VALUE WORLD
TECHNICAL PUBLICATION FOR

IN THIS ISSUE:
- Training of Fleas
- Suggestions Save Millions
- Quality Circles Are Effective Part I
- Enriched and Happier Living
- Freedoms of Choice
ABOUT THE COVER: OXCART
With The Ropes Of The Past
We Shall Ring The Bells Of The Future.
VALUE WORLD

VOLUME 1 NO. 5 JAN/FEB 1978

Magazine for
AMERICAN SOCIETY FOR PERFORMANCE IMPROVEMENT
790 Broad Street, Newark, NJ 07102
and
NATIONAL ASSOCIATION OF SUGGESTION SYSTEMS
435 North Michigan Ave., Chicago, IL 60611
and
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TECHNICAL ARTICLES

TRAINING OF FLEAS ........................................... 11
By Jack Williams

SUGGESTIONS SAVE MILLIONS .......................... 13
By Mari L. Andersson

QUALITY CIRCLES ARE EFFECTIVE .......................... 15
By F. Cecil Hill

VALUE MANAGEMENT - A TOOL FOR ENRICHED AND HAPPIER LIVING ........................................... 17
By Teresa Barlow

FREEDOM OF CHOICE ........................................... 19
By Edward B. Colby

COLUMN FEATURES:

Picture Potpourri ........................................... 2
Thunder Editorial ........................................... 3
Bits and Barbs ........................................... 5
Techniques to Try ........................................... 6
The Bottom Line ........................................... 8

EDITORIAL POLICY: Provide readership with informative, interesting and timely communication relative to Value Analysis, Value Engineering, Idea Programs, Productivity, Motivation, Creativity and Performance Improvement; VALUE WORLD will act as a vehicle enabling the readership to express themselves professionally in advancing the state of the art. VALUE WORLD is dedicated toward establishing a mutual bond among those seeking to better the quality of working life and to establish a communication network through which participating technical society members can interact for mutual benefit.

Value World is published by Society of American Value Engineers, Inc., 29551 Greenfield Road, Suite 210, Southfield, MI 48076, 2nd Class entry at Southfield, MI 48076 with additional entry at Dallas, Texas 75222.

S.A.V.E.
The above workshop is in the R&D area of a large manufacturer, and access to the shop and tools is available to a large number of people. In some other Industrial shops, the tools might not last a day. Question? How is it possible that pilferage of these valuable tools does not occur. And how does the workplace remain relatively neat, with each tool in place? ANSWER BELOW

Part of the answer lies in the fact that the users are highly motivated, professional personnel with character; essentially engineers.

Also, management lets the users know that they are trusted and they have earned the trust.

Finally, little reminders such as that alone. Incidentally, not one nail has been driven into the workbench nor the wooden vise in the many years of the shops existence.
The River Glides On

Returning to my office via an outside walkway, I paused to watch the fast-moving Allegheny River.

I mused over Horace's great truth in the Epistles: "The river glides on and will glide on forever. The simple-minded peasant waits for it to pass by."

Horace is right! If Tecumseh himself, had waited for the Allegheny to pass by, he would yet be there.

And it is much like this with many problems in life.

A couple of years ago, Americans, and in particular — younger Americans, felt the impact of national shortages for the first time.

Shortage of gasoline for automobiles was probably the most significant. Drivers, unembarrassingly waited in queuing lines a half-mile long. Others, pulled into gas pumps before daybreak on the speculation, or tip, that those stations would be pumping that day. Often they were not.

Some drivers needed only a couple of gallons to fill their tank; a topper it was called, yet they prevailed to get it while the getting was good.

Some of the happenings that transpired indicated that the worst in man and woman was brought out in this less than crisis situation. It causes one to ponder what the national discipline and posture would be if faced with severe food shortages.

There were also major shortages for many other commodities: steel, anti-freeze, sugar, bearings, lobsters, and even — toilet paper. It was fashionable to be in short supply.

However, this was not our first brush without valuable goods and services. During World War II, Americans experienced even more dramatic shortages. And to this experience, we owe the birth of Value Analysis.

It is said that Americans consume a disproportionate share of the earth's resources. And the recent worldwide shortages provide ample evidence that the world's resources are in fact, limited. Our consumption therefore, is questionable.

In this regard, the recent shortage experience was not a bane, but rather, a blessing. A time to reflect and to think about the future. An early, painless warning to consider where we are in regard to quality of life versus the principles of conservation. What can we use, and what must be conserved for our children, and theirs. Its a matter of life, deserving our attention.
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DELEGATES TO HELP PICK SEMINAR SITE
NASS will conduct three seminars in 1978. Seminars, dates and sites are:

- April 10-11, Chicago;
- May 8-9, open;
- June 7-8, Washington, D.C. area.

Delegates at the New Orleans conference will be surveyed to determine preferences for the open site. The West Coast will not be considered since the 1978 Annual Conference is scheduled for San Francisco.

Seventy-seven attended the two seminars held this year, the second highest attendance surpassed only by 1976.

LIKES SCHEMATIC
Value World looks like a well-thought-out publication. I especially liked the schematic on how members expect to be served by SAVE and how chapters should function. This can apply to any membership in any organization. Keep up the good work with Value World.

John Olejniczak, President
International Management Council
Oil City, PA

Dear Editor:
Congratulations on the superb Sept.-Oct. issue of Value World! It was a source of new knowledge, pride, and sheer enjoyment.

New knowledge from the heavies, such as Don Parker (in Bottom Line) and Frank Healy (in his letter in Bits and Barbs). Pride, because it is such a readable, well-put-together publication. Sheer enjoyment thanks to Nancy Petrich's Ask Your Secretary and to you for your recognition of the fine contribution to value being made daily by the VE and VA secretaries.

Carlos Fallon
Southport, NC

S.A.V.E.

OVERCOMING ROADBLOCKS
In Value Engineering, Value Analysis, Suggestion awards or Cost Improvement, the ultimate goal is to improve the cost of products and/or services while maintaining the desired level of performance. In the process there is one factor that must be uppermost in mind, these are "second guessing" efforts at all times. Therein lies a hazard. It makes no difference when the cost improvement effort occurs it does concentrate on the removal of unnecessary costs from the "brain children" of the originators. And, in many cases, those originators are not too happy about some value guy picking to pieces the creation he labored for hours, days or weeks to produce, and proudly sold to his boss.

The net result is for him to throw up roadblocks in an effort to save face and, almost without exception, the engineering "top brass" will back him to the limit.

I maintain strongly that all Value, Suggestion, and other cost improvement operations be grouped together under a single manager, and be designated Cost Improvement. That manager should be responsible only to the General Manager, who heads all the departments within the company. It is only thus that any organization can obtain the maximum results from a cost improvement study, for he is the one man who can demand that department heads give objective consideration to all cost improvement recommendations.

H.K. (Ken) Davidson
Jalisco, Mexico

Tom Hansbury says that a man who won't read doesn't have much of an advantage over a man who can't read.

Funny Funny World

BREAK THROUGH
I have an idea.
I'm quite sure it's a "jewel".
Should I talk with my boss
Or will he call me a fool?

They tell me they're looking
For new ways to do things.
I'm not sure they're serious:
For each new day brings
Questions...no answers
another boring day---
With nothing to look to
But my rightful pay.

We talk and I listen
In this one-way street,
With roadblocks and stop signs:
No yield signs to meet.

I have an idea,
I still think it's good.
I want to discuss it
With my boss who should—
Assist me to write
To develop my thought!
For writing on paper
Makes me distraught.

My boss --- he's a nice guy——
With family and friends;
But at work he's as different
As tangents and trends.

I have an idea.
I know what to do.
I'll submit a suggestion
and approach my boss, too!

I hope he will listen.
I'll approach him today
And ask him to help me
Improve the old way.

What a great day that was
For he suggested to me
The following message
Which is my "cup of tea"!

Identify the problem.
Decide what to do.
Explain your solution
Approach your boss, too.
Submit your suggestion.
Don't hold back a day.
IDEAS are too valuable
To not handle this way!

Dave Noyes
Carpenter Technology Corp.
CARLOS FALLON

Carlos Fallon is one of the old timers in value work, engineering design, and manufacturing. A former Colombian naval officer, he worked in this country as a systems engineer, chief mechanical design engineer, manager of Manufacturing, and finally as corporate manager of Value Analysis for RCA. He is an advocate of improving the product while reducing its cost and has written extensively on the subject. In the past two years he has had two brain operations from which he is recovering nicely, and has been an inspiration of courage, faith and goodwill for those who know him.

The Evaluation Matrix

A Useful Aid to Decision

An evaluation matrix is particularly useful when the decision in question has several objectives. This particular matrix combines five well known techniques into a method which is simple to use and is reasonably accurate. The five techniques are:

1. A bounded interval scale that excludes both the inadequate and the excessive in rating the expected benefits.
2. A system of commensurable units for rating the contribution made by a given option to each objective. This matrix has been specially designed to cope with multiple objectives. The scale ranges from a minimum of 2 (poor or less than average) to a maximum of 5 (the best we can effectively use or reasonable expect, anything better than that is gravy).
3. A weighting system whose sum is unity which emphasizes the distributive nature of the importance we give to the various benefits. You simply multiply the rating by the weight above it entering the answer in the lower right-hand corner of each box; then you add across to the right, entering the result in the final column.

4. Capability for introducing utility functions between the raw data and the rating scale by means of simple, graphic transformations.

5. A matrix which puts the whole thing together.

The matrix lends itself to personal, as well as business use. The following is a personal example. Some of the bonds in my modest investment are about to mature. I want to put the money in stocks to get a little protection against inflation. I used this matrix to compare some 12 stocks recommended as "buys" by the advisory services. I only compared those having the best rating for safety, so that factor has already been taken into account. The chart below shows the four that rated highest for my own personal needs.

---

**EXAMPLE (SIMULATED)**

Common Stocks for Income

<table>
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<tr>
<th>Benefits</th>
<th>% YIELD</th>
<th>CHANCES OF INCREASE: IN PRICE</th>
<th>CHANCES OF INCREASE: IN DIVID.</th>
<th>RELATIVE VALUE</th>
</tr>
</thead>
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<tr>
<td><strong>Weights</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Choices</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Electric Power</td>
<td>8.5</td>
<td>4</td>
<td>3</td>
<td>5.05</td>
</tr>
<tr>
<td></td>
<td>4.25</td>
<td></td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td>American Telephone &amp; Tel.</td>
<td>6.76</td>
<td>3</td>
<td>4</td>
<td>5.18</td>
</tr>
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<td></td>
<td>3.38</td>
<td></td>
<td>.6</td>
<td></td>
</tr>
<tr>
<td>Texaco</td>
<td>7.0</td>
<td>4</td>
<td>4</td>
<td>5.5</td>
</tr>
<tr>
<td></td>
<td>3.5</td>
<td></td>
<td>.8</td>
<td></td>
</tr>
<tr>
<td>United Telecommunications</td>
<td>6.3</td>
<td>4</td>
<td>4</td>
<td>5.15</td>
</tr>
<tr>
<td></td>
<td>3.15</td>
<td></td>
<td>.8</td>
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</tbody>
</table>
DAVID S. NOYES is manager of the Employee Suggestion Plan for the Carpenter Technology Corporation. He graduated from the Maine Maritime Academy in 1965 with a commission in the U.S. Navy and a BS degree in Marine Engineering. He holds the rank of lieutenant commander (unrestricted line) in the USNR and is attached to the Military Sealift Command. He is a certified SSA and is currently 1st Vice President of NASS.

BREAK THROUGH

"I can't do it!"
"It can't be done!"
"It won't work!"
"It's never been done before!"

Unfortunately these prejudices, whether of one’s ability and potential or that of another, are too often heard in business today. Value judgements of this character are too often presupposed—a hypothesis of human resource cast in the shadow of failure.

Searching for the better solution and transposing the thought-idea into the reality of tangible change is a never-ending objective. Those who are progressive and growth oriented acknowledge and endorse this philosophy. It dictates that we (regardless of position) must recognize that all people have basic needs—and abilities, attitudes, and goals.

The inspiration of others is most evident in an environment conducive to creative thinking. Be active, not passive, listen to what is being communicated—to suggestions regardless of the source. True, intellectual levels vary but, when all else fails, the basics are rudimentary to solving the problem.

We all have ideas, different ways of doing things. Failure trails those who don't recognize potential. Success leaps upon those who do. It takes inspiration, innovation, motivation and most important—recognition—to make suggestion systems work.

People are not inspired by "negative judgements" which gnaw at human resourcefulness. Negativeness is demoralizing at best, precipitating and accentuating an attitude of defeat and indifference. It is acquired, not inherited. Negative attitudes, defeat, or indifference are indicative of failure as a final result. I believe that perfection has never been reached—the "best way" can always be improved. We need only to challenge ourselves and others in a positive rather than negative manner.

Say it can be done—and it will.
Say it can't—and it won't! □
The FIRST Encyclopedia of Value ever published is now available from the Society of American Value Engineers.

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The Training of Fleas - Operant Conditioning

The Flea Circus has almost disappeared from the world. It used to be that many an independent artist would make his way in the world by training fleas to do a variety of miniature tasks such as pulling wagons and carriages that had been painstakingly made to the size that the tiny insect could handle. An amazing amount of skill in miniaturization was displayed to the edification of eager audiences all over the world. Many say that it is because we have learned to bathe often enough that the flea population has declined. Others say that the current surviving strains of fleas are not as large and healthy as they used to be. Maybe it is because entertainment today, is too impersonal and automated. Whatever the cause, it is very difficult to find a flea circus today unless we broaden our definition a little. Then we can find "flea circuses" all about us, some of our own making.

One flea trainer of the old school revealed his method of training fleas before his death many years ago. It seems that your average, healthy show quality flea can and often does jump several feet in one swift and instantaneous hop. In order to be a part of the circus, he must be broken of this habit before he can be fitted with his tiny harness and made to pull his proper burden in the show. In order to begin the training of fleas for his circus, this old trainer would put them into a box with a glass top. The fleas could not see the glass and as a result, they would repeatedly try to jump through it. After a large number of unfailing nasty bruises, the flea brain would accept the fact that it could not command the powerful flea legs to jump higher than the one foot distance from the bottom of the box to the glass top of the box. When the trainer noticed that the fleas had achieved that plateau of behavior, he would then lower the glass another inch...
The Training of Fleas — Operant Conditioning (Cont’d)

until only one inch of space remained in which the flea could jump. At that point, the trainer could remove the top of the box entirely. The fleas would never again try to jump high. They could safely be confined in an open box with sides only one inch high.

How many times have you seen a person, working in an organization, try to make a large mental leap only to bump his or her head painfully against some of the many roadblocks with which we are all only too familiar. Soon, like the circus flea he learns to make only tiny struggling jumps while bearing his assigned burden in the “circus”. Unfortunately, this is an almost universal experience for bright young people who enter industry. I would venture to suppose that almost everyone who reads this magazine can see in his own business environment, a number of “flea circuses”.

One of our best functions as Value Engineers, Team leaders, Suggestion System Administrators, etc. is to overcome this inhibiting type of experience and let our workers minds again take those long leaps that often pay off in our best savings ideas. Fortunately these are people and not fleas. If the “glass barrier” is removed, they can again be encouraged to “jump”.

First, you have to remove the barrier. This is usually already accomplished when you have a value engineering training program or a suggestion program. Then, you have to make the people realize that the “glass top” is no longer on the “box”.

Some of the most effective techniques I have seen have their roots in the psychological concept called “Operant Conditioning”. In its barest essentials, this involves allowing the “subject” to act. When the subject makes any move in the desired direction, he receives attention. When the subject moves away from the desired behavior, he is ignored. This principle works. It works in the training of animals, in the development of psychologically disturbed children, in self improvement techniques (yes you can even use it on yourself), and in motivational programs. Please note that there is no “punishment” for “bad” behaviour and that the principle “reward” is recognition or attention. One key requirement common to all forms of operant conditioning is that the recognition must be immediate to be effective. The form of the recognition can vary almost infinitely. The theory is that every being (person) has an innate hunger for recognition by others that is very strong. Thus, the recognition itself and not the form it takes is the operative factor in the motivation. Some studies indicate that monetary awards are not the best form of recognition to use for idea/involvement motivation. Regardless of the form, however, the big “R”, recognition, is one of the most powerful and useful tools we can use to modify behavior.

Let’s suppose that you have removed the “glass top” from the “box” and you are ready to help your “fleas” learn to “jump” to their full potential again. Do you need to get a degree in psychology or plan a detailed conditioning program? Not at all! Just decide what behavior is desirable (thinking, suggesting, saving, etc.) then make sure that whenever this behavior is encountered that Recognition is immediate. Remember that the recognition and the timing (soon as possible) are more important than the form of the recognition. If you already have a training program, a suggestion system, or similar structure, these principles can be used to improve the effectiveness of the program. Try it! You will be gratified when you see the ratio of effect to effort. Try it! You and your organization will benefit. Try it! You could be a hero. (herione?).
By Mari Andersson

One of the most important behavioral tools being used widely by companies is that of the suggestion system.

A suggestion plan can be an important and valuable tool in a behavior modification program. It is inexpensive, easy to administer, and brings the greatest return in proportion to outlay of money and time, among the various kinds of rewards that one might use. And, there is not a company or organization which cannot use new ideas.

Suggestion Programs have become big business, not only for the awards handed out to the suggesters, running into thousands for some individuals, but for the substantial savings reported by the companies after implementation of the ideas.

Over $480 million was saved in one year by member companies of the National Association of Suggestions Systems; this does not include unreported figures which could push the total to nearly $5.5 million.

Employees received $34.2 million in awards. Over five years, says Executive Secretary Oliver Hallett, these employers could save $2.5 billion from these suggestions.

Companies who use suggestion systems stand to gain over $6 in net savings for every dollar they spend, asserts Hallett.

These awards and savings represent very large payoffs for a small investment (average cost is 17 percent). Many of the systems provide for worker-employer contracts which state in legal terms that the suggester will profit through the life of his idea.

The behavioral orientations involved here are the opportunities to provide on-the-job consequences to promote profit-oriented ideas, as the people who do the work are most likely to produce the best ones.

If the consequences are well managed, they give the originator of the idea a definite boost in output which
Suggestions Save Millions

- Continued from Page 13

is contagious throughout department or company.

Employers install systems by which the suggestions and their results are graphed, also an important behavioral principle, and these are placed in prominent areas in the company as feedback to the suggesters and to encourage others to create ideas.

Also, as in the well-organized behavior modification program, the suggestion plan works best when it has management cooperation from top man on down, with frequent recognition in the form of praise and notes of encouragement to the worker who produces the idea.

Some companies have a separate in-house department to administer suggestions, provide counseling, evaluation, modification of the idea, and record keeping. Many of these companies are those which have previously instituted performance improvement programs.

On its way out, says Hallett, is the little black "suggestion box", to which only a few brave souls would sneak up to in order to deposit their ideas, many of which were ignored or dismissed as impractical.

The behaviorally oriented management will, on the contrary, extend recognition and praise even to the suggester whose idea is not found to be applicable.

The federal government has suggestions systems, but is not as generous with rewards. While private firms saved a reported $297,450,000 in 1975 and paid out about 9 percent to the suggesters, the government saved $173,640,000 and awarded just over three percent. State and local governments who saved $5 million in 1975, paid out about 10 percent.

Eastman Kodak is thought to have the oldest continuous suggestion system (since 1898) and National Cash Register started its system in 1882, though it was dropped recently.

While most suggestion systems benefit only the employer or employee, two Navy physicians developed a more accurate way to test vision, holding out hope for improved aid to the blind.

Pacific Gas and Electric was looking for a way to open up ice-bound mountain streams, and had been doing it with manual labor. One engineer suggested equipping small boats with heavy-duty hulls to do the job. It worked, and he was paid for his suggestion.

But his supervisor, formerly the skipper of an ice-breaker in World War II, is kicking himself because he didn't think of it.

There should be a good system for the reporting and implementation of the idea, otherwise the manager may not remember it and the worker may not receive his award. Many of the best ideas are being implemented on the job, without ever being written down.

With the use of frequent reinforcers, it is easier to get the performer to self-measure, with reinforcers dependent both on outputs and self-measurement.

Having a suggestion program is a big plus for any forward-looking company or management. It would be greatly advantageous to have it operate within a fully planned and implemented positive reinforcement program which takes in all operations. The suggestion system could be the first step in that direction.
Quality Circles are Effective

Hughes Aircraft Company began developing a QC Circle Program early in 1976 after discussion of the approach at several meetings of the American Society for Performance Improvement & American Society for Quality Control of Improvement Programs and a Senior Staff Engineer visited the Lockheed Missiles and Space Division which has successfully used the program in Sunnyvale, California. Also, material was received from the Japanese Union Of Scientists and Engineers which described the operation of and experience related to QC Circles in Japan during the past 10 years. This basic information was combined with other articles and background material on the subject and was used as the basis for the development of a Quality Circles pilot study. The senior staff engineer who has extensive management background, was assigned to work with the Improvement Programs office in developing and implementing the program. There has been some criticism which points out that the program name may be slightly misleading because it is more than a "Quality Control" program. However, the program thrust is toward improving the "quality" of the output in any area, regardless of its product. Also, all employees agree that the quality can be improved and do not perceive the program as a "work speed up" or other management ploy to simply elicit higher work output.

One of the major points which initially impressed management at Hughes is the fact that the normal supervisory chain is an integral part of the program. Also, the program does not rely strictly on outside help or consultants who are not aware of the technical problems and the "people problems" in a given area. Since the implementation of a successful pilot study early 1977, the program has been expanded to five plant sites. The results of the operating Quality Circles are significant and the program is slowly being implemented on a voluntary basis throughout the company.

Typical results of these early efforts are: 1) Manufacturing process instructions have been simplified and reworked to facilitate the assembly of electronics products. 2) Assembly problems resulting from receipt of dirty parts were eliminated. 3) Assembly board number control has been improved. 4) During an investigation of alternate methods for preparing parts for assembly, it was discovered that a vendor could provide certain circuit boards for less than the cost when fabricated in-house. 5) An improved tool for tightening connectors on vacuum tubes was developed. 6) A manufacturing process was facilitated by development of sample circuit boards. The cost reduction resulting from this action exceeded $40,000 per year. This represents a return in excess of 120 to 1 on the costs of this Quality Circle.

However there has been no insistence that circles review only those areas where cost savings may be documented. We have concluded some of the most important savings may never be "verifiable" or "documentable." For instance, it is impossible to document the savings that now result simply because employees who have participated in Quality Circles routinely communicate with supervisors before problems grow to significant proportions. The Quality Circle has fostered interest, commitment and a habit of communicating which eliminates or reduces numerous problems.

The Hughes "Quality Circles" have been structured in the same basic format as those in Japan and the ones at Lockheed, with some modifications to adapt them to the operations at Hughes.

Description of the Hughes Quality Circles

The Quality Circle is, basically, a small group of people doing similar or related work, meeting regularly to identify, analyze, and solve product quality problems, production problems, and to improve operations. It is not restricted to any particular type of operation. Its major limitation is in the level of improvement potential within an area. Although it is beneficial in almost any area, it has been applied primarily in manufacturing areas at Hughes Aircraft simply because it was felt that the potential benefits were greatest in those areas. The program's success is predicated on the fact that most of us will take more interest and pride in our work if we can make a meaningful contribution to the development of the work process. This postulation has been verified in practice.

Quality Circles recognize that each employee has a distinct desire to participate in solving, avoiding, and...
Training is considered a critical part of the Quality Circle. The program, further, acknowledges that each worker can contribute and that each possesses special knowledge, skill, and intellectual ability which may be applied to the work process. Rather than being a slogans-bearing campaign which urges employees to “do better,” Quality Circles develop a philosophy or way of operating which taps the individual’s expertise in solving problems related to his or her own job. It acknowledges that each employee is an integral part of the operating team and seeks to improve employees’ attitudes and motivation. They receive recognition for their efforts from their peers in the Circle and from management which is informed of both proposed and implemented solutions.

The voluntary nature of the program is emphasized, and any area which does not voluntarily subscribe to the program is not coerced in any way to develop a program. In fact, the managements in some areas have indicated doubts about the validity of the approach and have adopted a “wait and see” attitude. These areas have not been pressured to participate, although it is felt that results of those Circles now operating will be sufficient to encourage adoption of the program at a later date. This philosophy of volunteerism is basic to the program and is applied at each step in the program. However, certain employees have been asked if they are willing to volunteer for participation in a Quality Circle, whenever this appears to be beneficial. Any employee who prefers not to participate suffers no consequences whatsoever. There have been some instances where employees have asked to be relieved of participation in a Quality Circle and they have been allowed to do so.

As was mentioned above, training is required to participate less and less in the process and activities of the circle. However, it has been found that the facilitator must remain with the circle to provide a resource, even in mature circles.

The Quality Circle concept is introduced to a new department or area via a presentation to the top management of the organization. If the management is receptive to the program, the same presentation is given to the operating-level managers and then to their supervisors. Supervisors then volunteer to take the Quality Circle leadership training course. (This course is presented by the facilitator.) Once a group of supervisors is familiar with the operation of the program, those who are interested in implementing a circle will volunteer to attempt to establish a circle. These supervisors then present the Quality Circle Program to their workers and describe its operation to them. At this point, operating level people are asked to volunteer for the program. Quality Circles at Hughes have ranged in size from a minimum of three to a maximum of twelve people. Each Circle meets weekly with the assigned facilitator and the supervisor (leader). Contrary to the operation of other Quality Circles reviewed, the Hughes Circles meet for 30 minutes only, each week and no meeting is held on the last week of each month. This meeting length and format has proven very effective and, in fact, may make circles more effective. The limited time forces each Circle to be very productive during the time that it meets, and forces leaders and members to be prepared and to have all “homework” accomplished prior to the meeting. This has been felt to be one of the most important innovations at Hughes Aircraft simply because it reduces the costs of conducting the circles.

Each Circle is then trained by the facilitator, as necessary, and work commences. The Circle attempts to identify the problems in its own area of responsibility and to assign priority levels to the problems. The Circle members conduct research and investigation into the problems and factors which relate to their area. It may be necessary, on occasion to request assistance from other areas as engineering, facilities, or other pools of special knowledge.

The circle selects a member to act as secretary to record transactions, and keep track of specific assignments. An agenda is prepared by the leader and facilitator prior to the meeting. The agenda is important, and is used as a guide to assure that certain goals are reached.

The circles use various techniques to determine which problems are significant, and to assign priorities. Once a Quality Circle has zeroed in on a problem and defined it to the satisfaction of circle members, a solution is developed. If the solution cannot be implemented by the immediate supervisor (that is the Quality Circle leader), it is presented to the management of the area for acceptance or rejection. The experience to date indicates that the majority of the problems addressed by the Quality Circle are resolved by the circle members and their foreman, and normally require no formal “presentation” to management. However management is apprised of the results of such circle activities.

Training is considered a critical part of the Quality Circle. Training material has been developed and a qualified facilitator is responsible for the training and development of each Quality Circle. The facilitator trains both the supervisor in leadership of the Circle, and the Circle participants in the actual process of problem solving and development of improved methods. As the Quality Circle matures, the facilitator is responsible for the facilitation of each Quality Circle. QUALITY CIRCLES ARE EFFECTIVE - Continued from Page 15
In our work, how many of us have been dissatisfied with the people we work with? We complain that people can’t think, that they aren’t creative, that they have no initiative. I suggest we have a job to do. Let us develop our own Value Engineers. Let us teach them to be creative, to have initiative, to think.

In our organization (the family) we decided to teach all members to think, to be able to make decisions. We have developed them through Value Methodology and Creative Problem Solving. We have an easel and any big problem that comes up, we get all the top management (everyone in the family) together and follow this procedure.

GET THE FACTS—When you come to the breakfast table in the morning, everyone has their own box of cereal—because they each like a different cereal? No—because they each want to read their own box. What’s the cost??? We can’t know—so we assigned a team of two boys to go to the supermarket and get the weight and price on every box of cereal on the shelves. When they returned they calculated cost per pound and put them in order. As you see Puffed Wheat is most expensive per pound and if you really want to save money you can serve grits, but then comes the implementation problem. As all good Value Managers know you have to set the climate to sell your ideas so that they are accepted and implemented. Grits were too far down the scale to be accepted as food (even though I told them stories of eating cornmeal mush for dinner at night and then fried mush with syrup for breakfast—that was the covered wagon era to them), so we backed up to what they were willing to try. We settled on Ralston. They decided they liked it and then felt they were ready to try some other cereals since this proved to be successful. Another interesting thing happened from this. Our sugar consumption went down. Why? Because when you eat cold cereal, whether sugared or not, you always put sugar on it and it goes to the bottom of the bowl. When you put sugar on hot cereal, it stays on top till you stir it in and it mixes into the cereal and you can taste it. This one exercise made our family more aware of the fact that they could control any situation and they do it all the time on other things.

We have used our Value Management for years in such opposite situations as the marches on Washington in ’70 and ’71 to Campus Ministry today. When our older children were actively involved in campus protest (and they kept us informed—didn’t ask advice) we had a brainstorming session with the remainder of the organization and went step by step through the Value Methodology.

1. Project selection—March on Washington
2. Function determination—To get attention of the President and other people involved in the Vietnam War.

Continued on Page 18
Value Management - Continued from Page 17

3. Information inventory—All Government decision makers would see them.

4. Analysis & evaluation—Had to be done to stop the Vietnam War.

5. Develop alternatives—Some students protested at school at the same time as the March, others went to see their representatives in Washington.

6. Cost Evaluation of Alternatives—Pooled money to do it all.

7. Testing and Refinement—Chose not to test or refine—just did it.

8. Planning and agreement—Some platitudes from politicians—President tried to ignore them.

9. Value Change Implementation—Didn’t stop the War at that time but it made the world aware of the uselessness of the War and made two or three generations of adults rethink their position on war.

10. Measure, reward, reinvest—They succeeded but didn’t know it till five years later.

We worked part of this out in the creative session in our living room and it made everyone aware of what was going on to the point that when our daughter came through from Washington with her friends on their way back to college, our four year old son cornered one of the senior college boys and said, “Just what did you hope to accomplish by marching on Washington?” Surprised at the question? So was the student, he couldn’t answer the question and he sat in a corner and didn’t speak again while they were there.

How many of us do things and don’t know why?

The opposite of the protest of the late 60’s and early 70’s is the Campus Ministry. We led a weekend for thirty college students from six colleges involved in the Campus Ministry. We spent from Friday night to Sunday afternoon with them and helped them define the function of their organization. We helped them set up the organization they needed to accomplish their goals. The one point that came out very strongly was their aversion to “big business and all the rotten people in power who are out to do in the individual”. When we told them of the number of companies we had worked with who really cared about their employees they were surprised.

They were surprised when we told them of a general manager of a plant who said, “We have to remain competitive in the market place so we stay in business, so we can keep employed the 3,000 people at our plant. I feel very strongly that I provide a service to mankind in this way.” The students were overwhelmed. They had never seen business from this aspect—only in a generalization from professors and books that “business” is bad.

During the course of the weekend we taught these students to be leaders, to make decisions and how to organize to make their ministry more effective.

Continued on Page 21
EDWARD B. COLBY is manager of Indianapolis Operations for the Detroit Diesel Allison Division of General Motors.

Mr. Colby joined General Motors in 1942 as a detailer with the Saginaw Steering Gear Division.

During World War II, Mr. Colby served as a pilot in the U.S. Army Air Corps with the rank of Lieutenant. He received a bachelor's degree in industrial engineering from General Motors Institute, and a Sloan Fellowship to MIT where he was awarded a Master of Science degree.

Mr. Colby joined Rochester Products Division as works manager in 1966; became general manufacturing manager at the then Detroit Diesel Engine Division in 1969 and was named manager of Diesel Operations when the Detroit Diesel Engine and Allison divisions were merged to form the Detroit Diesel Allison Division. He was appointed to his present assignment in 1974.

S.A.V.E.

This is only an assumption . . . but I will bet, that one or more of the speakers this morning, has made at least a passing reference to Jimmie Carter appearing on your program. If not, I am willing to bet, that you will hear such references this afternoon. That being the case, I see little value in further wisecracks, about lunching with President Carter.

And I say that, not only as an engineer who is committed to value engineering . . . but as a manager who is committed to value management and, quite frankly, as a citizen who is committed to a different political persuasion.

But I do hope you all heard Les Robinson who spoke this morning on "Value Analysis in a Major Industry." His detailed descriptions and specific examples, should have given you an idea of our commitment to value management, at Detroit Diesel Allison.

Les is not alone in his enthusiasm for value management, at our division: As he told you, we have 33 full-time value analysts whose duties are focused on specific product lines.

Equally enthusiastic, are John Evritt and Tim Baun, two of our value analysts, who also serve as officers in the Central Indiana Chapter of the Society of American Value Engineers.

Les also spoke of the 40-hour seminars, in value analysis, that we conduct twice a year. In two years, some 125 employees have been graduated.

"Bev" Zolezzi, the certified value specialist, who conducts these seminars, may well be, your most enthusiastic recruiter. We did a story about those seminars, in our plant newspaper earlier this year, which began with a quote from "Bev": "Value Management," he said, "is everybody's business."

Most of us here would agree with that, and obviously, management of the firms we represent agree. Your presence here signifies as much. And so does the theme of this conference: Meeting your competition through Value Management.

Continued on Page 20
I like your theme. I like it because I believe that value—as seen by the consumer—is the very essence of competition. It is the consumer’s own conception of value that creates a marketplace.

When a consumer, exercises his personal freedom of choice in the marketplace, he is also, consciously or not, sustaining the free market system. In a very real sense, it is the consumer, who regulates the system.

Yet, that system—which has proved its value to this country for 200 years—faces a very real danger—the danger of gradual erosion, and eventual extinction, by excessive regulation from an expanding, bureaucratic government.

Your theme is meeting your competition through value management. My theme is to alert you, that competition itself, is an endangered species. The threat comes from bureaucratic government—at all levels—that not only is unfamiliar with value management, but even appears at times, to have abandoned traditional values. If not abandoned, our traditional values are slowly but surely vanishing.

Consider—if you haven’t already—the government’s heavy regulatory hand. Government and its agencies can determine whether or not you can build a plant, who you may hire (even who you promote), what minimum wage you pay, what working conditions you provide, what energy you use, what products you build, how they will perform, and sometimes what you may charge for them.

Should you, somehow, survive this governmental gauntlet, and bring a product to the competitive marketplace, you may have to worry more about success, than you would about failure.

Any businessman, competing legally for customers in a free market, is willing to abide by the customer’s decision. He knows that customers, by freely shopping for value, do in fact, determine which companies succeed and which fail.

But that is not good enough for some—both in and out of government—who think they alone, know what is best for the people. These self-appointed custodians of the common weal, would usurp the customer’s regulatory role, and substitute their own elitist edicts.

And that is when our values begin vanishing.

A well-known research and marketing firm, has detected, what it calls “a trend toward entitlement” which represents one of the great changes in American values, during the last ten years. The trend was described in a local business column this way: more people now feel they are entitled to various programs and benefits that they used to feel had to be purchased.

And a Harvard sociologist, says it is more than just a trend. He calls it (quote) “the revolution of rising entitlements.” His explanation is even more frightening. Under entitlement, the goal is no longer equality of opportunity, but equality of results.

GM Chairman Thomas Murphy calls this “a curious misapplication, of the American fundamental, that all men are created equal.” Carrying this philosophy to a ridiculous—but logical—extreme, Murphy says that Aesop’s fable, will have to be re-written, so that the tortoise and the hare finish in a dead heat.

Closer to home, and closer to the contemporary scene, suppose the rules of entitlement—that is, an equal place at the starting and finishing lines—were applied to the running of the Indianapolis 500. Think about that . . . and think about what Rutherford, Foyt and Johncock would say.

To bring this right up to date, we can forget last week’s playoffs, and we might as well cancel the current World Series.

Far-fetched? I do not think so. Entitlement encroaches on free competition every time a bureaucratic government, issues a mandate, passes a law, enacts a regulation or imposes a standard, that ignores the more basic laws, of cause and effect, supply and demand, and cost versus benefits.

If logic, for example, tells us that a family of five or more, needs a larger car than a family of four or less . . . and if a law of physics, tells us that a car’s size and weight, will have a direct effect on the amount of energy needed to move it . . . where, then, is the logic of dictating specific fuel consumption for all cars?

And by what wisdom, does Washington propose an energy policy, that discriminates in penalty taxes, against the people whose transportation needs are met, only by large cars? Of what value, is a sub-compact, to a family of five or more? There are 12-million such families in America, representing more than 20% of the population.

Has the administration, with its proposed new car tax schemes, taken into account, the very real possibility of reduced auto sales, and the resultant unemployment? In other words, has anyone established priorities among interrelated, but potentially conflicting goals? Will we really have, in President Carter’s own prediction: “an energy policy to make our nation proud”?

Air bags offer another example of at least questionable bureaucratic regulation, which adds needlessly to cost, with no demonstrated cost-benefit relationship. I resent being required to spend extra dollars for a system, merely because some people, are either indifferent or too lazy, to utilize the present proven seat belt system.

As you know, the new Transportation Secretary mandated passive restraint systems on all new cars, starting in 1982. GM, of course, will comply with the new regulation—even though, it remains opposed to mandating a system, whose effectiveness, still cannot be predicted with any confidence, simply because, it has not been fully tested in the field.

Indeed, that is a major reason, why GM will voluntarily offer, air cushions and automatic seat belt systems before they are required by the new mandate. The advance voluntary offer, should provide important additional field data, regarding safety aspects and consumer acceptance. Above all, the voluntary demonstration program, will give new car buyers, an opportunity to express their preferences, in the marketplace, before the mandate becomes effective. That is an opportunity, the car-buying public did not get, with the ignition interlock.

Continued on Page 22
One of the problems they identified was their competing with the beer drinking fraternity party for a get together. They brainstormed it for awhile and decided that instead of fighting the party and trying to get the frats to leave their party and come to a campus ministry meeting, they would go to the frat party and get to know all the people there over a beer. Sometimes in our Value work we have a tendency to force change for the sake of change, rather than analyze whether the change is a good one.

These students were taught to give talks, set dates for their implementation plans and when they left, they were running. We’ve heard from a number of them and they have accomplished their implementation plans and are still moving. Maybe someday some of these college students we’ve trained will be working for you and you can say “this person can really think, he can make a decision, he’s creative, this is great!!!!!!"

In your work as a Value Manager, are you trying to develop your people? There is a standing joke that a Value Engineer is needed, so I am one. I’ve heard that joke many times and it bothers me a lot. There is no such thing as an instant Value Engineer. It takes years of development. I have seen the growth process that it requires. As I said, we’ve developed our organization in these skills but when the pressure is on we revert to the comfort of how it’s been done before. For example, our old­est son, graduated from Notre Dame with a degree in Psychology and then taught school as a substitute teacher in our local high schools. One thing the schools liked and asked for in their substitute teachers was “male and the bigger the better.” Our son filled all the requirements and was in great demand. One day he came home and I could tell he was upset. After taking a six week assignment to teach math to 9th graders in an inner city school some problems developed—like the first day he came home, he ate dinner by himself in the kitchen, the second day he wouldn’t talk and the third day he was so frustrated he was screaming at everyone. His fa­ther and I decided it was time for the easel and a brush up in Value Management.

They spent three hours analyzing the problem and coming up with a plan. Of the forty two minutes in the class room, one minute was actually spent in teaching, the rest was spent in handing out hall passes, settling fights, finding books, attempting to wake up the freaked out ones.

The premise had been set by our son that all students are eager to learn and that education should not be forced and no violence should ever be used to accomplish your goal. (He felt his father was too rough on him as a kid!!!!!)

After the three hour session, our son was psyched up for the next day. He had a plan to get everyone involved and had the forty two minutes planned in detail. The next night he came home all smiles, joined the family for dinner. His father asked him how his plan worked. He said, “Fine, after I got their attention. I made a decision, he’s creative, this is great!!!!!!”

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One of the important techniques we use in Value Management is a Function/Cost Model. When you work on a product such as a motor, you label all the parts and put them in the blocks and get the actual cost for each part and then circle the high cost items, to know where to work.

This Function/Cost Model is of our oldest daughter’s wedding.

This Function/Cost Model is of our oldest daughter’s wedding.

S.A.V.E.
Again, let me reiterate, that GM does not oppose air bags. In fact, should Congress reject the Department of Transportation's passive restraint mandate, GM has put in writing to Secretary Adams, a proposal to discuss alternative systems.

Let me also quickly assure you that GM is not opposed to clean air, either. The auto industry, took its lumps this summer, when it was accused once again, of foot-dragging on emissions standards, even of muscling Congress by threatening to close its plants, unless the proposed standards were relaxed.

That was not a threat. It was only compliance—compliance with a federal law, that prohibited the production or importation of cars, after 1977 that did not meet standards—standards which do not pass the cost-benefit test.

As for foot-dragging, any engineers present, already may be familiar, with the degree of difficulty in achieving the Clean Air Act Standards. But any laymen present, may appreciate a comparison used by Barry Bruce-Briggs in his new and highly readable book, "The War Against The Automobile." To accuse the automakers of foot-dragging, he says, "is rather, like requiring people, to run a three-minute mile next year (then) giving them several years grace, and then blaming them for stalling."

Mr. Briggs, incidentally, neatly summarizes, how excessive legislation, can lead to lunacy when he writes:

"Even if the emission standards could be achieved, the auto engineer is in a Catch-22 situation . . . because he must also, meet safety and bumper standards that increase weight . . . as well as fuel economy standards, that require less weight and more pollution—and (he) must design a car, with the performance, comfort, safety, smooth ride or handling. In other words, keep all the qualities that consumers still want in a car."

That quotation convinces me, that my concern for the survival of free competition, is well founded. And it convinces me even more, of the urgent need for value engineering, value management and what Les Robinson described this morning as "a massive application of value analysis aimed at the customer."

That is, after all, what General Motors did—and what it will continue to do. GM turned to value-conscious people like you. There were thousands of engineers and technicians, already assigned, to the horrendous job of meeting all the various government regulations—a job that has cost GM an average of more than $1.3 billion for each of the past three years. At that rate, we might wind up designing cars for the government, rather than for the consumer.

Research indicated, that a major consumer demand, in the late 70's, would be improved gasoline mileage—and you will remember Barry Bruce-Briggs' description of the Catch-22 situation, created by conflicting standards for safety, emissions and fuel economy.

GM formed a project center whose primary assignment—starting with the 1977 model year family-size cars—was to develop new automotive concepts, which would meet consumer needs.

In order to achieve gas mileage goals, our engineers were specifically challenged, to cut the weight of family-size cars—eliminating an average of 700 pounds per car. But—and this really heightened the challenge—reduce car weights without any sacrifice, in roominess, comfort, safety, smooth ride or handling. In other words, keep all the qualities that consumers still want in a car.

That overriding challenge—to design a car the consumer will want, instead of what a government or social planner, thinks he should have—turned discouragement into motivation, and gave momentum to the project center people.

Using many of the techniques of value engineering, our designers and engineers developed a brand new way, of bringing innovative
concepts to the auto market. We can now develop new cars—and I mean new from the ground up—more quickly than before, and with more confidence, about structural integrity and handling characteristics—even in advance of production testing.

The results, incidentally, are in: GM’s total car production, in the 1977 model year is over 5,300,000 units—an increase of almost 15 percent over 1976. And how did the re-dimensioned family-size cars do? Well, their production alone, totaled more than 1,900,000 units—and that is a 40 percent increase in GM’s big car output.

This model year (1978) the intermediate or mid-size GM cars have been changed from the ground up, representing the second, of a three-phase program, to redesign virtually, the entire GM auto product line-up, by the early 1980’s.

Again, weight reduction proved the key to economy. Smaller dimensions naturally, account for some of the weight drops—but much of the economy in weight—and gas mileage—is attributable to re-engineered parts and to the designers’ and engineers’ wider use of high-strength metals and durable plastics.

Enthusiasm for the 1978 models, is even stronger than it was last year, when GM introduced the first products, in what has been called, one of the biggest gambles, in the history of free enterprise. GM president “Pete” Estes, for example, made a statement recently, that sounds almost as if he was talking to a Value Management Conference, whose theme had to do with “meeting the competition.” Noting that GM was first with the Chevette, the Seville, the new full-size cars and the mid-size cars, he said (and I quote): “As far as I’m concerned, we’re still two years up on our competition.” (End of quote).

But there are new years . . . and new challenges. Congress, for example, has already given us, new and tougher emission standards. We are not complaining. We do not, as some would have you believe, react in knee-jerk fashion, to every government regulation that comes along.

S.A.V.E.

We believe that a strong government, coupled with a healthy economy and a vigorous industry, provide the best climate for competition. So we are not against government . . . but we are for competition . . . and we are for the consumer, who decides the winners and losers in the marketplace. And we have been willing to speak out on issues, precisely because we are for the consumer.

Value engineering, with its emphasis on cost avoidance rather than cost reduction, may well represent the final frontier for cost-savings. By way of theoretical illustration, suppose you formed a company in 1971 to manufacture a highly sophisticated “kistofel valve.” And imagine that, in order to recoup all your manufacturing costs—and still make a modest profit—you priced your “kistofel valve” at $1000.

Today, if you still wanted to retain your modest profit, your “product” would have to be priced at $1800. In other words, with the continuously rising costs of labor, materials, taxes and unnecessary government regulations, you probably have had to announce price increases, during every one of the past six years.

There is a limit, to what the consumer will accept, in costs that are passed along to him, by way of price increases. In fact, we have a substantial number of letters from customers who indicate they have already reached their limit.

I submit that we had better begin to explore, that final frontier, that has been opened to us by value management.

Permit me a closing quote on this subject from GM’s Tom Murphy again—and again it is a quote that seems appropriate to your theme. Here it is:

“In a competitive industry, we can never relax. We continually, have to offer the customer more value for his money. It is the stern discipline of a free market, which forces us to compete . . . to innovate . . . to offer the most value, at the lowest possible price.” (End quote).

I hope you have a successful conference. And I hope that I have contributed something of value to it—just as all of you make valuable contributions in your work.
Magic names in American automotive history are here in the first series - Studebaker, Buick, Lincoln and Packard. Remember the Packard - They used to say, "ask the man who owns one." and they meant it! Did you know Studebaker started making wagons in 1852? They did and our book starts with their first "automobile" in 1902 and chronicles their second 50 years after they started making "horseless carriages."

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Book 4 - MUSTANG 1964-1977. All models of the popular Mustang from the very first through 1977. 

Four book set...$9.95
The Society of American Value Engineers are preparing for their 1978 International Conference to be held May 7 thru 12 in Indianapolis, Indiana, USA. The conference will convene in the new Hyatt Regency in the Merchants Plaza complex. The total complex was completely Value Engineered to remove unnecessary costs prior to and during the construction of the forty million dollar project.

Value Engineering, for those unfamiliar with the concept, is a discipline which applies team effort and a systematic analysis of functions to remove unnecessary costs from products or practices. This functional analysis has long been used in defense establishments and included as a line item in military contracts to assure that the costs would be held to a minimum. This concept has recently been included in all government building contracts which has resulted in savings measured in millions.

The conference will include guest speakers who are world renowned and will schedule technical sessions each day where practitioners of the functional approach will relate their unusual results. All the technical sessions as well as the speeches will be presented to each conferee in book form called “SAVE Proceedings 1978”.

Tours of three major industrial plants are being planned. Detroit Diesel Allison, Division of General Motors Corp., Stewart-Warner, South Wind Division and Western Electric. Value Engineering displays will be at each stop to show how the different manufacturing plants apply this philosophy and the results attained.

And finally, a trip to the world famous Indianapolis Motor Speedway to witness countless drivers hurl their cars around the two and one half mile track at speeds of 200 miles per hour plus as they attempt to qualify for the 1978 500 Mile Race.

A special program for the ladies is being planned which promises to be most rewarding. For those who have the need, interpreters will be available and all are most welcome.

Come, visit Indianapolis and learn where Value Engineering can help your profit picture at the “Race for Value ‘78”.

For information, registration forms and more details write to:

Society of American Value Engineers
1978 Conference Committee
P. O. Box 24590
Speedway, Indiana 46224 USA
ARTHUR M. SCHUNK, (R) contracts administrator of Linde Division, Union Carbide received award from Commander A. SCHARF, Commander of Defense Contract Administration Services - Management area in Indianapolis.

Award was for outstanding performance of Linde in Value Engineering in Defense Contracts and was presented at a V.E. Symposium during October.