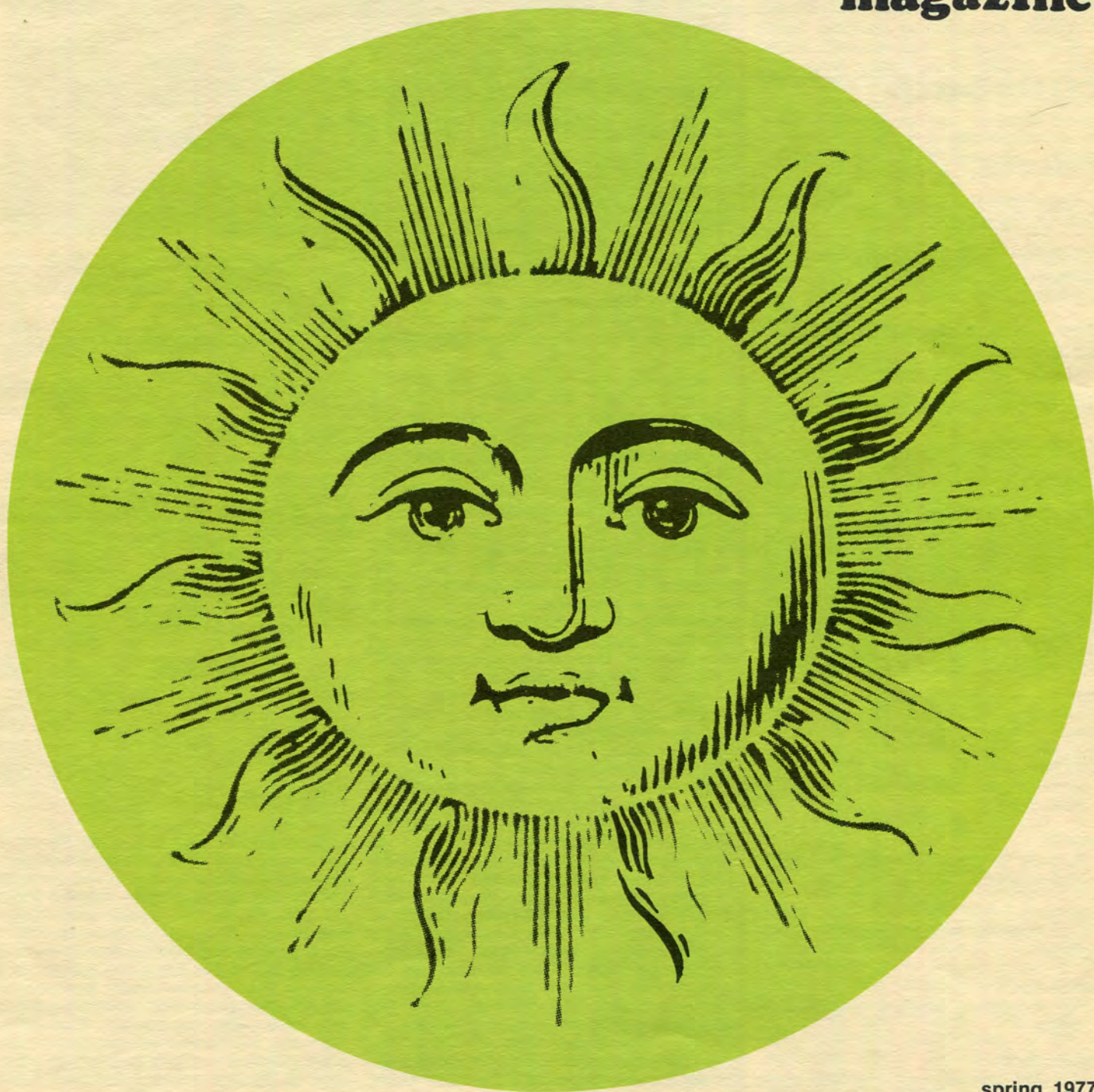


Lawrence

INSTITUTE OF TECHNOLOGY

magazine



spring, 1977

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June 5

1977 Commencement, 3 p.m., Ford Auditorium, William M. Agee, president, Bendix Corp., speaker

June 6

Summer Evening Baccalaureate classes begin

June 13

Summer Associate classes begin (evenings)

June 20

Summer Science Institute for current high school juniors begins

August 31

Fall Evening Baccalaureate classes begin

September 1

Fall Associate classes begin (evenings)

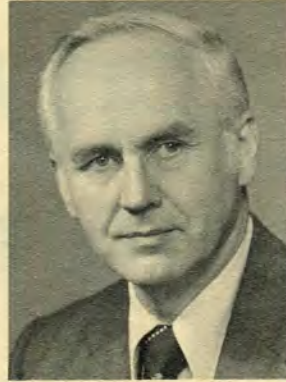
September 6

Fall Day Baccalaureate classes begin

on-campus



William Agee



Howard Kehrl



Ralph Cross

Agee is Commencement speaker; over 500 to join alumni ranks June 5

William M. Agee, president and chief executive officer of the Bendix Corporation, will be the featured speaker and receive an honorary degree at Lawrence Institute of Technology's 1977 Commencement Exercises, June 5 at Ford Auditorium in Detroit. Over 500 graduates and their families will attend the ceremonies marking the private College's 45th annual commencement.

Agee, 39, was named to head Bendix in January 1977, succeeding W. Michael Blumenthal, appointed Secretary of the Treasury by President Jimmy Carter. Agee joined Bendix in 1972 and has held a number of executive positions. He was formerly senior vice president of Boise Cascade Corporation.

Agee received his B.S. in Business with Highest Honors in 1960 from the University of Idaho, and his M.B.A. with Distinction from the Harvard Business School in 1963. He will be awarded the honorary degree, Doctor of Science in Industrial Management, by L.I.T. President Wayne H. Buell.

Involved in many civic activities, Agee's affiliations include the Detroit Renaissance, Inc., New Detroit, Inc., Citizens Research Council of Michigan, Junior Achievement, the Boy Scouts of America, and he serves as automotive industry chairman of the 1977 U.S. Industrial Savings Bond campaign. He also serves as board chairman of Bendix, and as a board member of the Great Atlantic and Pacific Tea Company and the Equitable Life Assurance Society. His professional memberships include the Society of Automotive Engineers, Economic Club of Detroit, American Institute of Certified Public Accountants, the Business Roundtable, and the Council on Foreign Relations.

Also honored at the 1977 Commencement Exercises will be Howard H. Kehrl, who will receive the honorary degree,

Doctor of Science in Industrial Management, and Ralph E. Cross, who will receive the honorary degree, Doctor of Engineering.

Howard Kehrl has served as executive vice president of General Motors in charge of the design, engineering, environmental activities, manufacturing and research staffs and the patent section since 1974. He received his B.S. degree from Illinois Institute of Technology and his masters degree in engineering mechanics from the University of Notre Dame.

Kehrl, 54, joined GM in 1948 and has held a number of executive positions within the corporation. He is on the board of the Dayton-Hudson Corporation and also serves on Metropolitan Detroit's United Foundation, the United Way of Michigan Executive Committee, and a wide range of civic, educational, and community boards and councils.

Ralph Cross is president and chief executive officer of the Cross Company. He joined Cross in 1932 following studies at the Massachusetts Institute of Technology and had held a number of manufacturing, service, engineering, and sales positions within the firm prior to his appointment as president.

Cross, 67, is internationally known in the machine tool industry as the originator of a number of important developments in automation. He has more than 20 patents in his name, and is the recipient of many honors from professional engineering societies. His expert testimony has been sought by a variety of governmental bodies, including congressional committees and the U.S. Environmental Protection Agency. He served as president of the National Machine Tool Builders Association in 1975, and was nominated World Trader of the Year in 1976.



Carl Morganti, a sophomore mechanical engineering student at Lawrence Institute of Technology has put over 1500 man hours of effort into building his sleek automobile. "I don't think I'll drive it in the winter," he says.

Student builds himself a car (and it works!)

While the "Big Four" automakers have spent millions of dollars and man hours over the past two years trying to build automobiles that would catch your eye, one young man working alone in his family garage has spent \$1800 and built a sleek dream car that will probably not only catch your eye, but turn your head.

Scrounging tools, designing and hand-building new parts, and recycling a few ruined ones, twenty-year-old Carl Morganti, a sophomore mechanical engineering student at Lawrence Institute of Technology has built himself a car almost from scratch that's the envy of his neighborhood—or any neighborhood!

"The car's shell is based on a fiberglass kit that had been cut apart, torn up, and almost destroyed by a succession of three previous owners," says the Cousino High graduate. "My objective was to build a complete automobile with all the components—doors which opened, windows which rolled up and down—all superior to what the kit would have offered even if it had been intact and I had all the parts.

"When I purchased the pieces in 1975," adds Carl, "I figured it would take four months to get things in shape. It's been two years now and I'm still finishing some minor details." He estimates he's already spent over 1500 man hours in the effort.

Carl's feat is even more remarkable when he describes the gamut of auto-

mobile specialties he's had to master: exterior styling, acoustical engineering, interior styling and upholstery, automotive electrical systems, metal machining, construction of patterns for casting molds, and then making the actual components from the molds. Mechanically, the car is a refined VW Beetle that also needed some work.

"Fortunately, my Dad (William Morganti) has been a good coach," says Carl. "He retired from G.M. Styling and his expertise in automotive aesthetics helped me create the refined and detailed look I wanted the car to exude."

A modeling veteran, Carl was sculpturing things in clay by the time he was five. Later, the Soap Box Derby and building model planes (from scratch) proved good training for building the car, too. Carl won a scholarship from the Soap Box Derby for "best overall design and construction" in 1970.

Carl plans a career in either automotive or aeronautical engineering, but an older brother who's an attorney has also awakened an interest in law.

"Luckily, I've still got some time left to decide," Carl grins. With his car almost finished, this summer he'll be taking evening classes at L.I.T. and working as a student assistant in physics.

"I spent so much time on the car the past two summers I felt fatigued by the time College began again in the fall," he muses. "Actually, I was always glad to see classes begin because I needed the rest."

Arch. student wins with solar energy design

James C. Perkins, a senior in the School of Architecture at Lawrence Institute of Technology, has been named regional winner of the 1977 Reynolds Aluminum Prize for Architectural Students.

The competition, administered by the American Institute of Architects headquartered in Washington, D.C., seeks the "best original architectural design in which creative use of aluminum is an important contributing factor." Jim's project was the design and development of a community art center incorporating a unique roof system of solar energy collectors and structural aluminum. As a regional winner, he has been awarded a certificate and a \$300 check by Reynolds.

"We're very proud of Jim and his project," notes Karl Greimel, AIA, dean of L.I.T.'s School of Architecture—the nation's largest undergraduate program. "It's obvious that the contest jury was also impressed."

The prize competition was established in 1961 by Reynolds Metals Company, Richmond, VA, to encourage creativity in architectural design and to stimulate interest in aluminum as a building form.

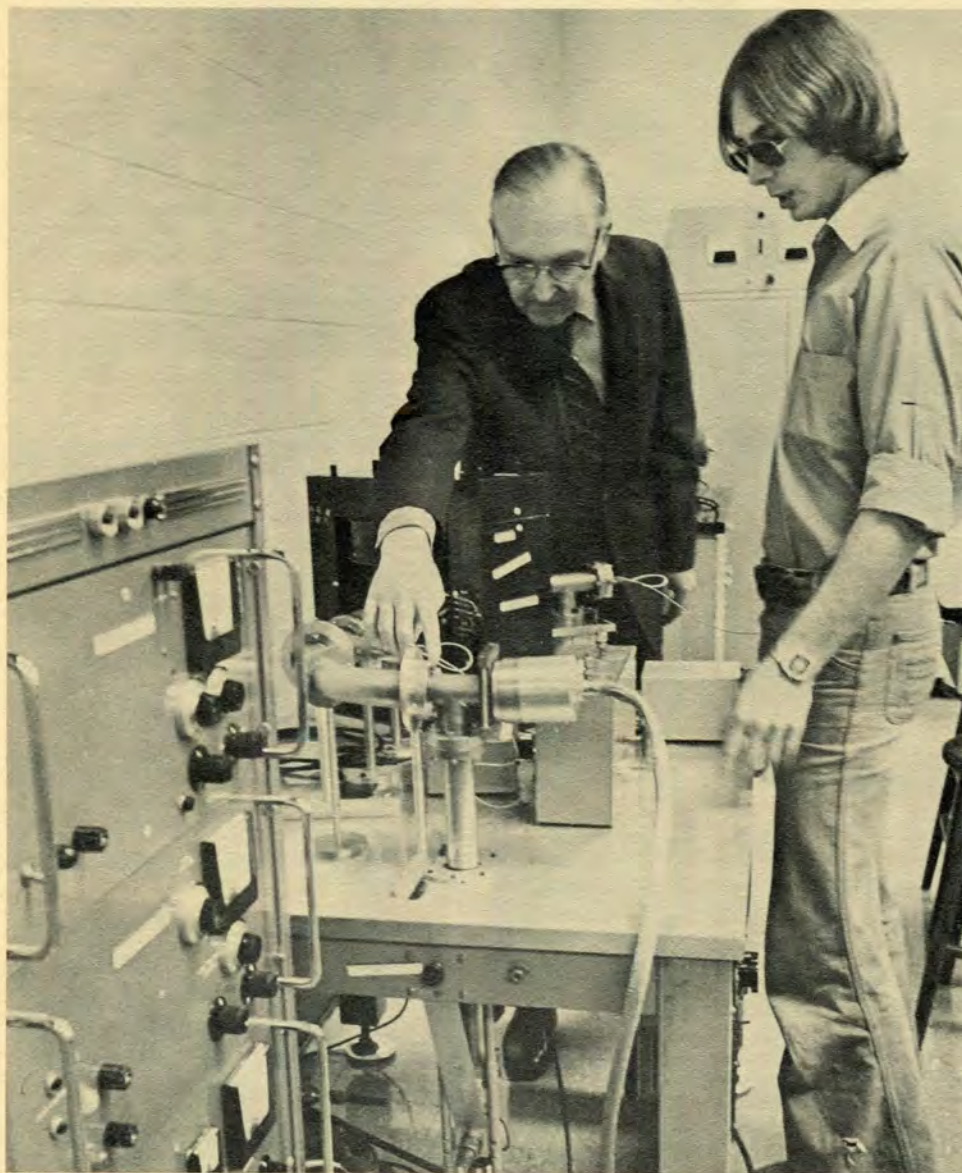


Reynolds competition regional winner James C. Perkins (center) receives congratulations from Dean of Architecture Karl H. Greimel (left) and AIA Detroit Chapter President Hideo H. Fujii, vice president of Ralph Calder and Associates, Inc., architects.

Prospective students?

While Director of Admissions Stan Harris and his staff visit hundreds of high schools, community colleges, and corporations each year, it's still difficult to reach all potential L.I.T. students who might benefit from the College's many fine programs.

Alumni and friends can help by recommending candidates to the admissions office. Be certain to include the candidate's complete address so admissions materials can be sent.



Lawrence Institute of Technology's new mass spectrometer is demonstrated by its builder, Dr. Al Kreuchunas, to physics student Mark Stassen, Highland Park sophomore. Dr. Kreuchunas estimates similar commercially-produced units cost in the neighborhood of \$50,000. The mass spectrometer will be utilized by the College for student instruction and research.

College receives mass spectrometer

Physics instruction and student research, as well as analysis and identification of various unknown materials or samples has received a boost at Lawrence Institute of Technology, thanks to the donation of a mass spectrometer by Dr. Alan Kreuchunas of Detroit.

"A mass spectrometer analyzes unknown samples by measuring the mass (weight) of atoms and molecules of the sample," says Dr. Daniel Mioduszewski, associate professor of physics at the College. "Because each atom or molecule has a unique weight, it's then a relatively simple task to identify the sample."

"We're delighted to have the new

equipment," adds Dr. Robert Edgerton, L.I.T. associate professor of physics, "not only for what it does, but because it shares component characteristics with many other contemporary analytical instruments—a facet our students will find very beneficial."

L.I.T.'s new spectrometer was constructed by Dr. Kreuchunas in his home, but he estimates that similar commercially-produced units cost in the neighborhood of \$50,000.

"This is an excellent teaching instrument," says Professor Nandor Zimmermann, physics department chairman, "since it will be useful in chemistry courses as well as in physics."

Mich. Dept. of Ed.: tuition a bargain

Tuition at Lawrence Institute of Technology is still a bargain when compared to other Michigan private colleges, a study released in February by the State Department of Education reveals.

The study, covering the years 1964-65 through 1975-76 shows that L.I.T.'s tuition last year (\$1140) was 33 percent *below* the average tuition charged by Michigan private colleges. The report also illustrates that while average tuitions at state-supported 4-year public colleges rose 125 percent and average tuitions at Michigan private colleges rose 137 percent during the 11-year period, L.I.T. tuition rose 111 percent.

This 111 percent increase at L.I.T. compares favorably to Michigan's average increase in per capita income which, says the State Department of Education, rose 119 percent between 1964-76. In effect, it actually costs less to attend Lawrence Institute of Technology now than in 1964.

"Tuition increases are always regrettable," comments L.I.T. President Wayne H. Buell. "But the primary source of income for independent colleges like Lawrence Institute of Technology is student tuition, so increases in costs are more quickly reflected in tuition rates. The support we enjoy from nearly a hundred companies in this area, as well as occasional foundation support, enables us to hold down tuition increases and cover some of our capital expenses.

"While we always hope to do better," Dr. Buell adds, "this study shows that in comparison to most private and public schools, we're already doing a good job of 'holding the line' on tuition increases."

LIT/SAE tops again

For the third year in a row, Lawrence Institute of Technology's Student Branch of the Society of Automotive Engineers has been named an "Outstanding Student Branch," Gordon L. Scofield, SAE national president has announced.

The award is based on the L.I.T. Student Branch's activities program of technical seminars, guest speakers, field study, conferences, special dinners, and related events during 1976. The award carries a \$200 stipend.

Student officers are chairman: Bill Jackson, Livonia senior; vice chairman: Greg Szewczyk, Detroit senior; secretary: Peter Masalskis, Oak Park junior; and treasurer: Kevin Konczak, Warren senior. Assistant Professor Richard R. Lundstrom is the organization's faculty advisor.

features

Trying to use bullets from the sun—state of the art in solar heating and cooling

By Joseph B. Olivieri

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"How about this new way to get free heating and cooling from the sun?" I was asked recently by an excited and exciting environmentalist.

"How about it?" I replied.

"Well, when can we expect our buildings to be powered by this free and new form of energy?" my new friend asked.

I am sorry, but I must report that solar energy isn't new and isn't free.

In 1948 Dean Seely, then president of the American Society of Heating, Refrigeration & Air Conditioning Engineers and dean of engineering in a New England university, described his home heating system to the Michigan chapter of ASHRAE. He used a flat plate solar collector to heat water which was stored in a tank in his basement. When the water was too cold to use directly, he used it as a heat source for a heat pump. 28 years later we have nothing newer to offer.

In 1913 in Egypt, a parabolic reflector was used to focus the sun's rays on a pipe to make steam used to drive a steam engine that ran an irrigation pump. This method is now proposed to generate electric power. Solar energy experiments go back into the 1800s.

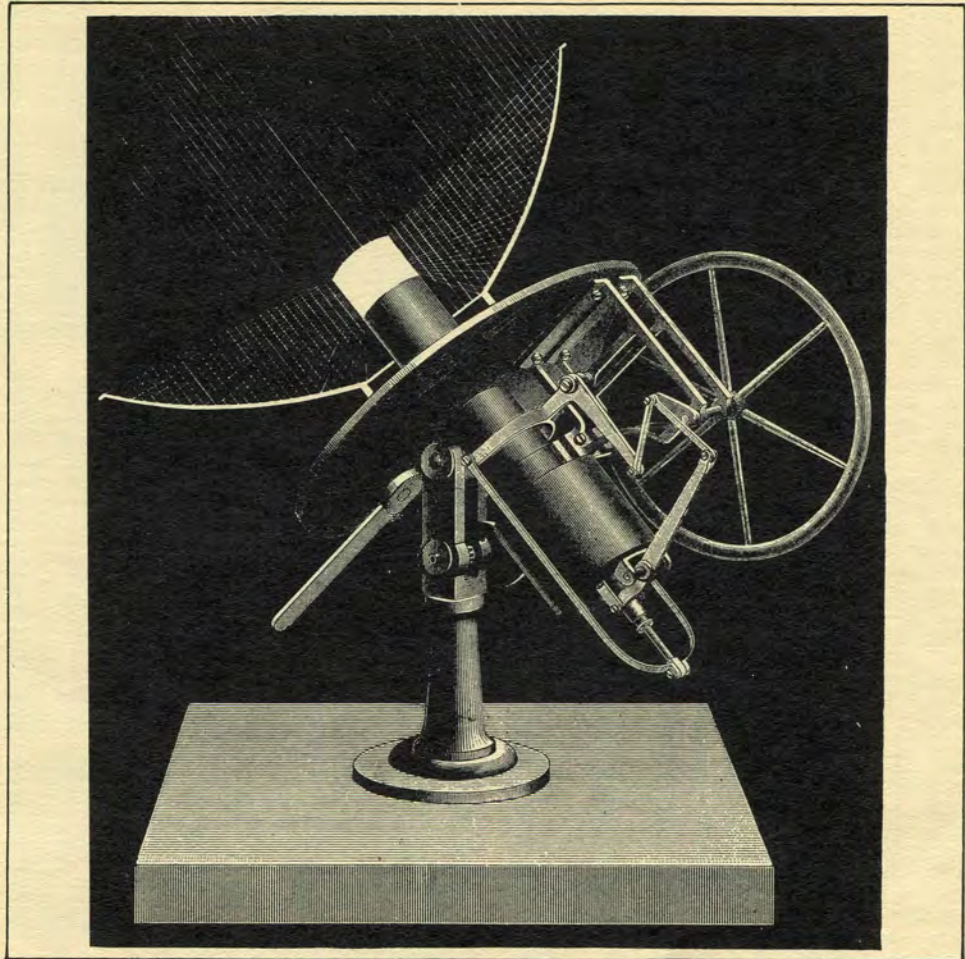
How does solar energy work? The sun is continuously shooting "bullets of energy" toward the earth. The bullets do no heating until they strike an object. I am sure that you have had the experience of having to turn off your car heater on a cold, clear, sunny winter day because the sun provided more than enough heat. The sun's rays streamed through the car's windows and warmed the car and you.

In solar heating systems we use a solar collector to intercept these bullets. The collector can be either a flat plate or a focusing collector. A flat plate collector uses either a liquid or air.

The liquid type uses a metal plate with waterways. The plate is painted black or uses a selective coating to achieve maximum absorption. In order to trap this heat and reduce heat losses, the plate is covered with one or more sheets of glass or plastic. This is similar to the cold frame used for starting plants in the early spring. The back and ends of the collector are insulated.

Table 1 shows the amount of heat that falls on a collector tilted at 53° on a typical January day in Detroit. The table also shows the reverse losses. Notice that the collector is only effective between 10 a.m. and 3 p.m. The efficiency for the day is 25%. Table 2 shows the efficiency for each month.

(continued)



Capturing the sun's energy has been a scientist's dream for generations. Shown here is an artist's conception of a late-nineteenth century solar engine.

TABLE 1

TIME	OUTDOOR TEMP. °F	INSOLATION BTU/HR/FT ²	LOSSES BTU/HR/FT ²	HEAT ABSORB. BTU/HR/FT ²
7:00	34°	0	0	0
8:00	32°	61	108	0
9:00	36°	126	147	0
10:00	39°	199	142	57
11:00	50°	279	127	152
Noon	50°	286	127	159
1:00	46°	253	132	121
2:00	46°	205	132	73
3:00	43°	135	137	0
4:00	39°	0	0	0
5:00	39°	0	0	0

TABLE 2

MONTH	EFFICIENCY %
January	33
February	25
March	18
April	26
May	35
October	25
November	33
December	42

features

Air type solar collectors are similar to the liquid except that air is forced across the black plate and is heated directly. The air collectors, like liquid collectors, have a variety of configurations depending on the manufacturer.

In a focusing collector, the sun's rays are concentrated on a pipe to generate steam or high-temperature water. A motor is used to move the collector so that it tracks the sun across the sky. It, therefore, will have more hours of heat than the flat plate. The major advantages of this kind of unit are that it requires less space and that higher water temperatures are possible. Absorption refrigeration units are often used with solar collectors to produce cooling. They need 220° water to operate at maximum efficiency. With the 190° water produced by a flat plate collector a unit twice the normal size is needed.

Now that we have collected heat, how do we use it?

The air collector heats air and so the heated air is introduced directly into the space. Hot water, on the other hand, is used indirectly. Most often it is used to heat air in a forced air or air conditioning unit. It can also be used with convectors, radiators, or panel heaters.

A unique solar heating and cooling approach is one used by a California inventor, Harold Hay. He floods the roof of a building with six inches of water in black plastic bags. The roof also acts as the ceiling for optimum heat transmission. In winter the sun heats the water during the day. At night, insulated panels are drawn over the water. This pool of water then acts as a heater for the metal roof-ceiling which in turn acts as a radiant panel. In summer the process is reversed. The insulated panels are kept closed during the day. At night, they are drawn open so that the water can be cooled by nocturnal radiation.

As noted earlier, solar collectors are only effective during a few hours of the day. What do we do the rest of the day or on cloudy days? Enough solar collectors are installed to provide not only the immediate heating requirements but enough excess so that heat can be stored for use during the hours when the collectors are not generating heat. At present, most designers only attempt to store enough heat for one or 2 days because of the high first cost of storage.

With liquid systems heat is generally stored in metal or concrete tanks. This is the least efficient method because only sensible heat is stored.

A 1,000 gallon tank will store 8,300,000 BTU if the water is heated from 90° to 190°. If water were a solid at 90°, the heat required to

TABLE 3

	1975		1985	
	First Cost	15-Year Life Cycle	First Cost	15-Year Life Cycle
Santa Maria, California				
Conventional Heating	\$1,110	\$2,530	\$1,420	\$4,110
Solar Heating	2,540	3,500	1,970	3,730
Conv. Htng. & Cool.	2,220	5,020	2,850	8,100
Solar Htng. & Cool.	3,650	5,820	2,840	6,640
Wilmington, Delaware				
Conventional Heating	\$1,140	\$3,420	\$1,460	\$5,870
Solar Heating	4,220	5,860	3,290	6,300
Conv. Htng. & Cool.	2,220	7,600	2,850	13,200
Solar Htng. & Cool.	8,810	12,700	6,850	13,800
Solar Plus Heat Pump	4,800	9,930	3,740	13,400

melt the solid at 90° would increase the storage capacity by 50%. We all know that water is not a solid at 90° so the search is on for materials that are. Suggested materials are paraffin, certain eutectic materials, and hydrated sodium sulphate. Rock beds are used for heat storage when air type solar units are used. In general, 1½- to 2-inch rocks are used.

How competitive is solar heating? At present, it is not at all competitive. In a federally sponsored study, it was learned that homeowners would be willing to pay from \$1,000 to \$2,500 added first cost for a solar heating and cooling system. If life-cycle costs are considered, Table 3 estimates the residential costs for Santa Maria, CA and Wilmington, DE.

These costs are based on a 50% dependency on solar heating and 50% on conventional means. The dollars are constant 1973 dollars and include no inflation. The study assumed an energy escalation of 7% per year, 5% per year inflation cost for equipment and maintenance, and 8% per year decrease in the cost of solar equipment because of improved efficiency and larger productions.

As you can see, the California market for solar systems is already within the amount of additional money people are willing to spend. By 1985, solar systems will be at a competitive advantage. The Wilmington market, however, only begins to get close in 1985: further proof that the largest market and the ability to compete are not in the same place. After 1985, however, solar energy systems will be competitive with fossil fuels in all parts of the US if collector costs can be reduced from the study's estimate of \$5.80/sq. ft. to \$2/sq. ft. I am sorry to report that at present collectors are costing \$10/sq. ft. or more.

All of the studies concluded that incentives are needed to insure the growth of solar energy systems. Typical incentives would be:

- Use solar energy in all new government buildings.
- Tax incentives—already being considered by our Michigan legislature.
- Low cost government insured loans.
- Governmental ownership of production facilities.

I have painted a rather bleak economic picture of the future of solar energy. This doesn't mean we should stop trying. Firms such as Smith, Hinchman & Grylls Associates, OEM Associates, and the team of Thomas Strat, architect, and Joseph Inatome, engineer, are to be commended for their pioneering efforts. We need breakthroughs. We need efficient low cost solar collectors. We need the incentives previously mentioned. We need a breakthrough in storage

techniques for areas such as Michigan, where in January-February 1975, we had 31 days without one hour of sunshine. At present, we can only economically justify a 2- or 3-day storage system. We need a way to store a whole summer's heat. Years ago people cut wood all summer and stockpiled it for the winter. We need a way to make bricks of heat from sunshine to store for winter use.



Joseph B. Olivieri, PE, has published more than 100 technical articles and papers. He is an associate professor of architecture at Lawrence Institute of Technology and board chairman of OEM Associates. His BME is from the U of D, his MS in industrial hygiene from Wayne State, where he is a PhD candidate. Both ESD and ASHRAE have honored him with fellow status, and last year he received the affiliate council's gold award as 1976's outstanding engineer.

Education and the corporation: for pleasure and for profit

Excerpted from remarks by W. Michael Blumenthal, Chairman, Bendix Corporation, October 12, 1972.

Editors note—The new signature appearing at the bottom of your folding currency is that of W. Michael Blumenthal, recently appointed Secretary of the Treasury by President Jimmy Carter.

Prior to his appointment as Treasury Secretary, Dr. Blumenthal served as Chairman of L.I.T.'s neighbor, The Bendix Corporation—one of the nation's, and the world's, largest companies.

He presented the address (excerpts of which follow) to an audience of students, faculty, high school teachers and other friends of the College in October 1972. Dr. Blumenthal's remarks have as much significance today as they did when he presented them, and provide an interesting insight into the individual who will have enormous influence on our nation's economic policies in the months and years ahead.

Mr. Chairman, President Buell, ladies and gentlemen, I'm very honored to have been invited to talk to you. I must begin by commending you for your courage and your confidence—your courage for inviting a mere economist to come into this gathering of distinguished physicists, engineers, and technologically-oriented people, and your confidence for feeling, apparently, that I know what I mean when I stand before you to talk about "Education and the Corporation: For Pleasure and for Profit."

That is a topic that was developed someplace behind my back, no doubt by my valued assistant, who never tells me what he is getting me into. Only a few days ago, after a very busy program that kept me occupied elsewhere, I began an almost full-time crash effort to prepare my remarks and discovered just exactly what the precise nature of this title was.

So, worrying about this problem at the dinner table with two of my daughters, both high-school students, I turned to them in desperation and said, "I have to speak at the Lawrence Institute of Technology on Education. What do you think I should tell them?" One daughter, without batting an eye, said, "Tell them it's for the birds." I promised her I'd start that way this evening. But that's not really what I believe. I don't think it's for the birds. In fact, one of the main points for this evening is that it is for each of us, and not for the birds at all.

I want to deal with four elements tonight in this general topic. The first is the point that the educational process is a continuing one that is with us and that must be a part of us throughout life.

The second one is that education, as I see it and have experienced it, has to be viewed as a very broad concept. I will define what I mean by that.

Third, I would like to deal with the question of what an educational system, as I would like to see it, should impart—what its efforts should try to do with those who are the consumers of the educational system.

And finally, of course, as a corporation executive, I would want to speculate about what a company can do and what some companies are doing as a part of the educational process and in relationship to educators.

When I try to recall the dim, dark past when I was an undergraduate student, I remember that most of my preoccupations and those of my colleagues were with getting out into the real world—with completing our education. Somehow, even though we were hungry for knowledge and interested in the courses and turned on by some of them and turned off by others, we looked upon our years as undergraduates as something that we had to do in order to get out and get a job and to succeed in life.

Somehow, we viewed higher education as a hurdle to be jumped in the obstacle course of life, as sort of a first hurdle that we had to get over. You took a course because it was required, you chose a major to get a degree, and you wanted the degree to get a job. That was education, and that was the end of it.

Well, students should not be misled. In today's world, and certainly in tomorrow's world, it is an illusion to think of education as an obstacle to be bested at the beginning of life. One is never done with it, nor should one ever attempt to be. It is as essential today as the air we breathe (and both need improvement).

To be autobiographical again, I found that I wasn't finished with education as an undergraduate. For one thing, I found that to

get the kind of professional competence that I wanted, I had to go to graduate school for my sins, so I continued. Then in order to support myself and finish it, I had to teach. Then I got married and as these things go a family came along and pretty soon we were involved in the educational process of our children and we went to PTA meetings and we decided on schools and compared teachers and we're still in the middle of it.

Moreover, in my work, whether it was in government or in an educational organization where I taught for a while, or in a large corporate organization such as the one I am associated with today, educational policy and educational issues were and continue to be part of my life—again giving the lie to the simple-minded concept that I had about education so many years ago.

Let us do something that perhaps we should have done at the beginning by defining what we mean by education. The meaning that appeals to me most is one that goes back to the Latin: "to draw out—to lead out—to bring out." That is the best description of what education has to be. It is the bringing or leading out of oneself or others to the full potential inherent within each person.

This potential can only be developed fully if it is related to the human society of which we are a part because we do not exist in isolation.

And so, in a broad sense, education to me is a process of becoming. It enables us to become ourselves. It is the cornerstone of a civilized society and it enables us not only to develop ourselves but to develop ourselves in our interaction to other people. That after all, is what distinguishes the human race from other forms of animal life. This is, I think, an important point. It does set us apart from other species and as Aristotle has noted: "Educated men are as much superior to uneducated men as the living are to the dead."

Why? I believe another Greek philosopher had the answer when he said: "Only the educated are free." We don't have to go to the Greeks, we can go to Thomas Jefferson who said, "By far the most important bill in our whole code is that for the diffusion of knowledge among the people. No other sure foundation can be devised for the preservation of freedom and happiness."

These are bold and broad philosophical concepts. They are worth mentioning at the beginning of a talk such as this for they make the point that education is not something that relates to a particular part of one's life but rather it has to be part of one's whole existence.

Taking the broad viewpoint of a large corporation, let me now deal with a very few of what I think the goals of an educational system and an educational process ought to be.

The first goal obviously has to be the development of technical knowledge and a specialized skill in whatever discipline it is. There is no substitute for the best possible mastery of a particular field, whether it be as an engineer, a physicist, a draftsman, or even as an economist. In any organization in which I have worked the man or woman who had the best substantive knowledge quickly

(continued)

features

rose above the others and quickly became known as a person of quality and depth.

The second important ingredient of educational goals has to be the imparting of the ability to relate that special skill to the broader setting in which it is to be applied. Education must help people to understand the relationship of their job to the wider contacts of the world in which that job is done.

It's not just a question of being a first-rate designer of a particular piece of hardware, you also have to be sensitive to the way in which this hardware is to be used. You have to make it acceptable to the consumer and that means that you have to know something about the tastes and values of the society of which the consumer is a part.

You have to treat workers and associates in the correct way. Therefore you must understand something about human psychology, about human motivation, about the things that turn people on, make them produce, make them cooperate and work together. You must have some understanding about the society's rapidly changing values. You must learn to adapt the particular product to these values.

It seems to me you must strive in the educational process in which you are working to impart adaptability, flexibility, and breadth because of the rapid rate of change we have in our society—a rapid rate of change as regards technology and a rapid rate of change as regards values.

Let me now turn to a third and, it seems to me, critical goal of an educational system—training people in the ability to communicate. That seems simple, but I assure you that one of the greatest gaps in a company, in the Federal government, and in large organizations has been precisely this problem of communication.

There are too many people, and too many technically-trained people, who do not communicate well. In our society, this is of increasing importance because the age of the small shop with the single entrepreneur is gone. Almost everything we do in our technological society is done in large organizations, in very large organizations, perhaps sometimes too large organizations. But there it is, that is the way in which we are organized. If you have the best idea in the world and you cannot communicate it, you will fail in getting your colleagues or your superiors to understand the idea and you will have no influence in having that idea accepted.

I think that the U.S. educational system has traditionally not done a good job in this area. I can say this with impunity since I am, at least in my pre-undergraduate days, a product of the British educational system; and while there is a great deal to be criticized in that system that is not my topic for tonight.

Somehow, and I don't really know how, the British do teach their young how to write and how to speak. And, somehow in the American system, although we have made a great deal of progress in this area, we still have, particularly for people who have a mathematical or technical bend, a kind of horror of the written and spoken word.

*“ . . . in a broad sense,
education to me is a
process of becoming.”*

I think that beyond the ability to communicate, we have a requirement to develop literacy in a broader sense, to develop a more complete person. I think there is a task for the educational system which is of increasing importance in our modern world. It is the need to understand human interpersonal relationships as a part of a function of a large organization.

You learn very quickly that the most effective participant in a large organization is not the one who knows what to do, but the one who then knows how to get it done and who is sensitive to the broader interactions and relationships of people.

I think it is important to stay in touch with the world of ideas, for ideas are the brick and mortar of today's world. A taste for literature and good reading are not frivolous luxuries in my view. They are essential elements in helping us to understand the world around us and the human problems with which we have to deal. Even poetry, which has often been dismissed as irrelevant to a technical education is anything but that in my view.

I am not suggesting that interoffice memoranda at Bendix should now be in the iambic, but I am suggesting that a taste for poetry can help you to communicate better and can make you a more complete person. So, no matter what a person's professional training, whether as a physicist, an engineer, an accountant, or an economist—general literacy of this kind will enable them to express themselves better, to communicate with and relate to others and perceive their jobs in that large environment in which they must be so intimately involved.

People who have educated themselves to be aware of such human relationships are likely to be sensitive not only as to how to set an objective, but also how to work through people to achieve it. The engineer or scientist who can combine the excellent analytic problem solving discipline he acquires in his professional specialization with an educated perception of his relationship to other people and considerations is indeed a valuable person for a company, for a government, and for our society.

Let me quickly deal with two other elements that I think are important. One is the need to try to develop the instincts of creativity and the qualities of courage and integrity. Creativity is a very difficult thing to teach. It is to some extent innate, some have it, others don't. We can't all be alike, but the encouraging of people to use their creative instincts is something the educational system can do and I think that is something to be highly valued.

Courage and integrity. I used to think those were words that older or middle-aged people used when they talked to young people—words that didn't have much meaning. But I must say that as I get into comfortable middle age, I become more and more impressed with the fact that courage and in-

tegrity not only are too rare, but also that they are in critical demand and of critical importance. The educational system can do something to stimulate in people the feeling that they are of importance and to explain to them what it means to demonstrate these qualities.

I think it's no accident, for example, that the late President Kennedy wrote "Profiles in Courage." I can assure you from personal experience that in politicians it's a particularly rare quality, this element of courage. A politician wants to get elected and re-elected and it's difficult to be courageous if you feel that it might be the better part of valor to just shut up.

You can apply this concept just as well to a corporation and I presume to a university campus or to a civil servant's office in the Federal government. The courage to stand up, to speak up, and say what you believe, even though you suspect that your boss disagrees with you, is very important and very rare.

There is nothing more frustrating than for a senior man in an organization to find himself surrounded by "Yes" men, the type of fellow who comes into your office and as you begin to discuss a topic with him, you can see he's just dancing around, wanting to test you and find out what you are thinking. He is very cautious in expressing himself until he has somehow sensed what your viewpoint is because you're his boss. Once he feels he has learned that, he gives it back to you in different words. That kind of person is of no use to a chief executive or to anyone in any position of authority.

How refreshing it is to have someone, even though you may disagree with him, have the courage to stand up and to say what he thinks and to defend it and to really be willing to be his own man or her own woman.

And then that quality of integrity: that's very important in an organization and I think part of the educational process has to try to drive the point home.

Finally, the need for planning, for the setting of goals and priorities, for being analytical, for developing orderly habits of thought—that is something that certainly can be taught through the educational process. Too many people that I come in contact with have great difficulty in ordering their minds. They have cluttered minds in which there is a great profusion and confusion of different concepts and ideas, no sense of priority about how to deal with them. The resulting product is not always very satisfactory or very usable.

Let me turn to the inter-relationships between all of this and the educational institutions and some corporations. It seems to me that, if I am right, the educational process that tries to do these things has to be a continuing one—not one restricted to a very few years. Then, indeed, the organizations like corporations have to play their part and interact properly with educational institutions to try to provide the best setting in which this process can be fostered. How can this be done? We try in our company in a variety of ways, and I'm sure that this is duplicated in many other companies.

“ . . . the most effective participant in a . . . organization is not the one who knows what to do, but the one who then knows how to get it done . . . ”

First of all, we recognize that there is a difference between the classroom and the working environment. It's perhaps not as great as some people think, but there is a definite difference. And so we begin with orientation, with a special type of initial supervision, with lectures by executives, with visits to colleges and high schools before people come to work with us to try to make that bridge and to try to expose people gradually to the different pressures and requirements that exist in our setting as compared to a strictly educational setting.

The second approach is that we encourage and, indeed, to a limited extent, participate in financing continued education and we do so not merely in the development of a particular skill that applies to the functional job a person is doing.

We don't just finance another math course for the engineer or scientist, or another course in accounting for the junior accountant. If a person wants to study literature or political science or some other field—that's just as good, (and the resources are as available for that kind of course as they are for a professional course).

Third, we develop rotation programs through which we move people not only between domestic and international jobs and environments so that they are exposed to world environments, but also between different parts of a company, which in our case happens to be a company with disparate product lines.

We move people from the automotive side of the Bendix Corporation into the forest products or the aerospace or some other activity, and from one part of the country to another or from one department to another.

Obviously, evaluation and counseling—the conscious effort with the people working with you or for you, discussing with them how they're coming along in their maturing, in their education of life, what they are to watch out for, what courses they ought to take, what they are to do better—that's a part of the ongoing educational process for helping people develop.

We serve on boards and work with educational institutions. As the introduction indicated, I do a certain amount of this. My former boss and predecessor is now on the board of this institution. Many of my colleagues are engaged in various activities of this kind and that becomes a channel through which we try to learn.

I get a great deal more, I'm sure, out of serving on the Board of Trustees at Princeton than Princeton ever gets out of having me there. I learn about the educational requirements and objectives and I stay in touch with students, and I try in my own feeble way to apply some of these things in my own work and in my own organization.

Then, of course, we provide a certain limited amount of financial help to do particular things with educational institutions and to help finance this process.

In giving you this excerpt of a list of how we try to participate and encourage our people to continue their education and try to interact with educational institutions, I do not do so with any great sense of pride because I think it is an inadequate effort at this point. We want to do better, and we want your advice on how to do better.

Let me rest my case by saying education is a continuing process of life. It is a continuum for the individual and for the society of which the individual is a part. It should impart technical excellence in a particular field. It should relate that special competence to the broader setting. It should train people to communicate with each other and it should develop in them the greatest possible breadth and general literacy. It should foster in them the qualities of creativity, courage and integrity and train individuals to think in an analytical and orderly fashion.

The educational system has to be properly related to the other social organizations in the society to provide for all of us a continuing opportunity to grow as people and as part of the larger human family in which we live.



About W. Michael Blumenthal

Recently named in an opinion poll as one of the United States' ten most influential men, W. Michael Blumenthal has served as the nation's 64th Secretary of the Treasury since January. Prior to his nomination by President Carter, he had for five years been chairman and chief executive officer of the Bendix Corporation—a world-wide manufacturer of automotive, aerospace-electronics, industrial energy, and shelter products.

A native of Germany, Mr. Blumenthal, 51, was graduated Phi Beta Kappa from U. of California at Berkeley in 1951, earning his B.S. degree in international economics. He later attended Princeton where he earned his M.P.A. in public affairs, and a M.A. and Ph.D. in economics. He has served in a leadership capacity on numerous boards and commissions.

Think twice before you disparage capitalism

By Dr. Perry E. Gresham

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"Everybody for himself, said the elephant as he danced around among the chickens." This lampoon of capitalism came from a Canadian politician. The word "capitalism" has fallen into disrepute. It is associated with other pejorative terms such as "fat cat," "big business," "military-industrial complex," "greedy industrialists," "stand paters," "reactionaries," and "property values without regard to human values." Many serious scholars look on capitalism as a transitional system between late feudalism and inevitable socialism.

Adam Smith has been associated with the word "capitalism" even though he did not use the term. He did not so much as refer to capital by that name, but used the word "stock" to describe what we call capital. Karl Marx wrote in response to Adam Smith's *Wealth of Nations* and called his great work *Das Kapital*. There was disparagement and scorn—even hate—for the ideas of the free market economy. The term capitalism has been less than appealing to many people since that time even though they know little about the contents of the Marx benchmark in political economy.

Some political economists who cherish individual liberty and the free market have suggested that a new name be found to describe economic liberty and individual responsibility. Until a new name appears, however, the thoughtful person does well to think twice before he disparages the market economy with all of its implications implied by the term capitalism since there is now no ready alternative available for reasonable discourse.

Is the System Outmoded?

Many thoughtful citizens of America think of capitalism as a quaint and vanishing vestige of our Yankee industrial beginnings. With burgeoning population, urbanization and industrialization, they argue, capitalism disappears. They are not quite ready to embrace socialism, but they heartily approve government planning and intervention. John Kenneth Galbraith, articulate spokesman for the liberal establishment, calls for the open acclaim of a new socialism which he believes to be both imminent and necessary. "The new socialism allows of no acceptable alternatives; it cannot be escaped except at the price of grave discomfort, considerable social disorder and, on occasion, lethal damage to health and well-being. The new socialism is not ideological; it is compelled by circumstance."

At first blush, the Marxian assumption of economic determinism is quite plausible, but I do not believe it can stand up to the scrutiny of experience. My study of history leads me to assume with many of my thoughtful colleagues that free people can, within certain limits, choose their own systems of political economy. This is precisely what happened in West Germany at the time of Ludwig Erhard. The Germans chose capitalism rather than the socialism recommended by many American, British, and Continental economists and politicians. It is my opinion that Americans can and should call for a renewal of capitalism rather than a new socialism.

Capitalism has been neither understood nor sympathetically considered by most contemporary Americans. Capitalism is a radical and appealing system of political economy which needs a new and favorable review. The new socialism has never been tried. The old socialism is not very inviting. Consider Russia, China, Cuba, Chile, and now Britain. Capitalism has been tried with the most amazing success in all history. What is the nature of a political and economic system which has made the poor people of America more prosperous than the rich of many countries operating under State control? Here are my paragraphs in praise of capitalism. They are somewhat lyrical but grounded in fact and open to review.

An Enviably Record

Capitalism is the one system of political economy which works, has worked and, given a chance, will continue to work. The alternative system is socialism. Socialism is seductive in theory, but tends toward tyranny and serfdom in practice.

Capitalism was not born with *The Wealth of Nations*, nor will it die with *Das Kapital*. It is as old as history and as new as a paper route for a small boy. Capitalism is a point of view and a way of life. Its principles apply whether or not they are understood, approved and cherished.

Capitalism is no relic of Colonial America. It has the genius of freedom to change with the times and to meet the challenges of big industries, big unions, and big government if it can free itself from the restraints of interest-group intervention which eventuates in needless government expansion and spending. Let the market work, and the ambition of each individual will serve the common good of society.

Capitalism is an economic system which believes with Locke and Jefferson that life, liberty, and property are among the inalienable rights of man.

Capitalism denies the banal dichotomy between property values and human values. Property values are human values. Imagine the disjunction when it is applied to a person with a mechanical limb or a cardiac pacemaker. The workman with his tools and the farmer with his land are almost as dramatic in the exemplification of the identity between a person and his property.

Capitalism is belief in man—an assumption that prosperity and happiness are best achieved when each person lives by his own will and his own intelligence. Each person is a responsible citizen.

Limited Government

Capitalism recognizes the potential tyranny of any government. The government is made from man; not man for the government. Therefore, government should be limited in size and function, lest free individuals lose their identity, and become wards of the State. Frederic Bastiat has called the State a "great fiction wherein everybody tries to live at the expense of everybody else."

Capitalism denies the naive and mystic faith in the State to control wages and prices. A fair price is the amount agreed upon by the buyer and seller. Competition in a free market is far more trustworthy than any government administrator. The government is a worthy defense against force and fraud, but the market is much better at protecting against monopoly, inflation, soaring prices, depressed wages and the problems of scarcity. Capitalism works to the advantage of consumer and worker alike.

¹Galbraith, John Kenneth, *Economics and the Public Purpose* (Boston: Houghton Mifflin Company, 1973), p. 277.

Capitalism denies the right of government to take the property of a private citizen at will, or to tax away his livelihood at will, or to tell him when and where he must work or how and where he must live. Capitalism is built on the firm foundation of individual liberty.

Equality of Opportunity

Capitalism believes that every person deserves an opportunity. "All men are created equal" in terms of opportunity, but people are not equal—nor should they be. How dull a world in which nobody could outrun anybody! Competition is a good thing no matter how much people try to avoid it. Equality and liberty are contradictory. Capitalism chooses liberty!

Capitalism gives a poor person an opportunity to become rich. It does not lock people into the condition of poverty. It calls on every individual to help his neighbor, but not to pauperize him with making him dependent. Independence for every person is the capitalist ideal.

When a person contracts to work for a day, a week, or a month before he is paid, he is practicing capitalism. It is a series of contracts for transactions to be completed in the future. Capitalism is promise and fulfillment.

Capitalism offers full employment to those who wish to work. The worker is free to accept a job at any wage he can get. He can join with his fellows in voluntary association to improve his salary and working conditions. He can change jobs or start his own business. He relies on his ability to perform rather than on the coercive power of the State to force his employment.

Capitalism is color-blind. Black, brown, yellow, red and white are alike in the market place. A person is regarded for his ability rather than his race. Economic rewards in the market place, like honor and acclaim on the playing field, are proportionate to performance. The person who has the most skill, ability and ingenuity to produce is paid accordingly by the people who value and need his goods and services.

Trust in the Market

Capitalism is a belief that nobody is wise enough and knows enough to control the lives of other people. When each person buys, sells, consumes, produces, saves, and spends at will, what Leonard Read calls "the miracle of the market" enables everyone to benefit.

Capitalism respects the market as the only effective and fair means of allocating scarce goods. A free market responds to shortages and spurs production by rising prices. Arbitrary controls merely accept and keep the shortages. When rising prices inspire human ingenuity to invent and produce, the goods return and prices fall.

"Capitalism is a radical and appealing system of political economy which needs a new and favorable review."

Nobody knows enough to build an airplane or a computer, but hundreds of people working together perform these amazing acts of creation. This is the notable human achievement which Adam Smith called "The Division of Labor."

Capitalism derives its name from the fact that capital is essential to the success of any venture whether it involves an individual, a corporation, or a nation-state. Capital is formed by thrift. The person who accumulates capital is personally rewarded and, at the same time, a public benefactor.

Capitalism makes every person a trustee of what he has. It appoints him general manager of his own life and property, and it holds him responsible for that trusteeship.

Church and Family Ties

Capitalism is a natural ally of religion. The Judeo-Christian doctrines of stewardship and vocation are reflected in a free market economy. Churches and synagogues can be free and thriving with capitalism. When the churches falter, the moral strength of capitalism is diminished.

Capitalism depends on the family for much of its social and moral strength. When the family disintegrates, the capitalist order falls into confusion and disarray. The motive

power for the pursuit of life, liberty, and property is in the filial and parental love of a home with its dimensions of ancestry and posterity.

Capitalism enables entrepreneurs to be free people, taking their own risks and collecting their own rewards.

Work is a privilege and a virtue under capitalism. Leisure is honored, but idleness is suspect. The idea that work is a scourge and a curse has no place in the climate of capitalism.

Capitalism holds profits derived from risk and investment to be as honorable as wages or rent. Dividends paid to those who invest capital in an enterprise are as worthy as interest paid to a depositor in a savings bank. The idea abroad that risk capital is unproductive is patently false.

The Voluntary Way

Capitalism honors and promotes charity and virtue. True charity cannot be compelled. Universities, hospitals, social agencies, are more satisfactory and more fun when they derive from voluntary support. Money taken by force and bestowed by formula is no gift.

The consumer is sovereign under capitalism. No bureaucrat, marketing expert, advertiser, politician, or self-appointed protector can tell him what to buy, sell, or make.

Capitalism encourages invention, innovation and technological advance. Creativity cannot be legislated. Only free people can bring significant discovery to society. Thomas A. Edison was not commissioned by the government.

The concept of free and private enterprise applies to learning and living as well as to the production of goods and services. When a student learns anything it is his own. Nobody, let alone a state, ever taught anybody anything. The State can compel conformity of a sort, but genuine learning is an individual matter—an act of free enterprise and discovery.

features

Respect for the Individual

Capitalism honors the liberty and dignity of every person. The private citizen is not regarded as a stupid dupe to every crook and con man. He is regarded as a free citizen under God and under the law—able to make his own choices; not a ward of the State who must be protected by his self-appointed superiors who administer government offices.

Capitalism is a system which distributes power to the worker, the young, the consumer and the disadvantaged by offering freedom for voluntary organization, dissent, change, choice and political preference, without hindrance from the police power of government.

The renewal of capitalism could be the renewal of America. Nothing could be more radical, more timely, or more beneficial to the responsible and trustworthy common people who are now beguiled by the soft and seductive promises of the new socialism.

No political and economic system is perfect. Plato's *Republic* was in heaven—not on earth. If people were all generous and good, any system would work. Since people are self-centered, they are more free and happy in a system which allows the avarice and aggressiveness of each to serve the best interest of all. Capitalism is such a system. It is modestly effective even in chains. The time has come for daring people to release it and let us once more startle the world with the initiative and productivity of free people!

Some of my academic colleagues will deny, dispute, or scorn the foregoing laudatory comments about capitalism. They will say that socialism benefits the poor, the

young, the consumer, the minorities, and that capitalism protects the rich and the powerful. When discussion is joined, however, they will argue in terms of politics rather than economics, ideology rather than empirical evidence, and they will accuse me of doing the same. When the most persuasive case is produced, it will not convince. Political opinions are not changed by rational argument.

A Call for Renewal

Those who have socialist ideological preferences are merely annoyed to arrogance and disdain by such honest appreciation of capitalism as I have presented. Those scholars, however, who like Ludwig von Mises, Friedrich Hayek, and Milton Friedman have explored the relevance of capitalism to our present predicament, will join in the call for renewal of a system that works. Those who, like the late Joseph Schumpeter, have watched the apparently relentless disintegration of capitalism, and have concluded that socialism will work, albeit with painful disadvantages, will heave a long sad sigh of regret at the passing of the happy and prosperous capitalist way of life. They will, as people must, accept what appears from their perspective inevitable, and try to make the best of the gray and level life of socialism.

Schumpeter, however, was no defeatist. He was a perceptive analyst of human affairs. In the preface to the second edition of his *magnum opus* he wrote, "This, finally, leads to the charge of 'defeatism.' I deny entirely that this term is applicable to a piece of analysis. Defeatism denotes a certain psychic state that has meaning only in reference to action. Facts in themselves and inferences from them can never be defeatist or the opposite whatever that might be. The report that a given ship is sinking is not defeatist. Only the spirit in which this report is received can be defeatist: The crew can sit down and drink. But it can also rush to the pumps."²

Friends of liberty, to the pumps!

Those who love liberty more than equality, those who are uneasy with unlimited government, those who have faith in man's ability to shape his own destiny, those who have marveled at the miracle of the market will join me in this call for renewal of this simple, reasonable, versatile and open system of capitalism which has worked, is working, and will work if freed from the fetters of limitless state intervention. The choice, I believe, is ours. The alternative is the stifling sovereign state.



About Perry E. Gresham

An accomplished educator, author, lecturer, and business administrator, Dr. Perry E. Gresham is President Emeritus of Bethany College in West Virginia. A member of L.I.T.'s corporate board, Dr. Gresham's academic career spans Texas Christian University and the University of Chicago, Columbia, and Glasgow. He holds 13 honorary degrees, including an honorary Doctor of Business Administration from Lawrence Institute of Technology. He received the Freedoms Foundation Leadership Award for Public Service in 1963.

Dr. Gresham is also a Colorado rancher and serves as a director of several corporate, utility and foundation boards. He is a former broadcasting company president, has lectured extensively throughout the world, and is a prolific writer.

²Schumpeter, Joseph, *Capitalism, Socialism and Democracy* (New York: Harper and Row, 1950), p. xi.

alumni association news



Bertram, Ar'62



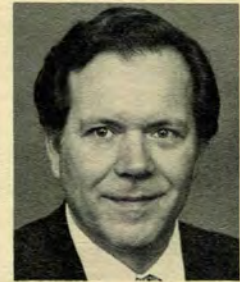
Linden, IM'63



Rainson, EE'66 & IM'69



Shtogrin, IM'61



Sinclair, CivE'64

Five to receive alumni achievement awards

Five Lawrence Institute of Technology alumni have been chosen to receive alumni achievement awards at the College's 45th annual commencement June 5. The five include:

Frederic A. Bertram, AIA Ar'62, vice president/design with Rossetti Associates, Inc., architects and planners. Bertram has been with Rossetti Associates since 1969. He was formerly associated with Giffels and Rossetti Inc., Ziegelman and Ziegelman architects, Louis Redstone architects, and the Detroit City Plan Department. His professional awards include the (1977) Design in Michigan Award, (1975) Design Honor Award of the Michigan Society of Architects, (1974) Design Honor Award of the Detroit Chapter of the American Institute of Architects, and the (1966)

Better Homes and Gardens Award. Bertram and his wife, Virginia, reside in Lake Orion.

Ronald P. Linden, IM'63, production manager of the *Chicago Tribune*. Linden supervises the newspaper's 1500-employee production department and is responsible for the department's \$38 million annual budget. He formerly held positions with the *Detroit News*, Harris Intertype Corporation, Dow Jones and Company, and the *Utica* (NY) newspapers. He and his wife, Anita, have three children and reside in Barrington, IL.

Ronald L. Rainson, EE'66 and IM'69, president and general manager of East Kentucky Power Cooperative. Rainson is chief executive officer of the \$100 million rural electric utility serving 900,000 Kentuckians. He was formerly associated with Holland BPW, Manufacturers National Bank, B.W. Controller Corporation, K. F. Leininger and Associates, Bendix Corporation, and the Detroit Board of Education, and is a registered professional engineer in Michigan and Kentucky. He and his wife, Patricia, have three daughters and reside in Lexington, KY.

Roger F. Shtogrin, IM'61, personnel placement and development administrator of the Chrysler Corporation. Shtogrin joined Chrysler in 1963 and was formerly group compensation and benefits coordinator. He is completing

his second term as president of the L.I.T. Alumni Association. Shtogrin has a son and a daughter, and resides with his wife, Virginia, in Rochester.

William S. Sinclair, Civ E '64, city manager of the City of Rochester, MI. Sinclair has served as city manager of Rochester since 1964, and was formerly a civil engineer with the city of Birmingham and a surveyor with the City of Detroit. He is a state registered professional engineer and lives with his wife, Hilda, a son and two daughters in Rochester.

Alumni achievement award winners are selected annually by Lawrence Institute of Technology in recognition of their outstanding accomplishments that provide inspiration to graduates and students of the College.

alumni association news



Members of the Class of 1952 and their wives present at the Alumni Dinner-Dance were (L to R): George & Ruth Hutzel, Leon & Bertie Miles, Helen & Gerald DeLoy, Gilbert & Dorothy Gatchell, Margaret & Vincent Herter, Merrilyn & Wesley Parker, Delores & Carl Ortolof, and Rita & William Pence.

Alumni Dinner-Dance ends on high note

Coming from as far away as Pennsylvania and New York, nearly 150 alumni and their guests returned to campus April 23 for the Alumni Association's 1977 Dinner-Dance. Apparently the participants had a great time, because most stayed right up to the event's 1 a.m. closing!

With the help of the campus facilities crew, activities chairman Don Halberda ME'62, and his committee transformed the College Dining Room into a nightclub with soft colored lights and flickering candles. Following a terrific buffet-style dinner and a short program honoring the Class of 1952, the outstanding 24-piece "Patriots of Music" Orchestra charmed dancers and listeners alike with four hours of terrific Glen Miller-type music.

Helping make the event a big success were committee members Vincent Herter EE'52; Art Fischer IM'65; Gilbert Gatchell ME'52; Henry Kovalsky ME'62; Alfred Bieman ME'47; and Roger Avie IM'68.



The delicious dinner buffet was popular with all.



Louis (ME'44) and Grace Jelsch enjoyed the orchestra.



Among those who traveled the farthest were (L to R) Paul (ME'59) and Pat Stites, and Frank (AeroE'36) and Rita Cassel.



Gil Gatchell, ME'52 presented a brief tribute to the Class of 1952 and distributed mementos.

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L.I.T.'s new student-designed footbridge over the Rouge River links the College's outdoor athletic facilities with the rest of the 85-acre campus.

Students "bridge" flood problem at L.I.T.

While it isn't the Mackinac Bridge, Lawrence Institute of Technology's new footbridge over the Rouge River connecting the College's athletic facilities to the rest of the 85-acre campus is still mighty important to L.I.T.'s 4580 students. What's unique about it is that some students put their classroom theory to practice and designed and built much of the forty-foot-long concrete and steel structure themselves.

"Several construction engineering students visited my office after hearing we were discussing the project," says Professor George Bowden, chairman of the College's construction engineering department. "One of them, Robert Sixbery, a Livonia junior, worked for Concrete Components, Inc., in Novi. He ventured that they might be able to donate the main 40-ft. span and the 2 ten foot

approaches.

"As it turned out, they could," Bowden continues, "and the whole thing snowballed. Our students did the surveying and design work, and we were also fortunate to have Lawrence and Associates provide the sub soil investigation and Harlan Electric Company set the pilings at no charge."

The bridge meets specifications of the City of Southfield and the State of Michigan.

"The new bridge is a great addition to our campus and will alleviate the problem our students have faced in crossing the river for some time—especially in the Spring when the area's prone to flooding," comments Dr. Wayne H. Buell, L.I.T. president.

An earlier, less elaborate bridge had been washed out during a flood.



(L to R) L.I.T. President Wayne H. Buell officially opens the College's new footbridge while Professor of Construction Engineering George Bowden, and Dr. Richard E. Marburger, L.I.T. vice president for academic affairs look on.

