

computers and people

formerly *Computers and Automation*

December, 1974

Vol. 23, No. 12
SCIENCE AND BUSINESS



"DESERT ROSE"

Engineering Computer Programs: How They Grow

— *A. Morcos and S. L. Chu*

Changing Technology and Medical Specialization

— *Ray M. Antley and Mary Ann Antley*

The Computer Industry and Unionization

— *A. A. Imberman*

The Radiation from Computers Into Everywhere

— *Neil Macdonald*

Watergate South

— *Nancy A. Miller*

The Assassination of the Reverend Martin Luther King, Jr., Conclusion

— *Wayne Chastain, Jr.*

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THE NOTEBOOK ON COMMON SENSE, FIRST YEAR

VOLUME 1

1. Right Answers — A Short Guide to Obtaining Them
A collection of 82 principles and maxims. Example: "The moment you have worked out an answer, start checking it — it probably isn't right."
2. The Empty Column
A parable about a symbol for zero, and the failure to recognize the value of a good idea.
3. The Golden Trumpets of Yap Yap
4. Strategy in Chess
5. The Barrels and the Elephant
A discussion of truth vs. believability.
6. The Argument of the Beard
The accumulation of many small differences may make a huge difference.
7. The Elephant and the Grassy Hillside
The concepts of the ordinary everyday world vs. the pointer readings of exact science.
8. Ground Rules for Arguments
9. False Premises, Valid Reasoning, and True Conclusions
The fallacy of asserting that the premises must first be correct in order that correct conclusions be derived.
10. The Investigation of Common Sense
11. Principles of General Science and Proverbs
8 principles and 42 proverbs.
12. Common Sense — Questions for Consideration
13. Falling 1800 Feet Down a Mountain
The story of a skimobile who fell 1/3 of a mile down Mt. Washington, N.H., and was rescued the next day; and how he used his common sense and survived.
14. The Cult of the Expert
15. Preventing Mistakes from Failure to Understand
Even though you do not understand the cause of some trouble, you may still be able to deal with it. The famous example of a cure for malaria.
16. The Stage of Maturity and Judgement
17. Doomsday in St. Pierre, Martinique — Common Sense vs. Catastrophe
How 30,000 people refusing to apply their common sense died from a volcanic eruption.
18. The History of the Doasyoulikes
19. Individuality in Human Beings
Their chemical natures are as widely varied as their external features.
20. How to be Silly
71 recipes for being silly. Example: "Use twenty words to say something when two will do."
21. The Three Earthworms
A parable about curiosity; and the importance of making observations for oneself.
22. The Cochrans vs. Catastrophe
The history of Samuel Cochran, Jr., who ate some vichyssoise soup.
23. Preventing Mistakes from Forgetting
24. What is Common Sense? —
An Operational Definition
A proposed definition of common sense not using synonyms but using behavior that is observable.
25. The Subject of What is Generally True and Important —
Common Sense, Elementary and Advanced
26. Natural History, Patterns, and Common Sense
Some important techniques for observing.
27. Rationalizing and Common Sense
28. Opposition to New Ideas
Some of the common but foolish reasons for opposing new ideas.
29. A Classification and Review of the Issues of Vol. 1
30. Index to Volume 1

VOLUME 2

31. Adding Years to your Life Through Common Sense
A person who desires to live long and stay well needs to understand some 20 principles, including how to test all the health advice he receives for its common sense, and how to develop habits of health practices which fit him.
32. The Number of Answers to a Problem
Problems may have many answers, one answer, or no answer . . . and answers that are good at one time may be bad at another.
33. "Stupidity has a Knack of Getting Its Way"
" . . . as we should see if we were not always so much wrapped up in ourselves."
— *Albert Camus*
34. Time, Sense, and Wisdom — Some Notes
The supply of time, the quantity of time, the kinds of time, and the conversion of time. . . . A great deal of the time in a man's life is regularly, systematically, and irretrievably wasted. This is a serious mistake.
35. Time, Sense, and Wisdom — Some Proverbs and Maxims
56 quotations and remarks by dozens of great men.
36. Wisdom — An Operational Definition
"A wise person takes things as they are and, knowing the conditions, proceeds to deal with them in such a manner as to achieve the desired result."
— *Somerset Maugham*

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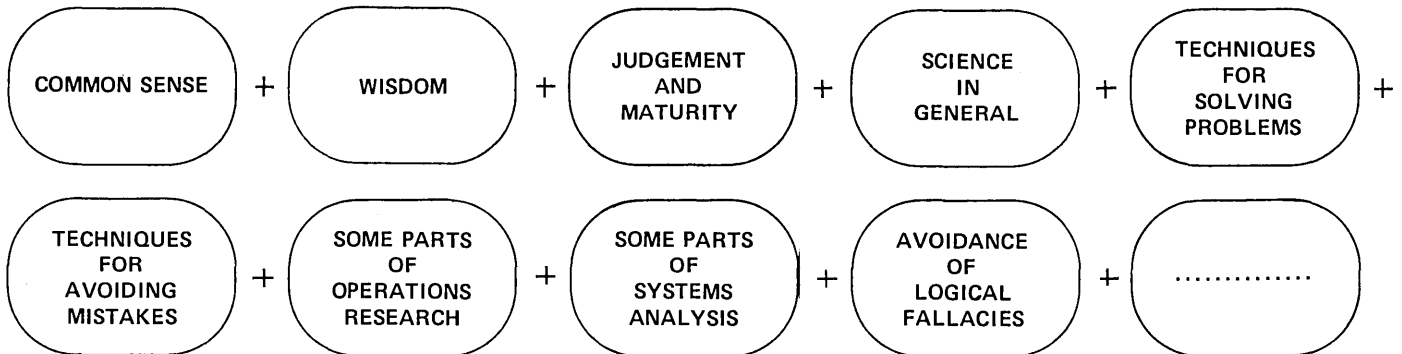
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- to help you avoid pitfalls
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- to display new paths around old obstacles
- to point out new solutions to old problems
- to stimulate your resourcefulness
- to increase your accomplishments
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- to help you solve problems
- to give you more tools to think with
-

8

**REASONS TO BE INTERESTED IN THE FIELD OF
COMMON SENSE, WISDOM, AND GENERAL SCIENCE**

- COMPUTERS** are important —
But the computer field is over 25 years old. Here is a new field where you can get in on the ground floor to make your mark.
- MATHEMATICS** is important —
But this field is more important than mathematics, because common sense, wisdom, and general science have more applications.
- LOGIC** is important —
But this field is more important than logic, because common sense plus wisdom plus science in general is much broader than logic.
- WISDOM** is important —
This field can be reasonably called "the engineering of wisdom".
- COMMON SENSE** is important —
This field includes the systematic study and development of common sense.
- SCIENCE** is important —
This field includes what is common to all the sciences, what is generally true and important in the sciences.
- MISTAKES** are costly and to be AVOIDED —
This field includes the systematic study of the prevention of mistakes.
- MONEY** is important —
The systematic prevention of mistakes in your organization might save 10 to 20% of its expenses per year.

**Topic:
THE SYSTEMATIC
PREVENTION OF MISTAKES**

Already Published

Preventing Mistakes from:

- Failure to Understand
- Forgetting
- Unforeseen Hazards
- Placidity
- Camouflage

To Come

Preventing Mistakes from:

- Bias
- Interpretation
- Distraction
- Gullibility
- Failure to Observe
- Failure to Inspect
- Prejudice
-

**Topic:
SYSTEMATIC EXAMINATION
OF GENERAL CONCEPTS**

Already Published

The Concept of:

- Expert
- Rationalizing
- Feedback
- Model
- Black Box
- Evolution
- Niche
- Understanding

To Come

- Strategy
- Teachable Moment
- Indeterminacy
- System
- Operational Definition
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Computers and Engineering

- 8 Engineering Computer Programs: How They Grow** [A]
by A. Morcos and S. L. Chu, Sargent and Lundy,
Chicago, Ill.
How computer programs for engineering situations actually develop and evolve.

Computers and Medicine

- 15 Changing Technology and Medical Specialization** [A]
by Ray M. Antley and Mary Ann Antley,
Indianapolis, Ind.
How 25 years of applying computer systems in medicine are leading to integrated control of the environment for the benefit of patients.

The Computer Industry

- 12 The Computer Industry and Unionization** [A]
by A. A. Imberman, Imberman and DeForest, Chicago, Ill.
How to really listen to employee grievances while they are still minor, and respond quickly to them, to the advantage of nearly everybody concerned.
- 11 The Radiation from Computers Into Everywhere** [A]
by Neil Macdonald, Survey Editor, *Computers and People*
Some of the ever-widening influences of computers upon many different areas.
- 7 Contact with Holders of the Certificate of Data Processing** [F]
by John K. Swearingen, Pres., Institute for Certification of Computer Professionals, Chicago, Ill.
An effort to reach all CDP holders.
- 7 Annual Computer Programming Contest** [F]
by Dr. Gary G. Bitter, Arizona State Univ.
For students in grades 7 to 12: the annual contest of the Association for Educational Data Systems.

Applications of Computers

- 32 Computing and Data Processing Newsletter** [C]
Computer Gives New Mexico Museum Full Access to its Mineral Collection
Computer System for a Racing Yacht that Won
Cameras and Computers Combine to Analyze Rocket Flights
- 1 "Desert Rose"** [Front Cover]
A "desert rose" of crystal gypsum, at the New Mexico Mineralogical Museum of the New Mexico Bureau of Mines. A computer uses X-ray results to analyze each specimen, and catalogs it. See page 32.

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

ANNOUNCEMENT

- 6 "I Am Interested To Know What a Computer Can Do For Me" [E]
by Edmund C. Berkeley, Editor
What sorts of questions a computer can answer, and how it answers them.
- 7 "Computer Art for the Artist" – Comment [F]
by James C. Ver Hague, Jr., State University of New York at Buffalo
Additional information wanted for teaching computer art.
- 7 "Can Tigger Think? Can Peder Think?" – Comment [F]
by Bryce M. Mitchell, Universidade Federal de Sao Carlos, Sao Carlos, Brazil

The Profession of Information Engineer and the Pursuit of Truth

- 18 Watergate South [A]
by Nancy A. Miller, Princeton, N.J.
How a third effort was made by many Watergate-connected figures to provoke violence and riots, and prepare the groundwork for a cancelation of the 1972 elections.
- 26 The Assassination of the Reverend Martin Luther King, Jr., and Possible Links with the Kennedy Murders – Part 11 (Conclusion) [A]
by Wayne Chastain, Jr., Attorney, Memphis, Tenn.
The final instalment of a report of a diligent study into the details and circumstances of the assassination of the Reverend Martin Luther King, Jr., on April 4, 1968, and related events, and the considerable evidence of a conspiracy.

Computers, Puzzles, and Games

- 30 Games and Puzzles for Nimble Minds – and Computers [C]
by Neil Macdonald, Assistant Editor
GIZZMO – Some computational Jabberwocky.
MAXIMDIJ – Guessing a maxim expressed in digits.
NAYMANDIJ – A systematic pattern among randomness?
NUMBLES – Deciphering unknown digits from arithmetical relations.
SIXWORDO – Paraphrasing a passage into sentences of not more than six words each.

Key

- [A] – Article
- [C] – Monthly Column
- [E] – Editorial
- [F] – Forum

NOTICE

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NEW CONTRACTS AND NEW INSTALLATIONS

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"I Am Interested To Know What a Computer Can Do For Me"

The man who said that to me was an old friend. He was no mathematician, but a former dean of a dental school; he had specialized in dental public health; he had had an excellent education. In spite of being no mathematician he had navigated a small ship out of sight of land; and he had computed means, standard deviations, chi-squared tests, and other statistical measures.

How could I answer this useful question?

The first step was to send him a list of many applications of computers. In 1973 we published a list of over 2400 applications of computers. That list contained 179 applications in medicine; here is a small excerpt:

- Coronary artery disease prediction
- Cystic fibrosis: detection in new-born babies
- Cytology diagnosis
- Cytophotometric analysis
- Dermatoglyphic analysis

But what is the second step? What ideas do you give to an ordinary person (nontechnical but educated) so that he can conceive of how a computer can be of help to him?

In the case of a motor car, there is no great problem in "knowing what a motor car can do for me." A car can take you somewhere where you want to go. And you are already full of ideas of places where you want to go.

However, for any particular trip in a motor car you have to make a decision about where you want to go. Also, if you do not know the way there, you have to get hold of a map and choose the way: which roads you will travel on, how far on each you will go, what turnings you will take, what signs you will be guided by.

Much the same situation applies when you want to find some information that has probably been published. Recently at a birthday party somebody showed me an old book: Volume 2 of "The Life of George Washington" by Washington Irving, published in 1900. My curiosity was stirred about George Washington. The next day I looked up in an encyclopedia the entry "George Washington," and satisfied much of my curiosity. I used the standard travel-map rules applying to reference books: begin with an encyclopedia, and look for the topic name in alphabetical sequence.

A computer, like a motor car and a reference book, can take you where you want to go. First you have to want to know something, and second you have to obtain knowledge of how to figure it out.

A computer can figure out averages, standard deviations, chi-squared tests, and other statistical measures -- if you want to know them. You can usually buy a map for this purpose, which will be called a "computer program." A computer can even tell you the answer (if you want to know it) to such a question as, "What is the minimum number of cubes which when added will equal a given number?" and which cubes they are. For example, suppose the given number is 229. Then the answer is that the minimum number of cubes is 7; and there are exactly three solutions, and here they are:

$$\begin{aligned} &3 \times 64 + 1 \times 27 + 1 \times 8 + 2 \times 1 \\ &1 \times 125 + 1 \times 64 + 5 \times 8 \\ &1 \times 216 + 1 \times 8 + 5 \times 1 \end{aligned}$$

In this case, the map, the way to produce the answers desired, will probably require some clever programmer to spend several hours producing a sequence of some 300 instructions in machine language that the computer needs for a map.

The situation of computer maps is much like driving your car in a strange land where there is no light, only thick black darkness -- and all the signs are written in a language that you do not understand. So before you start out driving, you have to get from somebody a complete and accurate set of instructions; and the instructions must include the names of the signposts at the intersections; and when you come to an intersection, you turn on your flashlight, read all the signs carefully, compare them with the appropriate notes in your set of instructions, and then try your best to choose the right turning.

Fortunately, in this dark land where computer maps are used, whenever you travel a second time from place A to place B, if your road map worked OK the first time, then it will work OK over and over again. And each later time it will work lightning fast. So whenever you want to travel again, you have practically no problem at all. The inefficiency of the first trip is replaced by utmost efficiency for all later trips.

But you still need a place you want to go to (a question you want answered) and a map of how to get there (a complete set of instructions for figuring out the answer).

Edmund C. Berkeley

Edmund C. Berkeley
Editor

THE PURPOSE OF FORUM

- To give you, our readers, an opportunity to discuss ideas that seem to you important.
- To express criticism or comments on what you find published in our magazine.
- To help computer people and other people discuss significant problems related to computers, data processing, and their applications and implications, including information engineering, professional behavior, and the pursuit of truth in input, output, and processing.

Your participation is cordially invited.

MULTI-ACCESS FORUM

ANNUAL COMPUTER PROGRAMMING CONTEST

AEDS Programming Contest

Association for Educational Data Systems

Dr. Gary G. Bitter

College of Education

Arizona State Univ.

Tempe, AZ 85281

This 12th annual contest is for students in Grades 7 through 12. Seven first prizes of \$25 (in bonds) will be awarded in the categories: business, biological science; computer science; games; humanities; mathematics; physical science. A Grand Prize of \$100 (in bonds) will be awarded to one of the winners in the individual categories. All entries must be received by March 1.

The Association, also known as AEDS, is a national organization comprised of administrators, teachers, systems analysts, and programmers of educational data processing systems in vocational, public, and private schools. The contest is on the approved list of national contests and activities of the National Association of Secondary School Principals.

The Programming Contest winner will receive not only a U.S. Savings Bond but also an expense-paid trip to the 1975 AEDS Convention in Virginia Beach, Virginia, on April 29-May 2. The winning student's teacher also will receive an expense-paid trip to the convention.

"COMPUTER ART FOR THE ARTIST" – COMMENT

To: The Art Editor:

*From: James C. Ver Hague, Jr.
Department of Art
State Univ. of New York at Buffalo
Buffalo, NY 14214*

Your article, "Computer Art for the Artist," appearing in the August 1974 issue of "Computers and People," was very interesting to me. The Department of Art here is initiating a course in computer art and graphics beginning this fall semester. As the instructor for the course, I found your outline to be very well-conceived and have restructured some of the planned course material as a result. I would very much appreciate your sending to me a more detailed course plan including your bibliography of references and/or any additional material that you feel might aid in getting such a course successfully off the ground. Does there exist the possibility of an exchange of computer programs either with you or others that have taught a similar course?

Like a number of people interested in computer art, my background is primarily a technological one. I have an M.S. in mathematics and worked for four years in the aerospace developing computer programs for structural analysis research. While working on one of the plot programs, I accidentally began generating forms that suggested sculptural possibilities to me. Eventually, I became more interested in the potentialities of computer art than in the work I was doing and finally quit to obtain more formal training in the field of art. I am currently a Teaching Assistant completing my final year in the M.F.A. Program at Buffalo.

I am looking forward to receiving your detailed course plan.

"CAN TIGGER THINK? CAN PEDER THINK?" – COMMENT

*Bryce M. Mitchell
Universidade Federal de Sao Carlos
Laboratorio de Idiomas
Sao Carlos 13560, Brazil*

We would like to request permission to reprint a section from "Computers and People," Vol. 23, No. 6, page 6. We propose to use this editorial by Edmund C. Berkeley as a reading in a textbook for the teaching of scientific and technical English to speakers of other languages. We will, of course, give full credit to the source. Thank you very much for your consideration in this matter.

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CONTACT WITH HOLDERS OF THE CERTIFICATE OF DATA PROCESSING

*John K. Swearingen, President
Institute for Certification of Computer Professionals
Box 1442
Chicago, Ill. 60690*

The Institute of the Certification of Computer Professionals on October 5, 1974 made its first mailing to approximately 15,000 holders of the Certificate of Data Processing (CDP).

In order to contact those CDP holders whose up-to-date address we did not have, would you please publish this notice, addressed to holders of the Certificate:

If you did not receive our mailing of October 5, 1974, it is probably because we do not have your correct address. We have a message of interest and importance to you. Please send us your correct address, class year, and your Certificate Number if available.

Engineering Computer Programs: How They Grow

A. Morcos
S. L. Chu
Structural Analytical Division
Sargent and Lundy, Engineers
55 East Monroe St.
Chicago, IL 60603

"Although a program cannot as yet take over conceptual design, nevertheless, used as a tool for analysis, it can study complex models swiftly, and provide reliable and quick estimates of the merits of various engineering solutions to a problem."

Two Basic Functions

In engineering design firms, computer programs perform two basic functions: carrying out calculations, and presenting the results in a prescribed format. Yet neither the programs nor the functions they perform are static. Both change as often as engineers change designs, methods of analysis or even personal tastes regarding the looks of computer output.

This is especially true of the programs used in the design of nuclear power plants, an area which is a prime concern with us. In this design area, there is a continual advance in technology. Consequently, it naturally follows that the programs used must continually evolve to keep pace.

Numerous Computer Programs

Although a program cannot, as yet, take over the conceptual design function, nevertheless, used as a tool for analysis, it can study complex models swiftly, and provide reliable and quick estimates of the merits of various engineering solutions to a given problem. Because of this increasing importance, it is not unusual to find numerous computer programs being conceived daily to handle the ever-increasing engineering problems confronting engineering design firms. Let's follow the evolution of a typical engineering computer program.

Birth of a Program

The conception of a new program and its subsequent gestation generally take place in engineering research groups; at Sargent & Lundy the analytical divisions are assigned this task. These divisions may investigate and recommend modification of one of the existing programs or develop a new one.

Validation

For our purposes, let's consider that a new program has been initiated. After it is written and debugged, validation begins. By this process the program is insured of doing what the programmer intends it to; or in other words, the program is checked for internal consistency. Known simple calculations may be used to check for uniformity; or another program with similar capabilities but with a different approach may be used for verification.

Continuing Growth

The next step in the maturation of the newly-born program is qualification for the problem at hand. For this, a few examples are run and if solved satisfactorily, the program is officially issued. The qualification process does not stop at this point but continues indefinitely, drawing not only from experience gained through use but also from the interaction between the writers or maintainers of the program and its users.

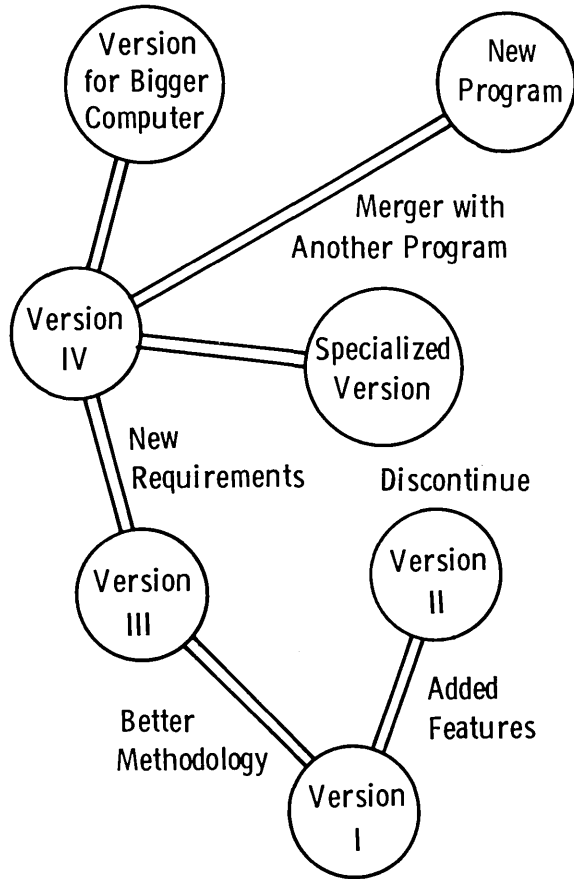
The interaction between user and writer is a major factor in the program's growth. Starting with a model for the engineering problem at hand, the user and writer team examine it. They decide whether the program, as written, can solve the problem. This process of user-writer interaction can serve to qualify the program for a wider set of problems, or disqualify it for certain problems.

Continuing Qualification

The program does not stop evolving after the qualification process by the development team. A continual stream of techniques for refined or improved analysis calls for continual reevaluation of the computer programs that use the original techniques. This process of selective change and improvement is reminiscent of biological evolution; growth, adjustment, atrophy, specialization and breeding are all present.

Biological Analogy

The diagram in Figure 1 illustrates this biological analogy. Let's follow the evolution of this particular program. Version I is the initial stage of a frame analysis program. Version II is its first mutation when rigid members and end releases are introduced and a new version is required. With the advent of better methodology, Version III is developed. This negates the usefulness of Versions I and II. New requirements imposed by the Atomic Energy Commission produce yet another stage, Version IV. However, in this case Version III may still be functional for some applications and therefore is not discontinued. In time, Version IV is expanded upon when a particular group in the company requests a version which will output the results of the program in a format to suit the special needs of that group; in this case, a specialized version is written for that group while the original Version IV is kept intact.



Program Evolution
Figure 1

Then again another group may request that two types of analysis be performed in one program, such as static and dynamic analyses. To accomplish this, it may be necessary to combine two or three programs, forming a new program. If the company leases a bigger computer that allows for the solving of more joints and members, an expanded version of the new program that would take advantage of the size and speed of the new computer is written.

Thus, the computer program can evolve into many stages. In numerous instances issuing the first version of a program is only 20 per cent of the total work.

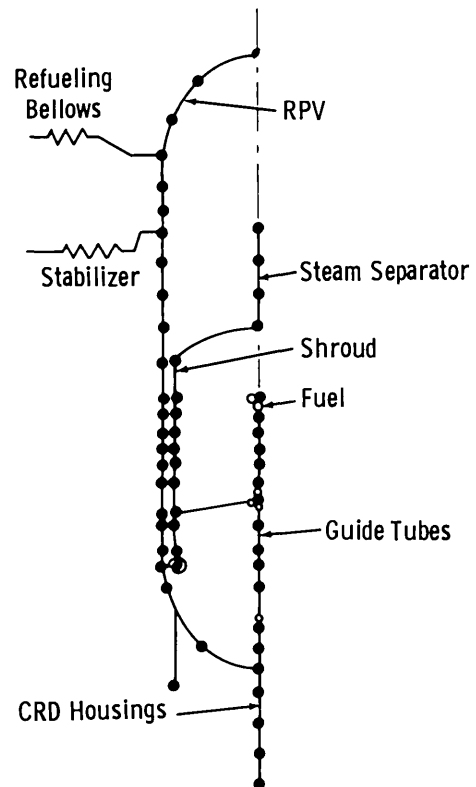
An Example of Extensive Growth

A typical example of this evolutionary process in our design group is our MASS program (Matrix Analysis Seismic Stresses). First written in 1965, it performed dynamic analysis of rigid frames and trusses. Since that time MASS II, MASS III, MASS IV, and MASS V have been developed to incorporate additional features. The reactor pressure vessel of a nuclear plant can be modeled to fit into the MASS program (Figure 2).

A program called DYNAPIPE evolved from the original MASS computer program as a special version to analyze the dynamic behavior of the piping system. For example, when a pipe break is postulated, the response of the pipe during the accident can be com-

puted by this program. Just as the first MASS program was continually expanded, so too was the DYNAPIPE program. At present there are four separate versions.

A dynamic analysis program created independently from the MASS family (named DSASS) is based on the theory that slabs and walls in nuclear plants can be modeled by a system of slabs vibrating in their own plane and interconnected by translational springs representing the stiffness of the walls. Figure 3 shows a DSASS model.

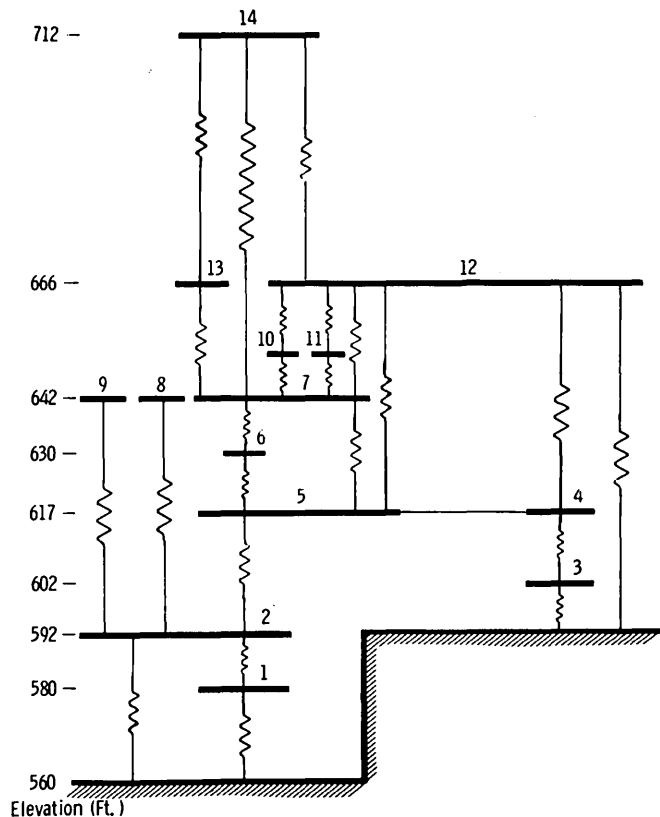


Dynamic Model of Reactor Pressure Vessel & Internals
Figure 2

Combining the MASS IV and DSASS programs produced DYNAS, which is used to perform seismic analysis for coupled structures in a nuclear plant. As shown in Figure 4, the reactor pressure vessel is modeled as a system of discrete masses and weightless members, with its internals connected to the surrounding slabs and walls.

SLSAP is a modified version of SAP acquired from a university; it is a general-purpose finite-element program. It is used to investigate framed structures, containment structures and sacrificial shields. When a part of SLSAP was extracted and combined with DYNAPIPE 4, PIPSYS was born. This program was instituted to perform static and dynamic analysis of three dimensional piping systems, compute the combined stresses, and compare them to the allowable stresses of applicable codes.

In this way has the evolution of the MASS family occurred during the past seven years. The program



DSASS Model-Slabs and Shear Walls of a Turbine-Auxiliary Building
Figure 3

has been expanded many times from its original size; yet it still possesses the capacity to grow into other analysis areas.

The Limitations

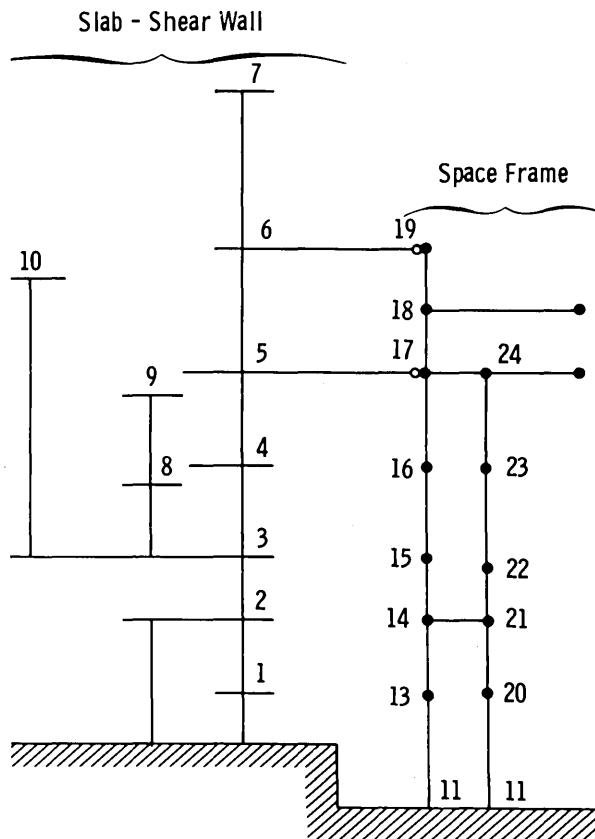
Although expansion is an important step in achieving a versatile computer program, there should be a limit to the size of the program for its optimum efficiency at an engineering design office (as distinct from a software development firm). Programs developed in a design office must remain flexible and readily modifiable. Overly large programs which involve several writers tend to be difficult to use, difficult to maintain, difficult to modify and with outputs, difficult to interpret.

"Dinosaurs"

In fact, excessively large programs can run the risk of being discarded altogether by the user because of their immense size. We call these obese algorithms dinosaurs. Nature, like some programmers, may have thought the bigger, the better, when dinosaurs were produced. But when flexibility was important, dinosaurs vanished in a relatively short time.

Accept with Caution

More important than the limitation of computer program size is the avoidance of blind acceptance of the computer's output. When an instructor first introduced the slide rule to his class he explained that the simple piece of wood would enable them to divide, multiply, take square roots, do just about anything except add. But he then cautioned that they



Combined Building and Reactor Pressure Vessel Dynamic Model
Figure 4

must know the approximate answer since the slide rule does not give the decimal point. Although computers do give the decimal point, the instructor's warning is still true, and we should often remind ourselves of it.

Knowing the limitations of the computer program will enhance the success of its growth. □

NOTICE

The plates for printing THE COMPUTER DIRECTORY AND BUYERS' GUIDE, 1974, have been at the printer and waiting to run on his presses since early September, while the printer waits for the delivery of promised paper. As of Nov. 13 the printer was still waiting. We regret very much this delay — which is outside of our possibilities of control.

To partially compensate for this delay, any purchaser of the 1974 directory may order a copy of the 1973 directory at half price (\$9.25 instead of \$18.50). Prepayment is necessary.

Edmund C. Berkeley, Editor

The Radiation from Computers Into Everywhere

Neil Macdonald, Survey Editor
"Computers and People"

"Dear #067-12-3948*: You are in danger. We don't know who you are but the government does. They've got your number and they're not the only ones."

1. From Society of Manufacturing Engineers
20501 Ford Road
Dearborn, MI 48128

How industry is using computer-aided technology to obtain good economic results will be emphasized at the third Computer-Aided Design and Computer-Aided Manufacturing Conference and Exposition. This is sponsored by the Society of Manufacturing Engineers at the Hyatt Regency O'Hare Hotel in Chicago February 10-13, 1975. Nine Conference sessions and demonstrations of computer-based equipment, systems, and software used in industrial applications will comprise CAD/CAM III.

More than 1,000 industrialists, manufacturing executives, and engineers responsible for computer-based industrial and manufacturing operations are expected to attend.

2. From Association for Computing Machinery
1133 Avenue of the Americas
New York, NY 10036

The Association for Computing Machinery announces a new quarterly, ACM TRANSACTIONS ON MATHEMATICAL SOFTWARE (TOMS). The first issue is scheduled for March, 1975.

This quarterly will publish significant research and development results in the area of fundamental mathematical algorithms and associated software (computer programs). Papers and other items will have natural importance and relevance to mathematical software and they will support significant areas of computer application. The content of papers in those areas that are primarily applications will be relevant to a reasonably wide class of problems and not just to the specific considerations that motivated the paper. There will be increasing emphasis on utilitarian values of programs.

3. From David L. Emerick
Association of Computer Time-Sharing Users
c/o Borg Warner Chemicals
Borg Warner Corporation
Parkersburg, WV 26101

Computer time-sharing users are being invited to join a new non-profit professional association, The Association of Computer Time-Sharing Users, dubbed "ACTSU." The stated purpose of the association is "the evaluation, comparison and improvement of the

services offered by the time-sharing industry."

The Association will seek to help time-sharing users. Comprehensive industry surveys are planned, to provide members with comparisons and evaluations of the services offered by time-sharing companies. Some of the aspects that the industry surveys will cover include: processing costs, operating characteristics, pre-programmed packages, frequency of down-time, quality of technical support, geographical coverage, liability under service contracts, and quality of educational materials.

Interested persons are urged to write ACTSU, 210 Fifth Avenue, New York, N.Y. 10010 or to telephone Hillel Segal (212) 752-2000, Ext. 8379, for additional information and membership applications.

4. From Karen A. Duncan
Association for the Development of Computer-Based Instructional Systems (ADCIS)
c/o Office of Computer Resources
College of Dental Medicine
80 Barnes St.
Charleston, SC 29401

The 1975 Winter Conference of the Association for the Development of Computer-Based Instructional Systems is sponsored by this college, and will take place here January 28-30, 1975.

Persons interested in computer-assisted instruction or computer-managed instruction are invited. This conference provides a professional arena for the sharing of research findings, operational notes, theories, educational strategies and developments regarding CAI and CMI. Commercial and noncommercial groups are invited to discuss their release policies and potential ways in which courseware may be shared.

5. From Civil Liberties Union of Massachusetts
3 Joy St.
Boston, MA 02108

Dear #067-12-3948*:

You are in danger.

We don't know who you are, but the government does. They've got your number and they're not the only ones. Your bank has it, and so does your insurance company, your credit card company, and even the Registry of
(please turn to page 29)

*This is a fictitious number.

The Computer Industry and Unionization

A. A. Imberman
Imberman and DeForest
Consultants to Management
209 South LaSalle St.
Chicago, Ill. 60604

"The most painful way to learn about unionization is to lose a National Labor Relations Board election."

The Computer Field: Ripe for Unionization?

Can the computer industry grow and expand in production and sales without experiencing some problems with labor? The rising tide of strikes (in unionized plants producing computer hardware), and of union organizing campaigns in the non-union plants, is some indication of what lies ahead.

The computer industry is expected to chalk up new performance records this year, with shipments exceeding \$10 billion. A 10% increase is forecast, in response to strong demands both in the United States and abroad. Industry revenues are currently growing even more rapidly than shipments. In part, this differential reflects the relatively slow pace of trade-ins of third generation equipment in connection with the purchase of new computers. Additionally, despite stiff borrowing costs, manufacturers are experiencing a higher than usual percentage of outright sales and a corresponding decline in direct leasing. Helping to account for this shift are gains in third-party leasing and the popularity of less expensive mini-computers.

The computer industry's success in maintaining impressive growth largely reflects an impressive ability to achieve continuing advances in hardware. In particular, rapid strides in semiconductor technology have led to significant improvements in computer memory capacities and operating speeds while, at the same time, enabling manufacturers to reduce prices. All of these factors indicate eventual labor union activities.

212 Union Victories

In the last four years, I have analyzed 212 union victories in representation elections in a whole variety of industries. Of the 212 companies, 9 were in the professional, scientific and controlling instruments (manufacturing) industry. I found that timely precautions might have prevented most of these union victories. How the trend had gone in the professional, scientific and controlling instruments industry might be judged from the accompanying table. The guideline controls have had some hampering influence on union activity.

As a result of our comprehensive study, these conclusions became evident:

1. Most elections in which wages and hours were alleged to be the main issue (which accounted for

A. A. Imberman did his undergraduate work at New York Univ., and his graduate work at Johns Hopkins. He has directed the Management Seminar at the Univ. of Chicago and Illinois Institute of Technology for over 20 years. He has written widely, and is an employee relations consultant to major companies, including Dupont, Avis, McGraw Edison, Sears Roebuck, and many others.

about 60 per cent of the elections), were won by the unions because of employee ignorance of the competitive situation of the company. Employer speeches in the election period had no effect. They were too late.

2. Most complaints about working conditions (a basic cause of nearly 30 per cent of the elections) were well-founded and reflected real issues. Election speeches had no effect here either.

3. Most elections in which arbitrary, tyrannical and abusive supervisors were specifically named, were truly the result of poor supervisory methods. More than 50 per cent of the elections involved his issue.

The most painful way to learn about unionization is to lose a National Labor Relations Board election. Yet even with disputes over money, almost all labor unrest could have been quelled before unions took control of the work force. How? By setting up a two-way communications system, and training supervisors in modern management methods.

Failure to Listen to Employees

A typical example of this lack of two-way communications -- this failure to listen to employees -- taken from 39 of these 212 election situations, is the case history of a single department in an East Coast plant in this industry (professional, scientific and controlling instruments -- manufacturing). The department had developed troubles that led to an election.

This was a basic department on which other production departments depended. Within the past year its quality of work had deteriorated. Production schedules seemed too often to be out of gear with the rest of the plant. Union organization in the

Professional, Scientific and Controlling
Instruments (Manufacturing)

<u>Fiscal Year</u>	<u>Number of NLRB Elections Held</u>	<u>Number Won By Unions</u>	<u>Percent Won By Unions</u>
1973	67	35	52.2
1972	62	29	46.7
1971	46	14	30.4
1970	51	17	33.3
1969	62	26	41.9
1968	68	35	51.4
1967	48	21	43.7
1966	59	31	52.5

Source: National Labor Relations Board Reports.

plant had been led by employees from this basic department.

The plant manager had talked with the department supervisor a number of times. The answer was more or less the same: employees in the department were quarrelling, there were bitter disputes over who was to be favored with overtime and Saturday work, squabbles over department seniority, some hard feeling over wage differentials, and general distrust of management. None of this had been true before. What was worse, there was nothing that management could put its finger on, to correct, even after the election.

The Supervisor's Health

Called in to advise the company on how to deal with the growing absenteeism and turnover in the plant, I elicited some interesting information from the employees in that department which went far to explain the election result.

After a number of weeks of interviews, it seemed to me that the trouble seemed to revolve around the department supervisor himself. One of the troubles mentioned by all employees in the department was the harshness of the supervisor. He was unreasonable, tyrannical, arbitrary, hard to get along with. Since he had been with the company for about 15 years, and the complaints were recent in origin, I decided to talk with him.

Heat and Cold

It was discovered that he had arthritis, and I recommended that the supervisor be sent to a physician. Since his department was in a colder part of the plant, his arthritic pain was accentuated by lack of heat. This affected his whole disposition and actions towards his employees.

Brought to the company's attention, a new foreman was assigned to that department. The older foreman was transferred to another department where room temperatures were much higher. Within three months, the trouble in the basic department cleared up. The old foreman -- in the new "hot" department -- was like a changed man. But the company had already lost the election.

No amount of veiled promises or threats in speeches to employees during the election period could have any effect on this situation. Only careful listening to the employees to uncover the roots of the discontent would have had any beneficial effect.

Opinion Polls

Hundreds of other managements try questionnaires, polls, "employee audits," suggestion boxes, etc., in their search for easy information about worker discontent. Yet complaints remain.

For example, of the 212 election situations investigated, some 49 were similar to the case of a Midwest company in this industry. The company tried an "opinion poll" questionnaire as a possible solution for its employee gripes, even installing suggestion boxes. These suggestion boxes were designed to give employees a chance to write anonymously about pet gripes. The plan met with disappointment. The questionnaire uncovered only general worker complaints; little of it was news to management and none of it was of any help in finding or pinpointing solutions. The suggestion box was crammed with silly, unconstructive criticism, sometimes quite vicious.

Lack of Explanation

The problem of still another Southwest company in this industry comes to mind. Difficulties arose when this plant mushroomed from a small operation to that of a larger plant. Where the same executives had experienced no labor unrest when the facility was small, they had an alarming amount of it as the plant expanded. Despite an elaborate "employee audit" and questionnaire, an election petition was filed with the NLRB and voting was held soon afterwards. The company lost by a narrow margin. Wage rates were the alleged reason.

Called in by the parent corporation to make a detailed investigation, I soon uncovered the fact that most of the difficulties stemmed from rapid changes in production methods coupled with intolerant, abusive supervisors. These production changes of course, were necessary because of changes in design, but nobody bothered explaining these things to employees. They were merely switched from one production method to another, and since they were being paid good rates, management felt that the employees merely had to comply with orders.

Resistance to Change

Unfortunately, most semi-skilled workers, after learning one or two operations, become frustrated when those operations are changed without proper explanation of the cause and without the help of patient, trained foremen. This frustration works itself out in various complaints about many things, and eventually, if enough employees in the plant feel the same way, there is a blow-up.

After long experience, and careful evaluation of the 49 similar instances, I concluded that paper-and-pencil questionnaires and suggestion boxes for blue collar workers cannot take the place of man-to-man contact in the plant. A systematic procedure recognized as representing top management, must be used to listen regularly to employees, and to act upon the gripes.

Too Simple a Prescription?

So simple and elementary is this prescription that every reader who manages a factory will immediately snort in derision. Every employer in this industry believes that he listens to his employees and that his foremen are well trained.

Unfortunately, most employers, with the utmost good will in the world, do not have the patience to listen, or the time, or the systematic machinery. They therefore depend upon personnel department people and more particularly, on foremen and line supervisors to listen. Very few of these people know how to listen "with the third ear," a talent which can be developed by training.

Moreover, very few of these management people can be depended upon to give management a straightforward report on what employees are saying -- not that personnel department people, foremen, line supervisors, et al. wish to deceive the front office. On the contrary, most often they are wholeheartedly on management's side.

But most of these people (consciously or unconsciously) report only what they LIKE to report, or report only what THEY think is important. Often this is not the whole story, even if employees gave them the whole story, which they rarely do.

Listening to employees is also a way for employers to forestall union organizers who roam smaller communities of every state, seeking plants to organize. Once organized, union officials believe, the employees are locked into the union for years and years. How often does a decertification election succeed? Not too often.

Union Tactics

One common attack by union organizers is to visit employees in their homes and promise them all sorts of pie in the sky. The organizers don't have to deliver anything. Under the law they can promise anything they like. If their promises don't work out, it's the selfish employer's fault. And the trouble continues.

What can employers do? For this sort of common tactic, there is only one weapon: LISTEN TO THE EMPLOYEE and train your supervisors. There is no other way that an employer can find out just what is troubling his employees, or what he must do to overcome the difficulties on which union organizers build.

Center of Trouble on 3rd or 4th Floor

Another example, from about 21 similar cases covered in this study, might be of interest here. It was a California company in this industry. The hotbed of union sentiment seemed to be centered on the third of the four floors of the plant. There seemed no obvious reason, yet judicious and cautious interviewing of employees throughout the plant led a skilled consultant interviewer to uncover some interesting facts.

No Refrigerator

The first, second, and fourth floors had small refrigerators in the employee's restrooms. The women brought their lunches and deposited the bags in the refrigerators. But the women on the third floor had no refrigerator. Theirs had broken down a year ago, and had never been repaired. They used the second or fourth floor refrigerators. By so doing, their lunch bags were often pushed aside by the employees of the other floors; sometimes, if there wasn't enough room, the third floor lunch bags were removed from the refrigerators entirely. They had complained to their foremen over and over, but the foremen were too busy to raise the question with the plant manager.

Now it is difficult to believe that anything so trivial would heat up a group of about 80 employees, yet such was the fact. From this small beginning, festering for about a year, 80 employees became dissatisfied with everything -- the ventilation in the plant, the location of the overhead lights, the treatment they received from supervisors, wage rates, etc. Everything the company did, was bad, bad, bad. From this humble beginning, employee dissatisfaction spread through the plant. Not a single foreman had tried to deal with the situation, or reported it higher up.

It took seven weeks of careful interviewing, careful listening, and running down of all clues, to uncover this basic trivial cause. Installation of a \$80 renovated refrigerator in the third floor restroom cleared up most of the difficulty.

Could the company have uncovered clues indicating that lack of a refrigerator to hold employee lunch bags on the third floor was causing a severe shift in employee sentiment? Without foremen trained to listen and report, the only other alternative would be to talk to every employee in the plant. Troublesome as that might have been, it doesn't compare with the subsequent trouble (and expense) of dealing with a union.

"Trained Ear" Gets Results

It takes special training and special techniques to invite and enjoy the confidence of employees.

(Here and there throughout the country are some skilled consultants, who specialize in such labor-management techniques. Usually, these men are connected with a college or university. Interested company executives might secure a list of recommended names by writing to the University Research Center, 121 West Adams, Chicago, Illinois 60603.)

Sudden Labor Trouble

Here is another case from our study which somewhat parallels 32 others. About 300 men were involved. A 70-year-old company in this industry, with no labor or union trouble history, suddenly found itself facing an organization drive. The company wage scale was in line with that of the community -- yet suddenly men in the plant seemed to be swallowing all sorts of union organizer promises -- something they had never done before. Why the sudden labor trouble?

In this small town, no other company had a union, yet somehow the union seemed to have gathered strength in this plant. The company won the election by a very slim majority, and then as a result of unfair labor charges, another election was ordered. However, in the interim, the company had used an outside consultant who did nothing but interview and listen to employees, and provide training for supervisors.

Hearing Loss?

The basis of his findings was the noise in one department that caused a number of employees to fear hearing loss. This was mainly a reaction to the current publicity about OSHA legislation, on which the union organizer capitalized. Those employees who complained had merely been given uncomfortable ear plugs without explanation -- a sort of impersonal treatment which many resented. This resentment cropped up in complaints about many other working conditions -- formerly accepted as a matter

(please turn to page 25)

Changing Technology and Medical Specialization

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"The process of data collecting by computers will cause interaction between the technology and the illness which it is designed to diagnose and treat, and these changes will result in computers performing not old jobs better but completely new jobs."

Twenty-Five Years of Computers in Medicine

Twenty-five years of computers, and computers in medicine, bring us to the threshold of their accelerated introduction into clinical medicine. To date, there has been an opportunistic application of computers to medicine. This unstructured approach is about to change, however, (1) because of the technological advances which have been achieved through computer research and are ready for utilization, and (2) because of the developments in concepts of comprehensive health care and its delivery. People who have had little or no care, people who have had partial care through some form of insurance, and people who have been able to afford total care, are collectively, either through insurance, through unions, or through government health programs, demanding comprehensive health care at moderate cost to modest cost. The dual problems of obtaining manpower to staff such a health service and of keeping the total cost of that service as low as possible, lend themselves to solutions through technology.

Evolution of Technology

The developments in technology act in concert with the recognition of the need for expanded medical care. They are compounded by the existing doctor shortage. These powerful interacting forces will structure the future application and development of automation in medicine. These forces have thus far tended to channel technological application towards assisting the primary physician in the delivery of health care.

Furthermore, the evolution of technology is such that this assisting phase will be transient, for programs are already being developed which will do much of what the physician does now. Finally, the process of data collecting by computers will cause interactions between the technology and the substrate of illness which it is designed to diagnose and treat, and these changes will result in computers performing not old jobs better, but completely new jobs.

This article seeks to explore the evolution of machines in medicine and to discuss some of the problems inherent in change. We have divided the evolution in medical technology into three phases based upon inferences about the role of the physician in relationship to his machines and his patients. Phase I is called the assisting phase; Phase II, the automated phase; and Phase III, the environmental control phase. After each phase we have attempted to indi-

cate some of the consequences of the different stages. It should be apparent that different levels of the progression are occurring simultaneously and that there is no sharp demarkation between phases. What might not be apparent is that Phase II should be a reality in the next decade and that Phase III will probably be the dominant form of medical practice within the career of present day medical students.

Phase I — The Assisting Phase

The introduction of technology into medicine has been at such a rate that each new machine has been seen as an individual innovation which helps with a particular diagnostic or treatment function. When a new machine appears, it is tested and incorporated into the doctor's routine on the basis of its utility and efficiency. This random incorporation of such innovations as the electrocardiogram (ECG), the electroencephalogram (EEG), the fiber gastroscope, the heart-lung machine and patient monitoring equipment throughout all fields of medicine has obscured the collective impact on medical practice of machines, i.e., the channelling of medical practice toward technological specialties. The phenomena of medical specialization has been largely attributed to an increased work load and to the information explosion. This hypothesis, however, misses the important relationship between the development of a machine and the development of information and a specialty as a direct result of that machine.

The Electrocardiogram and the Cardiologist

For example, the introduction of the electrocardiogram did much to strengthen the cardiologist -- who was previously solely organ based. The ECG established scientific credibility to the diagnosis and treatment of myocardial infarction syndrome. Second, a literature developed about the technical aspects of the ECG machine itself, followed by a literal explosion of information about ECG diagnosis. Each diagnosis has usually been enhanced by reports related to prognosis and treatment to such an extent that it becomes a full time job keeping abreast of the publications in this field alone.

Although more has gone into the development of cardiology than the ECG, it is hard to conceive of that specialty without it. From this beginning there has been a proliferation of other innovations:

the intensive care units, specialists in intensive care, respiration therapists, second generation machines like pace makers and cardiac monitors. As technology provides equipment to investigate a particular organ system in depth, a new information explosion and subsequent specialty frequently develops. Thus, the new technology's effects have been to improve medicine through specialization, to increase its complexity, and to heighten its intellectual stimulation related to content.

New Innovations in Machines

Relatively recent innovated machines are in the laboratory, the nursery, the intensive care unit, the emergency room and the operating room. They pervade the care of the critically ill inpatient. They structure the clinic's business procedures if not influencing the individual doctor's practice procedures.

It is significant that, in addition to helping the doctor do what he did before, these machines do jobs which really cannot be equalled by the physician alone. Increasingly, machines are molding the way in which medicine is practiced, even to the extent of having influence over the formulation of medical ethics in regard to the definition of death. This same technology, by its very existence, raises extremely perplexing questions about who will die.

Dependence of the Doctor on Machines

The introduction of technology into medicine has several effects upon the doctor. One is that in routine practice, the doctor has unconsciously become dependent on the laboratory, x-ray, drugs packaged by automated systems and various electronic instruments to such an extent that the practice of medicine would be starkly different if they were suddenly removed. By examining the prospects of their removal, one is able to develop some feel for the amount of evolution they have induced. Also, a forward anticipation of comparable change in the next ten years to what we have had in the past 25 years is helpful in grasping the magnitude and rates of change we will experience.

Changes in Medical Practice

Thus, these machines, which have been readily acquired and used by the medical profession to help them perform tasks and detect disease more quickly and accurately, have subtly effected a change in the environment of medical practice in the twentieth century.

A change in the environment is rarely only additive or linear. You seldom, if ever, have an old environment PLUS a new element, such as a printing press or an electric plug; what you have is a totally new environment.¹

From the individual family doctor of the early 1900's who treated a patient for all his illnesses, practice has evolved in a predictable technological form into a system in which many specialists treat specific diseases that manifest themselves in the same patient. This evolution from patient-centered to disease-centered treatment has taken place gradually over the past 70 years. The rate of change has been slow enough to allow for the training of new physicians in the new specialties created by an expanding medical technology. The very real changes in the role of the physician and the system of health delivery that have occurred have been effected with relatively little trauma to the earlier physicians

who have been able to continue their roles as generalists in an increasingly specialized world. Medicine has adjusted to the presence of technology and now reflects its qualities so smoothly and so completely that it requires a detached view to even recognize the great change in orientation that has occurred.

Phase II — The Automated Phase

Now, into this seemingly stabilized system of health delivery care based on scientific, technological specialization, a different sort of machine is being introduced. Its long term effects will result in another major change in the environment of medical practice. These are automated machines that are capable of replacing those functions which have so far been performed only by the physician himself. Because the physician has become conditioned to accepting technology in medicine, these more sophisticated instruments have been introduced without arousing questions about their long-term implications, or, more often, without even a recognition of what these implications are.

A computer-acquired history and a programmed physical examination are today almost existing realities.^{2,3,4,5} Machines which will perform a physical examination by analyzing data coming directly from self-propelled sensing devices are projected at this time. Once the software has been developed, the retrieval of data from medical records, along with results from automated clinical laboratories, and the integration of these data for processing by a computer will be simple procedures. The import from the capabilities of these existing and realistically projected machines is that they are, and will be, able to do what the physician now does.

Here again, as in 1900, the role of the physician will be affected and the present system of health delivery will restructure itself around a new concept in patient care. But this change will be unlike the gradual readjustment that accrued when medicine entered the technological era. Because of the productive capacity of our electronics industry, the lead time between the development of an automated process in health delivery care and the moment when widespread change occurs will be short, that is years, not decades. The resulting effect on the physician will be one of frequent and significant change in his role. Trained as a specialist in disease detection he will be confronted with machines that are equally specialized, that can also differentiate diseases, and that will bring to this process a degree of efficiency and a capability for information storage far beyond human abilities.

"Future Shock" for the Physician

Thus, as in so many other fields that have become automated, the physician will experience not the introduction of new techniques which can co-exist with his present job, but the actual replacement of much of his present function by a machine. The years of training in scientific disease detection and the old methods of specialist-based health care delivery will have been made, in large measure, obsolete. He will, in fact, experience "future shock".

Future shock occurs when you are confronted by the fact that the world you were educated to believe in doesn't exist. Your images of reality are apparitions that disappear on contact. There are several ways of responding to such a condition, one of which is to with-

draw and allow oneself to be overcome by a sense of impotence. More commonly, one continues to act as if his apparitions were substantial, relentlessly pursuing a course of action that he knows will fail him.¹

A third reaction to being suddenly exposed to a new environment is to rationally evaluate your situation and adjust to the demands of the new milieu. In order to make this reorientation, the physician will first need to recognize that there is a new environment. Then he will need to have the flexibility necessary to adapt to the new roles which the doctor will fulfill in a world of automated medicine. Some of these roles will be in the new specialties, created by the machines once more; others will be in computer administration and programming; many more will be connected with counseling patients and responding to their illnesses with empathy. There are many variations within these categories. The important thing is for the physician today to recognize the change which is going on in medicine and automation so that he will be prepared for the new demands which will follow.

Phase III — The Environmental Control Phase

The development of machines which are able to replace hitherto unique diagnostic functions of the physician is only the intermediary phase in the evolution of machines in medicine. Rapidly following this era will come the stage in which heuristic computers interact to develop strategies for medical care which are peculiarly suitable to the abilities of technology rather than to human organization. Changes in information about the illness and the alterations in disease caused by the automation will result in changes not only in functions related to diagnosis and treatment, but also in the goals of medical care.

Perhaps the first goal of automated medical care should be to treat a sick person, and this would shift to prevention of illness, and in time this might change to maintaining an equilibrium between birth and death rates. These goals will undoubtedly be altered from time to time by the needs of society. At this point, the computer may be assigned a task and the assigner not know how the computer arrived at an answer, but only that it arrived at a carefully planned answer, perhaps making calculations and trials that it would take an individual 100 or more years to duplicate. This later phase of automation will be characterized by two new facets as described by John Diebold: (1) Technological advances are self-generating. "No longer must technological progress wait on the next individual scientific discovery: technology itself is pushing research into new discoveries and new dimensions."

This process will produce whole new sets of computers which will acquire, store, and process information which only the machine through its own processes evaluated as being relevant to treatment and health to begin with -- wholly a machine idea. (2) Computers rather than being given a defined task to perform, can be assigned a goal, the computer at this highest point of machine intelligence will pursue a goal with minimum instruction, devising its own strategy in pursuit of that goal.⁶

Direction Determined by the Machine

In this final stage, machines will again be responsible for a changed environment in medicine, but this time the change will occur not through the restructuring of the present system around a newly in-

troduced mechanism, but under the external direction of the machine itself. For example, in a world whose goals are a healthy population, the emphasis of medicine in the future may well be on prevention rather than diagnosis and treatment. With the precedent for using machines in problem solving situations firmly established, and with the concurrent development of machines that can devise strategy in the pursuit of goals,⁶ it is predictable that these computers will be used in problem solving situations in health delivery. We predict that their recommended approaches to health delivery problems will influence the direction that medicine takes in the next decade.

Thus far, the three phases of the evolution of machines in medicine have been delineated. It may be seen that the first phase, in which machines assist the physician, is evolving into Phase II, in which machines are designed to replace functions which heretofore had been unique to the role of the physician. It may also be seen that this second phase is only intermediary in a progression that will result in machines themselves being used to devise new approaches to health care. Thus, technology continues to shape the direction of medical practice through its increasing incorporation into diagnosis and treatment. The development of new skills by physicians in response to technical advancement will be necessary, while appropriate education in medical school should facilitate this adaptive development.

Culture Influencing the Physician

The preceding discussion has demonstrated that the physician is influenced both subtly and overtly by the culture in which he lives. At the present time that culture is technological, and both the practice of medicine and the job of the physician are inseparably chained to that technology. Technological advances, such as the ECG, which have created new jobs and new fields of medicine are examples of this interdependency upon technology in medicine today. In like manner, it may be assumed that new machines will continue to structure new specialties and define new jobs in the future.

Therefore, because of what has happened in the past twenty years and is continuing, predictions can be made about the effect of technological advances on the role of the physician in the future. Finally, with these changes in mind it is possible to suggest some changes in the present medical education system that will be necessary in order to prepare physicians to practice medicine in an increasingly automated environment.

Changes in Medical Education

Among the possibilities that cluster around the role of the physician in the late twentieth century, two large areas may be emphasized. Some doctors will need to become advanced technologists in order to conceive, design, operate, and understand the new generations of machines. Secondly, with the increased use of machines for technical functions, many physicians will be called upon to help the patient understand the technical findings of his examination and to facilitate the constructive use of this information in the patient's life. The genetic counselor already serves this function today, helping the counselee to incorporate the information that he has acquired in the counseling session for constructive planning; while the thanatologist works with terminally ill patients as they deal with the knowledge of their approaching death. *(please turn to page 25)*

WATERGATE SOUTH

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"In Fayetteville, Arkansas, I was working with Vietnam Veterans Against the War. One of the veterans there, William W. Lemmer, turned out to be an FBI informer. . . . We broke his cover and exposed him. He immediately suggested he become a double agent on the FBI."

Introduction

Investigations by the press, Congressional committees, and the courts have slowly revealed the nature of "Watergate East" and "Watergate West." The first refers to efforts to undermine Democratic Party presidential candidates and the subsequent cover-up; the second, Watergate West, to the violation of the rights of Dr. Lewis Fielding in an attempt to seal off leaks. The inter-relationship between Watergates East and West is rather ambiguous without an examination of "Watergate South," which has been almost totally overlooked. The evidence supporting the hypothesis that there was a southern extension is scattered through Ervin Committee testimony, press statements, affidavits and depositions filed in several courts, and other statements by some of those involved. Many clues or references may still lie undetected, but a consistent picture has emerged, from those that have been found, of an attempt to keep Richard M. Nixon in the White House at almost any cost.

I first stumbled into Watergate South in a most unlikely place, Fayetteville, Arkansas. I was living there in the spring of 1972 and working with the Vietnam Veterans Against the War (VVAW). One of the veterans there, William W. Lemmer, turned out to be an FBI informer. It was through him that several of us began to learn of what was being planned for that presidential election year. In late May, 1972, we broke Lemmer's cover and exposed him as an informer. He immediately suggested that he become a double agent, spying on the FBI. To prove the good faith of his offer, he voluntarily agreed to be interviewed, on tape, by two other Fayetteville veterans. The interview was conducted on June 3 and 4, two weeks before the discovery of the Watergate break-ins. I was present during the second day's session, when Lemmer made his most ominous statements.

Assertions that Violence Was Planned for the 1972 Political Conventions

Watergates East and West reveal an hysterical attempt to seal the White House off from the rest of the country. But why the hysteria? Why the frantic cover-up? Much of the answer lies in Watergate South. Even the most cooperative witnesses have shied away from this area of the total puzzle, probably because its implications are so staggering. James W. McCord, Jr., came close to it when he was testifying before the Ervin Committee in May of 1973. He stated that

he believed he had acted in the nation's best interest because of plans allegedly being made by groups, working with the Democrats, to violently disrupt the conventions. Therefore, telephone taps of Democratic committee members were necessary to learn of plans in time to head off the trouble makers. McCord testified to receiving "almost daily" reports from the Internal Security Division of the Justice Department, some of which linked the Democratic Party to VVAW. One of those reports

came concurrently with some other information that that same group (VVAW) was planning violence at the Republican National Convention involving danger to, threats to life of individuals. . . . The Vietnam Veterans Against the War was one violence-oriented group that was already saying in the spring of 1972 that they were going to cause destruction to life and property at the August Republican convention, using in their own words, their own bodies and weapons as the spearhead of the attack there -- these are their exact words, and some of them (the Gainesville 8) have since been indicted in Tallahassee, Florida, with additional plans to damage the life and property of the convention.¹

Earlier, during the trial of the Watergate burglars in January, 1973, one of McCord's attorneys, Gerald Alch, explained the rationale of this defense.

If one is under a reasonable apprehension -- regardless of whether that apprehension is in fact correct -- he is justified in breaking a law to avoid the greater harm, which in this case would be violence directed to Republican officials, including but not limited to, the President.²

The first question that needs to be asked is: did McCord have cause for a "reasonable apprehension" that violence was planned for the 1972 conventions? The answer to this question seems to be: yes, violence was planned. The proof of this answer is found in the tangled web of a second question: who was planning to initiate and direct the violence?

Questionable Nature of Internal Security Division Information Supporting Charges Against VVAW

The government alleged that VVAW members conspired to be the instigators of the violence. The source

and veracity of these allegations, however, is highly questionable. The "New York Times" spoke with a

highly placed Florida law enforcement official who participated in the security planning and operation for both conventions and saw the top-level intelligence reports (who) said in an interview last August (1972) that there was no mention in the intelligence reports of the plot described by the Government in its indictment (of the Gainesville 8).

After checking the intelligence reports for the security operation again to refresh his memory, the source repeated that the strongest warning about any potential activities of the V.V.A.W. was a report that it had bought "between five and one-hundred slingshots."

And a check of the secret intelligence and operation logs of the Dade County Public Safety Department, made available to the New York Times, also shows no signs of Federal, state and local reports of the alleged plot.³

At least two undercover officers with the Dade County Public Safety Department, Gerald Rudoff and Harrison Crenshaw, had infiltrated VVAW as informers and had attended VVAW meetings in the Miami area prior to the conventions. Had they heard of any plans that could be construed as potentially disruptive, surely Rudoff and Crenshaw would have reported them. These reports should have been among the materials available to the Florida law enforcement official if he and his co-workers were to be able to maintain order and to protect the lives of those present in and around the conventions. The use of informants is based upon the need to fulfill such responsibilities. In view of the absence of such reports, it is reasonable to assume that there had been no indications that VVAW, or any other movement group, was planning to incite violence. Facts tend to support this contention.

Convention Disruptions Started by People Apparently Not in the Peace Movement

VVAW was the only movement organization whose members were indicted for conspiring to violently disrupt either convention. It was also the only group mentioned by McCord in his testimony as being a source of concern to security personnel at the conventions.

Aside from sporadic trashing and a disorganized skirmish the last night of the Republican Convention, there was no violence at either. That incident the final night involved little more than blocking traffic, which is far from the blowing up of the Causeway to Miami Beach, of police stations, and of communications installations that the Gainesville 8 were charged with planning. Of the 1,200 demonstrators arrested that night, only a few -- some reports say no -- VVAW members were arrested.

Several times people in Miami Beach noticed that groups of younger demonstrators were roused to start trashing by agitators who quickly faded from view when the trouble started. Some of these instigators may have been irrational hotheads from the ranks of the movement, but not all of them were. A reporter for the "Miami Herald"

saw two pro-Nixon youths physically disrupt a women's anti-war demonstration outside convention hall. One of the young men identified himself as Stephen McNellis, Minnesota coordi-

nator for VVJP (Vietnam Veterans for a Just Peace)

Since then, as part of the Watergate disclosures, the White House has admitted that the pro-Nixon veterans group (VVJP) was in fact financed with GOP campaign funds and directed by Charles Colson.⁴

No Government Case to Support Indictment of the Gainesville 8

Sizable contingents of VVAW members were present at both conventions, yet the expected violence did not occur. It is conceivable, if the charges against the Gainesville 8 were true, that VVAW abandoned its plans for the August convention after some of its members were indicted in July. However, the jury found the eight defendants innocent of all charges after hearing a month of prosecution witnesses, only one defense witness, and after deliberating for only four hours. Obviously, the government had no case to support its charges, despite the fact that VVAW was heavily infiltrated. Two FBI informers, Lemmer and Karl Becker, were present during the meetings from which the indictment was derived. Another FBI informer, Emerson L. Poe, was working closely with the Florida VVAW coordinator, Scott Camil, who was later indicted as one of the Gainesville 8. Rudoff and Crenshaw were working on the local level in Miami with Camil and Alton C. Foss, another defendant. All but Rudoff testified at the trial and still the government had no case. The only assumption that can possibly be drawn is that there was no conspiracy by VVAW members to initiate violence at the conventions.

If violence was planned, but it was not planned by the VVAW, then others must have done so. If other movement groups had, then the indictment of the Gainesville 8 would not have inhibited them. They might even have assumed that they were not under heavy surveillance and, therefore, were free to do as they wished, with a fair degree of assurance that they would escape blame since others had already been charged with what they planned to do. The absence of any serious outbursts is indicative of the peaceful intentions of the demonstrators. This fact, together with the questionable activities of members of such groups as the pro-Nixon VVJP, support the belief that the conspirators were not among the sincere protestors.

The Case Against the Government

The Gainesville Meeting

Adding still further credence to this possibility are two examples of government involvement through the FBI. First, the so called Gainesville meeting, from which most of the indictment against the 8 was derived, was set up by Becker. Donald C. Donner, a veteran from Fayetteville, Arkansas, who had undertaken the responsibility of arranging for the meeting, got so far as sending out a letter asking for suggestions on a date and place to meet before Becker took over. As Donner said:

The meeting was apparently set up by Karl (Becker). . . . Karl told me that he went on with my idea, informed everybody, tried to inform me and was unable to do so. I shouldn't have been that hard to find. . . . He said he went ahead with a date on the letter and there is not a date on the letter. All in all, the way the meeting got set up is very questionable.⁵

Second, Lemmer was instructed to go to the meeting by his control, Special Agent Richard J. O'Connell, who

made it known to me prior to my leaving . . . that the Jacksonville office, Jacksonville, Florida, office of the FBI, had requested my presence in Gainesville and I was told that it would be up to them to finance my trip down there -- that if and when it came time to move, I was to contact John Maher and pick up money for that trip down there . . . They gave me \$210 to make the round trip from New York to Gainesville and back to New York.⁶

Squad 19

It looks as though members of the government were the actual conspirators and that they were attempting to set VVAW up as a scapegoat for their actions. A September, 1971, statement by Louis Tackwood, a former Los Angeles Police Department agent provocateur, suggests a disturbing basis for this contention. Tackwood, in a press conference, described a plot involving a special group, Squad 19, which was created by the Criminal Conspiracy Section of the Los Angeles Police Department and the FBI.

This plan entailed planting a number of agent provocateurs both inside and outside the Convention. Agents were to infiltrate the groups planning demonstrations against the war and poverty. At the time of the demonstrations, the agents were to provoke street battles with police surrounding the convention hall. Meanwhile, agents inside the convention hall were to plant explosives timed to blow up coincidental with riots in the streets. The purpose was to kill a number of delegates. The result would be to create a nationwide hysteria that would then provide President Nixon with the popular support necessary to declare a state of national emergency. Orders for Squad 19 came directly from the California State Department of Justice, and State Attorney General Evelle Younger. Richard Nixon would then arrest all militants and left-wing revolutionaries and cancel the 1972 elections. He could invoke special emergency powers leading to the detention of political activists.⁷

Agent Provocateurs Active in VVAW Planning for the Convention Demonstrations

William Lemmer

Tackwood's charges are too serious to be accepted without an examination of available facts. First, he claimed that "agent provocateurs . . . were to infiltrate the groups planning demonstrations." VVAW, which was planning demonstrations, was infiltrated and at least one of the infiltrators was a provocateur: Lemmer, the "star" witness in the Gainesville 8 trial. While he was stationed at Fort Benning, Georgia, he encouraged others to telephone bomb threats and tried to get them to blow up a water tower. After he got out of the Army, in July, 1971, he moved to Fayetteville, Arkansas, where he instructed a high school student in the manufacture of a fire bomb and then accompanied the boy to the site of the attempted fire bombing. Lemmer described the incident to the three of us in Fayetteville.

He asked me if ether would be a better fuel than gasoline and I told him, by all means, ether would definitely be better than gasoline. The night that he got busted (arrested)

we went over to his house, picked up the material, and I went out to watch.⁸

Lemmer also talked a Fayetteville veteran into sending a bomb threat. And in another incident, he helped talk demonstrators at an Air Force base in Oklahoma into going on the base despite police and military orders not to do so. In the last three instances people, other than Lemmer, served time.

Lemmer also tried to project a violent image of VVAW, contradictory to the organization's history of only staging peaceful protests. During a local Arkansas march, Lemmer insisted, in vain, that the VVAW members be armed and defy police orders. In May of 1972, he stepped up his campaign. At a demonstration in Washington Lemmer tried to get fireworks and explosives to set off in trashcans, which would sound like gun fire, in order to divert police attention away from the main body of demonstrators and on to VVAW. Again he was unsuccessful. About a week later, on a trip to Florida, while easily identifiable as a VVAW member since he was wearing military fatigues and a VVAW button, he talked loudly in public places about bombing and killing.

Pablo Fernandez

Another agent provocateur, Pablo M. Fernandez, while not actually infiltrating VVAW, did befriend Camil and other Florida veterans. As an FBI and Miami Police Department informer, Fernandez tried to sell weapons, from guns to hand grenades and mines, to Camil and Foss. Major Adam Klimkowski, Commander of the Miami Police Department's Special Investigations Section, stated:

We were hoping for the overt act necessary to produce a charge of conspiracy. . . . We did not want Camil to actually acquire weapons, . . . we wanted to find out what was in the back of his mind.⁹

Government witnesses have consistently contended that Camil and Foss asked for weapons, while the two defendants have insisted they were offered them. Klimkowski's statement, while ambiguous, tends to support Camil and Foss. Whatever the truth may be, one fact is irrefutable: no member of VVAW followed up and bought any of the weapons.

Fernandez was part of a group of agitators paid to go to J. Edgar Hoover's funeral, May 5, 1972, to harrass demonstrators. The group included Watergate burglars Bernard L. Barker, Frank Fiorini (alias Frank A. Sturgis), Virgilio R. Gonzales, and perhaps Eugenio Rolando Martinez, under the name of Rolando Martinez. One of the Fielding burglars, Felipe de Diego, was also in the party as were Reinaldo Pico, Angel Ferrer, and Humberto Lopez. In a "Miami Herald" article, Fernandez is quoted as saying:

I kicked a hippie. . . . I knew someone big was protecting us because the Capitol police did not try to arrest me.¹⁰

Fernandez went into more detail when he discussed this, and other activities, with another Miamian, Angelica Rohan. She appears to be nearly the only informant involved in convention intelligence who was sincerely working for peaceful demonstrations, "so the name of the Cubans would be clean and everything would be good for the Cubans."¹¹ On May 23, 1973, Rohan gave sworn testimony to U. S. District Judge W. O. Merhtens in which she read and interpreted her notes of what Fernandez had told her. Many

of the points she mentioned are supported by other reports of the incident.

I am going to quote whatever Pablo (Fernandez) told me, which I took down as he was giving it to me. I read it back to him, and when something was not clear I went back and redid it

Briefed by Mr. Bernard Barker and Mr. Martinez at the hotel before the 2-hour break upon arrival in Washington. When we had to go to the funeral, the instructions were that one of the group that spoke English had to insult Mr. Daniel Ellsberg or Doctor Daniel Ellsberg. One group would destroy Ellsberg's loud speakers and all his equipment They were given pictures of Mr. Ellsberg and he told them to aim at him. . . .(Sturgis)* started insulting Ellsberg, then Pablo, then Barker. Pico threw a punch at a hippie and that is when everything started. Rolando Martinez and Virgilio Gonzales had whoever appeared to be Ellsberg's security man, held him while Pablo punched him. (Sturgis) and Ferrer were taken by the police, the Riot Control, to a car and then released. Capitol police were five feet away and were like protecting the Cubans, you know, like "Well done," by a sergeant of the police at the Capitol told Pablo after punching Ellsberg's security man. The police protected Pablo and he left the site.¹²

Barker paid all the expenses and gave \$100 in cash to each participant, according to Rohan's statement.

Sometime after that trip, Eugenio Martinez tried to enlist Fernandez's services to create trouble at the Democratic convention.

Watergate burglar Eugenio R. Martinez offered (Fernandez) \$700 a week to infiltrate protest groups at last summer's Democratic convention and embarrass George McGovern "for the Republican Party."

Pablo Manuel Fernandez, 28, a burly, heavy equipment parts clerk who left Cuba as a teenager, said he was told by Martinez: "You get 10 people and get inside McGovern headquarters in the hotel."

Fernandez said Martinez came to him with the long-range offer in which he was told he could make \$700 a week from last June (1972) until "after the President took office early this year", presumably meaning the inauguration of Nixon's second term.¹³

According to Rohan, at least two other Cubans were to head other teams, which sound very similar to the fireteams the Gainesville 8 were accused of forming.

Others Asked to Infiltrate VVAW

Vincent Hannard

Frank Sturgis approached another Floridian with a similar offer. Vincent J. Hannard gave sworn testimony in private and then spoke to reporters.

* Rohan used Fiorini, but I have substituted Sturgis since this is the name by which most people know him.

Vincent J. Hannard of Miramar, a private investigator . . . said he was offered work in "intelligence and instigation" during the conventions at Miami Beach.

Hannard claimed he received separate calls from Sturgis, and maybe Barker, and two others and they asked him to help disrupt activities of the Vietnam Veterans Against the War -- an organization thoroughly infiltrated by police and federal informers before and during the conventions. . . .

According to Hannard, each call came from a different person, and each caller tried to persuade him that it was his patriotic duty to help undermine the VVAW. . . .

Hannard said he was sure it was Sturgis, because he has known him for more than 13 years and recognized his voice.

Hannard said another caller identified himself as Barker. However, Hannard said he never has met Barker and could not be certain who actually called him. . . .

Hannard said he told an FBI agent, Jack Ackerly, about the calls shortly after he received them. Ackerly said he knows Hannard, but refused to talk about conversations he may have had with him.

According to Hannard, none of the four callers told him what would be expected of him if he agreed to do the proposed undercover work. But he said each mentioned the VVAW and described the task as covert intelligence and instigation.

"It was clear from what they said that I was supposed to incite trouble or riots from the anti-war groups," he said. "I was told it would be activity pertaining to the convention and an opportunity to travel.

"And there would be great rewards when the President was re-elected."

Hannard said he was offered \$1,000 a week for that work but that in the fourth call the offer was raised to \$1,500.¹⁴

John Kifner, for "The New York Times," filled in some details in Hannard's story.

In a long deposition taken by the Broward County State's Attorney's Office, a man with Cuban and Central Intelligence Agency ties, Vincent J. Hannard said that he had been offered \$1,500 a week in a telephone call from a man calling himself "Eduardo" -- (E. Howard) Hunt's code name -- to infiltrate the VVAW and cause trouble.

"Basically we had to expose the V.V.A.W. being pink and Communist and all this stuff," he said, adding that he was wanted "because of my reputation as an instigator rather than an investigator."

He said that he had refused because the amount of money being offered made the job seem too dangerous. Mr. Hannard has worked as an informer for the C.I.A., the F.B.I. and local police forces.¹⁵

Alfred Baldwin and John Eck

Alfred C. Baldwin, 3rd, the ex-FBI agent who monitored the illegally placed telephone taps at the Democratic National Headquarters, was also asked to infiltrate VVAW. A Miami gun dealer, John Eck, admitted that he too had been contacted but would not say by whom other than by someone named in connection with the Watergate case.

Government Support of Plans to Kill Convention Delegates

Returning to Tackwood's statement, to examine another of his contentions, he said that "the purpose" of the riots and explosions "was to kill a number of delegates." Fernandez claimed to be able to get the weapons necessary to produce the explosions. Lemmer proposed a variation. In January or February, 1972 -- just four or five months after Tackwood's press conference and six months before the first national political convention -- Lemmer suggested to several VVAW members that they should break down automatic weapons, strap them to their bodies under their clothes, smuggle them into the convention hall, and "rip people off" -- in other words, kill them. Just as no one bought weapons from Fernandez, no one accepted Lemmer's suggestion.

Lemmer, like Fernandez, confided in a woman, Barbara Stocking. On May 25 and 26, during a drive to Florida, he told Stocking of plans that she found so disturbing she filed an affidavit, in which she said Lemmer

said that I should not go to the Miami conventions because, he said, all of the VVAW leaders were going to be picked up and taken out of circulation, and he and some other people were going to shoot leaders of the New Left, and start a riot, and there would be a lot of fighting and shooting, and everyone would be arrested. He also spoke of shooting the "Trots" (Trotskyites) and Progressive Labor movement people and pretending that VVAW had done it, and this would discredit the VVAW and split the peace movement. He said he had a source of unlimited funds to carry this out.¹⁶

Stocking's statement that Lemmer told her "there would be a lot of fighting and shooting and everyone would be arrested," supports Tackwood's contention that "the result would be to create a nationwide hysteria that would then provide President Nixon with the popular support necessary to . . . invoke special emergency powers leading to the detention of political activists."

Proposed Mass Kidnappings of Movement Activists FBI Participation

There is a good bit of evidence that preparations were being made for the "detention of political activists." When describing his activities with the FBI, Lemmer told us a little about a plan the FBI had to round up movement leaders.

LEMNER: I was told to prepare a list of movement people around me, around Fayetteville, a list of movement people who I could count on should I have to go underground. The fact that they said, "I have to go underground" told me something, more than in the back of my mind.

Q: The resident agent here requested it?

A: Right. Well, I guess you could say requested. I was told to prepare a list. The list of people was made up. I have discussed with him, not the list specifically, but the possibilities of certain developments in Miami and across the country making it necessary for a round-up, similar to the ones we saw of the Japanese-Americans in World War II. He has confirmed that possibility openly at one of our meetings, in fact, the last of our meetings.

Q: Did he give you any sort of a . . . probability reading on it?

A: An extremely good possibility, to the point that we discussed alternate identification for myself so that I would have the ability to move about the country, have freedom of movement, during any type of round-up, any type of situation during which the movement would have to go clearly underground.¹⁷

There was, indeed, a list of local movement people in the files of the Fayetteville, Arkansas, FBI office.

White House and CRP Participation

Both John W. Dean, 3rd, and Jeb Stuart Magruder, in their testimony to the Ervin Committee, stated that mass kidnappings of radicals had at least been considered by them and John Mitchell as a part of the so called Liddy plan, devised by G. Gordon Liddy.

MAGRUDER: There were projects relating to the abduction of individuals, particularly members of radical groups that we were concerned about on the convention at San Diego.* Mr. Liddy had a plan where the leaders would be abducted and detained in a place like Mexico and that they would then be returned to this country at the end of the convention.¹⁸

DEAN: Plans called for mugging squads, kidnapping teams, prostitutes to compromise the opposition, and electronic surveillance. He (Liddy) explained that the mugging squad could, for example, rough up demonstrators that were causing problems. The kidnapping teams could remove demonstration leaders and take them below the Mexican border and thereby diminish the ability of the demonstrators to cause trouble at the San Diego convention.¹⁹

Lemmer told us that the detained activists would be held in the old concentration camps, where the Japanese-Americans were held, which he claimed were being renovated, but he told Stocking that the radicals would be taken to Mexico City.

Both Magruder and Dean referred to the kidnapping and mugging teams only in reference to the first of Liddy's proposals, which was rejected, leaving the implication that they were among the more "bizarre" elements that had to be removed before the plan could be approved, as it was on March 30, 1972. But Magruder, in his book "An American Life: One Man's Road to Watergate", mentions that he told his wife in the spring of 1972 that the government might have to round up radicals and take them to Mexico, adding that they might not come back. Since the first two

*At the time that the Liddy plan was under consideration, the Republican Convention was still scheduled to be held in San Diego.

versions of Liddy's plan were considered on January 27 and February 4, which are unquestionably in the winter, Magruder's statement suggests that the idea of the kidnappings was still under consideration, at least, when the plan was finally approved in late March.

Putting a few events into chronological order shows that such bizarre acts as kidnapping and mugging at government direction may not have been among those aspects of the Liddy plan that were removed. The plan was approved on March 30, 1972. Fernandez admitted to being part of a mugging team (although without using those exact words) at Hoover's funeral on May 5. Lemmer's descriptions, in late May and early June, of a kidnapping plot is almost an exact duplicate of the one described by both Dean and Magruder a year later.

Detention of VVAW Members

Mass kidnappings did not occur, probably because the June 17 discovery of the Watergate break-ins forced a change in plans. More than twenty VVAW members were detained, however, during the Democratic National Convention. In a coordinated two-day sweep, covering at least five states, FBI agents issued subpoenas to approximately twenty-three VVAW members ordering them to appear before a federal grand jury in Tallahassee the morning of July 10, the day the Democratic Convention opened. Never before had so many people been subpoenaed by a federal grand jury to appear on a single day. This raised at least three questions. The first involved the possibility that the government was deliberately denying these people's rights to present their case to political delegates by detaining them. The second, the probability that the government used the grand jury to further embarrass the Democratic Party by calling an unusual evening session from which an indictment was issued against some of the veterans about two hours after the Democrats approved a resolution in support of the subpoenaed VVAW people.

But the third question raises the most disturbing suspicions. Was the government hoping to turn those VVAW demonstrators who were in Miami Beach into an unruly mob? These members were furious about the subpoenas. The government may well have assumed that the veterans were without leaders, since most of the men responsible for VVAW's demonstrations were being held in Tallahassee. Angry leaderless groups of people can be roused to violence and several agitators were found in their midst. At least one, after being evicted from the campsite by veterans because he was causing trouble, is reported to have returned with the police and identified himself as an undercover agent. The veterans, however, did manage to maintain discipline, directing their anger into explanations of the situation to the delegates.

Riots as Excuse to Cancel 1972 Elections

Finally, Tackwood stated that "a nationwide hysteria . . . would then provide President Nixon with the popular support necessary to declare a state of national emergency . . . and cancel the 1972 elections." There is evidence that members of the government had given serious consideration to such a cancellation.

In the spring of 1970, William Howard, a Washington, D.C. reporter for the conservative Newhouse chain, published a story about a "contingency plan to cancel the 1972 elections," which he claimed he learned about

from the wife of a Rand Corporation executive. There was a virtual news blackout on the subject.

According to Howard, the President (Nixon) had ordered the Rand Corporation think tank in Santa Monica, California, to do a "feasibility study" of the cancellation possibility in 1972, because of Nixon's concern about possible "disruption by the left." . . .

The "Los Angeles Free Press" picked up the story and was told privately by persons at Rand that it "had for once done a good and right thing in publishing the story."²⁰

This study may have been ordered originally as a precaution against politically oriented violence, which did seem to be escalating in 1969 and 1970. This would be a perfectly valid reason for doing such a study. But it assumes sinister implications when seen from the perspective of 1972. By this time, incidences of violence from the left had dwindled drastically, as had talk of it within movement groups. But while interest in violence had been languishing, provocateurs had been proliferating. Aside from those known to be involved with VVAW, there was Robert Hardy, without whose help, and the money he received from the FBI, the Camden 28 would not have destroyed draft files. There is good reason to believe that some of the Weathermen might not have done so much damage if FBI provocateur Larry Grantwohl had not been so insistent. These are just two of many such cases. It is reasonable to assume, therefore, that members of the Nixon administration, and others working in concert with them, were hoping for the disturbances that would justify the invocation of martial law and the cancellation of the elections as a means to circumvent the balancing controls contained in the constitution. This would give them an indefinite tenure in a position of power beyond reach of either Congress or the courts. Thus, the existence of such a study in a climate so infected with provocateurs indicates that members of the government were attempting to ensure that the havoc they needed would occur.

Conclusion

Watergate South appears to go far beyond what has thus far been revealed in Watergates East and West, into a scheme to subvert the United States' constitutional system of government. The evidence, while not being conclusive, is consistent. It indicates that a plan may have been implemented in which provocateurs would instigate riots at one or both 1972 political conventions. Leaders of the movement would be arrested and taken from the country. This would be done either before the conventions to prevent them from controlling their people, so that the provocateurs could be more effective, or in response to the instigated rioting, thus provoking still more violent reactions from those remaining. The American people, terrified by such disturbances, would then be amenable to the imposition of martial law, and perhaps even the cancellation of the elections. This is a disturbing hypothesis, but events do tend to support it. Far more intensive investigations must be conducted either to prove or to disprove this theory. The implications of Watergate South are too serious to remain an obscure question of which only a few people are aware.

(more)

Biographical Information

- Jack ACKERLY - Florida FBI agent to whom Vincent Hannard allegedly reported the offer from Frank Sturgis to infiltrate VVAW
- Gerald ALCH - Attorney for James McCord during his trial for the Watergate break-in
- Alfred C. BALDWIN, 3rd - Former FBI agent who monitored taps on telephones at the DNC, asked to infiltrate VVAW
- Bernard L. BARKER - Convicted member of the "plumbers" unit who directed Cuban agitators at J. Edgar Hoover's funeral
- Karl BECKER - Charles Henry Becker, 3rd, FBI informer from New Orleans who testified against the Gainesville 8
- Scott CAMIL - A Gainesville 8 defendant and formerly Florida regional coordinator for VVAW
- Charles W. COLSON - Former special counsel to then President Richard Nixon, pleaded guilty to obstructing justice
- Harrison CRENSHAW - Dade County (Florida) Public Safety Department officer who infiltrated VVAW, now deceased
- John W. DEAN, 3rd - Former counsel to then President Richard Nixon, pleaded guilty to conspiracy to obstruct justice
- Felipe de DIEGO - Cuban exile and member of the "plumbers" unit who has admitted breaking into Dr. Lewis Fielding's office
- Donald C. DONNER - The VVAW member from Fayetteville, Arkansas, who conducted the June, 1972, interview with William Lemmer
- John ECK - Miami gun dealer asked to infiltrate VVAW "EDUARDO" - See E. Howard Hunt, Jr.
- Daniel J. ELLSBERG - Former Rand Corporation employee who turned over the Pentagon Papers to "The New York Times"
- Pablo M. FERNANDEZ - Cuban exile, FBI and police informer in Miami, and paid agitator at J. Edgar Hoover's funeral
- Angel FERRER - Cuban exile and paid agitator at J. Edgar Hoover's funeral
- Lewis FIELDING - Daniel Ellsberg's psychiatrist whose office was broken into by members of the "plumbers" unit
- Frank FIORINI - A soldier of fortune, convicted member of the "plumbers" unit, better known as Frank Sturgis
- Alton C. FOSS - A Gainesville 8 defendant and formerly Dade County coordinator for VVAW
- Virgilio R. GONZALEZ - Cuban exile and convicted member of the "plumbers" unit
- Larry GRANTWOHL - An FBI informer and provocateur, in late 1969 and early 1970, who trained and encouraged Weathermen in Ohio
- Vincent J. HANNARD - Private investigator from Miramar, Florida, who was active in Cuba when Castro took over, asked to infiltrate VVAW
- Robert HARDY - An FBI informant whose admissions in court led to the dismissal of the Camden 28 charges on grounds of entrapment
- J. Edgar HOOVER - Former FBI Director who died May 2, 1972
- William HOWARD - The reporter who broke the story of the Rand Corporation study on the cancellation of the 1972 elections
- E. Howard HUNT, Jr. - Former CIA agent, White House consultant, and convicted of conspiracy, bribery, and wiretapping, known to Cuban exiles as Eduardo
- John Kifner - Reporter for "The New York Times" who covered the Gainesville 8 case
- Major Adam KLIMKOWSKI - Commander of the Special Investigations Section of the Miami Police Department
- William W. LEMMER - Former FBI informer from Arkansas and principal witness against the Gainesville 8
- G. Gordon LIDDY - Former White House aide, counsel to CRP, convicted of bribery and wiretapping
- Humberto LOPEZ - Cuban exile and paid agitator at J. Edgar Hoover's funeral
- Jeb Stuart MAGRUDER - Former White House aide, chief-of-staff for CRP, pleaded guilty to conspiring to obstruct justice
- John F. MAHER - FBI agent working out of the New York City office
- Eugenio R. MARTINEZ - Cuban exile and convicted member of the "plumbers" unit
- Rolando MARTINEZ - Paid agitator at J. Edgar Hoover's funeral who may be convicted "plumber" Eugenio R. Martinez
- James W. McCORD, Jr. - Former CIA agent, security coordinator for CRP, and convicted of burglary and wiretapping
- George McGOVERN - The 1972 Democratic presidential candidate
- Stephen McNELLIS - Minnesota coordinator of the Vietnam Veterans for a Just Peace
- W. O. MEHRTENS - U.S. District Judge in Miami
- John N. MITCHELL - Former U.S. Attorney General, director of CRP, and under indictment for conspiracy, obstruction of justice, and perjury
- Richard M. NIXON - Former President of the United States, unindicted co-conspirator for obstruction of justice, since pardoned
- Richard J. O'CONNELL - FBI agent and William Lemmer's resident control in Fayetteville, Arkansas
- Reinaldo PICO - Cuban exile and paid agitator at J. Edgar Hoover's funeral
- Emerson L. POE - FBI informer from Florida who testified against the Gainesville 8
- Angelica ROHAN - Cuban exile and police informant in 1972 to whom Pablo Fernandez confided
- Gerald RUOFF - Dade County (Florida) Public Safety Department officer who infiltrated VVAW
- Barbara STOCKING - Former Teaching Fellow in Philosophy at Boston University to whom William Lemmer confided
- Frank A. STURGIS - See Frank Fiorini
- Louis TACKWOOD - Los Angeles agent provocateur for ten years who broke his cover and talked in 1971
- Evelle YOUNGER - California State Attorney General allegedly directing Squad 19

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3. John Kifner, "The New York Times," August 9, 1973
4. Rob Elder, "Miami Herald," June 13, 1973
5. Unpublished commentary by Donald C. Donner on the June, 1972, interview of William Lemmer
6. Transcript of unpublished interview with William Lemmer conducted June 3 and 4, 1972
7. Richard E. Sprague, "The June 1972 Raid on Democratic Party Headquarters (The Watergate Incident) -- Part 2, "Computers and Automation," October, 1972, pp. 24-25
8. Interview with William Lemmer
9. Rob Elder, "Miami Herald," May 26, 1973
10. Rob Elder, "Miami Herald," May 23, 1973
11. Unpublished statement given by Angelica Rohan to U.S. District Judge W.O. Mehrtens on May 23, 1973
12. Statement of Angelica Rohan
13. Rob Elder, "Miami Herald," May 23, 1973
14. Dennis Holder, "Miami Herald," June 8, 1973
15. John Kifner, "The New York Times," August 8, 1973
16. Unpublished affidavit submitted by Barbara Stocking on July 9, 1972

17. Interview of William Lemmer
 18. Jeb Stuart Magruder, June 14, 1973, Hearings before the Select Committee, Phase I, Book 2, pp. 787-788
 19. John W. Dean, 3rd, June 25, 1973, Hearings before the Select Committee, Phase I, Book 3, p. 929
 20. Citizens Research and Investigation Committee and Louis E. Tackwood, "The Glass House Tapes," Avon, New York, 1973, p. 171 □

Imberman — Continued from page 14

of course -- and was responsible for the union activity.

The consultant recommended a system of baffles be installed to cut the noise in the department, and in the nearby area. In addition, he suggested piped-in music which (by contrast) seemed to diminish the racket. Having music in the plant was so novel that it went far to eliminate the basic complaint. In addition, improvements were made in the physical working conditions that had been mentioned by many employees. The company won the second election 2-to-1.

Most often, our research indicates, worker dissatisfaction does not seek outlet along union lines. Such dissatisfaction is simply channelled in that direction by organizers who know how to take advantage of discontent.

Recognize Discontent

It is therefore vital for management to discover what is breeding worker discontent. Some trivial things such as inadequate lighting, poor circulation of heat in a department, wet or dirty floors, leaky restrooms, or begrimed windows may be the cause and very often is the cause -- if employers had a good upward communications system to bring those matters to the surface quickly. A more important matter such as heavy-handed foremen may cause worker revolt despite the fact that they have borne that burden for years. This latter is common, but most executives never recognize it. Or finally, the demand for cost-of-living increases -- far exceeding guidelines -- crops up, with employees ignorant of what such cost increases might do to the company's competitive position AND EMPLOYEE JOBS.

Understanding Employees

It takes a great deal of time, effort and skill to listen to employees and to understand them. This important chore is part of sophisticated foremen training, and is not too common. In this connection, I have been through 288 NLRB elections, winning 91.4 per cent just by inaugurating a two-way communications system and foremen training. Most of the losses were the result of being called in when the fire was already up to the attic. Given time, techniques employed by such experts can be learned by company personnel.

Employee Goodwill

Such techniques work splendidly, not to undermine union sentiment particularly, but more importantly to win employee goodwill for management -- even where unions exist. Then production and sales may go on uninterruptedly, enabling both management and labor to earn larger returns.

For management and labor each to earn its fair share, it becomes important to listen with a trained "third ear" and to train supervisors and top management how to do so -- if the number of NLRB elections in this industry is to be reduced and not extended. □

Antley — Continued from page 17

We can predict the need for physicians who can direct the advancing technology of medicine, and physicians who can interpret the knowledge made possible through technology to the patients. But because of the rapid changes in medicine which are occurring, it is not possible to foresee all of the specific areas that will demand new skills. A formal recognition of this state of rapid change should be acknowledged, however. It should be taken into consideration in a reorganization of medical education, so that new physicians will be educated with the skill to recognize and adapt to new situations.

The Super-Technologist

Indeed, perhaps the greatest significance to be gained from predicting the role of the physician in the near future is in the adaptation of medical education today. Obviously two different areas need to receive serious consideration in an evolving curriculum. The first would be concerned with training the super-technologist. The emphasis on this training should be towards proficiency in theoretical mathematics, statistics, physics, computers and electronics. However, the fact that it may be necessary for a man to retrain himself several times in his career should be stressed, and adaptive skills for this should be developed. This is not a simple task. Its requirements infer that the trainee needs to have the most current technical information either without having his identity strongly associated with its content or that he have the capacity to take a new identity with each retraining.

The Really Effective Counselor

A second area of emphasis in medical education should be on helping the physician to become an effective counselor. There are several approaches to this problem. Educational programs for clinical psychologists and psychiatrists have already developed methods of training aspirants in communicative and facilitory skills. These techniques are available to the aspiring physician-counselor and should be utilized.

Techniques, however, are not in themselves solutions to educating counselors. The ability to empathize with patients, to accept each one as an individual, and to respect his value system and lifestyle is not acquired through skill courses. It may be developed in part through the study of sociology and anthropology, but philosophical knowledge does not equal compassion and sensitivity. To develop these paramount qualities of a counselor, some work in personal growth, either in group or individual therapy is probably required. Group work described by Cadden et al⁷ and Kubler-Ross⁸ with severely ill patients suggests effective methods for developing sensitivity.

Thus, technology continues to shape the direction of medical practice through its increasing incorporation into diagnosis and treatment. The development of new skills by physicians in response to technical advancement will be necessary; while appropriate education in medical school should facilitate this adaptive development.

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(please turn to page 34)

The Assassination of the Reverend Martin Luther King, Jr., and Possible Links With the Kennedy Murders — Part 11 (Conclusion)

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Was the murder of the Reverend Martin Luther King, Jr., the result of a conspiracy? Previous installments of this series described the "eggs and sausage" man, later given the code name of Jack Armstrong, who appeared on the scene the day of the murder. Also appearing on the scene were Tony Benavides and J. Christ Bonnevecche who claimed to have information and understanding of Dr. King's and John F. Kennedy's assassinations. Are these two men to be believed? Are they one and the same person — possibly aliases for Jack Armstrong?

Is there a relationship between these assassinations? a conspiracy at work by an organization or several individuals? or are these murders more simply vendettas? Mr. Chastain continues to seek the answer to these questions and to the murders of Dr. King and the Kennedys.

Charlie Q. Stephens

Neither Atty. Gen. Phil Canale nor his team of prosecutors ever summoned Jones or myself to testify. No doubt, Jones' credibility would have been attacked by prosecutors if the defense had attempted to put Jones on the stand. Jones has a criminal record because of felony convictions for theft by check.

On the other hand, Canale and his prosecutors had no qualms about constructing their entire case on the testimony of Charlie Q. Stephens, a man with 155 arrests on his record, including an assault to murder with firearms.

Why would Stephens be deemed by the prosecution as a more reliable witness than Jones, despite 154 more arrests than Jones?

Jones is black and Stephens is white.

As stated in Part 9, Stevens said he saw the man who ran out of the bathroom and that he was "nigger". Stephens made this statement to this reporter, both on the night of the slaying and the next day. On the night of the slaying, Mrs. Brewer and Mrs. Walden, who were both sober, told me to ignore Stephens because he was "falling down drunk" at the time of King's slaying. A third witness, Charles McGraw, the cab driver, would later inform me also that Stephens was intoxicated at the time.

Police and FBI agents ignored Stephens' statements for several weeks after King's death. Then, Stephens changed his story and his credibility is seemingly enhanced. Stephens came forth and said he saw a white man come out of the bathroom and that Ray was the man.

The metamorphosis of memory evolved along a tortuous route, climaxed with the transformation of a drunken derelict into a reliable witness, and the degradation of a reliable witness — Mrs. Walden — into a supposed psychotic. Could the discrediting of Mrs. Walden have been the result of her earlier statement that she had heard the shot fired from outside the rooming house — a statement that confirms Jones' contention that he saw the man outside the rooming house and in the bushes — and that the man she saw coming out of the bedroom was neither Ray nor the man described by Mrs. Brewer as John Willard?

Stephens' belated recall came after a drinking session with a British newspaper man. Ray had just been apprehended in London. The British newspaper man gratuitously provided Stephens with a fifth of whisky and at least \$30 in cash.

Wayne Chastain of Memphis, Tenn., is a veteran newspaper reporter and Southern journalist with experience on several metropolitan dailies in Texas, including El Paso, Houston, Dallas and San Antonio, as well as on the St. Louis Globe-Democrat and a Memphis daily. He had traveled with Dr. King's entourage on and off for two years prior to the assassination. He had spent the last two days of King's life covering his speeches in Memphis prior to the shooting. He was on the murder scene within 10 minutes after Dr. King was shot. He interviewed eyewitnesses for one of the first comprehensive news accounts to the nation of Dr. King's death. A native Texan and a graduate of the University of Texas with a bachelor's degree in history and political science, Mr. Chastain also spent several months in early 1964 investigating and researching the assassination of President Kennedy, Jack Ruby's link with Lee Harvey Oswald and a group of pro-Cuban arms runners, and other activities related to Kennedy's death. Months before The Warren Commission's report, which was published in the fall of 1964, Mr. Chastain — after exhaustive interviews with hundreds of witnesses — had reached the conclusion that President Kennedy's death was the result of a plot involving paramilitary professionals financed by a group of wealthy, right-wing Texans with strong connections with former high officials with the Central Intelligence Agency as well as lower echelon CIA personnel still assigned to the bureau. The present installment is an excerpt from a forthcoming book entitled: Who Really Killed Dr. King — And the Kennedys? A Disturbing View of Political Assassinations In America.

The next day, under the newspaperman's byline, Stephens is quoted as saying he recognized Ray from newspaper photographs as the man whom he had seen running out of the bathroom.

FBI and Police Disbelieve Stephens

FBI and Memphis police assiduously avoided Stephens — especially after his previous drunken assertions that it was a "nigger" — as early as the morning after the slaying, after Mrs. Brewer and Mrs. Walden had described his condition of the night before to them.

Suddenly, Stephens' recuperative recall powers re-awakened the interest of the FBI.

Inspector N. E. Zachary, although a fervent believer in the lone assassin theory, never did attach any credence to Stephens' statements — even after the elaborate rehabilitation of Stephens by the FBI.

Zachary accounts for the transformation of Stephens into a credible witness as a "bureaucratic blunder."

An FBI agent in Washington, D.C., happened to read the story by the British newspaper writer quoting Stephens. There was nothing in the investigative reports coming to Washington about a witness named Stephens. (He was deemed so lacking in credibility that the field agents did not even mention him in their reports.)

So, the Washington agent clipped the British article and sent an immediate bulletin to the Memphis office of the FBI to pick up Stephens.

The FBI notified the police dispatcher to have Stephens picked up. Stephens was a well-known police character, and his early morning hang-outs were well known to the police dispatcher, who immediately sent a patrol car to a downtown park to have Stephens picked up. After Stephens was picked up, the patrolman called the dispatcher back and asked where to take him. The dispatcher, knowing Zachary as the inspector in charge of the Memphis police department investigation of the King slaying, told the patrolman to take Stephens to Zachary's office, temporarily forgetting that the request came from the FBI.

The patrolman delivered Stephens to Zachary's office. Zachary was on the phone, so the patrolman left Stephens with another officer outside Zachary's office. When Zachary's call was finished, the officer outside said Stephens was there.

Zachary, familiar with the statements by Mrs. Brewer, Mrs. Walden, and others in the rooming house, said: "What do I want with him...let him go."

Later in the day when the FBI called again and asked if Stephens had been picked up, the search for Stephens was launched again and he was located.

"He was strictly an FBI witness ... not ours," Zachary later said.

During the extradition hearings, FBI agents took Stephens into protective custody, kept him in posh motels, and provided him with money and liquor — and away from the press.

Mrs. Walden Disappears

Meanwhile, Mrs. Walden mysteriously disappeared. This reporter spent three days looking for Mrs. Wal-

den after the State Department said Stephens' statement identifying Ray as the man Stephens saw come out of the bathroom was introduced into evidence during the extradition hearing in London.

Later, I learned she had been committed to the West Tennessee Psychiatric Hospital in Bolivar, about 60 miles from Memphis, on the same day that the FBI finally got custody of Stephens as a material witness.

The procedures used to commit Mrs. Walden were not only unorthodox, but illegal, as a subsequent hearing three years later confirmed. Staff physicians at the institution said Mrs. Walden should never have been committed, but with her common-law husband in protective custody by the FBI, there were no family members that could obtain her release or protest the commitment.

In January 1969, a month before the trial of James Earl Ray, a staff psychiatrist at the hospital recommended Mrs. Walden be immediately discharged and noted in his record that her commitment had violated the procedures set forth in the Tennessee mental health commitment statute — a modern law based on model codes prescribed by both legal and medical associations.

In his report, the psychiatrist said Mrs. Walden had never had a psychiatric history; at the time of her commitment, she did not exhibit any symptoms of psychosis serious enough to warrant her commitment to Western State. This institution usually becomes the repository of mental patients who have failed to respond to rehabilitative therapy at the Tennessee Psychiatric Hospital in Memphis.

Someone in the City of Memphis government first had Mrs. Walden committed in the City of Memphis Hospital's psychiatric ward which is under the control of the Memphis police department. At that facility, patients undergo only brief therapy, and are either discharged or committed for short range therapy — sometimes lasting less than a week and sometimes lasting three months — at the Tennessee Psychiatric Hospital three blocks away in Memphis.

Charles Murphy, a Memphis attorney who later was retained to represent Mrs. Walden, was eventually successful in gaining an adjudication that Mrs. Walden was illegally committed.

Murphy said when Mrs. Walden was rushed from the rooming house to the City of Memphis Hospital's psychiatric ward, she had been recovering from an operation for a rare skin disease. She had been an alcoholic and had been rehabilitated under an AA program that met at the Tennessee Psychiatric Hospital.

"She had been sober for a month before King's death, and she had been sober for a month afterwards, right up until the time of her commitment," Murphy said.

The normal procedure would have been to have turned Mrs. Walden over to a clinical psychiatrist at the Tennessee Psychiatric Hospital for an evaluation and for a short-range commitment at the Memphis institution before she would be sent to Western State.

"They bypassed the entire procedure," Murphy said. "She was in the City psychiatric ward less than a day before she was transferred to Western State, 60 miles away."

(more)

Murphy cites Mrs. Walden as the source of the report that Stephens, her common-law husband, was induced to change his story by the blandishments of the British newspaper man.

"They had to get rid of me to make Charlie's story stand up in court," Murphy quoted Mrs. Walden as saying.

Meanwhile, while Charlie Stephens was in the protective custody of the FBI, another frequent female companion of Stephens met an unfortunate fate — one more fatal than Mrs. Walden.

Mrs. Walden Illegally Committed

"She was found beaten to death in a vacant lot," Murphy said.

Murphy, in a brief filed in the Circuit Court in Hardeman County, Tenn., where Western State Hospital is located, charged that members of the Shelby County Attorney General's office, the FBI, and the Memphis police department illegally conspired to commit Mrs. Walden to a psychiatric institution for two reasons:

First, to destroy her credibility as a witness in case she gave testimony that conflicted with Stephens at Ray's trial; and,

Second, to get her out of Memphis and away from newsmen who might tell her version of the events that occurred in the rooming house on the night Dr. King was slain.

Aftermath of King's Assassination

Dr. Martin Luther King Jr., Nobel Peace Prize recipient, preached non-violence, but on April 4, 1968, Dr. King became a victim of the very virulence he preached against. A sniper killed him with a rifle as he stood on a Memphis motel balcony.

Less than two hours later, the shot had echoed around the world. Guerilla warfare erupted in the largest cities of the nation — a pattern of violence unfolded in a manner not entirely unlike the hit and run tactics of the Viet Cong in South Vietnam.

Less than a week before, President Lyndon Johnson had virtually abdicated by announcing he would not run for a second elected term, and that he was going to wind down the Vietnam War — a sharp and surprising reversal of the escalation policies he had forced on the nation for the past three years.

The more despairing right-wing columnists seethed. They lamented that President Johnson — once the hawk's hawk — had capitulated to the subversive forces both domestically and abroad. The monolithic forces of international Communism had not only penetrated the perimeter of domestic U.S. security, but had deployed its insurgent forces in our city to break down law and order.

Only with this background in mind, can one effectively evaluate the meaning and significance of Dr. King's death.

Also, the perspective would not be complete unless one recalls that Dr. King at this point of his career had amassed a formidable coalition of blacks, Chicanos, Indians and poor whites for his Poor People's March on Washington, D.C. It would begin in June — less than two months away. It would begin its long, hard trek in Memphis and points in North Mississippi.

This would be during the first hot month of what many urbanologists predicted would be another volatile and violent summer. Shock tremors were still in the air from the summer before when racial violence rocked Newark and Patterson, N.J., and Detroit, Mich.

King's Killer a Racist

Dr. King had done more than any other man to break down the barriers of governmentally sanctioned segregation in the south. He had just then began to expand his civil rights movement and mobilize the strength of his supporters in the Southern Christian Leadership Conference to uproot other social, economic and international injustices.

But it was his effectiveness as a civil rights leader breaking down the segregation barriers that made most persons — including intellectuals on the right and the left — assume that a conspiracy, if it did exist, must have been rooted in racism.

Thus, Dr. King's killer had to be a racist.¹

After all, why was King in Memphis at the time he was killed? This was the question most often asked by those who suspected that racism alone provides the clues to explaining King's death.

These people would argue that a two month old sanitation strike by black workers against the City of Memphis had released a latent racism among city political leaders — a racism that had been assumed by more enlightened citizens to have been sublimated, if not extirpated by its roots, by a prior liberal city administration that had integrated schools, restaurants, public parks and had prevented violence in the tense summer of the year before.

However, those who suspect racism alone provides an entire explanation as to why King was killed failed to perceive the more variegated social background upon which King's assassination had impinged.

By early 1968, Dr. Martin Luther King had evolved into something more than a black civil rights leader. He led one of the most dynamic coalitions in the nation — a coalition that could bring its influence to bear on international as well as domestic issues.

The "paranoid patriots," a term used by Rev. James Lawson, had begun to think of King as a "national security threat." Yet King's organization and other protest groups had just succeeded in "turning President Johnson around on the Vietnam War".

A Grave Domestic Situation

If those who espoused the hard-line, cold war mentality could regard a civil war in an underdeveloped Southeast Asian nation less than 20,000 miles away as an immediate and direct threat to America's national security, imagine how these cold warriors would evaluate the gravity of a domestic crisis. They would claim it was caused by the confrontation of protest groups, which had just turned a hawkish President around on the Vietnam War, marching to the nation's capital and demanding reform legislation from Congress. Assembled in the nation's capital city, could not such a formidable group force Congress into shifting its priorities from needs of national defense to domestic reforms?

If one put himself in the mind of one of the "paranoid patriots", could not the Poor People's March in June 1968 be viewed as critical as the urban con-

frontation in Moscow in 1917? If the domino theory haunted these so-called paranoid patriots, think what terror may have flashed across their minds when they pondered the domestic effects of the Poor People's March and their demands on the U.S. Government in the nation's capital? Could not this be deemed a surgical thrust at the nation's jugular vein?

As Sen. Ervin's subcommittee would reveal two years later, the military reflected this frenetic fear and pathological preoccupation with the threat of domestic subversion when it launched its massive surveillance program against the civilian population of America.

Conducted by the Army military intelligence, the program assigned military counter-intelligence agents to spy on civilians, to compile exhaustive dossiers on leading liberal leaders in Congress, prominent judges, and active civil rights workers. The purpose of these investigations, according to the defenders of the system, was to produce intelligence needed in the event that disruptive, crippling, urban guerrilla warfare did break out in America.

This cold war atmosphere — characterized by the "enemy within" syndrome — had reached its apogee in the months shortly before King's death.

Footnote

1. Huie and Frank both strongly contend that Ray killed King because he was a racist. Relatives and acquaintances who knew Ray when he was growing up in East St. Louis, and Alton, Ill., said they never heard him express any racial animosity. Dr. McCarthy DeMere, a prominent physician who is also a licensed attorney and professor of forensic law and medicine, spent almost six months with Ray at the Shelby County jail. DeMere said he never heard Ray express any hostility toward blacks. An Establishment figure, DeMere is a reserve deputy sheriff and a friend of the then sheriff, Bill Morris, who asked him to leave his medical practice and take on an assignment of protecting Ray's health on a daily basis, up to the time of the trial. Dr. DeMere and Sheriff Morris, unlike most members of the Memphis establishment, have expressed on occasions doubts that Ray acted alone in the King slaying. Also, probably no other two men spent as much time with Ray as DeMere and Morris. □

Editorial Note: As is clear from the articles which we have published, the "true" story of the assassination of Martin Luther King and any conspiracy behind it, is not complete. So these articles should be looked on as a preliminary report.

For information in regard to the book on this subject by Wayne Chastain, please write to him.

Corrections:

On page 5 of the July, August, September, October, and November issues of *Computers and People*, change the author's name "Wayne C. Chastain" to "Wayne Chastain".

In Part 8, page 27, left column, line 10 from the top, change "definitely the man" to read "definitely not the man".

In Part 9, page 26, left column, line 5 from the top, and same page, right column, line 7 from the bottom, change "Willie Q. Stephens" to "Charles Q. Stephens".

In Part 10, first paragraph, delete the final remark in parentheses.

MACDONALD — Continued from page 11

Motor Vehicles. Take a look at your Blue Cross card ... chances are you'll find the same number.

In the computer age, the details of your personal life have become so accessible as to seriously threaten the entire idea of privacy. AND THERE IS NO POLITICAL FREEDOM WITHOUT PRIVACY!

Today, the "Social Security" number has been transformed into a Universal Identifier. Linked by computer tape from one data bank to another, it potentially allows anyone who has it to obtain information about you from anyone else who has it.

Consider just a few examples of how your life is recorded:

- The US Treasury Department now requires banks to keep a microfilm record of every sizable check you write. Most banks simply record all your checks. Government agencies may then inspect these records without your knowledge or permission. Your banking transactions are a mirror of your entire life ... the groups you join, the doctors you consult, the causes you support.
- Private dossier companies, called credit bureaus, maintain secret files on over 50 million Americans, containing information not only on your finances, but personal information such as who your friends are, what your habits are, what your neighbors or co-workers think of you. These credit bureaus are protected by federal law from your efforts to see your own file or adequately challenge its accuracy. Next time you are mysteriously denied insurance, or credit, or a job, the chances are it's because of what's in your file.
- In Massachusetts, whenever you receive in-patient psychiatric treatment, your name, Social Security number, diagnosis and course of treatment are reported to the Department of Mental Health. Among the recipients of this information are insurance companies, chiefs of police, the Registry of Motor Vehicles, and all other licensing authorities. The Department has plans for extending this data bank to people getting out-patient services as well.

WHAT CAN YOU DO? By yourself, not much. But you can join forces with 275,000 other Americans (9,000 in Massachusetts) who are defending their rights through membership in the American Civil Liberties Union. Right now the ACLU and its affiliate, the Civil Liberties Union of Massachusetts are pressing for urgently needed legislation that will help control government access to the intimate details of your life.

Even more important, the ACLU can be counted on to fight back whenever individual rights are threatened by abuses of government power. If these rights are to be preserved, and government is to be the servant rather than the master of its people, a strong Civil Liberties presence must be maintained from the smallest hamlet, through state government, to Washington, D.C.

Be a part of that presence. Join the one organization whose sole purpose is to assure that our government does not exceed its authority in the exercise of its power.

GAMES AND PUZZLES for Nimble Minds – and Computers

Neil Macdonald
Assistant Editor

It is fun to use one's mind, and it is fun to use the artificial mind of a computer. We publish here a variety of puzzles and problems, related in one way or another to computer game playing and computer puzzle solving, or

to the programming of a computer to understand and use free and unconstrained natural language.

We hope these puzzles will entertain and challenge the readers of *Computers and People*.

SIXWORDO

In this puzzle, the problem is to paraphrase a passage (a series of connected sentences) making every new sentence no longer than six words, the meaning to be just the same. According to the dictionary, to paraphrase means to restate a text or passage giving the meaning in another form; in this case there is no requirement to change or alter any word – only the requirement of producing sentences no longer than six words.

This puzzle has a serious purpose. Its purpose is to test the following argument:

1. A computer is to be programmed to understand ordinary language.
2. Suppose an agreement is made that no sentence shall be longer than n words.
3. Then it should be much easier to program the computer.
4. n should be chosen so that it is not very difficult for human beings to paraphrase passages into sentences of not more than n words.
5. A reasonable value for n is 6.

Note that it may well be that n should be 7 or 8; and if it should stay as small as 6, then possibly the human paraphraser should have the option of defining terms about which assertions are being made (which is a common option in all of mathematics).

SIXWORDO PUZZLE 7412

Problem: Compare the following passage *a* (SIXWORDO PUZZLE 7411) and a proposed SIXWORDO solution, *b*. What ideas does the paraphrase *b* miss? Can you improve the paraphrase still keeping to sentences of not more than 6 words? Any comments?

a Consider the machines, equipment, and supplies – the technology – for informing people in general about what is going on in the world. That technology becomes more and more expensive, more and more powerful. Along the road of development and progress of that technology, there is a place where all that technology has become so expensive and so powerful that it is monopolized and controlled by the establishment. When that place is reached, it produces the predictable end of the rights of an ordinary citizen to be informed, to know the truth, to hear conflicting sides to the news and to arguments. (Hint: One solution contains 17 sentences.)

b Technology consists of machines, equipment, supplies. Consider technology for informing people generally. The information deals with news, happenings. The information deals with the world. The technology becomes ever more expensive. The technology becomes ever more powerful. The technology steadily develops and progresses. Finally it becomes extremely expensive. And extremely powerful. So the establishment monopolizes it. And the establishment controls it. Ordinary citizens are no longer informed. They no longer hear arguments. They no longer hear conflicting versions. They no longer know the truth. Citizens' rights to know cease. This is a predictable end result.

NAYMANDIJ

In this kind of puzzle an array of random or pseudorandom digits ("produced by Nature") has been subjected to a "definite systematic operation" (chosen by Nature) and the problem ("which Man is faced with") is to figure out what was Nature's operation.

A "definite systematic operation" meets the following requirements: the operation must be performed on all the digits of a definite class which can be designated; the result displays some kind of evident, systematic, rational order and completely removes some kind of randomness; the operation must be expressible in not more than four English words. (But Man can use more words to express it and still win.)

NAYMANDIJ PUZZLE 7412

6	7	8	8	1	0	1	0	0	9	0	0	4	3	6	4	6	4	2	9
6	4	0	6	0	4	6	0	4	0	8	8	6	8	0	4	8	8	6	6
2	4	8	3	8	4	0	6	9	7	4	1	4	4	4	9	0	1	5	8
5	4	9	5	2	7	0	3	2	2	7	3	6	8	8	2	2	6	7	3
6	7	3	8	7	5	5	4	7	7	3	4	7	8	9	9	8	7	6	0
9	1	3	5	5	9	1	0	0	1	4	5	4	8	6	9	2	5	7	0
2	9	3	6	0	1	1	5	4	1	8	1	6	8	2	3	2	3	9	9
3	7	9	7	3	6	6	4	2	5	9	1	0	0	0	3	3	4	8	8
2	9	9	7	6	1	4	8	8	5	4	9	5	7	7	2	2	5	5	7
2	2	6	0	4	9	5	5	6	6	1	0	8	4	4	8	7	9	4	6

NUMBLES

A "numble" is an arithmetical problem in which: digits have been replaced by capital letters; and there are two messages, one which can be read right away and a second one in the digit cipher. The problem is to solve for the digits. Each capital letter in the arithmetical problem stands for just one digit 0 to 9. A digit may be represented by more than one letter. The second message, which is expressed in numerical digits, is to be translated (using the same key) into letters so that it may be read; but the spelling uses puns, or deliberate (but evident) misspellings, or is otherwise irregular, to discourage cryptanalytic methods of deciphering.

NUMBLE 7412

$$\begin{array}{r}
 \text{THE} \\
 \times \text{HEART} \\
 \hline
 \text{RILS} \\
 \text{ETSR} \\
 \text{OONT} \\
 \text{IIIA} \\
 \text{IATI} \\
 \hline
 = \text{EIOOLRS} \\
 49190 \quad 16395 \quad 1
 \end{array}$$

MAXIMDIJ

In this kind of puzzle, a maxim (common saying, proverb, some good advice, etc.) using 14 or fewer different letters is enciphered (using a simple substitution cipher) into the 10 decimal digits or equivalent signs for them. To compress any extra letters into the 10 digits, the encipherer may use puns, minor misspellings, equivalents like CS or KS for X or vice versa, etc. But the spaces between words are kept.

MAXIMDIJ PUZZLE 7412

▽ # ◇ * ◇ #
 # ◇ # † ⊕ □ × ○ * *
 † ⊙ ◇ ⊕

GIZZMO

The problem is to grasp relations between things that are not identified in the usual way — their names cannot be looked up in the dictionary — and then solve a problem involving them.

GIZZMO 7412

GONDS may be roughly divided into those that are based on ongoing ALUNS and those that are founded on some material ENGADS. There are of course other ways in which GONDS may be classified: some are about devices to prevent bad luck; others are about devices to produce good luck. Each class of GOND may be divided into those that are generally believed, and those that are private and individual. The second class is more interesting and includes GONDS that are due in general to no outside influence; they come into the mind privately, and hold a place there that is usually unknown to anyone else. These originate from some experience; reasoning backwards, the individual tries to find some ALUN or ENGAD which he thinks is responsible for his bad luck or good luck.

What is a GOND? an ALUN? an ENGAD?

○* □◇ ▽# ◇○, ○*
 ×⊕ ×○ # † ⊙○ □× #, □×
 † ⊙ ◇× ⊙ □ †

We invite our readers to send us solutions. Usually the (or "a") solution is published in the next issue.

SOLUTIONS

MAXIMDIJ 7411: Work is the key to rest.

NUMBLE 7411: Money steals the soul.

NAYMANDIJ 7411: Sequence column 12.

0	7	8	7	9	4	1	5	7	0	3	1	8	7	9	2	2	0	4	4
8	3	4	7	0	8	4	4	9	2	0	2	0	1	6	9	3	6	5	4
6	1	2	4	3	5	0	8	6	3	5	3	4	3	8	8	7	2	2	3
9	0	4	7	5	3	0	7	6	4	5	3	0	2	7	5	9	1	2	3
8	6	0	0	2	0	2	1	2	5	3	3	6	6	7	2	5	0	8	8
5	6	3	7	8	5	5	4	7	6	5	4	1	1	7	5	3	7	1	1
8	7	8	7	1	6	4	1	1	9	2	5	4	5	5	0	6	3	6	1
0	3	9	5	5	7	4	5	9	5	9	5	2	9	8	1	5	8	7	5
9	9	2	0	6	7	8	1	6	1	5	7	1	7	6	8	7	9	4	0
8	0	0	4	9	9	8	3	0	4	8	8	3	5	8	1	6	2	4	9

Our thanks to the following individuals for sending us their solutions to — NAYMANDIJ 749: John Waters, Atlanta, Ga. — NUMBLE 7410: Maj. G. A. Strassburger, Ft. Meade, Md.

Computing and Data Processing Newsletter

COMPUTER GIVES NEW MEXICO MUSEUM FULL ACCESS TO ITS MINERAL COLLECTION

Jack B. Pearce

New Mexico Institute of Mining and Technology
Socorro, NM 87801

The prospector of years past learned to identify rocks and minerals by sight as he probed for gold and silver in the rocky deserts of the Southwest. Today these same minerals are on display in a museum in Socorro, New Mexico — and a computer identifies each one by X-ray analysis.

In addition, the computer keeps a complete record of each of the 9,200 specimens at the New Mexico Bureau of Mines Mineralogical Museum. The collection, while emphasizing southwestern minerals, also displays other geological and mineral specimens from around the world.



— Halite, crystallized on this bush from California's Salton Sea, gets a careful dusting from Charles Grigsby, assistant curator of the New Mexico Bureau of Mines Mineralogical Museum.

The museum was begun in the early 1900's. It was maintained by the Institute of Mining and Technology until 1964, when it was turned over to the Bureau of Mines. "Much of the material had never been classified," explained Dr. Jacques Renault, a geologist who also teaches at the New Mexico Institute of Mining and Technology. "Some of it was in cardboard boxes and desk drawers. Several people tackled the job, but it was an immense task.

"Finally we decided a computer could handle it better than any team of individuals possibly could because of the tremendous amount of statistical work involved. So in 1969 we began working up a computer file that recorded various information about each specimen."

Mineralogists punched computer cards that catalogued the various minerals in each item, other geological details, its donor or source, when acquired and its location in the museum. Later they began using the computer to analyze the mineral content of each sample.

"X-ray analysis enables us to identify any unknown minerals or chemical compositions in the specimen, as well as any crystalline structure," Dr. Renault said. "It's very much like a fingerprint."



— This delicate mineral specimen containing goethite and psilomelane was found in Socorro, N.M. It and 9,200 other samples from around the world have been catalogued and X-ray analyzed by computer.

Every mineral diffracts X-rays in a characteristic pattern because of the atomic spacing in the crystal. It is relatively simple to determine the diffraction patterns for all minerals commonly found in the Southwest and reduce these data to mathematical tables. Then, by comparing the results of any diffraction test with these standard tables, experts can identify the minerals present in the sample.

"As a result we have everything at our fingertips," Dr. Renault said. "When we want a list of every sample of — for instance — cerussite in the museum, we can get it back from the computer in just

a few seconds. Equally important, we can find it immediately because the printout gives each sample's exact location."

Similar speedy computer search techniques can turn up all minerals from any geographic area or from any one donor. The computer is an IBM System/360-44.

"Research is the reason for our existence," Dr. Renault said. "The computer helps make this museum a living research facility."

COMPUTER SYSTEM FOR A RACING YACHT THAT WON

*Bob Palmer
Data General Corporation
Southboro, MA 01772*

In September 1974, the winner of the America Cup, the yacht *Courageous*, carried a minicomputer aboard for navigational and tactical calculations. The computer was the heart of a special system developed and built by Dick McCurdy, a consultant to the *Courageous* Syndicate. Halsey Herreshoff, navigator, used the system during the trials this summer and during the final four victories over the Australian challenger, *Southern Cross*.

After the races, McCurdy stated:

"Overall, the computer system exceeded my expectations. In spite of the rough conditions, the computer was operational over eighty percent of the time. It did everything we wanted it to, and more — it was a great success.

"The most important task done by the computer was to predict the apparent wind in the next leg of the race. This information allowed *Courageous* to select the right spinnaker every single time."

The Navigator, Herreshoff, commented:

"The computer was a big help to us. It has added a new dimension to sailing by giving us information never before available, like the predictions of apparent wind. Especially valuable was the constant and rapid updating of information by the computer. For instance, when there was a wind change as we approached the weather mark, we immediately knew what our revised apparent wind would be on the next leg. We were able to change our choice of spinnaker at the last minute, which was a real advantage."

The computer supplements the expertise of the skipper and crew by doing navigation calculations that are needed to obtain the best speed from the craft. There is not time available in a race to do all of the calculations manually. Most of the yacht's instruments are connected to the computer; they supply signals representing apparent wind speed and direction, boat speed, heel angle, compass course and other variables.

At any time, the navigator can "ask" the computer to display the true wind speed and direction, which are updated four times a second. Because true wind speed and direction cannot be measured directly on a moving vessel — they can only be calculated from instrument readings — this is an ideal computer task. Knowing true wind speed and direction enables the navigator and tactician to make decisions on how to race the course.

Among the other tasks of the computer is the calculation of a quantity called "speed made good to windward." This indicates actual forward progress

in a tacking situation. Tacking is the technique of sailing into the wind by a back and forth course, making some forward progress each time. The computer can calculate this forward progress from the instrument inputs. The computer can also compare tacking patterns and help establish the most efficient system of tacking.

While these calculations may seem routine, the computer's location certainly is not. The yacht's cockpit is open to the sea and air, and there is no 110-volt power available. There is just enough room for the 11 crewmen to move around. The computer chosen was small and light and the power supply permitted an easy conversion to 36-volt dc operation. Three automobile batteries would keep the system running for 10 to 12 hours, and they could be recharged each night.

The computer was housed in a suitcase-sized, weatherproof metal box that hung beneath the cockpit sole. The computer and the box weighed less than 70 pounds. The computer was cooled by a battery-powered circulation system, and coolant was bilge water. The computer was a NOVA 1200 computer supplied by Data General.

Communication between the navigator and the computer system was handled by a compact station mounted at the chart table next to the helm. A 32-channel scheme produced a four-digit-plus-sign display. Manual inputs and commands were entered with a touchpad; the desired display is selected with a series of switches. All this takes but a few seconds, and the calculation result appears almost immediately.

CAMERAS AND COMPUTERS COMBINE TO ANALYZE ROCKET FLIGHTS

*Kent Roberts
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Las Cruces, NM 88001*

Rockets streaking across the skies at more than four times the speed of sound are being studied every second of the way by scientists at the Physical Science Laboratory, at New Mexico State Univ. Using a computer and high-speed cameras, the scientists collect and analyze information on rockets, missiles, and other aircraft tested at White Sands Missile Range near here.

The computer is used in many areas where precise measurements and calculations are necessary including: determining where to put cameras to obtain the best filming angles; analyzing measurements from thousands of feet of film taken during flights; and compiling reports on flight performance.

"The computer reports enable engineers to determine if aircraft performed the way they were designed to," said Keith Hennigh, data processing division manager of the laboratory. "If the flight didn't conform to plans or if a malfunction occurred, the computer analysis points out what went wrong. Modifications and design changes are made accordingly."

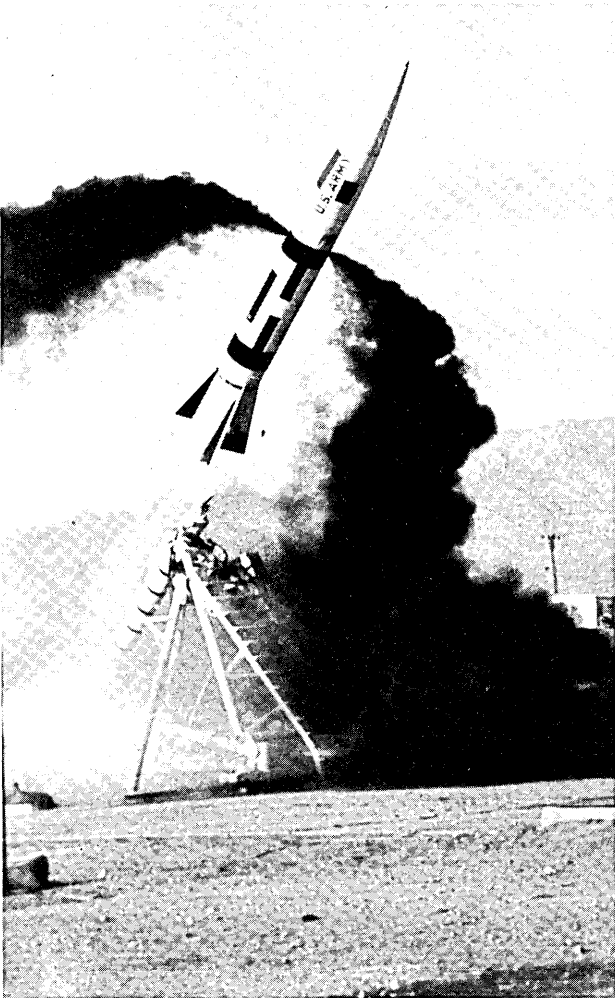
Using information such as estimated speed and intended path of the aircraft, the computer calculates ideal camera locations. As many as 20 cameras, some capable of taking 5,000 frames a second, can be used during tests. Following the flight, the film is processed and frames not related to measurement data are edited out.

Film readers connected to a projector measure the position of the aircraft on each film frame. Reference points such as surveyed targets, poles or stars are used to determine camera orientation and to calibrate the camera lens. When no reference points are in the field of view, cameras with pre-calibrated lenses are used.

As each frame is measured, information enters a Serial Encoded Data Exchange (SENDEX), a device designed and developed by PSL employees to convert measurements into computer readable form.

A second computer arranges film frames from each camera in their proper sequence. It is also programmed to analyze trends in the measurement readings before it transfers the information to the first computer.

The computer combines film measurements with information collected by electronic equipment aboard the aircraft to provide a highly detailed analysis of a flight.



— Flight patterns of rockets, such as the one being launched above, are being studied by scientists at New Mexico State University using cameras and a computer.

The system is programmed to take into consideration any factors which may affect the flight including wind and atmospheric conditions, and enables engineers to study and analyze the flight from the instant it begins to completion. The computer report provides information on a variety of

flight parameters including position, velocity, acceleration, object attitude, roll rate, and other requested information. An entire flight mission can be analyzed in 24 hours using the computer. "Before the computer system was installed, many of our calculations would have taken weeks," Mr. Hennigh said.

The laboratory employs almost 200 New Mexico State students in its various projects. Many of them are involved in a variety of highly skilled jobs as film readers, computer operators, programmers, and keypunch operators.

The Physical Science Laboratory is a non-profit organization providing support for military and federal agencies. The two computers are an IBM System/370, Model 135, and an IBM System 7.

Antley — Continued from page 25

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Unsettling, Disturbing, Critical . . .

Computers and People (formerly 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 People 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.

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

by Edmund C. Berkeley, Author and Anthologist

Published by Quadrangle/The New York Times
Book Co., 1974, 224 pp, \$6.95

Table of Contents

Part 1. *The Condition of Man*

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

Part 2. *On Flattery and Persuasion*

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

Part 3. *On Perseverance and Resourcefulness*

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

Part 4. *Behavior — Moral and Otherwise*

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

Part 5. *The Problem of Truth*

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

Part 6. *On Common Sense*

The Lark and her Young Ones / Aesop
The Bear and the Young Dog / B
COMPUTERS and PEOPLE for December, 1974

The Fox of Mt. Etna and the Grapes

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

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

The Bear and the Young Calf / B
The Bear and the Young Beaver / B
The Wasps and the Honey Pot / Sir Roger l'Estrange
The Six-Day War and the Gulf of Dong / B
The Deceived Eagle / James Northcote
Missile Alarm from Grunelandt / B
The National Security of Adularia / B
Doomsday in St. Pierre, Martinique / B

Part 7. *Problem Solving*

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

Notes

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