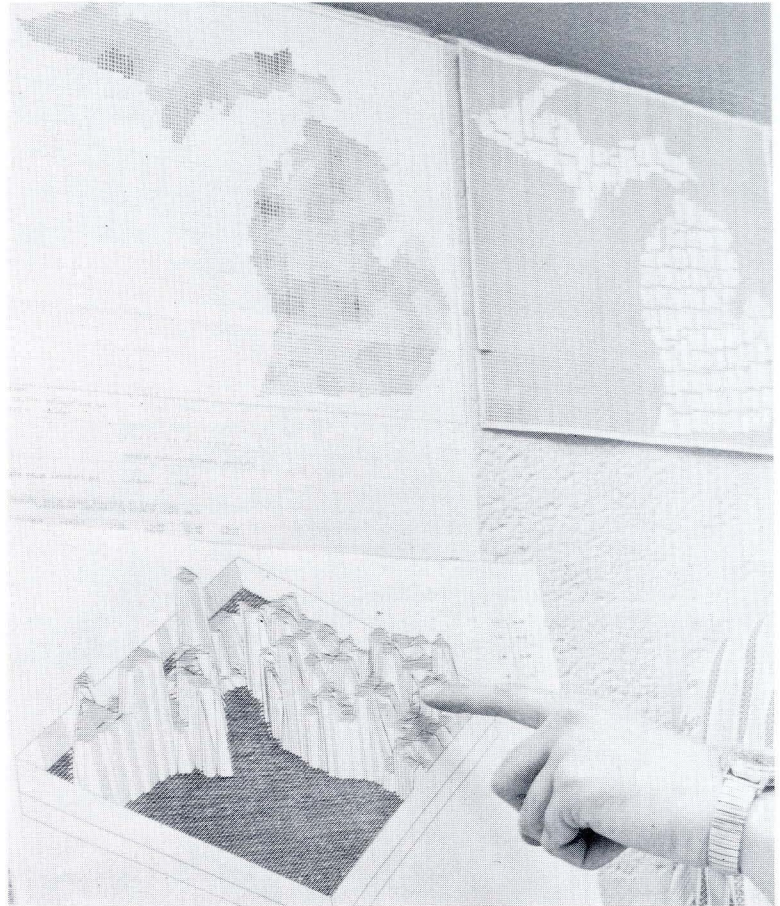


computers and automation

COMPUTER
MAPMAKING



Telephone Rate Structures: A Squeeze for the Average
American Consumer

— Francis J. Riordan

Does Telephone Regulation Protect the User?

— Bernard Strassburg

Telephone Service: The Rules of the Game when the
Game Is Changing

— T. L. Simis

The Present Role of Governments in the World
Computer Industry

— C. W. Spangle

The Frenchman Who Was To Kill Kennedy

— Philippe Bernert and Camille Gilles

The Raid on Democratic Party Headquarters
(The Watergate Incident) — Part 3

— Richard E. Sprague

THE C&A NOTEBOOK ON COMMON SENSE, FIRST YEAR

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Front Cover Picture

The computer-drawn maps on the cover show percentage changes in population of Michigan counties from 1960 to 1970. The maps were produced by the Computer Institute for Social Science Research of Michigan State University, East Lansing, Mich. For more information, see page 42.

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POST-MATURITY IN THE COMPUTER FIELD

1. YES!

*Editorial by
Edmund C. Berkeley
Editor, "Computers and Automation"*

The computer field nowadays is more than mature — it is post-mature.

Just about all the most important problems of earlier years have received remarkable and effective solutions (though, of course, not final solutions):

- Speed: Often more than a million calculating or reasoning operations per second.
- Memory: Often more than a million machine words.
- Reliability: Extremely high for the central processor, far beyond the most optimistic estimates of the past.
- Cost: Lower and lower all the time.
- Versatility: Literally thousands of combinations of equipment, from mini-computer to maxi-computer with a vast array of peripheral devices.
- Programming Languages: Probably more than 200 higher-level languages, and at least another 300 less high-level.
- Programs in Use: Probably well over 100,000; and software earning more money for its suppliers than hardware is earning.
- Applications: In more than 2300 enumerated areas.

and so on and on.

The computer field started to go full blast in 1947. Now at 25 years of age, with over 200,000 persons in it, and over 8000 books published, the field cannot be as essentially interesting and important for frequent current discussions as it was when it was 10 years old, with about 15,000 people in it and probably fewer than 1000 books published. Proceedings of meetings in 1960 and 1962 are often more interesting and less esoteric than proceedings of meetings in 1972.

What remains now for monthly discussion in the computer field, especially for discussion in trade magazine articles? Answer: essentially borderline subjects, periph-

eral subjects, portions of parts of subjects. Examples: communications; management; efficiency; comparisons of different computer systems; unusual applications; etc. Even the playing of chess by computer is in its more advanced stages, for computer programs to play chess are doing better than 9 out of 10 good amateurs. The outlook now in many computer parameters is considerable slow evolution, hardly any more a set of quick revolutions.

For confirmation of this thesis, let's take as an example an issue of another magazine in the computer field: *Datamation* for October, 1972, 188 pages. The first two articles are "File Management Systems Revisited" and "A Review of File Management Systems". In the first article, the author estimates "that fewer than 1000 computer installations world wide are making use of file management systems today". But the number of computer installations is over 60,000; and so this topic is a portion of a part of the computer field. The next article is entitled "Initial Planning of Data Communications" — again a portion of a part of the computer field. The fourth article is "Extending the Life of DOS". Looking in the article to see what DOS means, we find that DOS means Disc Operating System and that the article applies only to a portion of users of equipment from IBM, only one of the suppliers. The fifth article is "How to Write a Readable FORTRAN Program"; it deals with a phase of documentation. I clipped out that article because I am interested in documentation. But again this is a portion of a part of a problem — not the constructing of any program in any programming language, but only providing information to help someone coming later who needs to understand a FORTRAN program. The sixth is "Management of Computer Failures in Clinical Care". This is a story of unreliable customer engineer service, and of a patient in intensive care at a hospital who died. (But the computer company which failed to give adequate service is not even named in the article!) The next article "Election Day Log" is a round-by-round account of some voting versus computer failures and successes. The last article is entitled "International Push for Instructional Computing", again a portion of a part of a subject. Not one of these articles has a broad subject.

Suppose we concede the change in the computer field, and look at the consequences.

1. What are the central computer field subjects that are broad (not narrow), which should be interesting to most computer professionals, and which are worth discussion in a monthly magazine? Not very many any more, although here is one:

- Frontiers of Programming — as for example a way for modifying any computer program just as easily as telling a human clerk to change his procedure.

2. What are the noncentral subjects related to the computer field which are likely to be interesting to many computer professionals and many non-computer people and which are worth discussion in a monthly magazine? Here are some suggestions:

- Computers and Society: how computers can be a benefit to society and not a harm — such problems as:
privacy; credit; dictatorship; more and faster justice; more honesty and less stealing; etc.
- Computer-Assisted Occupations: the computer-assisted typist; the computer-assisted psychiatrist; the computer-assisted doctor; . . .
- Computer-Assisted Education: the interactive computer, as teacher, drill sergeant, tutor, calculating prodigy, experimenting demon, tester, scorer, guide, philosopher, and friend; . . .

These subjects are interesting, important, broad, and contain many problems of concern to society and business.

But are they a part of “The Computer Field” any more than gasoline pollution and excessive highway construction are part of “The Automobile Field”?

2. NO!

Montgomery Phister, Jr.
10551 Wyton Drive
Los Angeles, Calif. 90024

Thank you for the advance copy of your December editorial. I’m afraid, however, that I disagree with you in a most fundamental way. I am in the camp of the man who said, “After twenty years of explosive growth, the computer industry has finally reached its infancy”.

Your thesis, that the computer has reached a post-maturity state, is exactly the opposite of mine. To “confirm your thesis” by reviewing an issue of *Datamation* magazine is like confirming the thesis that all odd numbers are prime by drawing one odd number out of a hat — and coming up with the prime number 13. And your thesis is so far removed from what I believe to be the truth, that I hardly know where to start disputing you.

Basically, I argue as follows: Only a fraction of the country’s data is being stored, transmitted, and analyzed automatically today. It is the cost of automatic data processing which prevents it from being used more widely. Costs get lower every year. With the technology visible today, storage and logic costs will be 1/100 of today’s costs in five years. And I am optimistic that new technology will lead to still further reductions.

I thus see the industry continuing its growth, and accelerating its impact upon all of us by virtue of the fact

that units will continue to get smaller and more numerous, and will increasingly be visible and accessible to all of us every day.

It’s easy to find confirmation of the above trends. Look at the growth of “dedicated application computers”; look at the electronic slide rule; look at the calculator-on-a-chip.

In fact, the last two items on your list of interesting projects — “computer-assisted occupations” and “computer-assisted education” — seem to me to indicate that you agree with me about the future of the industry.

Perhaps our problem is that you agree with me that we will see digital equipment in (say) half the homes in this country by 1984, but that you nevertheless feel we are at present in a “post-mature” state. But at the beginning of your editorial you seem to define post-mature as a state in which all the important problems have been solved effectively.

I personally think we have a host of fascinating problems to solve between now and 1984.

3. COMMENTS

Edmund C. Berkeley
Editor, “Computers and Automation”

Certainly I agree with Montgomery Phister and many other computer people in predicting a tremendous expansion of computer and peripheral equipment, communications equipment, management computer aids, new applications of computers, new modifications, new implications, etc., as the years pass. In fact, I have predicted that computers will become more common than motor cars, and that computers or computing service can be extremely useful and extremely cheap. I am certain that computers will have far more revolutionary effects on society in the future than they have had to date.

But computers per se seem to me considerably less exciting now than they were in 1950 and 1960.

Take reliability for example. In 1950 the reliability of electronic computers was an enormous unanswered question. Nowadays electronic computers constitute some of the most extraordinarily reliable machinery ever produced by human beings. The possible increase of reliability in the future therefore resembles a percentage change from 99% to 99.99% — and that is not exciting to me.

In every new big industry of this century, a large percentage of the big important basic problems are solved in the first 25 years of the industry’s existence. The problems left over and still unsolved are likely to be much smaller problems.

Also, let’s compare computers with printed books. For Western civilization, printed books began in Europe in the 1400’s when the Gutenberg Bible was printed. Today, over 500 years later, books and literacy still have tremendous influence and implications all over the world. But do we find a group of over 200,000 scientists, innovators, engineers, business men, etc., combined in a single professional grouping, all calling themselves “The Book Field” and all working as hard as beavers to expand “The Book Field”? No — instead, all these various people are in sub-fields or in other fields, and books are taken for granted as much as ballpoint pens and electric motors.

Telephone Rate Structures: A Squeeze for the Average American

Francis J. Riordan
President, Nat'l. Assoc. of Regulatory Utility Commissioners
Commissioner, New Hampshire Public Utilities Commission
Concord, N.H. 03301

"The battle lines are clearly drawn in a fight to maintain a nationwide system of residential telephone service at a price within reach of the American householder."

Zugzwang for the Average American Consumer

I never thought I would see the day when the front pages of the nation's newspapers — ranging in stature from the most sensational of tabloids to the staid old New York Times — would lay out precious front page space for days on end to chronicle a series of chess games played by two grown men.

And yet, for several weeks this summer, there it was. Half the civilized world, it seemed, was following in great detail the Fischer-Spassky chess match and all of its ramifications.

One of the most intriguing aspects to me of all these goings-on was the fantastic lexicon of terms and phrases used in the world of chess. One word that particularly stuck with me was the German expression "Zugzwang."

In chess, a player is said to be "in Zugzwang" when whatever move he makes can only get him into more trouble than he is already in. Nothing he can do can improve his situation. We are told that Boris Spassky was in Zugzwang at the adjournment of the final game which he never resumed.

It seems to me that there must be times these days when the average American consumer thinks that if he isn't already in Zugzwang, he is headed there on a fast track.

Inflation, rising interest rates, wage controls, crime and the fear of it, decay of the inner cities, flight to the suburbs, deteriorating quality of education. Surely these and other facets of modern life must be enough to make a thinking man wonder upon occasion, if there is no move left open to him that will better his situation.

The Mission of Regulating Public Utilities

In a very real sense, it is the mission of the men and women who regulate public utilities in America to try and see that the consumer does NOT find himself in Zugzwang.

This, of course, is a tall order since the regulatory process touches upon so many facets of the human condition.

Nowhere, perhaps, are the battle lines more clearly drawn than in the fight to maintain an efficient nationwide system of residential telephone service at a price within the reach of the average American householder.

Rising Costs to Homeowners, Declining Costs to Affluent Users

For some time now, state regulators have looked on in alarm at the creeping trend of steadily rising telephone rates put upon the average homeowner while, at the same time, costs are declining to business and other affluent users.

Those of us in the regulatory community believe that the universal availability of reasonably priced telephone service is a key part of what some people call "The American Way of Life."

For that reason, we feel that by helping to ensure the viability of that service we are, in fact, fulfilling our oath of office to protect the "public interest".

I don't think I exaggerate if I say that it is the goal of those of us in the community of state regulators that each home in the nation should have a telephone to provide people everywhere the ability to quickly summon medical, police and fire protection when it is needed and to participate fully in the life of modern day America.

And yet, we see our goal threatened by the expanding trend that I mentioned earlier, of constantly increasing residential telephone rates.

Perhaps to no one is this goal so meaningful as it is to those in our society that are poor, disadvantaged, elderly and sick.

Presence of Telephone and Death Rate of Elderly

Only last January, the National Innovations Center, in London, England, released the results of a year-long study by staff members upon the relation-

(Based on a talk before the Digitronics Users Association Conference in New Orleans, La., October, 1972.)

ship between the availability of a residential telephone and the death rate of elderly persons. This study showed that the death rate among those senior citizens lacking telephones was double that of those with telephones.

Now the official title of this panel discussion today is "Does Regulation Protect the User?". Obviously, in the context of this conference, the word "user" refers to commercial organizations such as those that belong to this association.

Yet, I am sure that all of you must realize that for a state regulator there are more users of telephone service and its offshoots than simply those in business. There are many kinds of users ranging from large corporations to elderly pensioners living alone in a world that is not always friendly or hospitable to them.

If our only concern were, for example, the well being of firms and individuals that interconnected with common carriers, then our lives would be a great deal simpler than they are today.

Universal Concern

But, of course, our concern must be universal. We must consider the well being of all the citizens of our individual states and to do so requires a delicate balancing of a wide range of considerations to arrive at a policy that will provide the most benefit for what is called the "public interest and convenience."

This goes straight to the heart of what regulation is all about.

Cost Allocations

As a measure of the public interest, I should like to refer to the statement made by our NARUC General Counsel, Paul Rodgers, in oral argument before the FCC last January 22, opposing the entry of new carriers into the communications field. He spoke to a point which is little known outside of the telephone business or outside of telephone regulatory circles. That is the role that cost allocations play in the economics of the telephone industry.

Because most telephone plant and expenses are used or incurred in providing both toll service and exchange service, these costs must be allocated or separated between those which fall under the jurisdiction of the FCC — that is, the interstate toll portion, and the remainder — that is, the state toll and local service portions — which come under the jurisdiction of the state commissions.

Long Haul Communications

Now telephone research and technology has borne its lushest fruit in the dramatic cost reductions which have been made in handling long haul communications. These cost reductions, together with substantial increases in long haul traffic volumes, have made this by far the most profitable segment of the telephone business.

Support for Research

The research and development efforts which led to these long haul cost reductions were supported, of course, by all telephone company customers, both those who use long distance services and those who do not. Consequently, the FCC and the state commissions, working together through the NARUC, have

taken advantage of these profits in two ways. Not only have the interstate long distance rates been reduced, but the cost allocation methods have been revised and refined from time to time, so that the interstate long distance service now bears a larger — though still insufficient — share of the costs of operation. By this latter means, it has been possible to keep the rates for local and state toll services lower by about a billion dollars a year, than would be the case if this more profitable end of the business were lost.

Excess Earnings

Our NARUC General Counsel hit the nail on the head when he said,

"Obviously, the only means of affording economic relief to local users, under existing technology and in this age of inflation, is to generate excess earnings in interstate operations and to 'flow-through' these earnings for the benefit of local users by allocating more of the cost of our national communications system to interstate operations and thereby affording relief in local operations."

"Housewives, local merchants, retired persons and the economically disadvantaged," he said, "are going to ultimately pick up the tab if there is to be a policy of wide-open competition to afford cheaper communications to interstate businesses."

I agree with our General Counsel's statement. The public interest is not confined by state boundaries nor by the jurisdiction of any regulatory commission.

Regulation is an Antidote

Regulation is, in effect, an antidote. An antidote for confusion, inefficiency, dishonest business practices, discriminatory business practices, and the periodic attempts by strong and vested interests to impose their will upon a hapless public that needs the service in question but is powerless to directly enforce standards of equity.

Industries Bring Regulation on Themselves For Failure

Historically, industries bring regulation upon themselves as a result of practicing or failing to prevent some of the characteristics I have just mentioned.

The telephone industry, without which there would be no such thing as interconnection or specialized common carriers, is no exception to this rule.

The development and congressional recognition of a common carrier communications system in the domestic telecommunications field was born of a period characterized by an "uneasy co-existence" of monopolistic and competitive market forces.

With the turn of the century the domestic telecommunications field was subjected to a competitive market structure, wherein independent companies viciously rivaled not only AT&T but each other for exchange markets, claiming to offer through the spurring of technological innovations, more diverse service and lower prices.

However, contrary to the benefits claimed, the competitive market structure produced wasteful duplications in the exchange market and increased costs to customers. Rate wars drove companies into

bankruptcy; telephone equipment was not standardized, thereby making interconnection difficult, if not impossible.

The Public Interest

The point to remember in all this, it seems to me, is that in this situation Congress acted to bring about the antidote we call regulation in order to protect the public interest.

We are a nation of many individuals and a relatively much smaller number of large and small businesses. It is the goal of government to provide an environment in which all can find a maximum of prosperity. Consequently, government must provide some restraints on those activities which favor a few at the expense of the many. Our regulatory agencies were established with this as their assigned task. Not everybody can agree as to how this task can be best accomplished. But it is my opinion that we who have been in regulation for a long time have fostered the development of a sound, well organized communications common carrier system in this country — one which is available to all.

I suggest that we had better take a long, hard look to be sure where the overall public interest lies before we tinker with its basic structure. I suggest that we not discount the past in our considerations of communications policy, for it is certainly true that those who do not learn from history are bound to repeat the mistakes of the past.

Residential Users vs. Affluent Users

Which brings us back to the fear of state regulators that a universal telephone system in this country at rates the average American can afford may soon become a thing of the past while business and other affluent users continue to enjoy improved services at reduced or minimal prices.

Increases and Reductions

For instance, early in 1970, at the same time the Bell System was seeking rate increases from state regulatory commissions totaling \$600 million for local and intrastate calls, it was granted a reduction of \$237 million in long distance rates by the Federal Communications Commission.

Since that time, the FCC granted an increase in long distance rates that brings the total net increase in such rates to a mere \$13 million since June 1, 1969. In the same period of time, the States have been forced to grant \$1.5 billion in rate increases for local calls and another \$1.1 billion in requested increases are still pending.

Local Telephone Service

The National Association of Regulatory Utility Commissioners (NARUC) has been and remains in the forefront of efforts designed to right this imbalance by lessening some of the burden on the American consumer and shifting it to more affluent users that can better afford it. After all, local telephone service is an integral part of the national and international toll network. It is the gateway to that network and without it, the toll network would be worthless.

The FCC Data Transmission Order

With this background in mind, one can understand then the concern with which the state commissions

view the FCC rulings that opened the field of data transmission to unrestricted competition, and liberalized previous policy regarding interconnection.

The data transmission order would throw open this specialized field along profitable, high density routes to all comers. The result would be loss of business and profits to the established carriers, and reduced rates for business users.

A major cut in profits to the established carriers as a result of this and a liberalized interconnection policy, would result in yet higher rates placed upon the residential users to make up the difference.

Thus, yet another burden would be placed upon the average consumer of telephone service who would, in effect, be subsidizing the reduced rates accruing to business users.

How does this square with the "public interest" that utility regulators are sworn to uphold?

Opposition to the Order

The answer is that it doesn't. For that reason the NARUC has adopted a position opposing implementation of the FCC specialized common carrier ruling and seeking to clarify the liberalized interconnection policy. The matter of the specialized common carrier ruling is currently before the courts and, it is hoped, a resolution may be expected soon.

In-Depth Study of the Order's Effect

On the subject of interconnection, the FCC has agreed to a request by the NARUC that it undertake an in-depth study to determine the economic impact of its liberalized interconnection policy on the vast majority of American telephone users who do not have occasion to use interconnect services.

This proceeding will have profound and far-reaching economic, social and political significance to all the people of the United States because it will directly affect the price they pay for access to the public communications network and the quality of service provided by it.

The Gateway Service of Residential Telephones

This issue may have more ramifications than simply whether it is business or residential users who get the lower rates. Business users would do well, I think, to dwell upon the aspect of telephone economics that I touched on a few moments ago — that of the immense network of residential telephones providing the gateway service without which there would be no long distance service.

Zugzwang

If spiraling rates were to deprive many American householders of residential telephone service, then the cost of maintaining the overall network will have to fall somewhere else.

And where else is there but business users?

If that extreme situation were to occur, then surely we should, all of us, consumer and businessman alike, be in Zugzwang as far as telephone usage is concerned.

And Zugzwang, Gentlemen, as Boris Spassky discovered this summer, is a bad place to be. □

Does Telephone Regulation Protect the User?

Bernard Strassburg
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"The Bell System perpetuated a position of dominance by an amalgam of practices and policies which until recent years were accepted, if not endorsed, by most, if not all regulatory agencies, and these policies and practices foreclosed any form of competitive entry into the market for communications service."

The combined revolutions which have been taking place in communications and related technologies have posed a variety of problems and opportunities for the communications industry, communications users, and the regulator. Here I wish to examine the effectiveness with which regulation has been responding to the challenges posed by these revolutions.

The Regulatory Task is Not Easy

Like all other public and private institutions, regulation has its strengths and weaknesses, its successes and its shortcomings. But whether you score it higher on one side of the ledger than on the other, I know that you appreciate that the regulatory task is not an easy one. It is particularly difficult in the communications field where technologies and consumer requirements have been changing and growing at a most dynamic rate. The challenges presented to the regulator by these phenomena are staggering ones and, at times, almost insuperable. They involve the task of integrating old technologies with such new technologies as broadband cable, computers, satellites, lasers and repeated breakthroughs in the more efficient use of the radio spectrum. They involve the task of channelling the inherent benefits of these advances to serve the public interest in the availability of expanded and efficient communications services on economic terms.

Resources for Doing a Job

By and large, the regulator does not lack the will or commitment to do the job. What he most often lacks are adequate resources and skills to approach the task in a timely, informed, and effective manner. This is due in a large measure to the fact that regulation is too often treated as the ugly duckling in the brood of state and Federal bureaucracies when it comes to legislative action on regulatory budgets.

This condition was meaningfully dramatized on a national scale only last December when the FCC dismissed a part of its rate investigation of the Bell System. We took the unprecedented action simply because we did not have the staffing required to deal with the matter. It was the Commission's view that because of the importance of the issues involved to the public and the Bell System, no investigation was

preferable to one which would otherwise be a sterile ritualistic regulatory performance without meaningful or credible results. The Commission's action shocked the public and its representatives into an awareness of the regulatory plight. Substantial funds have now been made available, and the investigating staff is proceeding to do the job that our statutory charter of 1934 mandates should be done.

The 1916 Bell System Policy of President Theodore Vail

Equally important to a realistic assessment of the effectiveness of regulation in the area of communication is an understanding of the problems presented by the structure of industry. For the principal force in the industry is of course the Bell System which has been mainly responsible for this nation's preeminence in communications. However, built into the warp and woof of the Bell System is its historic corporate policy of maintaining a dominance in all elements of communications service. This policy was articulated in 1916 by its then president Theodore Vail who wrote:

"The telephone system to give perfect service must be one in which all parts recognize a common interest and a common subordination to the interests of all; in fact it must be 'One System', 'universal', 'intradependent', intracommutative, and operated in a common interest. Such is the Bell System."

The Bell System perpetuated this position of dominance by an amalgam of practices and policies which until recent years were accepted, if not endorsed, by most, if not all, regulatory agencies. These policies and practices foreclosed any form of competitive entry into the market for communications service. They blocked the interconnection of customer-owned equipment to the telephone system. They restricted interconnection of non-common carrier systems with the telephone network. And they controlled the rate of technological advance and innovation through vertical integration of the telephone companies with Western Electric and Bell Laboratories.

The Vail Era

These policies and practices perhaps were defensible and in the public interest in the Vail era of Plain Old Telephone Service; when the market for that service was predictable, steadily growing, and relatively homogeneous. Standardized service was the order of the day; economies of scale were dem-

(Based on a talk at the Digtronics Users Association Conference, New Orleans, La., October 1972.)

System of Standards

onstrably extensive; and new technologies were easily adapted by Bell to the established system. Within this industrial and technological context, the concept of the natural and omnipresent monopoly found a ready and logical basis for acceptance by the public and the regulator.

Post-War Changes

The post-war revolutions in communications and information technologies have, as we all know, radically altered the makeup of the communications market. Those revolutions have produced a requirement for a diversity of services and facilities either unavailable from the established carriers or at charges which were too costly. The FCC's computer inquiry elicited many responses that amply supported the conclusions that additional sources of supply would greatly enhance and improve the nation's capability to satisfy modern day communications and information system needs.

Competition

In response, the FCC has made an earnest attempt to reshape traditional policies so as to better adapt industry structure to these changing conditions of supply and demand. By various policy actions, the FCC has sought to open up the communications environment to the technical and innovative capabilities that exist outside of the existing carrier establishment. These new policies, of course, tend to disturb the established order. They introduce the opportunity for competition in areas that have heretofore been the exclusive preserve of the monopoly. And the full extent of the economic and social benefits that will inure from these policies remain to be demonstrated by experience. Under these circumstances, it is not surprising that these policies and their implementation are born in an atmosphere of opposition and controversy for which the FCC serves as both the forum and the target.

It is not possible here to go into all of the policy development of recent years. However, I want to say a few words about interconnection which currently poses one of the more complex and controversial issues of general concern.

An Unlawful Prohibition

Four years ago, the Commission condemned as unlawful the telephone industry's general prohibition against the subscriber's use of equipment not provided by the carrier. AT&T responded with revisions to its foreign attachment tariffs which established a large measure of customer freedom to purchase or lease equipment from non-carrier sources.

Hard-Wired Connections

The one principal restriction imposed by the new tariff related to customer equipment which was to be hard-wired to the switched telephone system. Interconnection in this case is permissible only when accomplished by means of a connecting arrangement and, as required, by a network control signalling device furnished at a charge only by the telephone company.

Whether these latter restrictions are reasonable or not has not been decided by the FCC. They have been accepted, at least temporarily, as necessary and realistic while we take a look at other possible alternatives. This is because of the concern — concurred in by a National Academy of Sciences study — that uncontrolled hard wire interconnections could have adverse effects on the safety and functioning of the telephone network.

At the same time, there is widespread dissatisfaction with the connecting arrangements imposed by the revised tariffs. Independent manufacturers and distributors argue that the arrangements are onerous, unnecessary and economically burdensome. They contend that they are placed at a competitive disadvantage with the telephone company and are at the mercy of the latter for timely installation of suitable connecting arrangements. The NAS study pointed to an alternative to such telephone company imposed arrangements, namely, a system of prescribed standards for customer owned and maintained equipment, including a program of enforced certification of such equipment as well as certified installation and maintenance.

For the past year or more, two FCC-created Advisory Committees have been wrestling with the formulation of standards and enforcement procedures. The problems are many and difficult; so their progress, while steady, has been necessarily slow. A major hangup within the Committees has been in trying to agree on the specific nature and degree of harm to which the network would likely be exposed by interconnection — and from which the network must be protected by a system of standards and enforced certification. Of course, the degree of protection required will determine the cost effectiveness and viability of any such program. AT&T contends for standards and procedures that would give maximum safeguards against types of harm that many non-carriers regard as highly remote and more theoretical than real.

Lack of Evidence of Harm

AT&T has been unable to come forward with adequate empirical data as supporting evidence of the types of harm it claims could occur from interconnection. Such evidence should be available inasmuch as unauthorized interconnection is not a recent phenomenon. Some industry sources estimate that illegal interconnects are running in the several millions. Nevertheless, we have very little documentation from AT&T as to either the performance or the number of illegal interconnects or their effects on the network and Bell has devised no program by which to obtain such data. Our concern is not only with the alleged number of illegal interconnects, but also with the growth rate of such installations.

It appears clear that only the telephone companies are in the most favorable position to gather this type of essential data. Despite the fact that the Commission has asked Bell and other carriers to provide us with these data, it has not yet been supplied. The Bell System should now undertake an objective survey to determine the extent of illegal interconnection and the incidence and character of actual as opposed to theoretical harm. Without such information it is difficult to assess the credibility of AT&T's claims with respect to actual or potential harm. If the potential impact of harm to the network is as central to the issue of liberalized interconnection as Bell contends, Bell is obligated to supply the necessary data or abandon its dogmatic position that interconnection requires standards and procedures of the utmost vigor. Or, to put it another way, if the carriers do not view this matter of sufficient importance to collect the necessary data, then certainly we can question the basis for the strong concerns they voice. Finally, let me stress that while we are earnestly concerned

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Telephone Service :

The Rules of the Game When the Game is Changing

T. L. Simis

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"The old goal was pricing the service so as to make it accessible to people of all ranges of income, and to make the small communities as accessible as the large metropolitan areas. But recently the FCC has said that it believes the advantages of competition will better serve the public interest — will it?"

We are of course concerned for the availability, quality, and cost of data communications services — both present and future. We in the Bell System share that concern with many other persons, only from slightly different points of view. So these remarks will be made as candidly as possible.

The questions I shall touch on are:

What are our new data system products?

What is the current status of our digital data system plans?

What are some of our observations about recent competitive and regulatory developments that specifically relate to the future of data communications?

Construction and Service

The last year has been a progressive year in the communications field — particularly within the Bell System. Our 1971 total construction expenditures were about \$7.6 billion. A sizable portion of those dollars were used to add some 28 million circuit miles to our network's diverse transmission facilities. Approximately 4 million of these circuit miles were digital facilities.

Our customers — you among them — completed over 125 billion calls of which almost 8 billion were long distance.

About 13,000 organizations, some very large, some very small — dispersed throughout the country used our network for delivering and collecting their data. They tie over half a million data terminals into the network, and that number is growing at a rate of about 30% a year.

Automatic Data Test Center

Our first new automatic data test center is now in operation in Dallas, Texas. This center can test up to 100,000 data terminals under control of a centralized computer at a fraction of the time it used to take to do the job manually. Additional centers are planned and will be installed as the volumes of testing requires them.

(Based on a talk at the Digitronics Users Association Conference in New Orleans, La., October, 1972.)

The new technical support plan for data services is well into the implementation stages. This plan, referred to as Datec, brings specially trained technical experts in each Bell System company to the prompt assistance of local installation and repair forces. Procedures have been introduced which call data problems to the attention of these trained experts in the early stages — before things get critical. Also, an accelerated program is under way to provide them and local repair and installation forces with the latest data test equipment and methods.

Data Access

In the last year we also introduced two new data sets. The first, the Model 113B, was added to our new low-cost, low-speed series of sets aimed at the time-sharing market. The second, the Dataphone[®] 4800 data set, is the first of an all new series of low cost, medium speed sets utilizing LSI technology. You will be seeing additional sets in this series within the next year. In fact, models operating at 2400 and 9600 bits per second are now being tested.

Today, there are over 20,000 data access arrangements in service. We are actively participating in the FCC's two advisory committees regarding the possible elimination of these interface devices without causing harm to the network.

Terminals

We have not said much about terminals recently. We have our reasons, but lack of activity back at the shop is not one of them. First of all, it is our practice to know what we're doing before we begin touting it. Secondly, in a competitive environment — and I am sure you would agree that the terminal area is one of the most competitive portions of today's data market — one does not talk too loudly about a product until it is close to introduction.

At the present time, we have what we believe to be a very attractive alphanumeric keyboard terminal with information monitoring features undergoing final product trials. Dubbed the Dataspeed 40[®], it should be introduced sometime next year.

Our digital data system program is progressing very well. We plan to file an initial construction application for the necessary transmission facilities with the F.C.C. shortly.

This initial application will cover facilities required to provide two-point service between five cities which should be in service by mid-1974: Boston, New York, Philadelphia, Chicago and Washington, D.C. By the end of 1974 some 24 cities should be in service, and about 96 at the end of 1976. Multi-point service will be offered in early 1975 and switched not long after that.

Speaking candidly, as I promised — DDS should provide you with better data transmission service in terms of lower error rates and higher throughput, minimal downtime and rapid restoral. Our design objectives are to provide end-to-end transmission performance with no more than one error second in 200 seconds of transmission at 56 kilobits per second and even better performance at the lower speeds of 9.6, 4.8 and 2.4 kilobits. Downtime will average between three and four hours per year and our restoral objective, for maximum duration of a single outage is two hours.

Certainly, these objectives recognize the perishable nature of your business data in this fast-changing world of ours.

Data Under Voice

The technology we call DUV, or Data Under Voice, is presently undergoing field trials. By late in 1973, we will be using this technology to supply our Dataphone 50 (switched 50 kilobit) facilities between Chicago and New York.

Briefly, for those of you who are not familiar with DUV, it is a method developed by Bell Laboratories whereby a digital bit stream of 1.5 million bits can be derived from the baseband frequency on most of our existing radio relay channels — generally without sacrificing any voice circuits.

We've termed this capability Data Under Voice because the digital signal rides on frequency bands below those normally used for transmitting telephone calls.

We plan to use DUV technology in providing the initial long haul digital highways for our DDS system: a system which is just one more component of a growing spectrum of nationwide network services.

Social and Economic Issues

Now, I shall turn to the social and economic issues contained in the current public questions on competition and interconnection in the telecommunications industry, questions which go straight to the foundations of the industry — and in fact to the foundations of our nation's economic and social goals.

Maybe the best way to understand how recent changes in these areas are likely to affect both the telecommunications industry and certain social and economic issues is to look at the history of development of the telecommunications industry.

A Universal Service

With the goal of a universal service, available to all at the lowest possible price consistent with

financial safety; supplied under conditions of government regulation and high barriers to entry; and in accordance with the policy of avoidance of social discrimination in prices to all customers for particular service offerings, we have built an extremely high quality and ubiquitous communications system.

The key to the attainment of this goal was pricing the service so as to make it accessible to people of all ranges of income, and to make the small communities of our nation as accessible as the large metropolitan areas in a communications sense.

Residence Service Priced Low

Accordingly, residence telephone service was priced low and business service somewhat higher. This practice became a part of the concept we have called value of service pricing. The short-fall of the station installation, move and change charges, was folded into monthly recurring and toll charges. Calls to and from isolated communities were priced at the same rate as calls between big cities — if the distance and time involved were the same. This concept became a part of what is frequently referred to as nationwide average pricing policy.

Basically, total revenues covered total costs. That's all that mattered as long as customers got good service and telephone development grew to serve the public interest. Some economists would say that this concept is not economically sound. Yet the overall social goals were considered worthwhile and were openly accepted by the public, the regulatory agencies, and by Congress.

The ubiquitous nature of today's telephone service suggests that these policies were good ones and they served the public interest well.

Competition

Recently, the FCC has said that it believes the advantages of competition — for these times — will better serve the public interest than will the policies of the past.

Consistent with that philosophy, they licensed specialized common carriers to engage in inter-city communications, which of course has developed on heavy usage routes. The introduction of this type of competition brings to light a new concept which could be called avoidance of economic discrimination. This new concept is not reconcilable with the older, well established, public interest criterion of avoidance of social discrimination.

By definition: social discrimination exists whenever two buyers pay two different prices for the same product or service; economic discrimination exists whenever two buyers of the same product or service at the same price cause the seller to incur different costs. In the real world of changing technology, where production and distribution facilities are located in space and time, there are as many different actual costs as there are customers.

Social Discrimination and Economic Discrimination Conflict

The only time the two criteria of non-discrimination can converge is in the imaginary world of: static costs; costs not influenced by geographic location or volume; a world where technological advances are not allowed. In this world, economies of scale, an underlying reason for the existence of

regulated common carriers, is not only inoperative, but must be forbidden. If allowed, or technological advance occurs, the conflict between one or the other type of discrimination must emerge.

This confrontation of two norms gives those advocating competition as in "the public interest" a real dilemma.

This dilemma might best be expressed as a question: is "the public interest" better served by substituting one form of discrimination for another (that is — social for economic), by introducing competition into the common carrier field? In order to have real competition in any segment of the common carrier business, that segment must stand alone in its cost/price relationship.

Simply put, competition means the end of value of service pricing — or end-to-end pricing. If inter-city competition is found to be in the best public interest — which is not all that clear — then we will modify our past policies to the extent necessary to enable us to compete effectively. Any other course of action would not only adversely affect our shareholders and us as a business, but would also deprive the public of the benefits which competition is supposed to offer.

Readiness for a Two-Level Rate Structure

Specifically, we recently announced our readiness — should competitive necessity require it — to adopt a two-level rate structure for our inter-city private line services that will reflect the very significant economies of scale that we enjoy on our heavily trafficked routes. Of course, this structure must also take into consideration the higher cost of routes of less traffic. This will bring advantages for some and disadvantages for others. Those of you who would pay less will be happy; those who would pay more won't like it.

There is, perhaps, an even more critical question regarding this new competition. That is, in the long run, will the public as a whole pay more or less for its total communications needs under competition? Parenthetically another question is, of course, implied: Will the obvious benefits of economy of scale that are now attained in inter-city telecommunications slowly deteriorate?

The Rules of the Game

Since the issue of inter-city competition arrived on the scene, our stand has been — and is — that if competition is to benefit the customer, it must be real and fair — everyone under the same rules of competition. Division of the market is not competition; and regulation that might protect the new entrants into the field from real competition would be tantamount to market division.

Recent signs indicate a "change" in outlook by some of the new specialized carriers. These carriers in their applications for licenses regularly urged before the FCC that competition in communications was highly desirable. They said frequently — in various ways — that there should be competition.

Some of these same carriers also originally stated their intentions of providing end-to-end service — including the end-serving links.

Today these same carriers are not only asking that we be excluded from the private line market,

but they are also asking us to provide them with local serving links.

"Turnarounds"

While both of these "turnarounds" might be viewed as natural progressions of attitude in time, they also quickly bring into focus the two major issues under competition that I've been talking about:

- First, if there are advantages to the customer of competition over monopoly, then it must be true competition. Market division gives the customer no advantages; they all go to the selected entrepreneurs.
- Second, in a competitive world, existing common carriers must reprice services to assure that individual segments will stand alone in their cost/price relationships. Such segments must include serving end links which are now averaged as a part of end-to-end services.

Terminal and station competition, while not as recent an innovation, is receiving concentrated attention recently — in the name of the "benefits of increased competition."

Interface Device Requirements

The first regards the question of whether the requirements for an interface device, such as a data access arrangement, should be eliminated. Proponents of this move, mostly terminal manufacturers, claim that it would make it easier for customers to use station and terminal equipment not provided by the telephone companies, thus conveying the total benefits of competition to the user.

Regulation

The final decisions as to the terms and conditions under which customer-owned equipment may be attached to common carrier lines will be made by regulatory bodies. As I mentioned before, the FCC has two advisory committees studying part of the problem. But just the same, a number of other questions should be carefully explored.

First, what is the potential harm to the network if the protective interface is eliminated? This, of course, is the one area being explored by the FCC, but other important questions exist.

For instance, what will be the overall effect upon quality of service? It's quite possible that service can be adversely affected without causing actual "harm" to the network.

Also, what is the potential effect upon the rates for other telephone services, particularly basic exchange service?

It appears to us that a great increase in customer owned equipment may tend to increase, at least to some degree, the revenue requirements from other basic services. Part of this would result from the loss of supplemental equipment revenues which now support basic service in some areas.

What about the regulatory jurisdictional problems? How will the customer receive the best service — via FCC or state regulatory? Or a joint effort?

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The Present Role of Governments in the World Computer Industry

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"Most industrialized nations today recognize that the computer art is the cornerstone of their national defense and their national economies in the future."

We are all in one way or another members of a very exciting industry at a very exciting time. In global terms, the computer industry in the last half of the Twentieth Century is the fastest growing industry on earth. If one compares world Gross National Product with world computer growth, one can understand the significance of this pace. In the 1960's world GNP grew at an average of four to six percent world-wide. World computer growth ran at an average of fifteen to twenty percent. In the 1970's most economists estimate world GNP growth at three to five percent. Computer growth throughout the world will run at the twelve to eighteen percent annual rate.

By 1990 computer growth on a world basis will be running at two to three times world GNP growth annually.

The causes of this phenomenon are well known. The world has a long term need for increased productivity as the prime way of coping with population, the environment and technology. And of course, the long-term world inflation trend will force the search for increased automation.

By 1990 the information industry may be the world's largest. Because of this increasing world importance, it is easy to understand the growing concern on the part of governments and the public regarding this industry.

In this article I seek to review the role of governments in the world computer industry. Suppliers, users, and shareowners all have a strong business stake in the computer industry throughout the world. The same is true for makers of systems of peripherals

equipment, components and circuitry, software, management counsel and advice.

There is a division of opinion in the computer industry regarding the role of governments. In this article I would like to advocate a strong free trade approach, and ask that this be considered on its merits.

History

Government involvement in the computer and electronic industries, of course, is nothing new. It has been a matter of public policy at the national level in the United States for many years. During and following World War II, our own federal government played a major role in the development of electronic data processing equipment and components. Basic research that provided us early circuitry, logic, memory and scientific programming routines is all due to government support.

Important as this work was for national defense and scientific uses, the immediate commercial spin-offs from it remained small. It grew our basic knowledge and understanding regarding data processing systems. But in large measure it has always been contained within the specialized scientific and defense establishments.

Clancy W. Spangle has been an executive vice president of Honeywell Inc. since January 1971, and is a member of the Honeywell board of directors. From 1960 to 1965 he was managing director of Honeywell's British subsidiary, Honeywell Ltd., where he was instrumental in establishing the firm's first European computer operations. Mr. Spangle graduated from Yale University in 1945 with a degree in mechanical engineering and from George Washington University Law School in 1952.

(Based on a talk at the Western Electronic Manufacturers' Association, October 1972)

The decade of the 1960's saw major growth in industrial and business applications of these machines. What had formerly been military and scientific curiosities blossomed into significant tools to handle the industrial expansion of this period. But government support of these applications remained small. Of the nearly \$4 billion spent by the total general purpose computer mainframe industry in this decade for research and development work, something less than ten percent can be attributed to government sponsorship.

Important hardware developments came from government support, from SAGE, BMEWS, the Apollo program and others — such concepts as multiprocessing, high-speed interactive processors, ILLIAC, MULTICS, etc. — but the major thrust of automation in the 1960's was supported by private industry. The progress of the industry was generated by the suppliers winning enough volume of business from users at prices that provided sufficient funds to support research and development for future projects.

With the advent of second generation computers, however, the federal government modified its procurement policies in favor of general purpose computers that offered a satisfactory compromise between the then current state of the art and costs.

As a result, the government's research and development support of the industry began to diminish, and corporate R&D grew significantly. The major thrust of R&D dollars in this period was in development work, not research, and the major achievement of the 1960's was in getting basic hardware state of the art more effectively utilized through the development of commercial applications and operating systems. This development work has been almost fully sponsored by private industry.

Contribution to Balance of Trade

At the time this R&D trend was occurring in the 1960's another trend was occurring of even greater importance. U.S. commercial computer equipment and applications were becoming the dominant force in world automation. The spread of U.S. technology in EDP during the 1960's is probably the dominant international business development of that decade.

From 1963 to 1971 U.S. exports of computers and related equipment increased nearly seven times, from \$180 million to almost \$1.2 billion. You may not be aware of the contribution this made to the U.S. balance of trade. During that same period the contributions of these exports to the U.S. balance of trade rose from three percent in 1963 to more than forty percent in 1971.

You can be sure that the major computer suppliers recognize the importance of international markets during this period. You all can recall some of the basic indicators. World Trade Corporation represented forty percent of IBM's total revenues and more than fifty percent of its earnings last year.

Honeywell Information Systems today generates more than fifty percent of its revenues outside of the United States, and more than fifty percent of all its customers and employees are outside the United States, as well as a significant share of its earnings. Univac has approximately forty-five percent of its business outside the United States.

During the recent recession of 1970-71, the computer industry in the United States was affected for the first time. It was clearly no longer recession-proof in today's mature U.S. marketplace. However, overseas revenues continued to march forward. In 1971 they increased something more than fifteen percent as compared with less than five percent at home. Those suppliers who had healthy business balanced between Europe and the United States fared much better than those who had most of their eggs in the U.S. basket.

The American-based computer industry today supplies the majority of all international computer markets. It is already doing eighty-five percent of the world's computer hardware business and seventy-five percent of all non-U.S. computer business. Sixty percent of the computer industry's shipments were outside the U.S. last year, including half the shipments of the U.S.-based manufacturers.

Last year, moreover, U.S. computer companies repatriated more than \$375 million in foreign earnings — and this was in addition to leaving behind at least as much investment for future growth.

These developments, I believe, are a reasonable indication of things to come.

The world computer market is expected to grow at a rate of fifteen to eighteen percent a year during this decade. The U.S. computer market, meanwhile, is projected to grow at a rate of ten to twelve percent.

The industry is already one of the largest in the world, and continues to be one of the fastest growing businesses as well.

We estimate that new computer users throughout the world entering the market will equal the total number of today's installations during the 70's. Most of these, I should note, will be for small companies using their first computer. And more than half of these installations will be outside the U.S.

Growing Restrictions

It has been as a response, frankly, to the overwhelming U.S. domination of the world computer market and the promise of future international growth that many foreign governments have undertaken to prop up national computer and component suppliers or establish new ones.

Most industrialized nations today recognize that computer art is the cornerstone of their national defense and their national economies in the future. The pressures of inflation in Europe and continued demands for national defense are closely linked to computer competence.

Let me cite the major national activities:

In the United Kingdom, the government announced recently a \$37 million subsidy for International Computers Ltd. for research and development for the next eighteen months. The government also reaffirmed its policy of extending government tenders to ICL only for the machines which ICL can supply. In other words, other companies are barred from bidding on government installations, even when the products bid would be produced completely in the U.K. by British nationals. More important, the British government user is barred from the opportunity of gaining the best available system.

In France, the French government continues to subsidize CII at a rate of about \$40 million per year through various methods. In addition, the French government, operating through "Plan Calcul," discriminates in favor of CII on certain government purchases.

The entire government market is not excluded to other companies, but major segments of it are. The government has also expressed an intention to convert a major share of present government installations to CII equipment. Government installations represent some fifteen percent of the total base.

In Germany, the government has announced its plan to spend about \$200 million over the next four years for subsidies for the universities and industrial concerns for the advancement of the computer industry. Although there is no formal policy of discrimination against government purchase of non-German computers, it is very difficult to obtain such business, even with superior systems and support.

In Belgium, the government made an arrangement two years ago with Siemens and Philips in which, in consideration of Philips and Siemens agreeing to build certain non-computer manufacturing facilities with Belgium, it was agreed that fifty percent of all government purchases for the next five years would be from one of the two companies. Unfortunately, they also stipulated a minimum volume based on the projections of future government purchases. The minimum amount has, in fact, exceeded the entire requirement for the Belgian government, so the result is that one hundred percent of the government purchases are being directed to these two companies. The principal beneficiary is Siemens.

In Japan, Japan permits no imports of central processing computer equipment, although peripheral equipment restrictions have been liberalized. The Japanese government also subsidizes the Japanese computer manufacturers by an amount of \$300 million for three years. Also, the Japanese government sponsors a Japanese computer rental company to which "non-Japanese" companies are excluded from participating.

Total R&D subsidies from governments in these countries amounts this year to more than \$100 million, spread among three national firms. That's about the same as this year's R&D expenditures for Honeywell Information Systems alone, and less than one fourth that of IBM.

The ultimate impact, of course, on the government user in the countries may be significant in time.

1. He will pay higher prices for the equipment.
2. He will add taxes to support the government subsidies.
3. He can only end up with equipment inferior to those governments who do not have such restrictions.

In Europe as a whole, these efforts have extended beyond individual countries, and there appears to be a movement to persuade non-computer producing countries who are members of the European Economic Community to discriminate in favor of those countries within the EEC. This appears to be a concerted attempt to extend the non-tariff trade barriers beyond the particular country into the entire trading block.

This kind of foreign government support to national computer firms is not restricted to scientific or military projects as it has been in the U.S. in the past.

Supports are across the board in all major commercial development and application work. Restrictions against bidding for government business, of course, are more significant. The government markets for computers in Europe collectively total something more than twenty percent of the entire computer marketplace in Europe. If such restrictions against outside bids from U.S. firms were to be completely successful, then approximately twenty percent of the entire European market would be removed from competition.

Today by comparison, of course, U.S. government provides very little R&D support to U.S. firms of the kind now being provided by foreign governments. For the most part, U.S. research and development is restricted to highly specific, experimental systems. The bulk of R&D work is carried on privately by independent firms. Of the industry's total general purpose R&D expenditures of about \$1 billion this year, less than five percent is government funded. And many of us receive almost no direct benefit from such funding.

Dependence on Trade

If the U.S. computer industry has such a major stake in international markets, then we certainly face significant losses in domestic employment if such European restrictions are successful. The imposition, of course, by the U.S. government of restrictive international trade measures such as the Burke-Hartke Bill, would guarantee that the international restrictions being considered would take effect and would be successful.

For example, imposition against the United States computer suppliers of the restrictions by foreign governments of the kind I have described would cut U.S. industry exports at least sixty percent and cause further U.S. unemployment of about 20,000 people in this industry. I cannot estimate the impact that would have on the electronic components industry, but I am sure that you can rapidly extrapolate the effect.

In Honeywell Information Systems, for example, we have estimated that overseas sales support more than one-quarter of our engineering force in this country.

In other words, overseas business makes possible jobs for more than 800 Honeywell engineers in Boston, Oklahoma City, and Phoenix. Since we produce in these places the very successful Honeywell 6000 series for shipment to overseas markets, substantial numbers of our production force in Oklahoma City and Phoenix could be affected. Preliminary estimates tell us something over 2,000 jobs might be involved. Again, I believe that those who know the circuitry of the 6000 series and similar large-scale computer systems can estimate the circuitry content involved and that they can extrapolate rather quickly the total impact of such systems upon the semiconductor industry.

U.S. Government Practices

In contrast to other national governments, the U.S. government requires competitive bidding on major procurements. The principle is laudable, but the practice is not.

Rather than acting as a support to the U.S. computer industry, government competitive bidding in effect de-subsidizes the industry. All too often it leads to price-cutting and unrealistic bids for equipment in an effort to load plants or win follow-on business at more favorable terms.

And while foreign governments provide research and development support, ours provides virtually none that has any potential use in commercial equipment and applications. For the most part, research and development here is done by the companies themselves.

On the other hand, U.S. government restrictive measures as embodied in the Foreign Trade and Investment Act of 1972 — the Burke-Hartke Bill — and in companion measures would seriously restrict world trade which the U.S.-based computer industry now enjoys.

These measures, of course, are designed to protect U.S. industries from foreign competition and restrict the "exporting of jobs" through investment in foreign facilities. But in the case of the computer industry, we are not threatened by floods of imported equipment. Very few computers are brought into this country. In fact, Honeywell is the only supplier today which imports any computers in any quantity into U.S. markets. We bring in the Series 50 small-scale system produced by Honeywell Bull in France. And this system creates jobs and customers for us in the U.S. that we could not have gained otherwise. Restricting its importation would eliminate jobs and service to U.S. computer users without producing any positive benefit to the U.S. economy.

It would, of course, eliminate jobs in France and contribute to the national outcry to eliminate U.S.-built computers being shipped into France. Thus the cycle of retaliation would be completed to everyone's loss.

Benefits of Trade

Recent studies show that international companies increase their domestic employment at a higher rate than those of companies which conduct their businesses primarily in the U.S.

A U.S. Chamber of Commerce task force found that international companies increased domestic jobs thirty percent during the past decade. This is significantly higher than the national increase during the same period.

A Harvard Business School team recently reported that foreign investment has a strongly favorable effect on the U.S. economy and on domestic jobs. It estimated that about 250,000 U.S. production jobs would be eliminated without U.S. foreign investment. This is in addition to other findings that estimated 250,000 managerial and technical positions in the U.S. depend on overseas operations.

Thus, if one adds 100,000 support workers, the total work force in the U.S. that derives from investment abroad is 600,000 persons.

In terms of productivity, companies with the greatest growth rate abroad often have a correspondingly significant growth rate at home. Honeywell's domestic sales, for example, increased from \$395 million 1961 to \$1.1 billion last year. During the same period, overseas sales rose from \$75 million to \$751 million.

This sales growth at home could not have been accomplished without a corresponding growth in foreign investment.

In other words, we need our foreign operations for sales of locally produced products and for exports. This is especially true of computer exports where our strong computer subsidiaries in Europe represent primary marketing areas for all of our domestic computer systems. Without these European subsidiaries, and the sizable investment they represent, our foreign computer revenues would be ten percent of what they are today.

We have also found that our foreign investments have not replaced U.S. exports. Rather, foreign markets have stimulated our export of many items, such as subassemblies and components.

Overall, the ratio of Honeywell exports to total U.S. sales, both domestic and export, increased from 1961 to 1971, and the percentage of U.S. factory output devoted to the export market also rose.

Significantly, we are not exporting jobs when we invest in overseas production. For Honeywell as a whole, domestic employment rose 17,000 from 1961 to the 55,000 of last year, and our foreign employment increased 32,000 to 39,000, including the General Electric interests. While our domestic employment was rising forty-five percent during this period, industries that invested primarily in the U.S. were growing an average of only fifteen percent.

Conclusion

For these reasons, I am convinced that U.S. restrictive trade actions would result in a trade war with Europe, and would be an economic and political blunder of considerable magnitude.

In sum, a protectionist U.S. trade policy would increase costs at home, diminish exports, reduce U.S. payrolls, and ultimately hurt the consumer.

We have established a task force in Honeywell to document the impact these actions might have upon our major operations in each of the industries in which we participate. Such documentation in each of our businesses would establish a valuable base of understanding of the magnitude of the problem.

If one looks ahead, it is precisely in the industries with high technological content that the U.S. has its only chance of maintaining a positive balance of payments. It is unlikely that the U.S. will be able to generate or maintain the favorable balance of trade in those industries which have a high labor content, which have a large raw material requirement, or which are bulky and incur heavy freight charges in their distribution. The computer industry has none of these attributes, and because of the strength of the U.S. companies, this industry is one of the few which can help to rebuild the U.S. balance of trade position with the corresponding influence on its balance of payments.

If the U.S. is not to lose this present and potential contributor to its trade activity, strong steps must be taken by the U.S. government to eliminate the subsidization and discrimination in other nations. And we here must take strong steps to urge rejection of similar restrictions being proposed at home. □

The High Cost of Vendor's Software Practices: Why?

Raymond E. Boche
Computer Center Director
California Polytechnic University
San Luis Obispo, Calif.

"Reasoned use of the question 'Why?' is always a powerful weapon against organizational complacency."

Buzzwords

In my role as director of a college computer center with a modest IBM 360/40 installation, I attend quite a few off-campus meetings and talk with many interested alumni and parents visiting the campus. After a few phrases of hardware description, opening conversational gambits will inevitably turn to the question of operating systems: "OS or DOS?" — Answer, "OS." Next question, "What version are you on?" Well, I suppose I should have known, or at least taken a cue from Stephen Potter and spouted a random collection of buzzwords with a patronizing air. By the time I learned to recognize this dialogue as pure social chit-chat, I had also learned what version we were using.

Esoteric Nonsense

Carefully reasoned use of the question "Why?" is always a powerful weapon against organizational complacency. I now know what version we are using, and I know that it's different from the version we were using at this time last year, but I still don't know why. There is an academic interest in understanding the why's of all that goes on around us, but I am relatively removed from the details of our system's programming and only moderately awed by the esoteric nonsense I frequently hear but rarely understand. (Usually, upon explanation, I discover that it is the same esoteric nonsense, slightly extended or slightly refined, that I was myself expounding ten years ago, before succumbing to the Peter Principle.)

Assessment of Costs

My sense of urgency in cutting through the fog to answer the question, Why? tends to reflect my assessment of the costs of whatever is transpiring. When a computer center is starting up and not yet running twenty-four hours a day, the marginal cost of going from one version of an operating system to another is somewhat obscured. Computer time? Well, the systems programmers fool around on graveyard shift anyway, and I attribute part of their time to self-education. Continually improved throughput, a greater variety of processors available, minimal user complaints, and no software down time contributed to a sense of complacency and the general feeling that somehow the benefits were exceeding the costs.

"Upgrading"

Now our environment has changed: exposure and education have snowballed demand (or desire). Prices and costs are rising; resources are fixed and frozen. Now even the simplest student job may require over twenty-four hours turnaround time. In this environment, the suggestion of our software staff

that we "upgrade" to a higher version of the operating system was one of compelling urgency.

No Pessimists

Along with asking why, it now became imperative to ask for careful estimates of needed resources, the most obvious being machine time. I've long observed that there are no pessimists in "systems programming", and that doubling their estimates is not too conservative for the initial installation phase. Even with the best of planning and preparation, a few loose ends inevitably remain to be tucked in, e.g. the operator on vacation loses a little time with an unfamiliar response, or the user wastes a run or two discovering that the obscure procedure he relied upon has disappeared in the simultaneous housecleaning that invariably accompanies a system "upgrade".

Direct Benefits, Definitely Negligible

The reasons "Why?" invariably testify that the new system will in some way do more. Believing that "There's no such thing as a free lunch", I rest assured that the "more" is going to go hand in hand with more overhead, more time, or more space. Specifically, what "more" am I to expect? A dozen or so specifics were identified for me. They were primarily the repair in an elegant way of bugs previously discovered and clumsily patched, some additional features for particular types of users, and modest improvements in efficiency for others. The direct benefits were definitely negligible. Costs were definitely high. Ask, "How long would these benefits have to accrue to justify the costs?" and it is apparent that we cannot conceivably justify the investment.

The Duel Between Hardware People and Software People

Then the moment of truth — "But we have to do it anyway." "Why?" "Or else we'll lose our support!" It seems that our maintenance services include a minimal diagnostic service to circumvent the classic duel between the hardware and software people over whose bug is whose. Thus we are intimidated by the vague threat that if a bug in software supported by the company last year is discovered this year in the course of hardware diagnosis, we may be liable for the costs of that diagnosis and its subsequent repair; further, that repair may be rendered more difficult by removing from supply and distribution "obsolete" versions of manuals and programs.

Disaster Insurance

Can we take those risks? Have we the funds to self-insure against them? We realize that a key element of our maintenance dollar (from our point of view) lies in disaster insurance for our hard-

ware. I've seen a bank of core go up in a cloud of black smoke, and the lesson could only have been more dramatic if I had been faced with the monetary consequences of recovery. Isn't the same true of our software? How much beyond our meager means could a subtle and elusive "hardware bug" that turned out to be "our software" cost us? The vendor's software last year — but ours this year, because we failed to pay our dues and keep up with "progress".

Operating System Versions Near to "Up-to-Date"

According to a recent CEA census, nearly 10,000 computers in this series of a size probably using an operating system have been installed, and I suspect that the great majority of those installations use a standard operating system and keep it within two versions of "up-to-date". The most popular operating systems are in versions numbered 20 and above in a series of hardware only seven years old.

5000 System Updates a Year

It is easy to conjecture that at least 5000 system updates per year take place. Even the optimists I know estimate many hours of machine time for an update. Thus, even if I have grossly overestimated (and I suspect the opposite), the costs to the industry, to us the users, are overwhelming — and I haven't included the enormous costs to the vendor in developing and distributing new releases.

Costs, and Higher Prices

Those costs can be passed on in higher prices, and benefits accrue in the increased consumption of computer time by the users in making the "mandatory" conversions. If a user detects a subtle benefit to his jobstream here and there, so much the better; his systems people will offer it as testimonial, and the vendor can rest assured that the costs will prove too elusive for analysis. If you are a vendor who never loses sight of the fact that, all idealistic claims to the contrary, your basic business is selling computer time, you can sell a dozen or so new large installations, and business is good. If you can't, you can release a new version of your operating system, and business is better. Our industry accepts the new releases; surely we must want them.

Tailfins, Chrome Portholes, etc.

For years, our automobile industry added tailfins, chrome portholes, and the like to satisfy the public wants. The cars sold, and hence the wants were "demonstrated". But economists have pointed out that the wants which can be demonstrated in the marketplace are restricted to the goods available; in an oligopoly that offers tailfins this year, and removes from production last year's lower cost model without tailfins, nothing can be concluded. Volkswagen and Datsun, in their ignorance, never discovered that the buyer wants bigger tailfins.

The computer industry is catching up; with all our real technical progress over the past decade, in our software releases I think I see some tailfins.

I hope that the ethical question that this article raises may spur someone to undertake a serious analysis of the costs to computer users of vendors' software practices. Regrettably, the costs of computing have been forced to dominate my attention in recent years. □

CORRECTION AND RETRACTION

1. Text of letter received from Mr. William W. Harper of Pasadena, Calif.:

Computers and Automation
815 Washington St.
Newtonville, Mass.

Attention: Edmund C. Berkeley, Editor

Gentlemen:

I have your letter dated September 27, 1972, and the copies of the September issue of your magazine, containing an article purportedly co-authored by me.

Please be advised that I did not author or co-author the aforementioned article, and that it was written without my knowledge or consent. I am definitely not pleased with its publication. Furthermore, Mr. Sprague's portion of this article contains many errors and gross misstatements of facts behind the RFK assassination case so that some type of retraction or correction should be made immediately.

If any further articles bearing my name are submitted to you for publication, please contact me PRIOR to publication so a problem of this kind will not arise again.

I hereby demand that you print a retraction in your next issue, stating very definitely that I did not co-author the aforesaid article and that the material therein set forth under my name was used without my knowledge or authorization.

I will greatly appreciate your cooperation in this matter.

Very truly yours,

William W. Harper

2. From the Editor:

A. The "Sworn Affidavit" and "Notes" by William W. Harper, which we printed in the September issue on pages 25, 26, and 27, are plainly a public record; and we reprinted it from the "Los Angeles Free Press" of January 21, 1972.

We regret very much that this material had the appearance of being a part of an article jointly authored by two persons.

What we intended was:

- (1) to present a report on "The Assassination of Senator Robert F. Kennedy: Proofs of Conspiracy and Two Persons Firing", and
- (2) to indicate that the report was put together based on information provided by two persons, Mr. Richard E. Sprague and Mr. William W. Harper.

Regular readers of "Computers and Automation" know that frequently we use a joint heading to entitle information provided by several different persons.

B. If at any time we publish an article that contains "errors and gross misstatements of facts", we invite any reader or any other person who knows of such errors and misstatements to write us and tell us them so that we can publish corrections. This is always our policy.

We shall much appreciate it if Mr. Harper would do so in this case.

There is substantial evidence (but not overwhelming evidence) that the assassination of Senator Robert F. Kennedy was the result of a conspiracy. However, most persons in the United States do not believe that. Consequently, it is highly desirable for those persons who do know portions of the facts to come forward with the information, so that this portion of history can be told truthfully instead of with lies.

It is not easy to select, edit, and publish only information that is true. The truth is a wily bird. In order to publish a close approximation to the truth, effort is required — effort by many people, and most of what people report is obtained by talking with other people, rather than by the scientific methods of observations, measurements, and instruments.

We earnestly ask for help from every one of our subscribers, readers, friends, and allies for a better world. There is too much deliberate lying going on by establishments and vested interests here and there throughout the world. The lying poisons the wells of information from which we all drink. Let us try to get rid of the poison.

Strassburg — Continued from page 12

with protecting the network from harm, we must avoid the imposition of "worst-case" restraints and costs premised upon unsupported apprehension. Data of this type would also be of importance to the Federal-State Joint Board on Interconnection which has been recently created by the FCC to evaluate the recommendations of the Advisory Committees and others regarding the interconnection problem.

The Illicit Interconnect Market

In citing the fact that there may be an available body of relevant evidence in the illicit interconnect market, I am not implying that the Commission condones that market. On the contrary, we share the general concern that uncontrolled hard-wire interconnection, if continued unchecked, would produce harm to the telephone system. Telephone subscribers have a duty to conform to the applicable tariff conditions until they are properly changed or run the risk of losing their service. This is so whether they regard the tariff as unnecessary, unfair or economically burdensome. The Commission has no obligation under the Act to provide resources to enable the carriers to enforce tariffs. Instead, the telephone companies have the prime obligation under the Communications Act to police and enforce compliance with their tariffs. Otherwise, they run the risk of being in violation of their statutory obligations and being exposed to penalties and forfeitures. It is our duty to impose such forfeitures upon the carriers when they fail to enforce their tariffs and to award damages upon complaint to persons suffering from such failure and to grant other forms of relief. This is particularly true if en-

Simis — Continued from page 15

Can regulatory agencies handle the situation as they are now structured? At what costs?

And again, what are the overall effects upon the users' total communications costs? For instance, if certification becomes a reality, there are initial economic costs involved which might tend to act as entrant barriers to small-size manufacturers.

These are, in many cases, the very firms that would be able to provide you the advantage of customized terminals.

Mission of Meeting Needs

In closing: the Bell Systems are committed to meeting your present and future data communications needs.

Our primary objective in forming the new computer communications and data services division at our headquarters was to meet those needs — in accordance with your standards of service performance.

We are assembling the expertise for coordinating the planning, marketing and operating functions of the computer communications and data services part of our business in one organization. We want to open further the paths of communications between organizations like you and us. If you have data service problems that you think we should know about on a regional or national basis, we would like to know about them — because that's our business, — serving you. □

forcement of a tariff provision is not even-handed enforcement and results in discrimination and preferences among customers. If it is impossible, impractical or undesirable for the carriers to administer their tariffs in an effective manner, then the validity of the tariffs is in question and revisions should be initiated.

Failure to Disclose Full Information

We are also concerned with many advertisements of interconnect equipment such as automatic dialers, answering devices and telephone instruments that fall short of disclosing full information that the prospective purchasers should have. Some of these advertisements are silent with respect to the tariff requirement for rental of a telephone company connecting arrangement that must accompany use of the equipment; others state that there are no such requirements and others are ambiguous and incomplete in this respect. Whether this is false or misleading advertising or an unfair trade practice in a legal sense is not within the purview of the Commission's authority or expertise. The matter has been brought to the attention of the Federal Trade Commission and, perhaps, more will have to be done in this direction.

I have addressed only one of many dimensions of the interconnect problem confronting the regulator. There are others of no less complexity involving the economic, jurisdictional and political implications of expanded interconnection. I hope, however, that I have given you some clearer insight into the complexities and challenges confronting the regulator in serving the public interest in the current technological and economic environment. □

Oversupply of People in the Computer Field

Dahl A. Gerberick
Ombudsman, Los Angeles Chapter of the ACM
13138 Millrace St.
Sun Valley, Calif. 91352

Last year, I received many complaints about the advertising claims of some private data processing schools. In particular, most people were objecting to these schools advertising that "thousands of jobs go begging" in the data processing industry.

In questioning these schools about their claim, I was referred to a United States Labor Department report. This report showed that each year during the 70's, about 71,000 jobs would become available in the fields of computer operator, computer programmer, and system analyst. What this report did not show was how many people would become available to fill these jobs.

As a result of my research into the problems involving the data processing industry today, I came across several reports delivered at the 1972 Spring Joint Computer Conference held by the American Federation of Information Processing Societies (AFIPS), of which ACM is a constituent society. These reports give us some idea of how many people are currently in the data processing industry and how many can be expected to enter the industry annually. These reports show an oversupply of data processing people which seems to be increasing.

Today people are being exposed to computing in all areas of education, and we can show that large numbers of these people are entering the industry. If we look at the three basic areas of computing — computer operators, programmers, and system analysts — we can count more than 560,000 now employed. If we were to count the people being prepared by public and private colleges and universities, private vocational schools, and in-house training courses, this country alone is preparing 170,000 potential

new employees annually. Of these, 120,000 may be expected to enter the data processing industry. To employ these people would require a new entry rate of about 30%, which is much higher than the Bureau of Labor Statistics estimates of an average increase of only 14%.

The Labor Department report showed that 71,000 jobs should open annually in the data processing industry. As a result of my own research, I found that the private vocational schools alone will prepare 79,000 people annually to fill these jobs.

This information was passed on to the schools in question, the Better Business Bureau, and National ACM. Since that time, I have neither heard nor received any complaints about this type of advertising.

As your ombudsman, I am prepared to work for your best interests. In order to do so, I need two things. First, if you hear or see an advertisement for a private vocational school that you do not like, make a note of the date, time, and station, and let me know. Second, if you have any ideas about how we might proceed against some of these schools that are misleading the public, let me know.

Finally, if you have any complaints that relate to the computer, or you have any suggestions for direct action that this office might undertake, be sure to let me have them. Mail all correspondence to: Dahl A. Gerberick, 13138 Millrace St., Sun Valley, CA 91352. Phone (office) 714/629-5111, ext. 4516; (home) 213/994-1866.

(Based on a report in "Data Link", Nov. 1972, published by the Los Angeles Chapter of the Association for Computing Machinery, P.O. Box 90698, Airport Station, Los Angeles, Calif. 90009.)

C.a PROBLEM CORNER

Walter Penney, CDP
Problem Editor
Computers and Automation

PROBLEM 7212: NO LOSERS

"You look all worn out," said Pete, entering the computer center. "Have a hard night?"

"Yeah. Al, Bob and I were up till two playing cards," said Charlie.

"How did you make out? I suppose you didn't just play for fun."

"Well, we all ended up with the same amount, but I should have come out ahead."

"How so?"

"When we were about to break up, with me the big winner, Al suggested that we play just three more hands,

and this time each of the losers would pay the winner the same amount as he had at that point."

"Then the winner would end up that round with three times as much as he started with. Right?" asked Pete.

"Right. But we all won once, and as I said, we all went home with the same amount — actually \$54 apiece."

"How much did each of you start with?"

"You ought to be able to figure that out without writing a program," said Charlie.

How much did each player start with?

Solution to Problem 7211: Monte Carlo

If n -bit numbers are considered, with the total number of 1's = k , the average value of the vectors containing these k 1's is $\frac{k}{n}(2^n - 1)$, regardless of how many vectors there are in the set.

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

The June 1972 Raid on Democratic Party Headquarters (The Watergate Incident) — Part 3

Richard E. Sprague
Hartsdale, N.Y. 10530

"Many attempts at suppression of the facts in the case have been made by Republicans, conservative Democrats, the Justice Department, and federal judges."

Introduction

This article is a third installment of a continuing report on the famous (or notorious) "Watergate Incident", the breaking in of the offices of the National Committee of the Democratic Party, on the sixth floor of the Watergate Office Building, Washington, D.C. The forced entry took place around 2:30 a.m., Saturday, June 17; five men were arrested by Washington police. They had with them extensive photographic equipment and electronic surveillance devices, and wore rubber surgical gloves. The five men arrested were:

- James W. McCord; a Lt. Colonel in the U.S. Air Force Reserve; 19 years service with the CIA; head of a security agency; on the payroll of the Committee to Re-Elect the President as late as May 31, 1972; an organizer of the CIA for the Bay of Pigs invasion of Cuba in 1961.

Richard E. Sprague received his BSEE degree from Purdue University in 1942. His computing career began in 1946 when he was employed as an engineer for the computer group at Northrop Aircraft. In 1950, he co-founded Computer Research Corp.; by 1953, with Sprague serving as Vice President of Sales, the company had sold more computers than any competitor. In 1960, Sprague became Director of Computer Systems Consulting for Touche, Ross, Bailey, and Smart. He became a partner in that company in 1963, and started its Advanced Business Systems Department in 1964. He is currently in a business development and marketing position in the business systems branch of a large New Jersey organization.

Sprague is the author of several books, including Information Utilities published in 1969 by Prentice Hall. He is a member of numerous professional organizations including: IEEE, the Institute of Management Sciences, the Association for Computing Machinery, the American Management Society, and the Society for Management Information Systems.

- Bernard L. Barker; a Cuban-born Miami business man; long associated with the CIA; he established secret Guatemalan and Nicaraguan invasion bases.
- Frank Fiorini (alias Frank Sturgis)
- Eugenio R. Martinez
- Virgilio R. Gonzalez

These men were closely connected with:

the Republican Party,
the White House,
President Richard M. Nixon,
the Central Intelligence Agency, and
the Committee to Re-Elect the President.

For more information and background, see the first two articles on this subject, published in "Computers and Automation" (1) August, p. 33; (2) October, p. 18. In addition, a "cast of characters" (the dramatic personae) is given at the end of the second article.

Suppression

Many attempts at suppression of the facts in the case have been made by Republicans, conservative Democrats, the Justice Department, and federal judges. At the same time, valiant but somewhat futile efforts were made by C. Wright Patman, by Lawrence O'Brien, and by other Democrats to expose the truth. None of the investigations or newspaper stories seemed to concentrate on the Miami, Cuban and convention action portions of the Watergate conspirators' plans. As the article in October pointed out, these were far more sinister in their import than the bugging of Democratic Headquarters.

Judge Sirica

The Washington Post, of all the news media, did the most concentrated job in keeping the heat on

the Nixon administration and continuing to uncover and report the facts. However, the power of the executive branch under Nixon, with its influence on the courts and the judicial process, was clearly demonstrated on October 4, 1972. Judge John J. Sirica issued an order in the Washington, D. C. Federal District Court enjoining everyone involved in the Watergate criminal case from discussing it outside the courtroom. Theoretically, this included George McGovern, because the indictment of the seven men accused three of them of attempting to enter Senator McGovern's preconvention headquarters on May 27. Since the judge forbade "alleged victims" and "all persons acting for or with them" from talking about the case, Senator McGovern could be considered to be subject to the limitations.

McGovern said on October 4 that he would continue to discuss the case and that Judge Sirica's order did not in any way inhibit candidates for public office from discussing the facts about the bugging and burglary.

More Suppression

Another severe blow to exposure of the truth took place on October 3 when the House Banking and Currency Committee voted not to hold public hearings on the financial aspects of Watergate. Six conservative Democrats (four from the South) joined forces with 14 Republicans to defeat the proposal by the committee's chairman, Wright Patman. The vote was 20 to 15. Patman was very unhappy with the vote and he accused Mr. Nixon of engineering the outcome. He said, "I predict that the facts will come out, and when they do, I am convinced they will reveal why the White House was so anxious to kill the committee's investigation. The public will fully understand why this pressure was mounted."

Coincidentally, on the same day, Ralph Nader's report on Congress was released. He stated that Nixon's administration controls Congress through various committees, especially in the House, to an extent never before known in the U.S. It certainly would appear that Nixon controls the House Banking and Currency Committee.

Delay of Civil Case

Another tactic made use of to suppress the facts was implied by decisions made by Judge Charles Richey of the Federal District Court in Washington. Richey is the judge on the \$3.2 million suit filed by Lawrence O'Brien against the Watergate invaders and their cohorts. Richey has permitted delay after delay by the Republicans in the suit and has managed to squelch any information taken in depositions from the participants, until after the November 7 elections.

New Exposure Efforts

The Washington Post, Newsweek and a few other news media organizations have pursued their own information sources and have exposed a lot more details than the normal inquiring reporter would be able to find.

The Post was accused by Agnew, Mitchell, and other right wingers of coming dangerously close to libel and other legal violations. Agnew and Mitchell were boiling over a September 28 story in the Post which said that John Mitchell was personally responsible for the secret Republican fund from which the money was given to Bernard Barker. The

Post claimed to have inside information which would prove that Mitchell actually controlled the fund while he was still Attorney General. The story said that four other people were allowed to approve payments from the fund, which carried a balance between \$350,000 and \$700,000. Two of these people were Maurice Stans and Jeb Stuart Magruder. Magruder was interim manager of Nixon's campaign prior to Mitchell, and was a deputy director of the campaign. The Post's sources were said to be law enforcement officials and persons on the staff of the Committee for the Re-Election of the President.

Mitchell had some choice words for newsmen when asked about the Post's story. He said, "All that crap, you're putting it in the paper? Jesus! Katie Graham [Katherine Graham, publisher of the Washington Post] is gonna get caught in a big fat wringer if that's published. Good Christ — that's the most sickening thing I've ever heard. Did the committee tell you to go ahead and publish that story? You fellows got a great ball game going. As soon as you're through paying Ed Williams [Edward Bennett Williams, Lawrence O'Brien's lawyer on the civil suit] we're going to do a story on all of you."

A Professor Steps In

Another independent effort to get at the truth was initiated by law professor, John F. Banzhaf 3rd, at George Washington University. He filed a series of legal motions on September 18 to have the Federal Court in Washington appoint a special prosecutor to investigate the Watergate crime. This, of course, was a suggestion made on several occasions by Lawrence O'Brien and George McGovern, except they were asking President Nixon to appoint a special prosecutor. McGovern had suggested either Earl Warren or the lawyer for the Warren Commission, J. Lee Rankin. That made some researchers wonder who McGovern's advisers were.

Banzhaf's actions were lightly regarded. There is apparently no legal precedent for such an action on the part of a court. Banzhaf admitted this but asked the court to "reach out to a new principle in the legal armory."

Informers

In the October issue of "Computers and Automation", this author guessed that one of the informers inside Republican ranks might be Martha Mitchell. Mention was also made in that article of a Martha Mitchell guard who had told what he knew about Watergate. The guard's name was revealed by the Washington Post on September 17 as Alfred Baldwin. Baldwin was a former FBI agent and Martha's security guard, who was hired by James McCord into the espionage operation on May 10. He said he monitored the conversations on the telephones in the Watergate crime. He also said copies of the taped conversations were typed and sent to aides to Mitchell at Re-Election Committee headquarters.

One of Baldwin's most significant statements relates to sinister aspects of the case described in the October issue. He said he was to be assigned by McCord as wiretap monitor in Miami during the Democratic Convention. He was also assigned by McCord to infiltrate the Vietnam Veterans Against the War for the purpose of "embarrassing" the Democrats if the veterans demonstrated at the Republican Convention.

Baldwin was the source of information about the secret fund and Mitchell's control over it. He said

that a single piece of lined ledger paper listing the names of 15 persons with access to the secret fund and showing the amount each received, was the only record of the fund and was destroyed shortly before April 7.

On October 5 the Washington Post reported that the typewritten memos from the listening post had gone directly to William Timmons, President Nixon's liason man with Congress.

New Names

Meanwhile, several more new names surfaced in the story. Two of Nixon's top campaign officials each withdrew more than \$50,000 from the secret contingency fund. Jeb Stuart Magruder, deputy director of the Re-Election Committee, and Herbert L. Porter, scheduling director for the committee, were reported to have drawn funds by the Washington Post in the September 18 edition. The Post said that their names and amounts were on the single ledger sheet record which was destroyed. The Post said that between five and seven ledger books, each about 1½ inches thick, listing all campaign contributions received prior to April 7, were also destroyed. The single sheet record was kept in Maurice Stans' safe.

According to Newsweek, September 18, as early as the summer of 1971, a small, tight, political intelligence team was gathered in the basement of fices of the Executive Office Building next door to the White House. Its impact has been felt all across the 1972 election campaign. The team was originally formed as a pack of in-house watchdogs. In the fall of 1971, John Ehrlichman, presidential assistant, assigned Krogh to plug the security leaks that began with the Pentagon Papers.

Krogh tapped Charles Colson, who in turn brought in E. Howard Hunt, according to Newsweek, and thus the espionage team was born. Liddy, McCord, Barker, and others joined soon afterward.

The House Banking Committee mentioned a new name in their list of persons to be subpoenaed for testimony: Murray Chotiner, Nixon's old campaign in-fighter, was mentioned as a witness. Chotiner has through the years been as close as anyone to Nixon in political strategy. His testimony should be very significant. However, no indication of his role was given by Patman or the lawyers for the committee.

On October 5, at his first press conference in many weeks, Nixon was requested by a news reporter to "make a clean breast about what you were trying to get done at the Watergate". The reporter obviously knew something about the case. Nixon's evasive reply was to fall back on the FBI investigation, quoting them as assigning 133 agents to conduct 1500 interviews and follow 1800 leads. This is the same kind of claptrap cited whenever anyone questions the Warren Commission, as though the American public are impressed by sheer volume figures.

The exact same day, Baldwin was telling reporters about his escapades for Nixon and how he was "encouraged" to shut up about them. He said that he had decided to become a Government witness in the Watergate case, in return for an informal promise that he would not be prosecuted. He said the Nixon campaign committee tried to disavow his association with it after the break-in and arrests on June 17.

"Sometime after McCord was released on bond," Baldwin told the Los Angeles Times, "he telephoned me and I told him my attorneys knew the whole story".

"The whole story?" he quoted McCord as replying. "You mean you told him the whole story?" Mr. Baldwin said Mr. McCord then said, "Your position is that you were working for McCord Associates, not for the re-election committee".

This situation is typical of Nixon's greatest problem. That is the difficulty of keeping everyone involved from talking. Middlemen like Baldwin, or wives like Martha Mitchell are not quite as "motivated" as Stans, Mitchell, McCord, Hunt, Liddy, et. al. □

References

- "The Spies Who Came in For the Heat". Newsweek (September 18, 1972).
- "Lawyer Asks Courts to Appoint Special Watergate Prosecutor". New York Times (September 19, 1972).
- "Democrats Win Move to Name Stans as Defendant in Spy Suit". New York Times (September 21, 1972).
- "Democratic 'Bug' Set After June 17". New York Times (September 22, 1972).
- "Secret GOP 'Spy' Fund Seen Linked to Mitchell". White Plains Reporter Dispatch (September 29, 1972).
- "Seven Charged in Bugging Plead Not Guilty and Are Free on Bail". New York Times (September 20, 1972).
- "Watergate Judge Bars Talk of Case". New York Times (October 5, 1972).
- "House Panel Bars Pre-November 7 Inquiry into Bugging Case". New York Times (September 4, 1972).
- "President Backs Bugging Inquiry". New York Times (October 6, 1972).
- "Watergate Tapper Reports Logs Went to Nixon's Men". White Plains Reporter Dispatch (October 5, 1972).
- "2 Linked to Secret GOP Fund". Washington Post (September 18, 1972).
- "Watergate Called Part of Big GOP Plan". Washington Post (September 8, 1972).
- "Banzhaf Suit Asks Special Presecutor in Watergate Case". Washington Star (September 18, 1972).
- "Spy Funds Linked to GOP Aides". Washington Post (September 17, 1972).
- "Sources Identify Watergate Tipster". Washington Star (September 17, 1972).

Appendix 1

MARTHA MITCHELL AND THE WATERGATE INCIDENT

In the August article we said:

A prime, as yet unanswered, question is the extent to which President Nixon, John Mitchell, and the White House staff were connected with, or authorized, or knew in advance about the Watergate raid.

Indications from news reports of a Federal Grand Jury investigation and an FBI investigation of the raid are that E. Howard Hunt was still working for the White House at the time of the raid. Hunt left the United States on Sunday, June 18 after refusing to answer FBI questions.

John N. Mitchell, prior to his resignation in early July as Nixon's campaign manager, was reported to have initiated his own private investigation. Martha Mitchell appeared to be very upset by the Watergate raid because she started putting pressure on Mitchell to resign shortly after the raid took place. She told UPI reporter Helen Thomas, there were "very dirty things" going on in the campaign. She also claimed she had been made "a political

prisoner" by security agents for the Republican Committee to Re-elect the President. She said one of them ripped the phone off the wall of her motel in California just as she was telling Helen Thomas something about "the dirty business."

After a few days of silence, John Mitchell resigned "to spend more time with his wife and family." On the basis of Mitchell's prior commitments to Nixon and his record as Attorney General, it seems very odd that ordinary "dirty politics" would induce his resignation.

Remarkable new information about all this was published in Parade for Oct. 22, 1972.

In order to rebut an earlier incorrect report in Parade, Martha Mitchell wrote that magazine a letter, the contents of which are here reproduced:

September 10, 1972

Dear Mr. Scott:

After reading today's "Personality Parade," I shall come out of my self-imposed retirement to set a few facts straight.

Indeed it was a Steve King that not only dealt me the most horrible experience I have ever had — but inflicted bodily harm upon me. Such as, kicking me, throwing me around, keeping me locked up in one room for more than twenty-four hours, sending my hand through a glass window, allowing no one inside the villa except the doctor whom he called — and last but not least — yanked the phone out of my bedroom while talking with Helen Thomas. He came into my room while the doors were closed and I was undressed.

From then on I saw no one — allowed no food — and literally kept a prisoner.

The doctor and all the rest of them should have been arrested or unless I'm terribly wrong in thinking that people are allowed to treat one thus — for simply a telephone call!

This doctor came in with his needle — and with the help of King threw me on the bed and injected something I turned out to be allergic to. The doctor whom I never had seen in my life spoke not one word nor explained the injection. I should sue them all.

And in case you or anyone else doubt my word — and listen to the lies of the others — I might mention my eleven year old daughter witnessed the whole unbelievable scene.

This is just to set part of the record straight. I refuse to let these lies be told.

Best wishes to you.

Sincerely,

Martha Mitchell

"Parade" comments:

In her relationship with "Parade", Martha Mitchell has always been scrupulously honest. "Parade" in turn has tried to maintain the identical standard. Mrs. Mitchell, however, has been a most difficult woman to contact. She has been kept incommunicado for reasons known only to others.

This is to inform Mrs. Mitchell that "Parade" tried to contact her in the Beverly Hills Hotel on June 16, 17, and 18 this past summer. Her bodyguard, Steve King, a former FBI agent, and presumably a gentleman of honor and decency, promised to relay our messages. When Mrs. Mitchell and entourage moved down to the Newporter Inn at Newport Beach, Calif., "Parade" again tried to contact her by phone even though we were told she was not registered there.

When subsequently Mrs. Mitchell flew to the Westchester Country Club in Rye, N.Y., and later presented her husband with an ultimatum to relinquish his position as President Nixon's campaign manager, "Parade" once again left messages, beseeching Mrs. Mitchell to get word to us somehow as she had in the past.

Unable to contact Mrs. Mitchell, "Parade" phoned Steve King for his version of the Newporter Inn battle, and it is his version which we largely used as our earlier reply. Mrs. Mitchell says we were taken in.

Mr. King says, "You understand I can no longer talk about the incident. All such information must come from Van Shumway or Powell Moore." Mr. Shumway, in charge of press relations for the Committee to Re-Elect the President, and Mr. Moore, his assistant, are masters of obfuscation, and what they were willing to say about Martha Mitchell can be stored in the eye of a needle.

"Parade" apologizes to Martha Mitchell for its inability to ferret out the entire truth of what, why, where, and when happened to her in Southern California this past June.

We tried, Martha, but they wouldn't let us get to you.

Appendix 2

THE WATERGATE CRIME: AN EYE-WITNESS ACCOUNT BY AN EX-FBI AGENT, ALFRED BALDWIN, 3D

(Based on a report published in the *Boston Globe*, October 6, 1972.)

(Alfred Baldwin 3d, a former FBI agent, is a key government witness in the Watergate bugging case. Baldwin was monitoring calls to the Democratic National Committee headquarters from a hotel room across from the Watergate when five other men were arrested Saturday, June 17, at 2:30 a.m.) This is his story.)

Men with Guns and Flashlights

Across the street in the Democratic National Committee offices I could see men with guns and flashlights looking behind desks and out on the balcony.

It was a weird scene at Washington's Watergate complex. The men were looking for several persons, including my boss — James W. McCord, Jr., who was security director for both President Nixon's Republican Re-Election Committee and the Republican National Committee.

My Boss in Handcuffs

A short while later, McCord and four other men, all in handcuffs, would be led by police to patrol cars and taken to jail. And a White House consultant would rush into my motel room across the street

from the Democratic offices and peer down on the scene before fleeing the area.

Three Weeks Eavesdropping

I had been using a walkie-talkie and acting as a lookout for McCord and his men, who were engaged in a bugging operation. For three weeks I had monitored conversations on a tapped phone in the Democratic offices.

My mission had been to record all conversations. McCord appeared to be especially interested in any information on Sen. George McGovern and the Democratic Party chairman, Lawrence O'Brien, and anything having to do with political strategy.

Hired for Security Work with Mrs. Martha Mitchell

When the Committee for the Re-Election of the President hired me for security work with Mrs. Martha Mitchell, nothing was said about eventual espionage missions involving electronic eavesdropping.

James W. McCord

But then the man I worked directly under, Jim McCord, was not given to long explanations about anything. You would have to know McCord to understand what I mean.

Like myself, McCord is an ex-FBI agent. But he also served 20 years in the Central Intelligence Agency, and he is one of those ex-CIA agents who do more listening than talking. When he wants you to do something else, he just tells you. No build-up or anything.

When McCord was ready to switch me from protecting John Mitchell's wife to other security work, he simply told me that the President's Re-election Committee had other work for me.

I never questioned McCord's orders. I felt I was acting under orders and with full authority. After all, his boss was John Mitchell, the Committee director and former Attorney General of the United States.

If that was not enough to impress me with McCord's authority and official standing, we were surrounded by former White House aides McCord said were "on loan" to the Committee.

We went to the office of Fred LaRue to get approval for my employment, and McCord said, "Mr. LaRue is over from the White House. He's John Mitchell's right hand man."

Pistol: No License

McCord later issued me a loaded .38-snub-nosed police special and said, "You'll wear this." I had no permit or official identification and questioned whether I was authorized to carry it.

He handed me a card bearing his name and the name of the Re-election Committee and said: "You're working for the former Attorney General, and there's no way a policeman or any other law enforcement officer is going to question your right to carry that weapon. But if you have any problem, have them call me."

In McCord's office at Committee headquarters I noticed extensive electronic equipment — walkie-talkies, television surveillance units and various other devices. The top to a fancy briefcase was

open, exposing considerable electronic equipment. I was told it was a debugging unit.

Howard Johnson Motel Across from the Watergate

At McCord's direction, I moved from the Roger Smith Hotel to the Howard Johnson Motel across the street from the Watergate. I checked into room 419, which he had registered under McCord Associates, the name of his security firm.

On May 24, after about two weeks of covering demonstrations, I visited my home in Hamden. When I returned to Washington the next day, I found Jim McCord in room 419 surrounded by an array of electronic equipment, including walkie-talkies and the debugging case that had been in his office at the Re-election Committee.

\$15,000 Eavesdropping Equipment

A sophisticated receiving set, which McCord later said was worth approximately \$15,000, was in a large blue Samsonite suitcase. There was a portable radio with shortwave band and an array of tape recorders and other pieces of equipment.

McCord said, "I want to show you some of this equipment and how we're going to use it." Just like that, no preliminaries and no explanations of why we would use it.

McCord pointed across the street to the Watergate and said, "We're going to put some units over there tonight, and you'll be monitoring them." He didn't have to tell me; I knew the Democratic National Committee offices were in the Watergate.

McCord Entering the Watergate

From the balcony outside room 419, I watched McCord walk across Virginia Avenue and enter the Watergate complex. Subsequently he appeared at a window of the Democratic offices, and I could see at least one other person and perhaps two with him.

McCord later returned to the motel room and said, "We've got the units over there."

McCord told me two men who were working with him were coming into the motel room, and he would introduce us by code names since we were all involved in security work. He introduced them as Ed and George. I have since learned they were G. Gordon Liddy and E. Howard Hunt, Jr., former White House aides.

McGovern Headquarters: Attempt

On May 26, McCord told me, "We're going into another area tonight."

About midnight, McCord and I left in his car and headed toward the Capitol. He was driving and holding a walkie-talkie, which he hooked on and held out through the car window. He finally contacted another unit as we neared the Capitol and said we were approaching the area.

He told me to keep an eye open for a Volkswagen, there was someone in it who would be working with us. On a street near the Capitol we passed a small building bearing a McGovern Headquarters sign, and McCord pointed and said, "That's what we're interested in right there."

Not until then did I realize that the target was McGovern Headquarters. An upstairs light was on, and a drunk was standing in front of the building.

McCord pointed to a row of buildings across the street from McGovern Headquarters and said, "We're trying to rent a place over there where you'll be doing the same thing you're doing in the other place."

As we passed a parked car about a block from McGovern Headquarters, a voice came in over McCord's walkie-talkie: "You just went by us, did you see us?"

McCord replied that he had and pulled our car alongside the parked car. There were people in the front and back seats.

A man stepped from the car, walked over to our car and slid into the seat beside me and started talking to McCord without even acknowledging I was there. It was Liddy. I could not identify the persons in the back seat.

McCord and Liddy seemed to be nervous because the Volkswagen had failed to show up and because the drunk was still in front of the building. Finally, about 3:30 a.m., Liddy said, "We can't do it tonight; we'll have to do it another night."

We let Liddy out of his car, and McCord drove me back to the motel where I would resume my monitoring activities.

A few days after the monitoring began, McCord instructed me to find another room that would give us a better view of the Democratic offices and perhaps help us establish contact with the tap there that we had been unable to monitor.

I checked us into 723 with a view directly across from the Democratic Offices.

"Casing" the Democratic Headquarters

On June 12, McCord told me to visit the Democratic Committee offices under my code name to find out what I could about O'Brien's whereabouts and the location of his office. Since I am from Connecticut and familiar with the Democratic Party officials there, I passed myself off as a nephew of our state chairman, John Bailey.

I made a mental note of the office's location overlooking the Potomac River, and I asked if anyone knew O'Brien's whereabouts. His secretary said he was somewhere in Miami, and subsequently I was furnished O'Brien's telephone number in Miami.

I returned to the motel room and gave McCord the number, and we went over a sketch of O'Brien's office. He seemed extremely pleased.

There were also plans to return to McGovern Headquarters on the weekend. McCord said, "You know the place we were at the other night? We've got to go back there."

Later, Liddy and Hunt came into the motel room. With McCord they walked out on the balcony and looked over toward the Democratic offices.

Stack of \$100 Bills

Before Liddy left, he reached into his inside coat pocket and withdrew an envelope containing a thick stack of brand new \$100 bills. He counted off about 16 or 18 bills and handed them to McCord, who put them in his wallet.

On Friday evening, June 16, McCord displayed a unit that I thought looked like door chimes. He

removed the unit's cover, exposing a sophisticated electronic device.

Later in the evening, McCord displayed a shopping bag full of different kinds of tools and equipment — screwdrivers, wires, batteries, and soldering irons. The room ended up looking like a small electronics workshop.

We both continued working on the devices for some time. During a telephone conversation, McCord said he might have to wait until another night to carry out the mission ... Some guy was still working in the Democratic offices.

"The Lights Are Off in Democratic Headquarters"

Suddenly I saw the light in the Committee offices go off, and I told McCord, "Hey, look. The guy's leaving now."

McCord told the other party that the light had been turned off and that they could proceed. Then he handed me a walkie-talkie and said he was going across the street. He said, "If you see anything unusual, any activity, anybody around, you get on this and let us know."

He took his wallet, change, car keys and other items from his trouser pockets and dropped them on the bed. He left the room with a raincoat over his arm.

Less than an hour later, the lights on the entire floor above the Democratic Committee offices went on. I picked up the walkie-talkie — I don't remember whether I identified myself as "unit 1" or "base" — but I said, "We've got some activity."

Walkie-Talkie Conversation

A man whose voice I did not recognize — it was not McCord — responded, "What have you got?"

I mentioned the lights going on, and he replied, "Okay, we know about that, that's the 2 o'clock guard check. Let us know if the lights go on any other place."

My watch indicated it was 2:15. I figured the guard check was late.

Not long after that, a car parked in front of the Watergate and three men got out and went inside. I wondered if that meant anything, but I did not use the walkie-talkie at that time.

The Lights Go On Again

Suddenly, a few minutes later, the lights went on inside the Democratic offices. I noticed the figures of three men. At least two of them came out on the balcony. They were casually dressed and were carrying flashlights and guns. I could see one man in the office holding a gun in front of him and looking behind desks.

Watching from the balcony outside my room, I grabbed the walkie-talkie and said, "Base to any unit." A voice came back, "What have you got?"

I said, "Are our people dressed casually or are they in suits?"

An anxious voice asked, "What?" and I repeated the question.

"Our people are dressed in suits," the voice said.

"Well," I answered, "we've got problems. We've got some people dressed casually, and they've got guns. They're looking around the balcony and everywhere, but they haven't come across our people."

The man on the other end sounded absolutely panic-stricken now and started calling: "Are you reading this? Are you reading this?"

Receiving no reply, he then added: "They don't have the unit on or it's not turned up. Are you still in the room?"

I replied: "Right."

He said: "Stay there. I'll be right over."

Police Activity

By now, there was all kinds of police activity — motorcycles and paddywagons driving up and guys jumping out of patrol cars and running up to the Watergate. Then I saw two men carrying suitcases casually walking out of the hotel section. I recognized one as Hunt, he glanced up at the balcony where I stood, and then with the other man walked over and entered a car parked in front of the Watergate. The two of them drove away.

Moments later, I was contacted on the walkie-talkie again and told: "We're on the way up. Be there in a minute." I said, "You'd better not park near this building, police are all over the place."

He said, "Okay."

Then I heard a voice from another unit whisper, "They've got us." Then McCord's voice came through: "What are you people? Are you metropolitan police or what?"

Another voice demanded: "What's that?" And then the unit went silent. I tried to renew the contact, but to no avail.

Hunt: Very Nervous

A few minutes later Hunt, wearing a windbreaker, rushed into the room. He was extremely nervous.

"What do you see?" he asked.

I told him I saw McCord and some other men being led away from the Watergate in handcuffs. He walked over, looked down at the scene and then said: "I've got to call a lawyer."

Picking up the phone, he dialed a local number. "They've had it," he told the party on the other end, adding: "Well, I've got \$5000 in cash with me we can use for bond money."

Hunt, hanging up the phone, turned and asked if I knew where McCord lived. I said yes, I had been to his house in Rockville, Md., a Washington suburb. He instructed me to pack all the equipment and take it to McCord's house and asked if I had a place to go.

I said I could go to my home in Connecticut, and he said, "Well, get all this stuff out of here and you get out of here. Somebody will be in touch with you."

With that, he threw his walkie-talkie on the bed and rushed from the room. "Does that mean I'm out of a job?" I shouted after him. But he disappeared down the hallway without answering. □

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 is otherwise irregular, to discourage cryptanalytic methods of deciphering.

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

Andrew M. Langer
Newton High School
Newton, Mass.

NUMBLE 7212

$$\begin{array}{r}
 \text{L I F E} \\
 \times \text{I S A} \\
 \hline
 \text{L L C A C} \\
 \text{R D I N G} \\
 \hline
 \text{N C N G D} \\
 \hline
 \text{N D E R C A C} \quad 8926 \ 7200 \ 713
 \end{array}
 \quad E = F$$

Solution to Numble 7211

In Numble 7211 in the November issue, the digits 0 through 9 are represented by letters as follows:

- H = 0
- N = 1
- D = 2
- L = 3
- R = 4
- T = 5
- U = 6
- F, I = 7
- E = 8
- A, S = 9

The message is: (The) Fruit falls under the tree.

Our thanks to the following individuals for submitting their solutions — to Numble 7210: T. P. Finn, Indianapolis, Ind. — to Numble 729: M. Emerson and C. Prickett, Honolulu, Hawaii.

The Reality Behind the Lies in South Vietnam

Dr. George Wald
Higgins Professor of Biology
Harvard University
Cambridge, Mass. 02138

"I teach young men and women at Harvard. I talk with them. In their desperation, disillusionment, and disappointment, a lot of them have come to talk as though they have to invent a whole new world. I take every chance I can to say to them, 'You don't have to invent it all, just try to fulfill some of it.'"

Frighteningly Rapid Debasement

We are not only witnessing, but taking part in a frighteningly rapid debasement of all that America has meant and tried to mean. We are witnessing the rapid abdication of responsibility by our Congress, the degradation of our Supreme Court and hence, the effective disappearance of the system of checks and balances upon which the American system rests. It has indeed gone. We have lost it. The only question that remains is whether there is any possibility of retrieving it.

Unrestrained Executive Government

We are living in a country that has lately gone over to virtually unrestrained executive government, the thing that the founders of this nation were most anxious to avoid.

Governments that Get their Arms Free from the United States

That executive government is now leading the largest collection of military dictatorships ever assembled. It calls that collection of military dictatorships the free world. That phrase used to give me trouble until I finally understood what it meant. The free world consists of those nations that get their arms free from the United States.

One-Man Elections

While I was in Saigon a year ago last August, that strange one-man election was being got ready, that our Administration afterward declared to have been a "plebiscite". It occurred on Oct. 3, 1971. A few weeks before, Mr. Nixon spoke to the American people to reassure them. He pointed out that of the 91 nations receiving American AID programs, only 30 had contested elections.

Sealing Off Parliaments

Within a matter of weeks, the heads of two of those nations, Thailand and Cambodia, both ex-generals, declared that they had had enough of "our futile experiments with democracy", and would no longer convene their parliaments. And, recently, two more of those nations, South Korea and the

Philippines, have declared martial law and sealed off their parliaments.

Feeble Reasons

Why do we stay so persistently in a war that most Americans repudiate and are so anxious to get out of? One is told all kinds of things: that it is national pride, that Mr. Nixon refuses to be the first American President to lose a war, that we cannot bring ourselves to admit a mistake. All those reasons sound rather feeble to account for so much killing and destruction and such waste of our energies and resources.

An Answer that Makes More Sense

I should like to suggest an answer that I think makes more sense. The Vietnam war, whatever else it may be, is a fantastically big business. I would like to talk about how big a business it is.

Fantastically Big Business

Americans by now have lost all sense of what a billion dollars means. In 1968 the gross national product of South Vietnam, a nation of 17.5 million people, was \$2.5 billion. Gross national product involves all production, services, the transfer of goods, all the trade, everything. In that year we spent \$30 billion on the war. \$23 billion was its "incremental cost", that is, extra expenditure purely on that war.

In 1970, the gross national product of South Vietnam had risen to \$4 billion; and mainly because of the withdrawal of ground forces, the incremental cost of the war has been falling. In the past year the incremental cost was supposed to have fallen to about \$8 billion, but the renewed heavy bombing of North Vietnam has raised that incremental cost to between \$10 and \$12 billion.

Where are the Billions Spent?

We use that phrase, "the cost of the war". Costs to whom? Where is that money spent? Not much of it in Southeast Asia. Almost all that money is spent here. The whole transaction is completed in this country.

That money is poured out, in the form of taxes, by the bulk of the American people to flow into the pockets of a few Americans.

(Based on a talk given at the First Unitarian-Universalist Church, Concord, Mass., October 1972)

Making "Big Money"

You put together that gross national product of South Vietnam and what we pay other Americans to keep the war going, and you come to the terrible realization that there is enormously more money to be made strewing American military hardware over Vietnam than if you took over the whole country and wrung it dry.

"Development" of Southeast Asia

About a year ago, there were two reports submitted on "development" in Southeast Asia, neither of them for publication; but part of the present strange American scene is that all such confidential documents are promptly leaked, so that all of us who were interested were soon reading these confidential reports.

One of them was by Prof. Emile Benoit of Columbia University, the other by Prof. Arthur Smithies of Harvard. I quote a passage from Prof. Smithies' report to the Institute for Defense Analysis:

Paved Highways, Power Plants,

"The war has provided Vietnam with paved highways from end to end, with more airfields than it can possibly use, with spectacular harbors, with an elaborate communications system, with power plants, and with potable water in Saigon ... The impression is inescapable that the plusses greatly outweigh the minuses ... at fantastic cost the war has fulfilled the necessary preconditions for development."

Construction Combine

All the construction in South Vietnam cited by Prof. Smithies has been done by the world's largest construction combine, Raymond, Morrison, Knudsen — Brown, Root and Jones (RMK-BRJ). Brown and Root is a Texas outfit specializing in government construction. In a speech in the Senate in 1953, Wayne Morse said, "Texas sends us two senators, one from Standard Oil, the other from Brown and Root." By the latter he meant Lyndon Johnson. Another Texas politician said to have about as long and close an association with Brown and Root is John Connally.

Urban Work Force

Prof. Benoit's report to the Asian Development Bank was much the same. But neither of these scholars chose to mention perhaps the most important precondition for development. It is the product, not of the production, but of the destruction.

By August, 1971, Saigon's population had quintupled since the war began, through the influx of approximately 3 million refugees. Peasants had lost everything; their homes were gone, their villages were gone, their land had been destroyed. You can't farm a B52 bomb crater. The refugees are now ready to be transformed into an urban proletariat. Anybody who wants to start a business now in Saigon finds plenty of desperately cheap labor.

"Exploding" Economy

That "development" is already well under way. The economy of South Vietnam, in spite of all the

destruction, is exploding. In 1963 the gross national product was \$2.5 billion; by 1970, it had risen to \$4 billion. Nothing like that has yet happened in Laos and Cambodia, but they are being prepared for it.

Oil Boom

That is the plan for Southeast Asia. I must also mention offshore oil. The Wall Street Journal under the heading "Boom in the Making: Drilling Fever Spreads in Southeast Asia", noted in 1970:

"The area is South Vietnam's continental waters. The Vietnamese have divided the area into 18 blocks, which are expected to be parceled out soon, probably mostly to Americans. Oil companies remain quiet to maintain a bargaining advantage. The block sizes are so immense that just one of Gulf's many blocks here is about the size of the state of Oklahoma ... Southeast Asia holds many advantages for oil companies."

One Woman in California

Then a woman in California, just a citizen, a member of the organization called "Another Mother for Peace" somehow got wind of this. That woman started a personal campaign in which she was shortly joined by the other mothers. She kept xeroxing the information out of trade and financial journals, and kept sending it to congressmen and senators. One day she thought of me and I got a big package to read. It was frightening, because this had been going on for months and not one word in newspapers that we ordinary citizens read.

Oil Parcel Auction Called Off

By the time she had begun her campaign, President Thieu of South Vietnam had announced publicly that in February, 1971, there would be an auction of 18 parcels of territory off the shores of South Vietnam for oil prospecting, one of them as big as the state of Oklahoma. That deal was stopped by one Mother for Peace for, by the time she got through, the newspapers had to pay attention, and the whole thing became so embarrassing that the auction was called off.

The New Kind of Exploitation

Imperialism in its old fashioned forms involves things like oil and tin and other resources, and all kinds of ventures carried out in various parts of the so-called underdeveloped world. But this is a new game, and Americans had better become aware of it, because we are in it up to our ears. I will call it by its new name, "Domestic Imperialism".

I have in fact already been talking about it. There are those fantastic sums of money that we use this strange phrase for — "The war is costing us" — when the entire transaction is completed right here. Congress has just voted the next new arms budget. For years now it has run something over \$21 billion annually, and it has just voted the next \$21 odd billion for new arms in the coming year.

Who Pays for the Arms?

Those arms are bought and paid for by the American people with Federal tax money. The whole transaction is completed here. The only problem that remains is to keep them turning over, so that we can buy and pay for some more. That is part of what the war in Southeast Asia is about.

Giving the Arms Away to "Free" Dictatorships

There is a second way of getting rid of those arms. We give them away all over the "free world". Our AID program represents a striking example of American generosity to the peoples of the underdeveloped countries. In fact the bulk of AID resources goes into providing arms and police forces to those military dictatorships that now principally constitute our "free world". In South Vietnam, for example, when I was there last year, \$30 million of AID money went to pay for the police, \$6 million went for education.

Giving the Arms Away as "Food for Peace"

Have you heard about "Food for Peace", a program of the Department of Agriculture? In testimony before the Joint Economic Committee of Congress in January, 1971, it was brought out that from 1965-70 nearly \$700 million in Food for Peace funds had gone out in the form of arms, over \$100 million worth in 1970 alone.

Giving the Arms Away as "Surplus"

Then there is a third way. In those same hearings before the joint Economic Committee of Congress — the committee chaired by William Proxmire, who deserves ever so many more medals than he gets — the Department of Defense, asked how much military hardware they had on hand that had been declared surplus, replied \$17 billion worth. That is almost a year's arms procurement, simply declared surplus, mainly to be junked.

Throwing the Arms Away as "Junk"

As Lt. Gen. Robert H. Warren testified at that time, "If nobody wants to buy it — that is, the countries that are authorized to do so — you cannot sell it to any private institution; and the last place it goes is to the Military Assistance Program. If we don't use it or can't, and we only use equipment which matches our forecasted requirements, it goes to the junkyard."

To Deal in Big Money

There are only a few countries in the world that have gross national products bigger than \$21 billion, which is nearly twice the gross national product of the whole of Indochina.

The point is that if you want to deal in that kind of money, you have to go where it is. You cannot get that kind of money out of Southeast Asia: they don't have it. If you want that kind of money you have to go where it is. And that's here. That's us.

Biggest Cash Supply in the World

American Federal taxes represent the biggest sum of ready cash in the world: \$207 billion in 1971. That is where the really big money is to be made, not in the old fashioned imperialism of exploiting hungry and underdeveloped nations and people, but in the new fashioned domestic imperialism of exploiting the affluent American people.

We are the "Colony"

That's why it is called domestic imperialism. We are the colony. As a black friend of mine said to me, "We're all on the plantation now."

A Dictatorship Here?

So here we are, we once proud Americans. This is the pass we have come to: we have executive government, we have that beautiful free world composed mainly of military dictatorships. Having got so used to military dictatorships abroad, is it possible that Americans might some day accept something like that to preserve law and order here? Where do we come out?

Trying Democracy

I'd love to try democracy. The only revolution I'm interested in is the American Revolution. I'd love to get on with it.

I teach young men and women at Harvard. I talk with them. In their desperation, disillusionment, and disappointment, a lot of them have come to talk as though they have to invent a whole new world. I take every chance I can to say to them, "You don't have to invent it all, just try to fulfill some of it."

Voting a New American Revolution

The dream is a noble dream: equality of opportunity; liberty and justice for all; government of the people, by the people, and for the people. Those are the things that many of us — I hope most of us — want. They are the meaning of America. Yet by now it will take a new American revolution to fulfill them. It is my hope that we can vote ourselves that revolution, and so begin to repossess our country. □

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.

The Central Intelligence Agency: A Short History to Mid-1963 — Part 2

James Hepburn

"I never had any thought . . . when I set up the CIA, that it would be injected into peacetime cloak-and-dagger operations. Some of the complications and embarrassment that I think we have experienced are in a part attributable to the fact that this quiet intelligence arm of the President has been so removed from its intended role . . ."

— Harry Truman, President of the U.S.
quoted at the start of the chapter

Introductory Note by the Editor

The book "Farewell America", by James Hepburn, was published in 1968 in English by Frontiers Co. in Vaduz, Liechtenstein; 418 pages long, including 14 pages of index. James Hepburn is a pseudonym; the book is reputed to have been written by the French Intelligence, in order to report to Americans what actually happened in the assassination of President John F. Kennedy. Copies of the book may be purchased readily in Canada, and at one or two addresses in the United States. No bookstore in the United States that I know of will order and sell copies of the book. (Inquire of the National Committee to Investigate Assassinations, 927 15th St. NW, Washington, D.C. 20005, for ways to purchase the book.) The twenty chapters are absorbingly interesting, and well worth reading.

Information about secret intelligence services and the way they operate is of course not in the open literature. In the two and a half years since I read the book, I have seen no demonstration that any of the information contained in the book is false — and the information does tie in with much else that is known. Perhaps more than 90% of what is in the book is true.

The following article is based on Chapter 15, "Spies", of "Farewell America". Part 1 was published in the November, 1972, issue of "Computers and Automation". Part 2 is published here.

Worldwide Extension of the CIA

Beginning in 1955, the CIA extended its intelligence networks on the continent of Africa, which up till then, with the exception of Egypt and Libya, had been considered of secondary importance. It established itself solidly in Algeria, the Republic of South Africa, the ex-Belgian Congo, French West Africa and the Portuguese African colonies. Latin America and the Caribbean were controlled by its American Division.

Preparations for the Invasion of Cuba

When Kennedy entered the White House, preparations were already underway for an invasion of Cuba. The

project had originated with an executive order signed by President Eisenhower on March 17, 1960 authorizing the clandestine training and arming of Cuban refugees. The operation was directed by Richard Mervin Bissell, Jr., a brilliant graduate of the London School of Economics and former professor of economics at Yale who had joined the CIA in 1954 and, as director of its Plans Division, had supervised the U2 project. Bissell's original plan included the organization of guerilla troops in Cuba itself, but the shortage of qualified volunteers and the lack of support among the Cuban population and Castro's army rendered this impossible. Instead, Allen Dulles decided on a military invasion of the island by Cuban exile forces.

Training Sites

The CIA immediately began looking for a suitable training site. At the beginning of April, 1960, Robert Kendall Davis, First Secretary of the American Embassy in Guatemala and the local CIA Station Chief, visited Guatemala President Ydigoras at his official residence, situated out of precaution on the grounds of the Guatemalan military school.²³ Ydigoras, who had no sympathy for Castro and who was also faced with a mounting budget, agreed to allow the CIA to train "special forces" on a base in Guatemala. The CIA chose the "Helvetia" coffee plantation at Retalhuleu, which covered 5,000 acres, was easy to guard, and offered 50 miles of private roads. There it established a training center for saboteurs and combat forces equipped with barracks and a swimming pool.

At the end of May, 1960, the CIA met with representatives of the five Cuban exile groups, which joined in a common front, the Cuban Revolutionary Council, for which the CIA opened bank accounts in New York, New Orleans, and Miami. The majority of the Cuban exiles lived in Florida or Louisiana. Word spread quickly that something big was in the wind and that there was no lack of funds. Volunteers poured in, and a first contingent of men described as "geometrical engineers" departed for Guatemala at the end of May, 1960.

Training Anti-Castro Cubans

The CIA provided military specialists and foreign technicians, mainly German and Japanese contractuals,

to train the Cubans as radio operators, paratroopers, frogmen, saboteurs, and in the techniques of BOA.²⁴ In August, an airstrip was constructed, and the first planes, camouflaged as civilian aircraft, landed at Retalhuleu.²⁵ An airlift was established between the CIA bases in the United States and the base at Guatemala. The volunteers who applied to the recruitment offices camouflaged behind the names of various associations in New Orleans and Miami were interrogated, their background was checked, and they were tested in the training camps run by the CIA in the Everglades near Miami and on Lake Ponchartrain in Louisiana before being flown from a clandestine airport, Opa Locka or R2, to Retalhuleu.

All of these activities were conducted in that special atmosphere of mystery and secrecy so dear to intelligence people, with false identity papers, planes without lights, post office box addresses, fake licence plates, security checks, "advice", and informers — official or otherwise. Anti-Castro fanatics of bourgeois background rubbed shoulders with unemployed or hungry Cuban refugees, Castroist agents, mercenary pilots, U.S. Marine Corps instructors, mail collectors, Japanese karate specialists, arms dealers,²⁶ soldiers of fortune, Army Colonels, and extremist orators. Under the scrutiny of the FBI they milled about and crossed each others' paths, play-acted, pretended not to know one another, flew, fought, talked of their island home or drugged themselves in hotel rooms, apartments, or bungalows rented by the CIA using the names of tourists or non-existent companies. From time to time, top CIA men from privileged backgrounds, exuding Anglophilia and a gentlemanly attitude, came to inspect their troops.

Across the water in Cuba, these events were followed attentively by Ramiro Valdes, chief of the Cuban Intelligence Service, and Sergei M. Kudryatsev, Soviet Ambassador to Cuba and a veteran KGB agent. The CIA knew, of course, that they knew, but the preparations dragged on. Dulles requested Bissell to speed up the training. He wanted the invasion carried out before the November, 1960 Presidential elections. But there were delays in the recruiting and training of the Cuban pilots needed to parachute supplies and carry out bombing raids.

In September, 1960, despite all the extra efforts, the overtime and the bonuses, the invasion force still wasn't ready. Then bad weather intervened. The CIA realized that it would have to postpone the operation until the spring of 1961. The extra time was used for additional training and to strengthen the logistics of the operation.

John Kennedy's Support for the Invasion of Cuba

On October 20th, 1960, towards the end of his electoral campaign, Kennedy declared that the United States should "attempt to strengthen the non-Bastista democratic anti-Castro forces in exile, and in Cuba itself, who offer eventual hope of overthrowing Castro." This campaign position, which probably contributed to Kennedy's victory, reassured the CIA, but it placed Kennedy in an uncomfortable position when he was confronted with the impending invasion the following spring (he had been partially informed of the plan in his capacity as President-elect by Allen Dulles in November, 1960).

The invasion was a disaster. The remnants of the Cuban exile brigade were captured in Cuba. The CIA had lost the first round. The second was won a year later, in October, 1962, by Kennedy, when he persuaded the Soviets to dismantle their Cuban missile bases.

On December 24, 1962, 1,113 captured survivors of the invasion brigade were traded for a large quantity of medicine and drugs.²⁷ On December 29th, Kennedy paid homage to their courage in Miami. In January, 1963, 450 of these men, including 200 officers, were retrieved by the CIA, which had begun to organize another invasion force. Once again they were sent to camps in Florida and Louisiana, where they were trained until the spring of 1963.²⁸

"Punishing" the CIA for Failure

But the CIA did not go unpunished for its failure. Kennedy had decided to take the intelligence agency in hand. He blamed it not only for the Cuban fiasco, but for activities in Central and South America and the Far East which ran counter to his foreign policy.²⁹ After relying during the first months of his administration on the experts, Kennedy had ordered a member of his staff, McGeorge Bundy, to represent him in Special Group 54/12.³⁰ But he was dissatisfied with the results. Dulles was condemned. He was allowed a few months of respite to save his face, but on November 29, 1961 he was replaced by John McCone.

The Kennedy choice of McCone was surprising. McCone was a good Republican, but he was hardly as pure as Douglas Dillon. His entire career had been spent in the oil industry. In 1937, at the age of 35, he had been one of the founders of the Bechtel McCone Parsons Corporation of Los Angeles, which specialized in the construction of petroleum refineries and electrical power plants in the United States, Latin America and the Middle East. During the Second World War, McCone's California Shipbuilding Company³¹ had earned huge profits. Later he took over Panama Pacific Tankers, a fleet of oil tankers. In 1961 he owned a million dollars worth of stock in Standard Oil of California.³² After his appointment, he offered to sell them³³, but the Senate Armed Services Committee concluded that this was unnecessary, although Senator Clark of Pennsylvania protested that the American oil industry, like the CIA, was deeply involved in the politics of the Middle East.

What was the reason behind Kennedy's choice? It has been suggested that "with a conservative Republican at the head of the invisible government, the President clearly thought the political fire would be somewhat diverted".³⁴ The fact is that the world of intelligence was repugnant to President Kennedy, although he was well aware of its power.³⁵ He put off this problem until later, considering it of only secondary importance. It was not resolved until after his death.³⁶

Resentment, Disillusion, and Conflict between the CIA, the FBI, and the Defense Intelligence Agency

In the spring of 1963, the anti-Castro invaders were killing time in Florida and Louisiana. Many of them had been surprised and disillusioned when the Air Force and Navy planes had failed to come to their rescue in 1961 at the Bay of Pigs. Their resentment had been aggravated by their captivity in Cuba, and their CIA superiors did nothing to calm them.

In the months of 1963, President Kennedy couldn't hold a press conference without being asked about the "16,000 or 17,000" Soviet technicians reported to be in Cuba. The President was concentrating on an end to the Cold War, which meant peaceful coexistence with the USSR and the maintenance of the status quo with Castro. But the CIA failed to take the diplomatic thaw seriously, and word never reached

the lower echelons. Everything proceeded as before. In the training camps hope, money and ammunition continued to be dispensed. Preparations were speeded up, and security precautions were multiplied. The techniques of secret warfare, the post office boxes, the clandestine airstrips, the meetings in the Turkish baths and the encounters in the railroad stations, the messages in the toilets, the passwords, the pseudonyms and the smuggling flourished, all the more so since the CIA had grown suspicious of the federal government and distrustful of the DIA. Meanwhile, the FBI carefully noted every encroachment of the CIA on its territory.³⁷

On October 17, 1962 in New York, the FBI uncovered and seized a cache of arms and ammunition belonging to Castroist Cubans and arrested three men, including Robert Santiesteban Casanova, an attache at the Cuban United Nations Mission. This was only one of the many episodes in the quiet but growing conflict between the CIA and the FBI over the limits of their respective jurisdictions. Their struggle for power grew steadily more serious.

To the anger of the exiles, the impatience of the CIA, and the investigations of the FBI, something else was added: the training officers who belonged to the Minutemen and other extremist organizations remained in contact with the leaders of these movements, and in particular with disgruntled military officers like General Walker.

One of the CIA men in New Orleans was named Guy Bannister. A former FBI agent and member of the Minutemen, he had worked for the CIA since 1958. His office was located at 544 Camp Street. His deputy, Hugh Ward, also belonged to the Minutemen and to an organization called the "Caribbean Anticommunism League", which had been used as a CIA cover group since the Guatemalan operation in 1954. One of the people who frequented 544 Camp Street was a young man named Lee Harvey Oswald. [End of this article based on Chapter 25 of "Farewell America"]

Notes

23. Ydigoras' predecessor, President Carlos Castillo Armas, who had seized power in 1954 in a coup d'etat organized by the CIA, had been assassinated in the Presidential Palace.

24. Techniques for the recuperation and reception of personnel and supplies parachuted into an area.

25. The Guatemalan government explained to foreign diplomats that these were private planes used to transport fruit and shrimp.

26. Although it possessed enormous stocks of arms itself and had all of the weapons of the U.S. Army at its disposal, the CIA was continually buying weapons, particularly foreign-made weapons: Israeli machineguns, Swiss pistols, Belgian rifles, and even out-of-date weapons from the Second and First World Wars, which it supplies to its confederates and "protectorate" states. It even purchased Vampire jets from Canada. It used well-known firms such as Interarmco, as well as fly-by-night arms dealers, which it protected and paid in either cash or drugs (the latter imported by the CIA from the Far East).

27. The last shipment of medicine reached Havana on July 3, 1963. Castro had set a price per head for the invaders. He demanded \$500,000 for Manuel Artime Buesa, the leader of the expeditionary force, and \$63 million for the 1,200 others. Their ransom

was paid mainly by the federal government, which obtained the drugs from pharmaceutical companies at wholesale prices.

28. Dozens of commercial enterprises in Florida and Louisiana are actually covers for the CIA. These include shipping concerns like the Gibraltar Steamship Corporation, airlines like Southern Air Transport, advertising agencies such as Evergreen Advertising, employment agencies such as Workers, Inc., import-export firms like Sherman Export, and, naturally, radio stations such as Radio Swam which, after its cover was blown, became Radio Americas.

The contacts between these cover agencies are made rarely by telephone, but person-to-person, through post office box addresses, and by innocent-sounding personal advertisements broadcast over commercial radio stations in Florida and Louisiana.

29. President Kennedy had been informed of the Bay of Pigs invasion, but not of the CIA's plan to contaminate a shipment of Cuban sugar in Puerto Rico in August, 1962. This shipment was headed for the Soviet Union. In its defense, the CIA declared that it was only following the instructions of the Special Group, which had enjoined it to sabotage the Cuban economy wherever possible. The President informed the CIA that in this instance it had exceeded its powers.

30. The Eisenhower Administration had sought to solve the problem of the CIA by exercising a greater measure of control. In December, 1954, the National Security Council had created a high-level coordinating body called the Special Group (or Group 54/12) consisting of the CIA Director, the President's adviser on national security affairs, the Deputy Secretary of Defense, and the Undersecretary of State for Political Affairs or his deputy. The Special Group was supposed to authorize all "black" operations and any expenditure of more than \$10,000 that might have embarrassing political repercussions.

In point of fact, the CIA managed in large measure to escape the control of the Special Group.

During the period between Dulles' disgrace and McCone's arrival, and at the instigation of the Pentagon's inter-services study group, which was anxious to take advantage of the temporary eclipse of the CIA, the Defense Intelligence Agency (DIA) was created on October 1, 1961, with the announced intention of remedying the (presumed) American inferiority in missile technology. Actually, the DIA brought together the intelligence divisions of the three branches of the armed services, the Army, the Air Force, and the Navy, to the benefit of the Pentagon. Lieutenant General Joseph F. Carroll, who had begun his career in the FBI and served as one of J. Edgar Hoover's deputies in 1947, when Hoover, in his capacity as an expert, had created a section for investigation and counter-espionage for the Air Force in which he left a certain number of "correspondents", was named Director of the DIA.

John McCone, who at the time was head of the Atomic Energy Commission, favored the establishment of the DIA, but it would have been difficult for him to do otherwise, and he changed his mind seven weeks later when he was named Director of the CIA and saw how quickly its young rival was developing. By 1963 the DIA had more than 2,000 employees and controlled all military intelligence.

McCone installed a new team at the CIA. Between January and May, 1962, General Marshall Sylvester Carter was named Deputy Director, Lyman Kirkpatrick, an OSS and CIA veteran, was appointed Executive Director, Ray S. Cline became Deputy Director for Intelligence (DDI), and Richard M. Helms was named Deputy Director for Plans (DDP).

31. Ralph E. Casey of the General Accounting Office testified that in 1946 McCone and his associates had earned \$44 million on a \$100,000 investment (mainly on defense contracts).

32. Senate Armed Services Committee Hearing on the Appointment of John McCone, January 18, 1962.

33. As John Kennedy had done with all his stocks when he became President. (He transformed them into U.S. Savings Bonds).

34. A more likely explanation was that Kennedy was a magnanimous President who was more interested in a person's abilities and experience than in his political color or his personal opinions. In August, 1963 he appointed Henry Cabot Lodge, who had been his opponent in the Massachusetts Senatorial race and again in 1956 in the Vice-Presidential campaign, as Ambassador to Vietnam to succeed Ambassador Frederick Nolting (a close friend of Madame Nhu).

35. On April 23, three days after he announced the Bay of Pigs disaster to the nation, Kennedy appointed a board of inquiry composed of Robert Kennedy, General Maxwell Taylor, Allen Dulles and Admiral Burke. On May 4 he revived the Foreign Intelligence Advisory Board presided over by James R. Killian, to which he appointed Robert Murphy, William Langer, and General Jimmie Doolittle. Killian was succeeded by Clark Clifford in 1963. The Killian Committee was ordered to make a thorough investigation of the organization of the American intelligence community.

36. In 1965 President Johnson, who is known for his distrust of cultivated Easterners, appointed a Texan, retired Vice Admiral William F. Raborn, Jr. to succeed McCone. David Wise and Thomas B. Ross wrote in The Espionage Establishment that "The CIA professionals feared that, perhaps, the choice of Raborn merely reflected the President's disinterest in the more intellectual aspects of intelligence." Helms' promotion as CIA Director in 1966 was a triumph for the OSS Ivy League types. The CIA was back in the hands of the Establishment.

37. Their rivalry was a result not of the discrepancy in their power on the international scale, but of the evolution of their activities. Counter-espionage in the United States is the exclusive responsibility of the FBI, and more particularly of its secret Division (domestic intelligence), which in 1963 was headed by William C. Sullivan.

This division is in charge of espionage, sabotage, and subversion. It handles more than 100,000 cases a year, and it is responsible for most of the successes (both known and unknown) in the United States in the field of counter-espionage in the past 20 years. It was the FBI that exposed the National Security Agency employees (Martin Mitchell, Petersen, and Sergeant Dunlap) who were working for the Soviet Union.

The FBI had known for some time that the CIA was behind several official denunciations that impeded its operations. The FBI bragged that its reports were more accurate and less hysterical than those of the CIA, while the CIA considered the FBI a bunch of choir boys.

When the CIA (which is prohibited by law from operating within the United States) extended its activities on American soil, setting up reception centers and training bases in several states, the resulting confusion and risk of infiltration led to encounters, protests, and finally to blows. Soon the two intelligence powers were setting traps for one another and organizing reprisals. □

Common Sense vs. Catastrophe

Tuesday, June 29, 1971, was a fateful day for Samuel Cochran, Jr., a vice president of the Fifth Avenue Branch of the Chase Manhattan Bank in New York City, age 62. That evening he sat down to dinner in his home in Bedford, a suburb north of New York, and ate some cold vichyssoise soup. This is soup made of pureed leeks or onions and potatoes, cream, chicken stock, and seasoning, and usually served cold. Mrs. Cochran also ate some. After eating two spoonfuls, Mr. Cochran said that it tasted bad, put it aside, and ate no more.

The next morning Cochran rose in his usual way, had some breakfast, drove to the railroad station in Bedford, and took his usual commuting train at 8:15 a.m. to New York. As he looked out the window, he noticed that he was seeing double.

During the morning his problems in seeing grew worse. He made a date for 1:30 p.m. with his eye doctor, Dr. Richard W. Darrell. By the time he got there he was having difficulties speaking and walking. Dr. Darrell called the family doctor of the Cochrans, Dr. Henry Colmore, and said to him that Mr. Cochran might have had a stroke.

Mrs. Cochran drove 40 miles into New York, picked up her husband, and brought him to Dr. Colmore's office at 4:30 p.m.

Dr. Colmore was perplexed. He arranged the admission of his patient to a hospital nearby, and found a neurologist; but the two of them could not diagnose Cochran's illness. They decided to run tests, keep their patient under close observation, give him an anticoagulant to help the blood flow to his brain in case there had been a stroke, and "stall for time".

At 10:20 p.m., Dr. Colmore called the hospital, inquired about his patient, and was told "everything was OK"; and he went to bed.

At 11:20 p.m., the hospital called him and told him that his patient was dead. Dr. Colmore went to the hospital, and filled out a death certificate...
.....

Analysis of the Problem and Solution

Now what is our analysis of this history from the point of view of the problem, the solution, and common sense? In this context, common sense means nontechnical, nonspecialized knowledge, alertness, initiative, and intelligence which could reasonably be expected of the main actors in this history. ...
.....

FOR A FREE COPY of this dramatic, two-page issue
WRITE: Computers and Automation, C22
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C'est l'extraordinaire confession faite en exclusivité à Camille Gilles par un ancien officier du 1^{er} REP ex-chef des commandos Delta de l'O.A.S. et qui pratique maintenant l'élevage en Amérique du Sud

LE FRANÇAIS QUI DEVAIT TUER KENNEDY

«M UNI d'un fusil à lunette infrarouge, je devais rater le général de Gaulle et tuer le président Kennedy. Ceci, très exactement, le 31 mai 1961, lors de la visite officielle de Kennedy en France. L'attentat devait se dérouler rue de Rivoli ou, de préférence, sur les Champs-Élysées. Je n'avais pas vraiment besoin de l'infrarouge. On me considérait comme l'un des meilleurs tireurs de l'armée française.

Computers and Automation, a little before press time, received a copy of a page in the Paris newspaper L'Aurore of Monday, October 2, which contained an extraordinary report: "The Frenchman who was to kill President Kennedy". The report begins:

"Supplied with a rifle with an infrared sight, I was to miss General De Gaulle and kill President Kennedy. This was to be done, to be precise, on May 31, 1961, on the occasion of the official visit of Kennedy to France. The attempt at assassination was to take place on the rue de Rivoli or preferably on the Champs Elysée. I had no need of the infrared sight. I was considered to be one of the best shots in the French Army."

The man who made that fantastic confession, which is capable of overturning an entire page of contemporary history, putting into question the famous Warren report, and reviving the search for a conspiracy against Kennedy in the assassination in Dallas — that man is named José Louis Romero.

Nine years after the assassination of Kennedy, Romero has decided to talk. Leaving his hacienda somewhere in South America, he came to Paris, "arriving on one plane flight and leaving on the next" (entre deux avions?), to sign an exclusive contract with Marcel Jullian "P.D.-G." of Plon and Julliard Publishers. This took place on Saturday afternoon.

[Our amateur translation of the first three paragraphs of the report.]

We hope to publish the translation of this report promptly. Those of our readers who can read French, or who have access to a French translation, will be able to read this report in the original French in this issue.



Le 31 mai 1961, du haut d'un appartement de la rue de Rivoli ou des Champs-Élysées, l'ex-lieutenant Romero, de l'O.A.S., devait abattre le président Kennedy en feignant de viser le général de Gaulle. On aurait mis l'attentat sur le compte d'une tragique erreur, due aux problèmes intérieurs de la France. Et personne n'aurait songé à rechercher les véritables instigateurs du complot : des Américains.

L'homme qui fait cette révélation fantastique, susceptible de bouleverser toute une page d'histoire contemporaine, de remettre en question le fameux rapport Warren et de faire rebondir l'enquête sur un éventuel complot contre Kennedy, dans l'attentat de Dallas, cet homme s'appelle José Luis Romero.

Neuf ans après l'assassinat de Kennedy, Romero se décide à parler. Quittant son hacienda, quelque part en Amérique du Sud, il est venu à Paris, entre deux avions, signer un contrat exclusif avec Marcel Jullian, P.D.-G. des éditions Plon et Julliard. Cela se passait samedi après-midi. Dans le jardin d'été de la maison Plon, editrice des « Mémoires » du général de Gaulle, cet ancien tueur des commandos Delta, pendant la guerre d'Algérie, a commencé à dicter son extraordinaire confession à mon confrère Camille Gilles, grand reporter d'origine pied noir, romancier du drame algérien (« Où sont les roses de Fouka ? »).

C'est en travaillant à son nouveau livre sur la douzaine de tueurs regroupés, au sein de l'O.A.S., autour du célèbre Jésus de Bab-el-Oued (« Jésus et ses apôtres »), que Camille Gilles établit le contact avec José Luis Romero et découvre toute l'histoire d'un premier complot secret contre Kennedy.

Au cœur de l'affaire : Romero. Un grand gaillard d'un mètre 87, monumental, des yeux très noirs, le corps recouvert de tatouages et criblé de cicatrices (les éclats d'une mine viet en Indochine). Un colosse dont les cheveux, aujourd'hui, sont entièrement blancs. « Fin 1963, quelques semaines après avoir appris le meurtre de Kennedy à Dallas, je me suis réveillé un matin avec les cheveux que vous me voyez. Ma moustache était blanche, le moindre poil de mon corps était devenu blanc. »

C'est pourtant cet homme-là qui, deux ans et demi plus tôt, avait accepté de tuer Kennedy, « pour l'argent et pour l'aventure ». On lui avait offert deux cents millions anciens.

Mais qui est Romero ? Né à Madrid en 1926, fils d'un révolutionnaire traqué par les franquistes, il se réfugie avec sa famille en France, passe deux ans au camp d'Argelés, près de Perpignan, fait le maquis avec son père, dirigeant de F.T.P., quitte la métropole pour Oran où son père, cordonnier, se met à fabriquer des espadrilles.

A 20 ans, José Luis s'engage dans la légion, se bat en Indochine, puis en Algérie. Après avoir servi au 2^e B.E.P., il devient l'un des meilleurs officiers du 1^{er} R.E.P., sous les ordres de Dufour, Sergent, Denoix de Saint-Marc. Il se trouve parmi les responsables du

bouclage de la Casbah. Et c'est, vers 1958, que le lieutenant Romero noue, avec un conseiller du consulat américain d'Alger, une amitié faite de confiance et d'estime mutuelle.

Mystérieux Mike

L'Américain, que nous appellerons Mike, du nom de code qu'il se donnait, travaille visiblement pour certains services secrets U.S. Mais en même temps, il se montre très compréhensif envers les éléments « Algérie française » de notre armée. Il dira même un jour à José Luis, qu'il appelle « Georges » :

« Je connais certains financiers U.S. qui ne seraient pas mécontents de placer leur argent en Algérie. Mais dans une Algérie française ou indépendante, à prédominance européenne. »

Bref, comme le lieutenant Romero, Mike se montre violemment antigauilliste et anticomuniste. Et lorsque se produit la révolte d'une partie de l'armée, lorsque se constitue l'O.A.S., Mike conserve ses contacts avec Romero, lui livre renseignements, faux passeports, argent, armes, explosifs.

A cette époque, Romero, qui a rallié les commandos Delta, n'est plus qu'un clandestin circulant en tricot de corps grenat, masquant ses tatouages, pantalon de toile clair et savates de basket, chaussure idéale de tous les Delta, puisque permettant de courir, fuir, sauter un mur, sans glisser et s'étaler.

C'est dans cet équipage que José Luis Romero se rend, par une soirée de mai 1961, au rendez-vous que lui a fixé son ami Mike dans un restaurant vietnamien d'Alger, à la Madrague, en bordure de mer. Tout commence ce soir-là. Voici comment Romero l'a raconté samedi à celui qui doit écrire l'histoire de son incroyable mission, le journaliste Camille Gilles :

« Mike devait m'apporter de faux passeports pour permettre à certains de nos hommes de rejoindre le capitaine Sergent, chef de l'O.A.S. Métropole. J'avais laissé devant la porte du restaurant, mes deux gardes du corps. Et moi-même, sous la serviette de bain posée sur une chaise, j'avais glissé mon Luger.

« Au bout d'un moment, deux hommes entrent et, sans hésiter une seconde, se dirigent vers moi et s'installent à ma table. A leur démarche typique comme s'ils évitaient d'écraser des œufs, et avec leurs chapeaux noirs à large ruban de crêpe, ils ressemblaient furieusement à des Yankees. Ils venaient, me dirent-ils, de la part de Mike.

Par Philippe BERNERT

« Ils me tendirent d'ailleurs les passeports promis par Mike en ajoutant une enveloppe pleine de billets de banque. Pour l'O.A.S. Nous dinâmes ensemble. Puis, à la fin du repas, le plus grand des deux, celui qui parlait surtout, l'autre se contentant de remarques monosyllabiques, me dit soudain :

« J'ai à vous parler sérieusement. Je vous demanderai donc de bien vouloir renvoyer les deux gorilles qui vous attendent dehors. Nous allons faire un tour en voiture, et je vous expliquerai tout.

Un étrange « contrat »

« Je n'avais aucune raison de me méfier des amis de Mike. J'ai donc accepté. Et un peu plus tard, arrêtant la voiture dans la forêt de Sidi Ferruch, le porte-parole des deux Américains me proposa le « contrat » suivant : le 31 mai, le président Kennedy se trouverait à Paris, en visite officielle. Il s'agit de feindre un attentat contre de Gaulle (phénomène presque classique dans la conjoncture actuelle : insurrection en Algérie, procès des généraux Challe et Zeller à Paris) et de tuer « accidentellement » Kennedy, au moment où ce dernier serait placé à côté du président de la République française.

« Mes interlocuteurs savent très bien à qui ils s'adressaient. Ils connaissent par cœur, semble-t-il, mes notes de tireur d'élite, faisant mouche 98 coups sur cent. Ils me proposèrent deux cents millions. La moitié tout de suite, le reste une fois l'affaire faite.

« — Mais il faut vous décider tout de suite. Vous laissez tomber tout le reste. Vous partez avec nous.

« J'ai accepté. Ils m'ont aussitôt conduit jusqu'au petit port de Bou-Haroun, près de Castiglione. Là, ils m'ont donné un passeport suisse au nom de Broeger, délivré le 20 avril 1961 par le canton de Genève. Puis ils m'ont installé à bord d'un chalutier français qui appareilla la nuit même. La mer était dure, et j'ai souffert, à fond de cale, sur mon matelas pneumatique. Toute la nuit, le bateau a résonné de coups de marteau. Le lendemain, nous abordâmes le petit port espagnol d'Andraix di Porto.

« Curieusement, le chalutier n'était plus français mais battait pavillon espagnol, avec un numéro d'inscription maritime espagnol. Sur les quais nous attendait

une Seat, voiture de marque espagnole. Nous fîmes un long trajet de trois heures, qui me parut durer des siècles. Alors que, je l'ai su par la suite, la villa où l'on me conduisit se trouvait à une vingtaine de kilomètres d'Andraix.

« Dans la villa, je pus me doucher, me raser et changer de vêtements. Car je trouvais chemise, costume et chaussures à ma taille. J'abandonnais donc mes espadrilles, mon vieux pantalon et mon polo. Mes nouveaux vêtements ne portaient pas la moindre marque d'origine.

« Dans cette villa, je revis également mon cher Mike, pour la dernière fois d'ailleurs. Le diplomate qui nous avait si puissamment aidés en Algérie m'accueillit avec effusion.

« Je savais que tu viendrais ! » me dit-il.

« Mike acheva de me transformer en citoyen helvétique en me donnant un permis de conduire au nom de Broeger, la carte d'un club privé de Genève, le numéro de mon compte en banque à Lausanne où l'on avait déjà versé, à mon nom, une « provision » de cinquante millions anciens. En marks ouest-allemands. Parce que j'allais être intégralement payé en marks.

« Et pour commencer, m'annonça Mike, nous allons te donner les premiers cinquante millions en viatique, pour le voyage.

Prélude à Dallas

« Il me tendit une ceinture que je bouclai autour de ma taille, avec les marks en coupures à l'intérieur. C'est ainsi que j'entamai mon périple, me rendant d'abord à Genève où m'attendait une voiture qui me conduisit à Lausanne. La seconde partie de l'avaloir se trouvait bien à mon compte. Je retirai l'argent et, prudent, le fis mettre sur un nouveau compte. Le 30 mai, au soir, j'étais à Paris.

« En taxi, je me rendis directement dans un café des Champs-Élysées, « Le Paris ». Là, un contact me remit un plan que je possède encore et qui se trouve, à l'heure actuelle, en lieu sûr. Le plan de l'opération. Trois possibilités m'étaient ouvertes. Ou bien tirer sur Kennedy du haut d'appartements placés rue de Rivoli, sur le trajet que devait emprunter le président U.S. Il y avait l'adresse de deux logements, avec le nom des personnes les occupant de vieilles gens

n'ayant pas la moindre famille, et qu'il suffisait d'enfermer dans une pièce avant de passer à l'action du haut de la fenêtre.

« Ou bien faire la même tentative du côté de l'Etoile, au moment où les deux présidents descendraient de voiture pour se rendre sur la tombe du soldat inconnu. Là encore, un appartement surélevé — l'avant-dernier étage — et bien en situation, était prévu. La même tactique que celle utilisée par Oswald à Dallas deux ans plus tard...

« L'arme dont je devais me servir, une carabine Remington 280 à lunette infrarouge, se trouvait dans une mallette déposée à la consigne de la gare du Nord. Je n'avais pas la clé de ce coffre. Pour l'obtenir, je devais me rendre dans la salle des pas perdus de la gare, près d'un certain kiosque à journaux. Là, un homme me remettrait la clé.

« A moi de choisir l'endroit où l'attentat se produirait. De toute façon, mes contacts m'assuraient une fuite discrète. Des voitures m'attendraient à proximité, en des lieux dégagés, pour me permettre de m'éclipser.

« Je ne sais pourquoi, me rendant à mon hôtel, sur les Champs-Élysées, pour coordonner toutes mes pensées et impressions, j'éprouvai soudain un malaise. Je compris l'idée terriblement astucieuse de mes employeurs. Le meurtre « accidentel » de Kennedy devait être mis sur le dos de l'O.A.S. ayant décidé la mort de de Gaulle. Ainsi brouillait-on les pistes.

« Je me suis dit aussi que ce petit groupe d'Américains m'avait choisi en fonction non seulement de ma personnalité de rebelle à l'autorité gaulliste, mais également de baroudeur un peu « timbré », comme on aurait dit, sans doute, en cas de capture. J'avais été trépané en Indochine, à la suite d'une grave blessure de guerre, l'explosion de la fameuse mine. Si, devant des policiers et des magistrats, j'avais

parlé d'un complot US contre Kennedy, on aurait conclu : « Cet homme ne sait pas ce qu'il dit. »

Alger intervient

« Et puis, comme si j'avais pressenti le destin d'Oswald, qui fut abattu 24 heures après avoir tué Kennedy à Dallas, je me suis dit : « C'est trop énorme. On ne me laissera pas vivant après l'exécution de ma mission. On me fera disparaître. » En tout cas, j'étais suffisamment inquiet pour me décider à demander conseil à mes chefs de l'O.A.S., et notamment à mon colonel.

« Depuis mon hôtel, je téléphonai à Alger. Carrément, en clair, je m'expliquai avec l'état-major de l'O.A.S. Mon colonel me répondit : « Je te rappelle dans une demi-heure. Surtout, ne bouge pas ! » Une demi-heure plus tard, l'ordre tomba d'Alger. Ne pas toucher à cette histoire. Laisser les Américains se débrouiller entre eux. Cette affaire risque de nous retomber sur la tête ! Je puis me tromper, mais je pense que Salan lui-même a été consulté sur cette affaire et qu'en dernier ressort c'est lui qui a décidé. L'O.A.S. a sauvé Kennedy ce jour-là.

« Mon problème commençait. Car, depuis que j'avais quitté le restaurant vietnamien de La Madrague, près d'Alger, je me sentais suivi, à la fois protégé et surveillé. Comment échapper maintenant à mes employeurs ? La meilleure façon, c'était de faire semblant de poursuivre ma mission. Prenant le métro à George-V, je me rendis tranquillement à la gare du Nord. Là, je me rapprochai du kiosque servant de lieu de rendez-vous et, m'adressant à la marchande de jour-

naux, je demandai à haute voix le chemin des lavabos.

Stop

« De façon à inciter mon contact, et aussi ceux qui me suivaient, à m'attendre près du kiosque. Je pris effectivement la direction des toilettes mais, connaissant la gare comme ma poche, j'en profitai pour sortir et me mis à piquer un cent mètres mémorable. Puis, estimant avoir semé tout le monde, je me retrouvai porte d'Italie. Pas question de rentrer à l'hôtel. Avec ma ceinture bourrée de marks, je fis du stop. Un routier me conduisit à Nice. Avec mon passeport suisse, je passai en Italie d'abord, puis je me rendis à Lausanne.

« Là, sans commettre l'imprudence de me rendre en personne à la banque, je demandai le transfert de mon compte dans une autre succursale. Là, je priai la banque de changer mes marks en dollars. Avec mon petit magot, je retournai à Rome. Toujours angoissé à l'idée d'être poursuivi par les amis de Mike, je finis par m'engager dans un groupe de mercenaires partant pour le Congo. En partant de Gênes, nous fîmes le voyage à fond de cale.

« Sincèrement, ce n'est pas au Congo, au milieu des combats, qu'on allait me retrouver. Je crois que j'ai trouvé la meilleure cachette. Puis, l'affaire du Congo terminée, j'ai pris le chemin de l'Amérique du Sud. Avec l'argent de Mike, cet argent qui devait payer l'assassinat de Kennedy, je me suis finalement installé là-bas, dans une hacienda, où je vis heureux en élevant des taureaux.

« Cette aventure peut paraître folle. Je sais ce qu'elle implique. C'est que, dès 1961, des hommes cherchaient à éliminer Kennedy par la violence, et par un tueur interposé. Peut-être les mêmes hommes ont-ils recommencé,

deux ans plus tard, avec Oswald, l'opération que j'ai laissée tomber au beau milieu. Pourquoi j'ai attendu si longtemps avant de parler ? Parce que des amis m'ont dit que le moment était venu d'expliquer certaines choses, parce que mes anciens chefs de l'O.A.S. m'ont donné le feu vert, parce que j'ai trouvé en Camille Gilles un journaliste qui méritait d'écrire cette histoire.

« On me demandera sans doute de prouver ce que j'avance. Mes preuves existent, ceux qui m'ont contacté naguère le savent. Ces preuves sont en lieu sur ~~entre~~ les mains ~~un~~ homme de loi de Genève : des lettres échangées avec Mike, le diplomate américain, les trois passeports qui ne furent ~~donnés~~, les adresses des appartements parisiens qui devaient servir, les noms de leurs occupants, le plan remis par les conjurés, le petit carnet officiel qu'ils me confièrent aussi, et contenant toutes les indications sur le « timing » du voyage de Kennedy.

« Je ne parle pas pour gagner de l'argent. Je suis riche et tranquille. Je vis à cheval au milieu des troupeaux. Pour moi, l'aventure est finie. Mais il arrive toujours le moment de la vérité. Il y a certaines choses que l'on ne peut éternellement garder pour soi... »

Samedi soir, l'ex-lieutenant Romero a regagné l'Amérique du Sud. Avec son biographe, Camille Gilles, et son éditeur, Marcel Jullian, il correspondra par « bandes magnétiques ». Grâce aux révélations de cet aventurier solitaire, en retrouvant Mike et ses amis à la faveur de son témoignage, percera-t-on enfin les ténèbres qui entourent la mort de Kennedy à Dallas ? L'attentat manqué de Paris n'était-il qu'une répétition générale de la tragédie qui a secoué le monde ?

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ACROSS THE EDITOR'S DESK

Computing and Data Processing Newsletter

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APPLICATIONS

THREE DIMENSIONAL MAPS FROM COMPUTER

*Fran Murray
Dept. of Information Services
Michigan State University
East Lansing, Mich. 48823*

Computer maps decorate the office of Dr. Robert I. Wittick who has a doctoral degree in geography and is an assistant professor of geography at Michigan State University's Computer Institute for Social Science Research. His maps of Michigan show population changes for the state by counties, and a contour map of Michigan shows percentages of population change from 1960 to 1970.

Three dimensional maps are among the specialized products of MSU's Computer Center. A map of the world, or any area of it, showing such data as elevations or rainfall or land uses can be obtained in a variety of sizes and at a fraction of the time needed for production of such a map by hand.

One map, produced by the computer as an azimuthal projection, shows the world as a sphere with the United States curved over one area of it. Another, when viewed in its two colors with the two-color glasses used in the 1950's for 3D movies, shows the rainfall density patterns of North America looking like mountains and valleys. Another is a wide, but shallow cylindrical map of the world as it looks from the equator.

The computer-mapping programs at MSU are designed as instructional and research tools. Besides the various basic mapping programs prepared at MSU, the computer software includes a 6,000-card program of worldwide maps made available by a United States government agency.

Statistical data can be put into the computer in such subject areas as traffic and transportation problems, regional forecasting, land use, natural resources, climate, migration, employment categories, population, or rainfall. Then the computer digests the information and produces maps on which the data appear in relation to space.

The computer maps come in two kinds of printouts — either the "line printer map" on regular computer printout paper, or the "pen and ink plotter maps" which include the block diagrams that show data like rainfall patterns in 3D form on regular drafting paper. Further, the computer maps can show the earth's surface as seen from any longitude, latitude or elevation. "The computer is as agile as an aerial balloonist," Dr. Wittick said. "It can work from various heights or angles or directions, or from the level of the land. Sub-surface data can be shown if the correct data is first fed into the computer."

Dr. Wittick also is director of the Geography Program Exchange, an international scholars' unit for interchange of computer software including basic computer map-making programs and spatially related statistical data. Computer mapping is included in subjects studied in two MSU geography courses.

60 SECOND ORDER PROCESSING AT WAREHOUSE DISTRIBUTION CENTER

*Memorex Corporation
San Tomas at Central Expressway
Santa Clara, Calif. 95052*

Alford Refrigerated Warehouses, Dallas, Texas, one of the largest such operations in the United States, is using a Memorex Corporation high-speed data communications system to slash order processing time to less than a minute — and saves \$1,000

a month in rental and line charges. The firm's new data communications system helps maintain approximately 100 million pounds of commodities in running inventory throughout 30 million cubic feet of freezer, refrigerated and dry storage space. The warehouse complex consists of two half-mile-long buildings, the largest such facility in the southwest United States.

When a food broker phones in an order, it is entered via a 30-character-per-second Memorex 1240 communication terminal. This data is transmitted to a Memorex 1270 transmission control unit (TCU) serving as a peripheral to Alford's IBM 360/40 central processing unit. The order is processed by the computer and retransmitted as a bill of lading and invoice information to a teletype within the shipping department of the appropriate section in the warehouse complex. The shipping bay receives the order information within 60 seconds after it is entered. Often a shipment can be on its way to the food broker's customer within minutes.

Simultaneously with the dispatch of information for shipping, two Memorex 1250 terminals operating in unattended modes produce hardcopy control information on all transactions. This information is used for auditing, inventory control, etc. The 1240 terminals, which are used continuously nine hours a day, five days a week by order clerks, also provide interactive information from the computer to the operator.

The Memorex 1270 TCU has a number of benefits. First of all, it is approximately \$500 per month cheaper than the predecessor control unit at the Alford installation, while providing up to 96 channels of communications. The firm already is at 39 channels with the single Memorex equipment and expects to be above 50 channels soon. Savings are at least \$1,000 per month. Another benefit is the Memorex TCU's flexibility, which permits simultaneous terminal operation at speeds ranging from 110 to 600 Baud.

The 1270's control panel also is very useful in allowing Alford to monitor lines and to test and isolate for possible trouble. The communications system has proved so successful that Alford has already put in terminals at a satellite warehouse in Corpus Christi, 400 miles distant.

In effect, this is a timesharing type applications utilizing Alford's software developed for order processing, accounts receivable and commodity audits. Alford intends to offer this same service to other warehousing operations in the U.S.

MYTHICAL CITY HELPS STUDENTS LEARN MUNICIPAL AFFAIRS

*Dr. Richard A. Anderson
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University of New Mexico
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Metropolis, New Mexico, a "city" of 214,000 residents cannot be found on any map. It exists inside an IBM 1130 computer at the University of New Mexico in Albuquerque. The simulated city enables students of urban planning, municipal administration and political science to learn some of the complexities of running a city — but without taking any of the associated operating risks.

Nine students play the instructional game of guiding Metropolis' growth. Three represent city

management, three are elected politicians and three are land developers. At the beginning of each game, the computing system prints an opinion poll and a simulated newspaper, *The Citizen's Gazette*. These show the city's "current" status and give a run-down of its problems. Using this information, the students determine priorities and develop solutions.

Elected councilmen will seek to make decisions most favorable to the electorate in their respective wards. The city management faction will attempt to effectively manage the tight and limited annual budget and recommend decisions that will be best for the city as a whole. Land developers will lobby for decisions that encourage growth and a healthy business climate, and which will benefit them financially. The players learn the political art of compromise in order to get things done. Coalitions are formed and broken rapidly. As decisions are made, they are entered into the IBM system. The computer analyzes the interactions of various decisions and projects the consequences of each "year's" decisions and updates the students by printing another issue of the newspaper and another poll.

The learning game can be made fairly complex. For example, the computer operator can play the role of the federal government by announcing — through the simulated newspaper — that matching federal grants have become available for certain types of municipal improvement programs. This would inject new variables into the game and likely enhance the fight to implement "pet projects". A "game" can last up to five hours and represent a period of about 13 years in the life of the mythical city.

"The game is a no-risk method for teaching students that a city's operation depends upon rapidly changing issues and complex relationships between people with differing goals," says Prof. Richard A. Anderson, director of the university's Center for Environmental Research. "It teaches them to think ahead, and analyze long-range consequences of each decision. It also shows the interaction of multiple decision."

"Metropolis" was first developed for use on an IBM 1130 computing system by Dr. Richard Duke of the Environmental Simulation Laboratory at the University of Michigan at Ann Arbor.

EDUCATION NEWS

CAI (COMPUTER-AIDED INSTRUCTION) SHORTENS PHYSICIAN LEARNING PROCESS

*Dr. Richard Meiling
The Ohio State University Hospitals
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Columbus, Ohio 43210*

The time required to prepare doctors for the practice of medicine is being reduced at Ohio State University with the help of a computer. The research aspects of this project, referred to as the "Pilot Medical Program," were initiated in July of 1969 and are funded by the U.S. Department of Health, Education and Welfare. The new program will graduate its first class of physicians in 1973.

Under this program, which is entirely voluntary, students may complete requirements for their medical degree in a minimum of thirty-six months. Traditionally, medical education has been geared to a 48-month program. Reduction in the time required to qualify

for a medical degree was achieved partially in mid-1969 when OSU became one of the first universities in the country to go to year-round classwork for medical students. This was achieved by eliminating the 3 to 4 summer-months break and allowing students approximately 30 days of vacation for each 12 months of study.

Supplementing our restructured curriculum program is our extensive use of computers, which enables the student to progress at his own pace. A central IBM computer serves the student as a learning and evaluation tool, testing his comprehension of outside reading and classroom instruction.

The student, seated at one of several typewriter-like terminals located in the medical school, engages in a give-and-take question and answer routine with the computer, an IBM System/360 Model 40. The student activates a companion slide film, as instructed by the computer, to give him a further dimension to his Computer Assisted Instruction (CAI). Typical subject matter of the color slides are enlargements of tissue or organs and medical diagrams and illustrations. Though computers are used to reinforce comprehension of outside work, students still are required to take written examinations when they feel qualified to do so.

The OSU Medical curriculum has been revised to reflect recent changes in medicine. Anatomy, for example, is studied for eight weeks instead of a year. Classically, medical students have devoted a year of study to anatomy. But when you consider that recent developments in medicine and drugs must be included in the student's curriculum, we cannot afford to spend as much time as we used to with something as elementary as anatomy. One of the reasons we can cover the magnitude of new materials in less time, is that devices like the computer enable us to deliver the subject matter as fast as the individual can comprehend it. The use of computers also frees staff members to spend more time in one-on-one counselling situations with students, making medical education more personal than before.

The ultimate objective of this system is to boost our ability to process more doctors through school without increasing our physical plant or the size of our medical faculty. At the same time we're striving to keep the student abreast of each new scientific development involving delivery of patient care.

SCHOLARSHIP PROGRAM FOR MINORITY GROUP STUDENTS

*Harry Ashbridge
Telex Corporation
41 & Sheridan Road
Tulsa, Okla. 74145*

Telex Corporation has initiated a scholarship program at Oklahoma State Tech College in Okmulgee, Oklahoma. The program, for minority group students in the Tulsa area, will allow five students enrolled in the OST Industrial Electronics curriculum to receive a substantial grant from the Tulsa-based Telex Corporation and complete two years of study. Telex will award five scholarships per year to qualified applicants beginning with the current school term. Opportunities for summer and future full-time employment will be available to the scholarship recipients at Telex.

Tech's curriculum offers a broad section of study of the electronics industry and graduates are potential candidates for Telex' Associate Customer Engineering Training Programs.

NEW PRODUCTS

MINI-BASED SYSTEM TAKES LOW COST PATIENT MEDICAL HISTORY

*Pat Murphy
CSM Medical Devices, Inc.
377 Putnam
Cambridge, Mass. 02139*

A new comprehensive patient history taking system, utilizing a PDP-8 minicomputer and remote consoles of the company's own design, has been extensively tested at a leading Boston teaching hospital. Initial installations have been completed in Boston, Mass.; Yakima and Spokane, Wash.; and San Francisco, Calif.

DoctorsAid automatically acquires and transcribes a complete medical history in approximately 30 minutes at a cost ranging between \$1 and \$4 per patient, depending on the volume of histories taken. Current users are being reimbursed by Blue Cross/Blue Shield, Medicaid, Medicare and private insurers. This, in effect, means that hospitals and related medical institutions which require medical case histories may purchase or rent the DoctorsAid system at no cost or obligation.

The DoctorsAid utilizes a comprehensive branched questionnaire that probes deeply into areas that are significant to the particular patient without asking questions in areas where the patient has indicated there are no problems. The multiple choice questions are displayed one at a time on the console which operates under computer control. The patient interacts directly with the system by depressing one of six alternative response buttons to answer each question as it is presented. Based on the patient's answer, the DoctorsAid chooses the next appropriate question.

The process of selection allows the DoctorsAid to pursue positive findings in great depth and detail, while passing over areas of limited interest. Upon completion of the questioning, a complete medical history is printed for immediate evaluation by the physician and inclusion in the patient's medical record.

The DoctorsAid system is offered on both a purchase and rental basis.

DEC'S NEW SCHOOL COMPUTER SYSTEMS

*Alan Shulman
Digital Equipment Corporation
Maynard, Mass. 01754*

Digital Equipment Corporation has completed the implementation of the first two of its new school-wide computer systems. Designated EduSystem-EDP, it combines in a single system classroom instructional power and administrative data processing capability. The first installations are in the Melrose High School, Mass., and Sierra Vista High School, Ariz. EduSystem-EDP, which is the lowest-priced total school computer system commercially available, is built around Digital's PDP-8/E minicomputer.

For classroom instruction purposes, the new system utilizes the well-known BASIC language with programs consisting of simple combinations of English words and decimal numbers. Students with no previous computer experience can write meaningful programs and utilize the computer for problem-solving applications after as little as an hour of instruction.

The new system can support up to eight terminals simultaneously in the classroom for student use in problem-solving or simulation. EduSystem-EDP includes an education package consisting of software, textbooks, curriculum materials and guides for use of the computer. Programs available include biology, chemistry, earth science, physics, social studies, mathematics and teacher assistance.

The educational data processing system of EduSystem-EDP consists of an operating system and application packages for student records, attendance accounting, grade reporting, and student scheduling. The package includes utilities for daily attendance accounting at the high school, a monthly attendance register for all schools in the district and an end-of-the-year attendance report.

MISCELLANEOUS

NAVY AND COMMERCIAL USERS SHARE NAVIGATIONAL SATELLITE

*Cyril J. O'Brien
The Johns Hopkins University
Applied Physics Laboratory
Silver Spring, Md. 20910*

Navy and commercial users will share the benefits from a Navy navigation satellite launched into a near-polar orbit September 2, 1972 at Vandenberg Air Force Base, Calif. The satellite, developed by The Johns Hopkins Applied Physics Laboratory, carries improvements and experiments to update a system that has been used for all-weather global navigation since July 1964 by Polaris missile-carrying submarines and, later, by other combat ships. (Since the navigation system became available to non-Navy users in July 1967, it has been adapted for commercial shipping, charting of offshore oil and mineral deposits, and land survey projects.)

Power for the new Transit satellite comes from a 30-watt atomic generator developed by the Atomic Energy Commission, Germantown, Maryland. The nuclear device, technically radioisotope thermoelectric generator, is similar in principle to one carried by a Transit satellite in June 1961, the world's first use of atomic power in space. The satellite is transmitting experimental data on nominal frequencies of 400 and 150 mhz. After an experimental phase of about six months, the satellite will be available to all Transit system users.

The 207-pound Transit contains a unit called DISCOS (disturbance compensation system) which forces it to fly a highly predictable orbit. Success of this feature may lead to navigation satellites with orbits so precise and unchanging that their paths can be published in reference tables. Such tables would make possible the use of simpler and less costly ground equipment to calculate navigation fixes. Orbit predictions for the present satellites must be updated every 12-16 hours and fed to the satellite memory for rebroadcast to users.

Controlled by an on-board computer, Transit's experiments include a random noise modulation system, enabling rapid measuring of distance from the satellite to the receiver, and an incremental phase shifter to correct oscillator frequency drift. Other experiments are several panels of solar cells to check effects of orbital environment, an improved transmitting antenna, and a new thermal protective coating.

The Transit satellite extends to 24 feet in three-bodied tandem style. The earth-facing body of the satellite holds the electronics, computer, and directional antenna and is separated by 10 feet of scissors-gate-design aluminum boom from the center or DISCOS unit. The space-facing body is joined to the DISCOS by another 10 feet of aluminum boom and contains the atomic generator and experimental solar cells. The booms were extended by tiny motors on command from the computer after despin devices stabilized the satellite in orbit. The 64,000 bit memory computer in the satellite can be programmed to make varied use of on-board experiments or satellite equipment. It also can store scientific information and relay it at the convenience of ground stations.

When the satellite becomes available commercially, users who have the equipment to receive signals from the operational satellites will be able to obtain fixes from the new satellite in the same manner as with current navigation satellites. As a satellite approaches a ground station, or ship, its signal activates the receiving equipment, which then automatically computes and types the ship's position for the navigator. Frequent public examples of the system's accuracy have been the pinpoint prepositioning of Navy ships preparing to recover astronauts from orbit.

DARTMOUTH COLLEGE ANNOUNCES FORMATION OF DTSS, INC.

*Office of Information Services
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Dartmouth College recently announced the formation of DTSS, Inc. to license the use of Dartmouth Time-Sharing System software to other computer centers. The DTSS software was developed over the past six years by Dartmouth students and faculty members working with the personnel of the college's Kiewit Computation Center. The ownership of DTSS software is the principal asset of DTSS, Inc., a taxable corporation which in turn is owned by the trustees of Dartmouth College. DTSS software is a complete operating system for a digital computer, accepting and performing the tasks of over 130 simultaneous users working with problem-solving languages such as BASIC, FORTRAN and COBOL.

While Dartmouth students and faculty and many outside educational institutions have direct access to Kiewit, there is a much larger need by users, both educational and commercial, who must operate their own computer facilities but do not have the great flexibility provided by DTSS software. It is these institutions to which DTSS, Inc. will devote its fulltime interest in a concerted effort to give time-sharing a greater impact in the computing field.

Under the terms of the sales agreement between DTSS, Inc. and Dartmouth, the firm obtained the exclusive national and international rights to license the DTSS software operating system to educational and commercial institutions. Each institution licensed to use the DTSS system also will receive a copy of the hundreds of public programs stored in the Kiewit Computation Center's library. These programs include a variety of mathematical and statistical learning aids for fields ranging from anthropology to zeros of functions, management aids, and games such as computerized football.

NEW CONTRACTS

TO	FROM	FOR	AMOUNT
North American Rockwell Microelectronics Co., Anaheim, Calif.	Rapid Data Systems & Equipment Ltd., Toronto, Ont., Canada	Supplying large quantities of microelectronic circuits as well as complete calculators	\$15+ million
Computer Sciences Corp., Los Angeles, Calif.	Navy Regional Procurement Office, Los Angeles, Calif.	Technical services in support of U.S. Navy's Pacific Missile Range at Pt. Mugu, Calif.	\$7 million (approximate)
National Cash Register Co., Dayton, Ohio	Cooperatieve Administratie-centrale voor Spaarbanken, G.A., Amsterdam, The Netherlands	440 NCR 270 financial terminals for on-line data network serving 300 saving bank branches throughout the Netherlands; scheduled for completion by spring, 1975	\$4.5 million
McDonnell Douglas Automation Co., St. Louis, Mo.	Sisters of Mercy of the Union, Province of St. Louis, Mo.	Complete financial data processing services for seven hospitals operated by the Sisters	\$2.5 million
National Cash Register Co., Dayton, Ohio	Banco de Valencia, Madrid, Spain	Two Century 300 systems allowing bank to serve depositors in 36 branches connected on-line to computers by means of NCR 42-500 teller terminals	\$2.25 million
RCA, New York, N.Y.	NASA	Developing multiprocessor model, SUMC (Space Ultrareliable Modular Computer); could be forerunner of series of small, powerful systems for space missions	\$2.2 million (approximate)
PRC Information Sciences Co., McLean, Va.	California Institute of Technology, Jet Propulsion Lab., Los Angeles, Calif.	Developing and maintaining specialized computer software to support JPL's unmanned space missions	\$1.42 million
Logicon, Inc., San Pedro, Calif.	Air Force Space and Missile Systems Org. (SAMSO)	Engineering evaluation and software development on the Minuteman intercontinental ballistic missile (ICBM) system	\$1.2 million (approximate)
Xerox Computer Services, Xerox Corp., Stamford, Conn.	City of San Bernardino, San Bernardino, Calif.	Assuming complete responsibility for city's data processing operations; also installing a centralized municipal information system	\$1.1 million
Xerox Corp., El Segundo, Calif.	Mountain Bell Telephone Co., Denver, Colorado	Two Xerox Sigma 3 computers for use in communications message-switching systems for both accounting and directory departments	\$340,000+
Computer Sciences Corp., Los Angeles, Calif.	Rome Air Development Center, Griffiss Air Force Base, N.Y.	Developing a compiler-building system that will substantially reduce the cost of producing new JOVIAL compilers	\$300,000
Univac Communications & Terminals Div., Sperry Rand Corp., Salt Lake City, Utah	Minnesota Highway Patrol and Bureau of Criminal Apprehension, Minnesota Dept. of Public Safety	39 UNISCOPE® 100 display terminals and 36 printers for use by law enforcement agencies in the Minneapolis-St. Paul Twin Cities area	\$300,000
Keane Associates, Inc., Wellesley Hills, Mass. and Delphi Associates, Inc., Wakefield, Mass.	State of New Hampshire, State Computer Center, Concord, N.H.	Developing and installing a new Medicaid management information system	\$200,000+
Computer Dynamics Corp., Cherry Hill, N.J.	United States Air Force	Training of civilian and military personnel in programming and operations of Honeywell 6000 Series Computer Courses in Communications, IDS, COBOL, GMAP and Time Sharing	\$110,800 (approximate)
Computer Products, Inc., Fort Lauderdale, Fla.	Westinghouse Corp., Pittsburgh, Pa.	RTP analog and digital input/output equipment to interface with a PDP-11 minicomputer as part of a simulation application regarding nuclear reactors	\$100,000
University of Notre Dame, Notre Dame, Indiana	National Science Foundation	New ways to describe and evaluate error; goal is to find number of equations which produced some 'minimum' errors	\$59,300
Carnegie-Mellon University, Pittsburgh, Pa.	Pennsylvania Governor's Justice Commission	Developing a computer program enabling planners of criminal justice systems to analyze results of changes in such factors as budget allocations, arrest rates, and sentencing procedures	\$52,405
American Biomedical Corp., Dallas, Texas	General Health Services, Inc., Medical City Dallas, Dallas, Texas	Equipping and operating (for ten years) the clinical pathology laboratories and blood bank in new 300 bed hospital	—
Computer Interactions, Inc. (OTC), Great Neck, N.Y.	Northeast Medical Suppliers, Inc., Irvington, N.J.	Installation of CI-2 Mini-Computer Business Systems at all Northeast locations to automate firm's entire business operations	—
Control Data Corp., Washington Professional Services Div., Washington, D.C.	U.S. Department of Agriculture, Forest Service, Washington, D.C.	Development, delivery, installation and test of computer programs for the Service's Geographic Locator (GEO) System, supporting effective management of more than 187 million acres of land under Forest Service control	—
Credit Systems, Inc., Colmar, Pa.	Bonwit Teller, New York, N.Y.	An on-line CREDIT-CHEK credit authorization and check cashing system in 10 stores in N.Y., N.J., Pa., Ill., and Mich.	—
Computer Usage Co., Atlanta, Ga.	Indiana Bank & Trust Co., Fort Wayne, Ind.	Managing and operating bank's data processing facility for 6-1/3 years	—
Dataskil Ltd., Reading, England	Marine Midland, New York, N.Y.	Providing total software and operations service for MM's new London computer center; will design and implement systems to be used on Bank's 1902S computer	—
Intel Corp., San Francisco, Calif.	Bell Labs, Naperville, Ill.	A 4-million-byte semiconductor memory add-on for its IBM System/360-67 computer	—

NEW INSTALLATIONS

OF	AT	FOR
Burroughs B 3500 system	Irving Bank & Trust Co., Irving, Texas	Check processing and internal applications, and a growing volume of data communications work (system valued at \$680,000)
Burroughs B 5700 system	John Carroll University, University Heights, Ohio	Providing time-sharing capability to faculty and students for educational and research purposes (system valued at more than \$1.5 million)
Burroughs B 6700 system	The Gas and Fuel Corp. of Australia, Melbourne, Victoria, Australia	A full range of public utility accounting applications, including customer billing and inventory control (system valued at approximately \$3 million)
Control Data CDC 6600 system	Region IV Education Service Center, Houston, Texas	Expanding multi-school district education data processing services (system valued at \$2.4 million)
Digital DECsystem-10	Newport Mesa Unified School District, Orange County, Calif.	Class scheduling, report cards, purchase orders, other business activities as well as student instruction
Digital DECsystem-1040	Wesleyan University, Middletown, Conn.	Accounting and record-keeping, and time-sharing; used in over 12 academic depts., including music, German language tutorial and by football coach (system valued at approximately \$450,000)
Digital DECsystem-1070	Computility, Boston, Mass.	Upgrading firm's present time-sharing system (equipment valued at \$250,000)
Honeywell Model 2040 system	Geisinger Medical Center, Danville, Pa.	Clinical and administrative applications such as admissions, scheduling for outpatients and nurses, pathology, lab reports
	Volkswagen Insurance Co., St. Louis, Mo.	Programs now run on a Model 200, including general insurance and office applications, various state reports and direct-mail business solicitation functions
Honeywell Model 6040 system	Commercial Banking Co. of Syd- ney Ltd., Sydney, Australia	First phase of on-line banking system to take over total record keeping for all accounting functions currently performed by 500 branches (system valued at approximately \$2,040,000)
IBM System/3 Model 6	Buckeye Sugars, Inc., Ottawa, Ohio	Payroll and payables to growers, sales analysis by geographical area and by sales representative and broker, and inventory control
IBM System/370 Model 135	The Central Trust Bank, Jeffer- son City, Mo.	Expanding a centralized information system for better customer service and improved efficiency
	Texas International Airlines, Inc., Houston, Texas	Monitoring maintenance and inspection require- ments, known as Rotable Control Program
	J. Weingarten, Inc., Houston, Texas	Daily forecast of customer demand for perishable products
NCR Century 50 system	Alpena Community College, Alpena, Mich.	Teaching and administrative functions
	Auburn Savings Bank, Auburn, N.Y.	Monitoring savings and mortgage accounts and gen- eral accounting
	Bethesda Community Hospital, Hornell, N.Y.	In-patient and post-discharge patient accounts re- ceivable, payroll and personnel accounting, pay- ables, general ledger accounting, medical audit statistics
	Cabell Huntington Hospital, Huntington, W. Va.	Accounts receivable, payroll, and other adminis- trative applications
	J. T. Davenport and Sons, Inc., Sanford, N.C.	Order processing and billings
	Fremont Medical Center, Yuba City, Calif.	Multiple administrative applications including patient accounts receivable, payroll, payables, general ledger accounting
	C. P. Products Corp., Elkhart, Ind.	Processing payables, receivables and order billing
	St. Catherine's Hospital, Racine, Wisc.	Accounts receivable, payroll, and other adminis- trative applications
	P. A. Thomas Car Works, High Point, N.C.	Order entry, accounts receivable, parts inventory control, bill of materials and production scheduling
NCR Century 100 system	Carron Company, Falkirk, Scotland	General accounting, customer order processing and management inquiry
	Central Kansas Medical Center, Great Bend, Kansas	In-patient and post-discharge receivables, accounts payable, general ledger accounting, payroll and in- ventory control
NCR Century 101 system	Nocona Boot Co., Nocona, Texas	Payroll, personnel records, accounts payable, bill- ing, and inventory control
NCR Century 200 system	Bush and Company, Wichita, Kansas	Mortgage and general accounting
	Cummins Power, Inc., Commerce City, Colorado	Order entry, inventory control, accounts payable and receivable, and general ledger accounting
	Pier I Imports, Fort Worth, Texas	General accounting, sales analysis and inventory control
	Sarasota County Board of County Commissioners, Sarasota, Fla.	Use by the county sheriff, the board of tax as- sessors and for utility billing
UNIVAC 1106 system	Energoprojekt, Belgrade, Yugo- slavia	Scientific, engineering and architectural applica- tions in real-time, demand and batch operating modes
	Pace College, New York, N.Y.	Enlarging data processing facilities available to students; and administrative and business applica- tions
Varian Data 620/L-100 system	Galaxy Foods, Inc., Brooklyn, N.Y.	Order entry and delivery system; automatically pro- cesses phone calls, records inventory changes, et al.

MONTHLY COMPUTER CENSUS

Neil Macdonald
Survey Editor
COMPUTERS AND AUTOMATION

The following is a summary made by COMPUTERS AND AUTOMATION of reports and estimates of the number of general purpose electronic digital computers manufactured and installed, or to be manufactured and on order. These figures are mailed to individual computer manufacturers from time to time for their information and review, and for any updating or comments they may care to provide. Please note the variation in dates and reliability of the information. Several important manufacturers refuse to give out, confirm, or comment on any figures.

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

Part I of the Monthly Computer Census contains reports for United States manufacturers. Part II contains reports for manufacturers outside of the United States. The two parts are published in alternate months.

The following abbreviations apply:

- (A) -- authoritative figures, derived essentially from information sent by the manufacturer directly to COMPUTERS AND AUTOMATION
- C -- figure is combined in a total
- (D) -- acknowledgment is given to DP Focus, Marlboro, Mass., for their help in estimating many of these figures
- E -- figure estimated by COMPUTERS AND AUTOMATION
- (N) -- manufacturer refuses to give any figures on number of installations or of orders, and refuses to comment in any way on those numbers stated here
- (R) -- figures derived all or in part from information released indirectly by the manufacturer, or from reports by other sources likely to be informed
- (S) -- sale only, and sale (not rental) price is stated
- X -- no longer in production
- -- information not obtained at press time

SUMMARY AS OF NOVEMBER 15, 1972

NAME OF MANUFACTURER	NAME OF COMPUTER	DATE OF FIRST INSTALLATION	AVERAGE OR RANGE OF MONTHLY RENTAL \$ (000)		NUMBER OF INSTALLATIONS			NUMBER OF UNFULFILLED ORDERS	
					In U.S.A.	Outside U.S.A.	In World		
Part II. Manufacturers Outside United States									
A/S Norsk Data Elektronikk Oslo, Norway (A) (Sept. 1972)	NORD-1 NORD-2B NORD-5 NORD-20	8/68 8/69 - -1/72	2.0 4.0 - 3.5	(S) (S)	0 0 0 0	82 20 1 7	82 20 1 7	18 X 0 7	
A/S Regnecentralen Copenhagen, Denmark (A) (Jan. 1972)	CIER RC 4000	12/60 6/67	2.3-7.5 3.0-20.0		0 0	40 19	40 19	0 3	
Elbit Computers Ltd. Haifa, Israel (A) (Nov. 1972)	Elbit-100	10/67	4.9	(S)	-	-	325	10	
GEC Computers Ltd. Borehamwood, Hertfordshire England (A) (Nov. 1972)	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 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 - X -	
Japanese Mfrs. (N) (Sept. 1970)	(Mfrs. of various models include: Nippon Electric Co., Fujitsu, Hitachi, Ltd., Toshiba, Oki Electric Industry Co., and Mitsubishi Electric Corp.)						Total: 4150 E	Total: 800 E	
N.V. Philips Electrológica Apeldoorn, Netherlands (A) (Oct. 1972)	P1000 P9200 P9200 t.s. P880 P850/55/60 ELX DS 714 DS 18 PR 8000	8/68 3/68 3/70 9/70 9/70 5/58 -/67 9/72 1/66	7.2-35.8 - - - - 6-21 - - -		- - - - - 11 - - -	- - - - - 22 - - -	105 300 5 29 40 42 33 - 23	39 25 1 16 290 - 19 9 -	
Redifon Limited Crawley, Sussex, England (A) (Nov. 1972)	R2000	7/70	-		1	14	15	4	
Saab-Scania Aktiebolag Linköping, Sweden (A) (Nov. 1972)	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 0	38 33 17 0 7 32	38 33 17 0 7 32	- 3 3 3 4 2000	
Selenia S.p.A. Roma, Italy (A) (Nov. 1972)	G-16 GP-160	7/69 -	10.9 5.6	(S) (S)	0 -	136 -	136 -	51 250	
Siemens Munich, Germany (A) (Oct. 1972)	301 302 303	11/68 1/68 4/65	0.9 2.1 2.7		- - -	- - -	103 30 70	15 7 2	

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	
Siemens (Continued)	304	5/68	4.5	-	-	81	13
	305	-	-	-	-	119	16
	306	6/70	7.9	-	-	29	5
	2002	6/59	16.4	-	-	41	-
	3003	12/63	15.8	-	-	32	-
	4004/15/16	10/65	6.1	-	-	96	4
	4004/25/26	1/66	10.0	-	-	78	16
	4004/35	2/67	14.2	-	-	202	51
	4004/135	10/71	20.5	-	-	73	48
	4004/45	7/66	27.3	-	-	354	36
	4004/46	4/69	41.0	-	-	16	1
	4004/55/60	7/66	35.0	-	-	27	-
	4004/150	2/72	49.0	-	-	33	50
	4004/151	3/72	61.0	-	-	7	3
	404/3	4/71	2.1	-	-	31	12
	404/6	10/71	4.5	-	-	54	33
						Total: 1476	Total: 312
USSR (N) (May 1969)	BESM 4	-	-	-	-	C	C
	BESM 6	-	-	-	-	C	C
	MINSK 2	-	-	-	-	C	C
	MINSK 22	-	-	-	-	C	C
	MIE	-	-	-	-	C	C
	NAIR 1	-	-	-	-	C	C
	ONEGA 1	-	-	-	-	C	C
	URAL 11/14/16 and others	-	-	-	-	C	C
						Total: 6000 E	Total: 6000 E

The C&A Notebook on COMMON SENSE

Vol. 1, No. 20

How to be Silly

Perhaps one of the best ways to highlight common sense is an inventory of "how to be silly" — in other words, how to fail to have common sense. ...

3. Being Silly in Regard to an Objective

Undertake a project without considering it as a whole.

Undertake a project without considering all its ingredients.

Say that something "can't be done," without considering how it might be done.

For a difficult objective, fail to analyze and compare the different paths for attaining it.

Not start soon enough to accomplish the objective.

Put in much effort on a trifling objective.

Put in a trifle of effort on a big objective.

Be so enamored of the way you have said or written something that you let that mode of expression prevent you from accomplishing your objective.

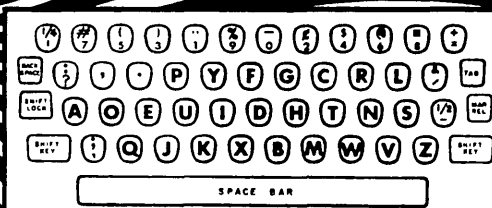
Use twenty words to say something when two words will do.

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- Jan. 17-19, 1973:** 1973 Winter Simulation Conference, San Francisco, Calif. / contact: Robert D. Dickey, Bank of California, 400 California St., San Francisco, CA 94120
- Jan. 31-Feb. 1, 1973:** San Diego Biomedical Symposium, Sheraton-Harbor Island Hotel, San Diego, Calif. / contact: Dr. Robert H. Riffenburgh, Program Chmn., San Diego Biomedical Symposium P.O. Box 965, San Diego, CA 92112
- Feb. 20-22, 1973:** Computer Science Conference, Neil House, Columbus, Ohio / contact: Dr. Marshall Yovits, 101 Caldwell Lab., 2024 Neil Ave., Ohio State Univ., Columbus, OH 43210
- Mar. 4-9, 1973:** SHARE Meeting, Denver, Colo. / contact: D.M. Smith, SHARE, Inc., Suite 750, 25 Broadway, New York, NY 10004
- Mar. 7-9, 1973:** 6th Annual Simulation Symposium, Tampa, Fla. / contact: Annual Simulation Symposium, P.O. Box 22573, Tampa, FL 33622
- Mar. 12-14, 1973:** A Programming Language (APL), Goddard Space Flight Center, Greenbelt, Md. / contact: Cyrus J. Creveling, Code 560, Goddard Space Flight Center, Greenbelt, MD 20771
- Mar. 26-29, 1973:** IEEE International Convention (INTERCON), Coliseum & New York Hilton Hotel, New York, N.Y. / contact: J. H. Schumacher, IEEE, 345 E. 47th St., New York, NY 10017
- Mar. 29-31, 1973:** 10th Symposium on Biomathematics and Computer Science in the Life Sciences, Houston, Texas / contact: Office of the Dean, The University of Texas Graduate School of Biomedical Sciences at Houston, Division of Continuing Education, P.O. Box 20367, Houston, TX 77025
- April 2-5, 1973:** SOFTWARE ENGINEERING FOR TELECOMMUNICATION SWITCHING SYSTEMS, University of Essex, Essex, England / contact: Mrs. Penelope Paterson, Institution of Electrical Engineers Press Office, Savoy Place, London WC2R OBL, England
- April 10-12, 1973:** Datafair 73, Nottingham University, Nottingham, England / contact: John Fowler & Partners Ltd., 6-8 Emerald St., London, WC1N3QA, England
- April 10-13, 1973:** PROLAMAT '73, Second International Conference on Programming Languages for Numerically Controlled Machine Tools, Budapest, Hungary / contact: IFIP Prolamat, '73, Budapest 112, P.O. Box 63, Hungary
- April 24-26, 1973:** I.S.A. Joint Spring Conference, Stouffer's Riverfront Inn, St. Louis, Mo. / contact: William P. Lynes, c/o Durkin Equipment, 2384 Centerline Ind. Dr., St. Louis, MO 63122
- April 30-May 2, 1973:** 1st Symposium on Computer Software Reliability, Americana Hotel, New York, N.Y. / contact: David Goldman, IEEE Hdqs., 345 E. 47th St., New York, NY 10017
- May 3-4, 1973:** 10th Annual National Information Retrieval Colloquium, Independence Mall Holiday Inn, 400 Arch St., Philadelphia, Pa. / contact: Martin Nussbaum, Computamation, 2955 Kensington Ave., Philadelphia, PA 19134
- May 13-16, 1973:** 1973 International Systems Meeting, Hilton Hotel, Denver, Colo. / contact: R. B. McCaffrey, Association for Systems Management, 24587 Bagley Rd., Cleveland, OH 44138
- May 14-17, 1973:** Spring Joint Computer Conference, Convention Hall, Atlantic City, N.J. / contact: AFIPS Hdqs., 210 Summit Ave., Montvale, NJ 07645
- June 4-6, 1973:** 1973 8th PICA Conference, Radisson Hotel, Minneapolis, Minn. / contact: IEEE Hdqs., Tech. Svcs., 345 E. 47th St., New York, NY 10017
- June 4-8, 1973:** National Computer Conference and Exposition, Coliseum, New York, N.Y. / contact: AFIPS Hdqs., 210 Summit Ave., Montvale, NJ 07645
- June 22-23, 1973:** 11th Annual Computer Personnel Conference, Univ. of Maryland Conference Center, College Park, Md. / contact: Prof. A. W. Stalnaker, College of Industrial Management, Georgia Institute of Technology, Atlanta, GA 30332
- June 26-29, 1973:** DPMA 1973 International Data Processing Conference & Business Exposition, Conrad Hilton Hotel, Chicago, Ill. / contact: Richard H. Torp, DPMA International Hdqs., 505 Busse Highway, Park Ridge, IL
- June 26-28, 1973:** Workshop on Computer Architecture, Universite de Grenoble, Grenoble, France / contact: Grenoble Accueil, 9, Boulevard Jean-Pain, 38000, Grenoble, France
- July 20-22, 1973:** 1973 International Conference on Computers in the Humanities, University of Minnesota, Minneapolis, Minn. / contact: Prof. Jay Leavitt, 114 Main Engineering Bldg., University of Minnesota, Minneapolis, MN 55455
- July 23-27, 1973:** 3rd Annual International Computer Exposition for Latin America, Maria Isabel-Sheraton Hotel, Mexico City, Mexico / contact: Seymour A. Robbins and Associates, 273 Merrison St., Box 566, Teaneck, NJ 07666
- Aug. 13-17, 1973:** SHARE Meeting, Miami Beach, Fla. / contact: D. M. Smith, SHARE, Inc., Suite 750, 25 Broadway, New York, NY 10004
- Aug. 20-24, 1973:** 3rd International Joint Conference on Artificial Intelligence, Stanford University, Stanford, Calif. / contact: Dr. Max B. Clowes, Laboratory of Experimental Psychology, University of Sussex, Brighton, Sussex BN1 9QY, England
- Aug. 27-29, 1973:** ACM '73, Atlanta, Ga. / contact: Dr. Irwin E. Perlin, Georgia Institute of Technology, 225 North Ave., N.W., Atlanta, GA 30332

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