GM make sure all of its 1974 automobiles and trucks conform to new federal safety standards for bumper height.

The computer, an ALPHA 16, manufactured by Computer Automation, Inc. of Irvine, Calif., was delivered last March to GM's Delco Electronics Division in Kokomo, Indiana. There it was incorporated into a pilot system designed to monitor the bumper height on all models of autos and trucks rolling off pro-

duction lines. Successful testing led to the production of a total of 23 systems, all of which were shipped to GM divisions throughout the country by the end of July, according to Arthur L. Anderson, Delco's digital systems supervisor. Anderson said the systems will help the GM division meet a U.S. Government requirement which states the new bumpers must sustain a certain impact without damage to a car. Part of this requirement is the stipulation that bumpers for all vehicles must be of standard uniform height.

The systems — officially known as the "Bumper Height Measurement and Certification Systems" — will measure bumper heights in the range of 18 to 30 inches. They "are accurate to within 2/100ths of an inch," although contract specifications called for accuracy within 1/32nd of an inch.

In actual operation, a system operator uses a manually operated height gauge to find upper and lower bumper height at four locations on each vehicle. These measurements are entered into the system via its console and compared against limits stored in the system's memory. If the measurements are within tolerances, a punched card accompanying the vehicle is stamped with the time, date and the message: "OK". If any measurements are not in tolerance, a repair ticket is printed on a teletype stating all four measurements and noting how far they are out of tolerance.

The systems will at first measure all vehicles coming off the production lines. When enough data is gathered, only randomly selected vehicles will be measured, Anderson said.

Also keeping with recent GM policy, the entire monitoring system was designed for easy conversion to the metric system of measurement.

NEW PRODUCTS

TOPAZ, AN AID TO TOWN PLANNING IN AUSTRALIA

*Brian McKibbin, Press Officer
Australian Information Service
636 Fifth Ave.
New York, N.Y. 10020*

To architects and town planners in Australia the word topaz means more than gemstones. It represents a process which is revolutionising building and town design. TOPAZ, an acronym for Technique for Optimal Placement of Activities in Zones, is a basic computer programme model which can be adapted to plan any system, ranging from single-storey buildings to cities, regional centres and even countries.

The process has been developed by a group headed by Dr. John F. Brotchie, of the division of building research of the Australian Commonwealth Scientific and Industrial Research Organization (CSIRO). The group has come up with a programme through which a computer can plan an efficient system considering the most significant components. The computer can place emphasis on a number of different criteria such as pollution, ease of transport and cheap construction. Various plans are produced according to the needs of a particular project.

The systems approach is the comprehensive approach, the consideration of the problem as a whole including its various components, the interactions

between them and their consequences, Dr. Brotchie explained. He said the technique involves identifying and "mathematically modelling" the system, or expressing it as a computer programme with the aim of increasing to a maximum value one or more of the attributes of the system, or some combination of them. "In the case of an urban system for example, these might include travel time and costs, access to work, shopping entertainment, education and recreation, and establishment and operating costs."

If a planner wanted to use TOPAZ to design a building, he would compile all the relevant data such as maximum cost, size, number of activities to be carried out in the building, and most important, the nature of each activity and how it affects the others. The information would then be fed into the computer, which in turn would provide the most efficient layout plan using the TOPAZ programme. This basically is how the programme is used to plan towns and regional centres, although the problems involved are more complex and the information required far more extensive.

The TOPAZ technique has been used by planners in the Gosford-Wyong project in the Australian State of New South Wales, and by the State Planning Authority of Victoria in its urban strategy plan of 1973. It was used in the replanning of the Royal Melbourne Institute of Technology. Dr. Brotchie said the technique is now being used on several projects overseas, including an urban planning study by Professor John W. Dickie of the Virginia Polytechnic Institute in the United States.

M.I.T. COMPUTER PROGRAM "BUILDS" MECHANICAL LINKAGES

*News Office
Massachusetts Institute of Technology
Cambridge, Mass. 02139*

Rube Goldberg, that famous (or infamous) inventor of outrageous machines would have been delighted with a computer program developed at the Massachusetts Institute of Technology. The powerful-but-inexpensive computer system allows engineers designing mechanical linkages to see their designs "built" and operated for them using highly complex mathematics and visual display techniques.

The M.I.T. computer program is called KINSYN by its developer, Dr. Roger E. Kaufman, associate professor of mechanical engineering at M.I.T. KINSYN is short for "kinematic synthesis". Kinematics is the study of the motion of mechanical linkages and ways of creating them. Mechanical linkages — which do everything from control jet aircraft to pop up the footrest on a reclining chair — have been designed in the past by a form of creative doodling, which is a long and expensive process.

"A designer developing a car hood hinge mechanism in the usual way creatively fiddles with pins and pieces of cardboard until he comes up with a linkage that will move the hood the way he wants," said Dr. Kaufman. "He usually encounters several blind alleys in his design, because he is not sure of its inherent limitations. Automobile engineers say it takes 2000 man-hours to design each hood linkage, and one large manufacturer has to design 84 such linkages each year. Thus, such methods can be highly expensive," he said.

"Using KINSYN the designer could simply draw the device's requirements on the computer's television-like screen — specifying the hood's path of move-

ment, and the forces and speeds the hood would normally experience. The computer performs complex calculations on the design engineer's drawing and comes up with a whole set of possible dimensions for the given device. The computer then traces its results on the screen, so the designer can 'talk' more about the design with the computer."

KINSYN, the first such general-purpose design program is a relatively inexpensive system. A small computer and simple communications device are all that are needed to put it into operation. Thus, Dr. Kaufman feels the program would be quite useful to industry in its present form.

According to Dr. Kaufman, previous "computer-aided design" programs haven't really been "designers" at all — a human being has done the inventing and the computer has simply carried out the calculations. In contrast, he says, KINSYN is not only a jack-of-all-trades designer but is a constant partner of the engineer in the design process. The program does not merely test the feasibility of proposed solutions, or "discuss" a particular solution with the engineer, but also "suggests" various alternatives.

To emphasize the versatility of KINSYN, Dr. Kaufman tells of his project to design an improved artificial knee joint.

"The knee is more than a simple hinge," he explained. "It actually is a combination of oddly shaped surfaces, connected by ligaments, that slide and rotate over one another in a complicated fashion. When a person stands, the knee joint actually twists slightly in the third dimension, locking the joint. Artificial knee joints, such as those used in conventional braces, are somewhat unsatisfactory, because a person's real knee moves differently from the artificial joint, which is usually only a simple hinge. The patient may suffer considerable pain and joint wear because of this difference."

By feeding information from knee X-rays into the computer, and asking the computer to develop the linkage which could best mimic the real knee, Dr. Kaufman and a graduate student designed an improved joint in one afternoon. Medical researchers have worked years trying to accomplish the same thing.

Dr. Kaufman envisions a system whereby patients needing knee braces could have their X-rays sent to a computer design center, where a computer using KINSYN could rapidly and precisely design a custom, pain-free brace for them.

MISCELLANEOUS

COMPUTER EXECUTIVES QUESTION LEGALITY OF NEW AT&T PRODUCT

*Jack Biddle
Computer Industry Association
16255 Ventura Blvd.
Encino, Calif. 91316*

According to the consensus of top executives from the teleprocessing industry meeting held September 17, in Washington, D.C., the Bell System has entered into data processing by introducing its new Teletype Model 40. The all-day meeting of executives of 32 companies, attended by Administration and regulatory agency officials, was sponsored by the Computer Industry Association. The executives represented com-

panies with more than 15,000 employees and combined gross annual revenues of more than \$300 million.

"The apparent cross subsidization of the development of this new system by Bell telephone companies raises questions about violations of both the letter and spirit of FCC regulations and rulings," Dan L. McGurk, the Association's president and conference chairman, said. "The consensus of this meeting would indicate that close investigation of the background, costs and future of this new development by Congress, the FCC and the Justice Department certainly is in order."

McGurk, former president of Xerox Data Systems, added, "We expect to work with many companies which participated here to make sure that there is fair and open competition in the computer industry. By small modifications or optional additions, the Model 40 can become a very powerful data processing system on its own."

An order by the Federal Communications Commission (FCC), dated March 29, 1973, prohibits the Bell System from selling data processing equipment and services. The executives at the meeting concluded that the Model 40 had been designed with applications as a computer terminal in mind. They noted that predecessors in the Teletype line — models 28, 33 and 35 — were designed strictly for transmitting written messages and not computerized data.

AT&T's introduction of the new Teletype unit had brought comments that the very low price of the printer — said to be \$1,165 in OEM quantities — was very near or possibly below actual cost and therefore anti-competitive in effect. "The apparent subsidization of the development of this system results because the Bell System was permitted to retain its manufacturing arm, Western Electric, when the government settled its antitrust action against AT&T several years ago," Mr. McGurk said. "The consensus at the meeting was that the low cost for such a sophisticated product was possible largely because of the built-in market within the Bell System. Other manufacturers cannot count on the huge volume of sales to Bell Operating companies, and they therefore cannot make the investment in development and tooling that has been made by Western Electric."

CONTROL DATA AND USSR COMMITTEE SIGN COMPUTER TECHNOLOGY AGREEMENT

R. T. Saunders
Public Relations Dept.
Control Data Corp.
Box O
Minneapolis, Minn. 55440

Control Data has signed a broad agreement for scientific and technical cooperation with the State Committee of the USSR Council of Ministers for Science and Technology. The agreement is aimed at setting up a program for technical cooperation in computer-related technology and services between the company, the state committee and other appropriate ministries of the Soviet Union, and to provide the means for the identification, study and implementation of specific cooperative projects.

The broad cooperative agreement, to extend for 10 years, was signed in Moscow by William R. Keye, vice chairman of the board of Control Data, Robert D. Schmidt, executive vice president of Control Data, and Dzherman Gvishiani, deputy chairman of the State Committee of the USSR Council of Ministers for Science and Technology.

WATCH us

**THE PEOPLE DOING
THINGS THAT MATTER...
IMAGINATIVELY**

erc

electronic research co. • a **TELETYPE** div.

**SERIES 2600
DIGITAL STOPWATCH/
TIME INTERVAL METER**

erc
MINUTES
10.344

START STOP RESET

- 3 to 6 Digit Displays
- Parallel BCD Outputs
- Resolutions . . . Minutes to Microseconds
- Manual or Remote Control
- Available with 60 Hz OR Crystal Timebases

Telephone (913) 631-6700
7618 Wedd
Overland Park, Kansas 66204
Mail to: P.O. Box 913, Dept. 131
Shawnee Mission • Kansas 66207
TWX: (910) 749-6477

Moore — Continued from page 22

economics of our situation — relating directly to our revenues and expenses — leave Penn Central continually struggling to survive.

Government pouring billions of dollars into highway, waterway and airway networks has created an economic climate in which railroads — especially those in the Northeast quadrant of the nation — have been left with insufficient cash resources to modernize their plants and keep pace with competitors.

Those of us who have spent a lifetime in the transportation business are convinced that railroads will continue to make a tremendous contribution to the economic well-being of the United States — just as they have done in the past. But this will occur only if government gives railroads the same treatment — both financially and through regulatory policy — as its competitors get.

Until this occurs, and I relish that day, all of us on Penn Central will continue our struggle for survival.

United Computer Teams

The statements that many of you have heard in the past as to New York Central's computer not being on speaking terms with Pennsylvania's computer are no longer factual. The red and green teams are now united on one battlefield. We intend to stay that way regardless of what happens and I am convinced that out of the present turmoil a strong, viable railroad transportation system will emerge in the Northeast. □

NEW CONTRACTS

TO	FROM	FOR	AMOUNT
IBM, Federal Systems Div., Owego, N.Y.	Rockwell International Corp., Space Division, Pittsburgh, Pa.	Design and production of two key electronic components for Space Shuttle orbiter under a subcontract	\$15 million (approximate)
Computer Sciences Corp. (CSC), El Segundo, Calif.	Naval Weapons Center, China Lake, Calif.	Computer-based services to Naval Weapons Center, including scientific programming, data reduction and operation and maintenance of equipment	\$6 million
C&S Services, Inc., Alexandria, Va.	Department of the Army	Providing data processing services to White Sands Missile Range	\$5.4 million
Computer Machinery Corp., Santa Monica, Calif.	U.S. Navy	Installation of key-to-disk data entry systems throughout the United States	\$4.3 million
Microdata Corp., Irvine, Calif.	BASF, Germany	Cartridge disc drives; BASF will have exclusive marketing rights for all of Europe including the Eastern Block countries	\$3.5 million
Control Data Corp., Minneapolis, Minn.	Department of the Army	Installation, lease maintenance and ancillary training of CYBER 70 Model 76 system to upgrade a Control Data 3300 system installed at Kwajalein in 1969	\$2.2+ million
Data 100 Corp., Minneapolis, Minn.	U.S. Forest Service	Lease of up to 35 remote batch computer terminals over five-year period	\$2.2 million
Litton Industries' Amecom Div., College Park, Md.	Navy Electronics Systems Command	Advanced development model of a seaborne direction finding system; a follow-on of earlier contract demonstrating feasibility of a shipboard passive direction finding system	\$1.6 million
Computer Sciences Corp. (CSC), El Segundo, Calif.	Electronic Systems Div., Air Force Systems Command, U.S. Air Force	Developing computer programs for the 485L Tactical Air Control Center and many of its subordinate elements	\$1.4 million
Datapoint Corp., San Antonio, Texas	Federal Intermediate Credit Bank (FICB), St. Paul, Minn.	152 Datapoint 2200 dispersed data processing systems to be used as part of Regional Management Information System; use includes overnight updating of loan transaction information	\$1.0+ million
Lockheed Electronics Co., Inc., Plainfield, N.J.	American Express Company, New York, N.Y.	Installation, lease, and maintenance of four minicomputer-based 3200 Data Management Systems to be used at their N.Y. processing center for Travelers Cheques	\$1 million
Kustom Electronics, Inc., Chanute, Kansas	The City of New York	Development of communications system; MCT-10 mobile terminals in 20 city police cars give officers direct access to criminal justice data in four computer systems	\$400,000
Omnus Computer Corp., Santa Ana, Calif.	National Bureau of Standards	An OMNUS Programmable Enhanced Communication Terminal Module Controller (CTMC); includes shipping, installation, maintenance	\$219,000
Data Recognition Limited Reading, Berkshire RG 31DX England	Department of Health and Social Security	Five of DR's System 83 on-line OMR data-capture terminal configurations for their Co-ordinated Hospital Computer Project involving four of Britain's leading teaching hospitals	\$97,400
Kybe Corp., Waltham, Mass.	Internal Revenue Service, Washington, D.C.	10 model TMS-77, MOD V tabletop magnetic tape cleaner/testers; includes delivery and installation to 10 different IRS locations	\$70,050
Computer Sciences Corp. (CSC), El Segundo, Calif.	American Bank and Trust Co., Lansing, Mich.	Purchase and installation of six automated banking systems as first phase of a three-year program to expand and upgrade bank's data processing services	—
Control Data Corp., Minneapolis, Minn.	Northwest Orient Airlines	20 Control Data computer-operated automatic ticket printers for use on the domestic route system at 14 of NOA's nationwide airport ticket counter locations based on ticketing volume	—
Data Products Corp., Woodland Hills, Calif.	Bell Telephone Manufacturing Co. of Belgium	Supplying core memory systems to be manufactured by DPC subsidiary, Data Products Core Memories, Ltd., Dublin Ireland	—
Data Products Corp., Woodland Hills, Calif.	Siemens AG, Karlsruhe, West Germany	The MINI-STORE core memory which will be used in Siemens' new Model 330 computer	—
Raytheon Data Systems, Norwood, Mass.	Trans World Airlines, New York, N.Y.	43 PTS-100 programmable terminals, 8 data processors, and 21 ticket printers for reservations and ticketing services at six airports and at headquarters in New York City	—
Tesdata Systems Corp., McLean, Va.	Government of Canada	Providing Systems Optimization Services (SOS); SOS provides hardware evaluations, system software evaluations, scheduling procedures, development of system performance monitoring procedures and examination of programming technique and system designers methods	—
Texas Instruments Inc., Houston, Texas	Ramada Inns, Inc., Phoenix, Ariz.	A computerized reservations communications system; includes 1000 terminals and central data concentrator	—

NEW INSTALLATIONS

OF	AT	FOR
Burroughs B 6700 system	Chrysler Corp., Detroit, Mich.	Expanded on-line time sharing services to a wide range of divisions and organizations; system will also be tied into the Corporate Information Interchange which links other computers and terminals across the country and internationally (system valued at \$1.8 million)
Burroughs B 7700 system	Data Resources, Inc. (DRI), Lexington, Mass.	Taking over DRI's Economic Information System currently run on a B6700 (system valued at more than \$7 million)
Control Data CDC 1700 system	St. Louis University Hospitals, St. Louis, Mo.	A medical communications system, MEDICOM, designed to provide improved patient care and increased hospital efficiency at the 300-bed, short-term general hospital and teaching facility
Control Data CDC 7328 system	United Computing Systems, Inc., Kansas City, Mo.	Time-sharing job processing; will release the CDC 6600 for pure batch jobs
Honeywell Model 6050 system	Programs & Analysis, Inc., Burlington, Mass.	Increasing processing capacity and capabilities
Honeywell Model 6060 system	PolyCom Systems Limited, Toronto, Canada	Doubling PolyCom's current capacity; firm's interactive time-sharing services will accommodate up to 200 users simultaneously
Honeywell Model 6080 system	Provincial Bank of Canada, Montreal, Canada	Extending on-line operations from present 80 branches to 265 branches by 1976; also will be used for a variety of batch operations (system valued at \$4 million)
IBM System/370 Model 168	Datacrown Limited, Toronto, Canada	Expanding capability to service clients; shared by users on a cross-country network eliminating need for in-house computers (system valued at \$4.5 million)
NCR Century 50 system	Elliot Hospital, Manchester, N.H.	In-patient accounting for processing post-discharge accounts receivables, payroll and accounts payable, and to collect medical audit statistics
NCR Century 100 system	John E. Dallas & Sons, Ltd., London, England Higgs and Hill, London, England	Linking firm's London office with its Shoeburyness, Essex, factory and its warehouse in Perivale Merchant's ledger, subcontractor's ledger, contract costing and salaries, and pensions for 1,200 employees
NCR Century 101 system	Eastbourne Waterworks Co., Great Britain Lawrence Wilson & Son Limited, Guiseley, Leeds, England	On-line inquiry service; will also handle customer billing, financial accounting and budgetary control Purchase accounting, payroll processing, order recording, invoicing and analysis
NCR Century 200 system	Concord National Bank, Concord, N.H.	Enlarging its Central Information File (CIF) applications which now includes general ledger, installment loans, savings and checking accounts
NCR Century 251 system	City National Bank Corp., Coral Gables, Fla. (2 systems)	Providing additional processing power and data-storage capacity
NCR Century 300 system	Dayton Power & Light Co., Dayton, Ohio (2 systems)	Providing 5-8 times previous processing ability and double the data storage capacity; uses include preparing approximately 400,000 monthly customer bills
SYSTEMS 85 system	Instrumentation & Control Systems Div., Boeing Electronics, Kent Wash.	Use in a Supervisory Control and Data Acquisition system (SCADA) being developed for Bonneville Power Administration (BPA) (system valued at approximately \$600,000)
Univac 494 system	Scandinavian Airlines System (SAS), Copenhagen, Denmark (2 systems)	Integration into existing 494 complex; allows airline to run a dual system on any combination of two 494 processors out of three
Univac 1106 system	Spanish Social Security System (Instituto Nacional de Prevision-I.N.P.), Barcelona, Spain St. Cloud State College, St. Cloud, Minn.	Keeping medical records up-to-date and administrative applications such as control of payments, inventory, general accounting, and payroll processing (system valued at \$2.5 million) Administrative applications for St. Cloud and five other Minnesota colleges linked to the 1106 by remote batch terminals
Univac 1106 II system	Ontario Hydro, Richview System Control Center, Toronto, Canada	Core of Data Acquisition and Computer System (DACS) designed to improve the overall security and economy of the bulk power system operation (system valued at approximately \$3 million)
Univac 9480 system	Canadian National Railway Co., Toronto, Canada Concord Liberty Savings & Loan Asso., Pittsburgh, Pa. Informatel, Quebec City, Canada	Use by express arm of company which is concerned with trucking operations throughout Ontario; applications include handling customer accounting inquiries, accounts receivable amounting to 10,000 transactions daily, and monthly and yearly financial reporting Applications including use of PROFITS program, on-line servicing of other S&L institutions Expediting workload; applications include payroll, inventory control and general accounting for clients
Univac 9700 system	The Italian Bureau of Shipping, Genoa, Italy	Administrative work, the ship register file, designing ship structures, performing hydrostatic and hydrodynamic calculations, and other applications (system valued at \$1.25 million)

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 digital computers manufactured and installed, or to be manufactured and on order. These figures are mailed to individual computer manufacturers quarterly 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. A few manufacturers refuse to give out, confirm, or comment on any figures.

Part 1 of the Monthly Computer Census contains reports for United States manufacturers, A to H, and is published in January, April, July, and October. Part 2 contains reports for United States manufacturers, I to Z, and is published in February, May, August, and November. Part 3 contains reports for manufacturers outside of the United States and is published in March, June, September, and December.

Our census seeks to include all digital computers manufactured anywhere. We invite all manufacturers located anywhere to submit information that would help make these figures as accurate and complete as possible.

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 and/or not released by manufacturer

SUMMARY AS OF NOVEMBER 15, 1973

NAME OF MANUFACTURER	NAME OF COMPUTER	DATE OF FIRST INSTALLATION	AVERAGE OR RANGE OF MONTHLY RENTAL \$(000)	NUMBER OF INSTALLATIONS			NUMBER OF UNFILLED ORDERS
				In U.S.A.	Outside U.S.A.	In World	
Part 3. Manufacturers Outside United States							
A/S Norsk Data Elektronikk Oslo, Norway (A) (Nov. 1973)	NORD-1 NORD-2B NORD-5 NORD-10 NORD-20	8/68 8/69 2/72 5/73 1/72	2.0 4.0 (S) - 2.0 3.5 (S)	0 0 0 0 0	127 20 1 10 31	127 20 1 10 31	30 X 1 43 9
A/S Regnecentralen Copenhagen, Denmark (A) (Aug. 1973)	GIER RC 4000	12/60 6/67	2.3-7.5 3.0-20.0	0 0	57 23	57 23	0 3
Elbit Computers Ltd. Haifa, Israel (R) (Nov. 1973)	Elbit-100	10/67	4.9 (S)	-	-	325	10
GEC Computers Ltd. Borehamwood, Hertfordshire England (R) (Nov. 1973)	902 903, 920B GEC 905 GEC 920M GEC 920C Myriad I Myriad II GEC M2140 GEC 2050	5/68 12/65 5/69 7/67 7/68 1/66 11/67 10/69 6/72	- - - - - - - - -	0 1 0 0 0 0 0 9 0	17 464 77 130 19 47 32 21 5	17 465 77 130 19 47 32 30 5	0 19 1 103 0 0 0 0 32
International Computers, Ltd. (ICL) London, England (A) (Sept. 1972)	Atlas 1 & 2 Deuce KDF 6-10 KDN 2 Leo 1, 2, 3 Mercury Orion 1 & 2 Pegasus Sirius 503 803 A, B, C 1100/1 1200/1/2 1300/1/2 1500 2400 1900-1909 Elliott 4120/4130 System 4-30 to 4-75	1/62 4/55 9/61 4/63 -/53 -/57 1/63 4/55 -/61 -/64 12/60 -/60 -/55 -/62 7/62 12/61 12/64 10/65 10/67	65.0 - 10-36 - 10-24 - 20.0 - - - - - 5.0 3.9 4.0 6.0 23.0 3-54 2.4-11.4 5.2-54	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 2 0 0	6 2 34 1 43 4 10 9 8 18 107 13 11 82 35 3 2200 100 200	6 2 34 1 43 4 10 9 8 18 107 13 11 82 35 3 2202 100 200	X X X X X X X X X X X X X X X X - - -
Japanese Mfrs.	(Mfrs. of various models include: Fujitsu, Ltd.; Hitachi, Ltd.; Matsushita Electric Co. of America; Mitsubishi Electric Corp.; Nippon Electric Co., Ltd.; Oki Electric Industry Co.; Tokyo Shibaura Electric Co., Ltd.; Toshiba.)				12,809	-	800 E
Philips Electrológica BV Apeldoorn, Netherlands (R) (Nov. 1973)	P1000 P9200 P9200 t.s. P880 P850/55/60 ELX PR 8000	8/68 3/68 3/70 9/70 9/70 5/58 1/66	7.2-35.8 - - - - 6-21 -	- - - - - - -	- - - - - - -	105 300 5 29 40 42 23	39 25 1 16 290 - -
Philips' Telecommunicatie Industrie BV Hilversum, Netherlands (A) (Oct. 1973)	DS 714 DS 18	-/67 9/72	- -	13 1	25 1	38 1	19 2
Redifon Electronic Systems, Ltd. Crawley, Sussex, England (A) (Aug. 1973)	R2000 R2000A	7/70 6/73	- -	1 -	26 2	27 2	2 12
Saab-Scania Aktiebolag Linköping, Sweden (A) (Sept. 1973)	D21 D22 D220 D23 D5/30 D5/20	12/62 11/68 4/69 -/73 12/71 5/71	7.0 15.0 10.0 25.0 1.0 0.6	0 0 0 0 0 18	38 36 18 0 19 312	38 36 18 0 19 330	- 0 1 5 16 2350

NAME OF MANUFACTURER	NAME OF COMPUTER	DATE OF FIRST INSTALLATION	AVERAGE OR RANGE OF MONTHLY RENTAL		NUMBER OF INSTALLATIONS			NUMBER OF UNFILED ORDERS
			\$(000)	(S)	In U.S.A.	Outside U.S.A.	In World	
Selenia S.p.A. Roma, Italy (A) (Feb. 1973)	GP-16 GP-160	7/69 -	10.9 5.6	(S) (S)	0 -	190 -	190 -	60 -
Siemens Munich, Germany (A) (Nov. 1973)	300 Series 2002 3003 4004/15/16 4004/25/26 4004/35 4004/127 4004/135 4004/45 4004/46 4004/55/60 4004/150 4004/151 4004/220 4004/230 404/2 404/3 404/6	4/65-4/72 6/59 12/63 10/65 1/66 2/67 4/73 10/71 7/66 4/69 7/66 2/72 3/72 - - 11/73 4/71 10/71	0.9-7.9 16.4 15.8 6.1 10.0 14.2 14.0 20.5 27.3 41.0 35.0 49.0 61.0 - - 3.0 2.1 4.5	- - - - 1 - - - - - - - - - - - - - -	- - - - - - - - - - - - - - - - - - -	680 41 29 82 89 210 38 144 333 10 23 121 26 - - - 78 93	160 X X 2 9 6 53 36 21 X X 36 14 15 16 59 25 28	
Telefunken Computer GmbH Konstanz, Germany (A) (Nov. 1973)	TR 4 TR 440	10/61 6/70	X 51.0	- -	- -	- -	35 21	X 4
USSR (N) (May 1969)	BESM 4 BESM 6 MINSK 2 MINSK 22 MIE NAIR 1 ONEGA 1 URAL 11/14/16 and others	- - - - - - - -	- - - - - - -	- - - - - - -	- - - - - - -	- - - - - - -	C C C C C C C C	C C C C C C C

Wiesner — Continued from page 13

Obviously, we must be on guard against both sets of problems. Such capabilities, through data-centralization and manipulation, will increase as our understanding of communications, computation and cognitive processes expand. Yet the means for effective record keeping, information gathering, and data processing are essential needs of a modern society. The problem is to determine how to reap the maximum assistance from modern technology in running a better society and at the same time, how to keep it from dominating us. We may have to adopt some stern measures in the form of very strict controls on who can do what with private information about any individual in the society.

Commitment to Protection of Democracy

Private organizations, industries, universities and professional societies and industrial associations, must commit themselves to the protection of the democratic society. As a group, we should study the problem and publicize it. We should pledge ourselves to protect individual freedoms, in the face of an exploding information technology, through new technical means, through education and through legal action when necessary. Single companies may find it difficult to cope with these problems; individuals within a company will find it even more difficult; but industrial groups should be able to play an important role in this vital effort.

In my testimony before the Ervin Committee, I stated that there are those who hope that new technology alone can redress these invasions of personal autonomy, existing or prospective, made possible by information technology. I don't share this hope.

It is possible and desirable to provide technical safeguards against unauthorized access to data banks

or information transmission systems. It is even conceivable that computers could be programmed to have their memories fade with time and to eliminate specific identity when the information was being processed to provide social profiles, etc. Such safeguards are highly desirable, but the basic safeguards cannot be provided by new inventions. They must be provided by the legislative and legal system of this country, themselves ultimately dependent upon the integrity of men. We must face the need to provide adequate guarantees to individual privacy.

Costs

As a society, we should be prepared to accept the cost of considerable inefficiency in our various social and governmental processes to safeguard our privacy and, as I judge it, our freedom, dignity, happiness and self-respect. By costs, I mean both the financial costs and the loss of a degree of control that the state might otherwise have over genuinely threatening individuals — criminals and violent revolutionaries. Our task is to achieve a proper balance between the ability to cope with individual threats to the society and its capability to abridge the freedom and happiness of its members. In countries where the legal system cannot be counted on, the people are at the mercy of the administrators and they must hope that the bureaucracy will be benign.

Action

Because I believe that an "information tyranny" poses a very serious threat to the survival of a free society in our country, I urge that we all act vigorously to take whatever steps are necessary to protect the Bill of Rights.

CALENDAR OF COMING EVENTS

- Jan. 16-18, 1974:** 3rd Annual AIEE-MHI Seminar, Marriott Motor Hotel, Philadelphia, Pa. / contact: Technical Services, AIEE, 25 Technology Park/Atlanta, Norcross, GA 30071
- Jan. 16-19, 1974:** Internecon/Japan '74, Harumi Convention Center, Tokyo, Japan / contact: Industrial & Scientific Conf. Mgmt., Inc., 222 W. Adams St., Chicago, IL 60606
- Jan. 29-Feb. 1, 1974:** Assoc. for Development of Computer-Based Instructional Systems, Statler Hilton Hotel, Washington, D.C. / contact: Ruann Pengov, Ohio State Univ., College of Medicine, 076 Health Sciences Lib., 376 W. 10th Ave., Columbus, OH 43210
- Feb. 12-14, 1974:** Computer Science Conference, Detroit Hilton, Detroit, Mich. / contact: Seymour J. Wolfson, Computer Science Section, Wayne State Univ., Detroit, MI 48202
- Feb. 13-15, 1974:** International Solid State Circuits Conference, Univ. of Penna., Marriott Hotel, Philadelphia, Pa. / contact: Virgil Johannes, Bell Labs., Room 3E331, Holmdel, NJ 07733
- Feb. 19-22, 1974:** 3rd Annual National Communications Week Convention, Chase-Park Plaza Hotel, St. Louis, Mo. / contact: David C. Brotemarkle, Communications Systems Management Assoc., 1102 West St., Suite 1003, Wilmington, DE 19801
- Feb. 26-28, 1974:** Computer Conference (COMPCON), Jack Tar Hotel, San Francisco, Calif. / contact: Jack Kuehler, IBM Corp., P 35, Bldg. 025, Monterey & Cottle Rds., San Jose, CA 95114
- Mar. 4-8, 1974:** Numerical Control Conference and Exhibition, Milan, Italy / contact: CEU-UCIMU's Exhibition Centre, Via Monte Rosa 21, 20149 Milano, Italy
- Mar. 25-29, 1974:** IEEE International Convention (INTERCON), Coliseum & Statler Hilton Hotel, New York, N.Y. / contact: J. H. Schumacher, IEEE, 345 E. 47th St., New York, NY 10017
- April 3, 1974:** Minicomputers — Trends and Applications, Nat'l Bureau of Standards, Gaithersburg, Md. / contact: Harry Hayman, 738 Whitaker Ter., Silver Spring, MD 20901
- April 8-11, 1974:** Computer Aided Design, Int'l Conference & Exhibition, Univ. of Southampton, Southampton, England / contact: Inst. of Civil Engrs., Great George St., Westminster, London SW1, England
- April 9-11, 1974:** Optical Computing Symposium, Zurich, Switzerland / contact: Samuel Horvitz, Box 274, Waterford, CT 06385
- April 21-24, 1974:** International Circuits & Systems Symposium, Sir Francis Drake Hotel, San Francisco, Calif. / contact: L. O. Chua, Dept. of EE, Univ. of Calif., Berkeley, CA 94720
- April 21-24, 1974:** 1974 Annual Assoc. for Systems Management Conf., Dallas Convention Center, Dallas, Tex. / contact: R. B. McCaffrey, ASM, 24587 Bagley Rd., Cleveland, OH 44138
- May 5-8, 1974:** Offshore Technology Conference, Astrohall, Houston, Tex. / contact: Offshore Tech. Conf., 6200 N. Central Expressway, Dallas, TX 75206
- May 6-10, 1974:** 1974 National Computer Conference & Exposition, McCormick Place, Chicago, Ill. / contact: Dr. Stephen S. Yau, Computer Sciences Dept., Northwestern University, Evanston, IL 60201
- May 13-17, 1974:** European Computing Congress (EUROCOMP), Brunel Univ., Uxbridge, Middlesex, England / contact: Online, Brunel Univ., Uxbridge, Middlesex, England
- May 13-17, 1974:** International Instruments, Electronic and Automation Exhibition, Olympia, London, England / contact: Industrial Exhibitions Ltd., Commonwealth House, New Oxford St., London, WC1A 1PB, England
- June 24-26, 1974:** Design Automation Workshop, Brown Palace Hotel, Denver, Colo. / contact: ACM, 1133 Ave. of the Americas, New York, NY 10036
- June 25-28, 1974:** 1974 Annual International Conference & Business Exposition, Minneapolis, Minn. / contact: Data Processing Management Assoc., 505 Busse Highway, Park Ridge, IL 60068
- July 9-11, 1974:** Summer Computer Simulation Conference, Hyatt Regency Hotel, Houston, Tex. / contact: M. E. McCoy, Martin Marietta Data Systems, Mail MP-198, P.O. Box 5837, Orlando, FL 32805
- July 15-19, 1974:** 1974 Conference on Frontiers in Education, City University, London, England / contact: Conf. Dept., Institution of Electrical Engineers, Savoy Place, London, England WC2R 0BL
- July 23-26, 1974:** Circuit Theory & Design, IEE, London, England / contact: IEE, Savoy Pl., London WC2R 0BL, England
- July 23-26, 1974:** International Computer Exposition for Latin America, Maria Isabel-Sheraton Hotel, Mexico City, Mexico / contact: Seymour A. Robbins, National Expositions Co., Inc., 14 W. 40th St., New York, NY 10018
- Aug. 5-10, 1974:** IFIP Congress 74, St. Erik's Fairgrounds, Stockholm, Sweden / contact: U.S. Committee for IFIP Congress 74, Box 426, New Canaan, CT 06840
- Aug. 5-10, 1974:** Medinfo 74, St. Erik's Fairgrounds, Stockholm, Sweden / contact: Frank E. Heart, Bolt Beranek and Newman, Inc., 50 Moulton St., Cambridge, MA 02138
- Aug. 21-23, 1974:** Engineering in the Ocean Environment International Conf., Nova Scotian Hotel, Halifax, Nova Scotia / contact: O. K. Gashus, EE Dept., Nova Scotia Tech. Coll., POB 100, Halifax, N.S., Canada

ADVERTISING INDEX

Following is the index of advertisements. Each item contains: product / name and address of the advertiser / name of the agency, if any / page number where the advertisement appears.

- COMPUTERS AND AUTOMATION** / Computers and Automation, 815 Washington St., Newtonville, MA 02160 / page 44
- RIDE THE EAST WIND: Parables of Yesterday and Today**, published by Quadrangle/New York Times Book Co. / Computers and Automation, 815 Washington St., Newtonville, MA 02160 / pages 2, 3
- SERIES 2600 DIGITAL STOPWATCH/TIME INTERVAL METER** / Electronic Research Corp., 7618 Wedd, Overland Park, KS 66204 / ERC Advertising / page 37
- WHO'S WHO IN COMPUTERS AND DATA PROCESSING** / jointly published by Quadrangle/New York Times Book Co., and Berkeley Enterprises, Inc., 815 Washington St., Newtonville, MA 02160 / page 43

"WHO'S WHO IN COMPUTERS AND DATA PROCESSING"

EDITION 5.2 = 5th EDITION + 2 SUPPLEMENTS ALREADY ISSUED

THE MOST ESSENTIAL COMPONENTS IN COMPUTERS AND DATA PROCESSING ARE **PEOPLE**

Who are they?

Consult

What do they do?

"WHO'S WHO IN COMPUTERS AND DATA PROCESSING" jointly published by *Computers and Automation* (Berkeley Enterprises, Inc.) and Quadrangle / New York Times Book Co.

Where do they do it?

"Who's Who in Computers and Data Processing" has been changed to a periodic subscription basis as follows:

1. The latest Cumulative Edition (the 5th edition published 1971, containing over 15,000 capsule biographies, over 1,000 pages long, 3 volumes, hardbound) **PLUS**
2. Three Updating Supplements per period totaling over 3,000 entries

Both for \$34.50 in any period when a cumulative edition is supplied . . . and \$15.00 per period when a cumulative edition is not supplied.

BASED ON continual data gathering from computer professionals carried out by *Computers and Automation*

This reference is particularly useful for:

Personnel managers
Libraries
Conference planners
Directors of computer installations
Suppliers to the computer industry
Executive search organizations
Prospective authors
Prospective speakers . . .

anyone who needs to keep up with the important people in the field.

Each computer professional has a capsule biography detailing: last name; first name and middle initial (if any); occupation; year of birth; university education and degrees; year entered the computer field; main interests; job title; organization and its address; publications, honors and memberships; home address.

We are confident that you will find the subscription will repay you many times over. In fact, one day when this wealth of material gives you the inside track with someone important to you, you'll find the information **PRICELESS**: the most essential component in EDP is **CAPABLE PEOPLE**.

RETURNABLE IN 10 DAYS FOR FULL REFUND
(if not satisfactory)

----- (may be copied on any piece of paper) -----

WHO'S WHO IN COMPUTERS AND DATA PROCESSING
815 Washington St., Newtonville, Mass. 02160

YES, please enroll me as a subscriber to WHO'S WHO IN COMPUTERS AND DATA PROCESSING at the following rate:

\$34.50 including the last cumulative edition

OR

\$15.00 since I already have access to the last cumulative edition

I understand that for each period of subscription I shall receive three updating supplements, totaling over 3,000 entries.

Payment enclosed Please bill me.

Please bill my organization

RETURNABLE IN 10 DAYS FOR FULL REFUND

(if not satisfactory)

Name

Title

Organization

Address

City

State & Zip

Your Signature

P.O. No. (if company order)

WILL YOU HELP?

Yes, *you*. It may come as a surprise that you'd be asked . . . but as a reader of *Computers & Automation* you are in a unique position to help us.

NAMES . . . people, institutions, companies who should be interested in 1) the computer industry and/or 2) seeking truth in information are very much needed to join you as readers of *C&A*.

Will you tell us who they are? And perhaps even more, will you let us use your name in writing to them? But with or without your name (we'll only use it if you grant permission) we need to know those *you* think might be interested in also reading *C&A*.

****** reprint from
computers
and automation**

Science and the Advanced Society, by C. P. Snow, Ministry of Technology, London, England (April 1966)
The Information Revolution and the Bill of Rights, by Dr. Jerome B. Wiesner, M.I.T. (May 1971)
Employment, Education, and the Industrial System, by Prof. John Kenneth Galbraith, Harvard Univ. (Aug. 1965)
Computers and the Consumer, by Ralph Nader, Washington, D.C. (Oct. 1970)

Please give us their names and addresses on the form below or add another sheet of paper. Trim out the card with scissors and drop it in the mail. We'll gladly pay the postage to learn of possible new friends. And many thanks for your help! As a token of our appreciation we'll send you our **** Reprint.

P.S. If you like you may mail your list separately to:
R. A. Sykes, Circulation Mgr.
Computers & Automation & People
815 Washington Street
Newtonville, MA 02160

cut here and tuck in flap

TO: R. A. Sykes, Circulation Mgr.
Computers & Automation & People

I suggest you send information on *C&A* to . . . (attach list if you like)

(1) Name _____

Address _____

City _____ State _____ ZIP _____

(2) Name _____

Address _____

City _____ State _____ ZIP _____

May we use your name? YES NO

Please give us your name and address on the form below so we can send you your **** Reprint. Just cross out the subscription request — unless you also want to enter your new or renewal order.

cut here

Fold here — do not cut

cut here

B — staple or glue to A

FIRST CLASS

PERMIT NO. 33531
BOSTON, MASS.

BUSINESS REPLY MAIL

No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY BERKELEY ENTERPRISES, INC.

**COMPUTERS AND AUTOMATION
AND PEOPLE**

815 Washington Street

Newtonville, MA 02160

bend here and fold

**YES, start my subscription to
COMPUTERS AND AUTOMATION AND PEOPLE
according to the instructions checked below.**

One Year (including the Computer Directory and Buyers' Guide — 13 issues) U.S. only. \$23.50

One Year (excluding the Computer Directory and Buyers' Guide — 12 issues) U.S. only. \$11.50

Name: _____ Title: _____

Organization: _____

Address: _____

City: _____ State: _____ Zip: _____

Country if not U.S.: _____

Signature: _____ P.O. No. _____

Payment enclosed

Renewal

Bill me

New subscription

To SPEED the processing of your order, please check the one best descriptor in each of the two categories below. (This information will be used for statistical purposes only.)

BUSINESS TYPE

- 01—Computer Manufacturer
- 02—Aerospace / Aircraft Manufacturer
- 03—Other Manufacturing
- 04—Raw Materials Processing; (chemical, primary metal, petroleum, food, etc.)
- 05—Mining and Construction
- 06—Computing & Consulting
- 07—Finance, Insurance, Publ., and Service Organizations
- 08—Transportation Companies
- 09—Public Utilities
- 10—Research
- 11—Wholesale, Retail, Sales, and Marketing Firms
- 12—Educational; (College, University, or School)
- 13—Government and Military
- 14—Libraries

JOB FUNCTION

- 1—Technical Management; (computer installation management, program management, or engineering mgmt.)
- 2—Computer Center Personnel; (methods & procedure analysts, and operators)
- 3—Programming Personnel; (systems, application & research programmers)
- 4—Professional; (systems analysts, mathematicians, operations researchers, and professors)
- 5—General Management Executives; (corporate officers, owners, and partners)
- 6—Engineering Personnel; (systems engineers, research & development engineers)
- 7—Research Personnel
- 8—Students
- 9—Library Subscription
- 10—Subscription in Company Name Only

A — staple or glue to B

cut here