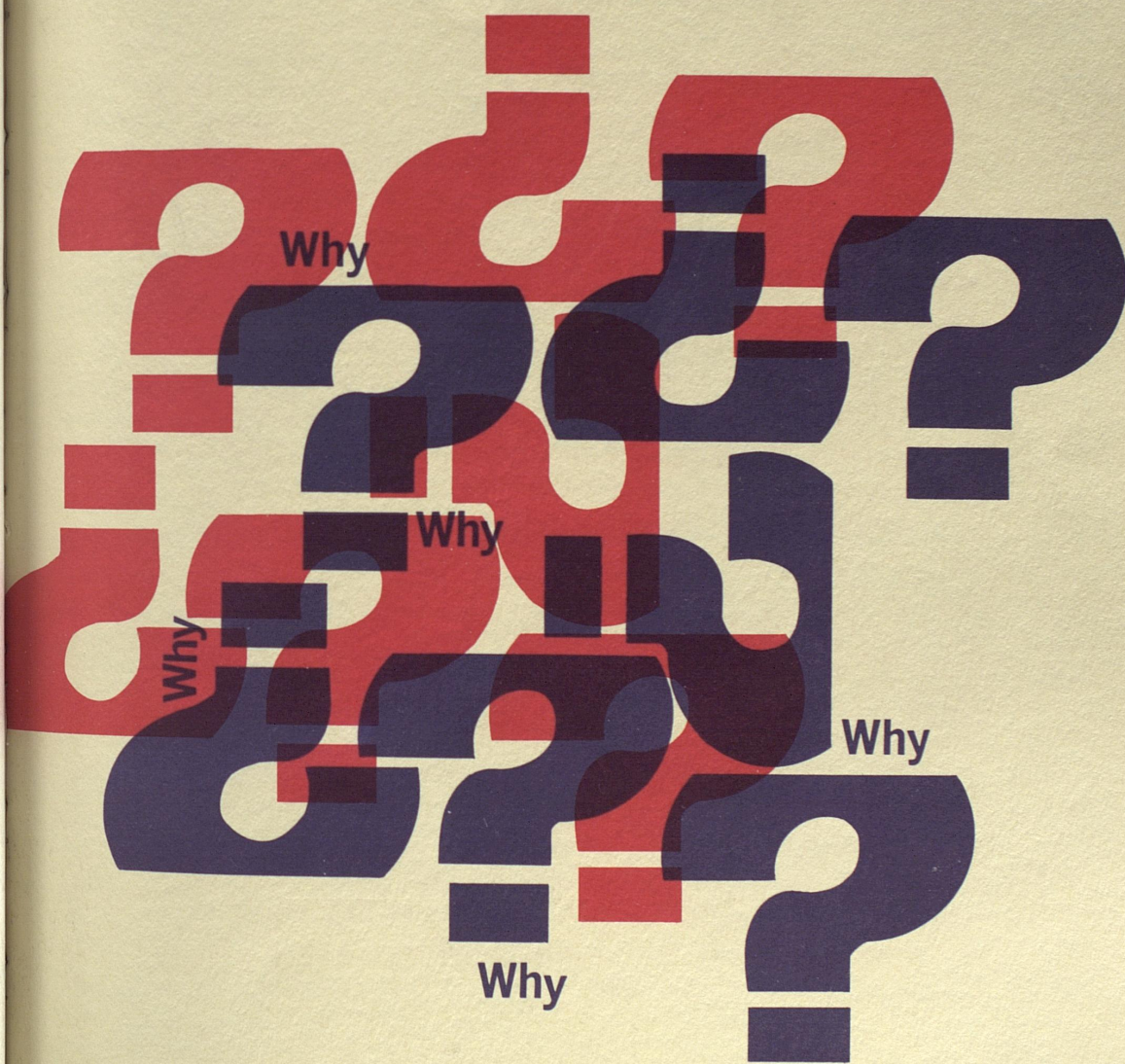


*The Kentucky
Alumnus*

Autumn-Winter 1968



Just as any approximate figure is an erroneous one, easy answers to questions are usually wrong; and, if not totally wrong, at least lacking in full truth.

So to the question, "Why does the University of Kentucky exist?" A simple, automatic answer could be, "In order that young Kentuckians may obtain higher education."

But the real answer is more complex. It begins with the dream of a man who believed his vision of an educated citizenry would materialize generations beyond if the taxpayers of the Commonwealth could be brought to see his vision and bet tax dollars that their sons and daughters could find at the University knowledge and understanding, culture and challenge—qualities the parents admired but which they themselves did not have.

And so it all began with a gamble on the future of our young people. It may have looked like a long shot at the time but the payoff has been one which would have bedazzled the earliest supporters of the University.

It would require many months of diligent research to find a single area of human activity in which UK does not have a least one alumnus who has excelled.

The foundation on which this excellence has been built has been a simple striving to learn the "why" of any environment. If why cannot be answered to the satisfaction of a curious and imaginative mind, then there has to be a better way of doing anything, a clearer, cleaner trend of thought, more suitable philosophy or a better pattern of personal behavior.

You, as an active alumnus, presumably know all the who-what-when about your Alma Mater. The effort in this issue will be to respond to some of the "whys."

The Kentucky Alumnus

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WHY

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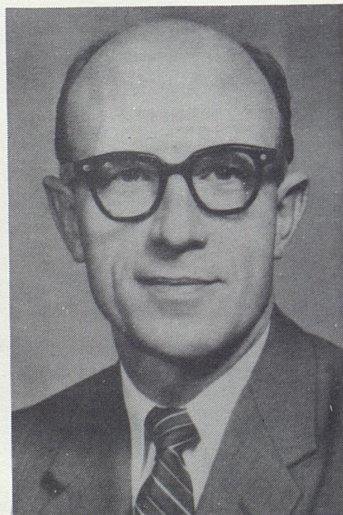
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THE COVER: A design by Artist Tom Clark brings impact to the "Why?" theme of this issue.

WHY

The Current Focus of Student Eyes

By A. D. Albright



A native of Washington, D. C. (born March 6, 1913), Dr. Albright was reared in Virginia and Indiana. After attending DePauw University in Indiana, he earned the bachelor of arts degree, cum laude, at Milligan College in Tennessee. He later was awarded the master of science degree by the University of Tennessee and the doctor of philosophy by New York University.

Beginning his professional career in 1938 as a supervisor in the Chattanooga public school system, he moved the following year to Nashville where, until 1946, he served as supervisor of the Tennessee State Department of Education. There followed two years (1946-48) during which he was Tennessee's assistant state commissioner of education, and another two (1948-50) in which he was director of research and chairman of the staff of the State Department of Education.

Dr. Albright joined Nashville's George Peabody College in 1950 as professor of education, a post he held until coming to Kentucky in 1954. His first position at UK was a dual one. He served as director of the Bureau of School Service and as chairman of the College of Education's Division of Educational Administration.

He was executive dean of the University's Extended Programs Division from 1957 to 1960, and provost of the University from 1960-1962. In the latter year, he was named to his present post, executive vice president.

Dr. Albright is a former chairman of the National Conference of Professors of Educational Administration, and has served as consultant to such agencies as the Ford and Carnegie Foundations, the Southern Education Foundation, the Fund for the Advancement of Education, and the Southern Regional Education Board.

He has directed or assisted in the direction of many fact-finding studies in education, including statewide projects of this nature in both Tennessee and Connecticut. He also has served as visiting professor on the faculties of the University of Tennessee, University of Utah, Yale University, and Teachers College of Connecticut.

Every day on the University of Kentucky campus, 14,778 pairs of eyes are in action—looking at books, looking at the faculty, looking at the older generation, looking at society, looking for truth, looking at girls, or boys.

Some look through microscopes; some through telescopes or spectrosopes.

Some see with the compassionate eye of the social worker, the doctor, the nurse. Some look through a sharp legal eye. Some gaze with the eye of the artist; some develop the eye—and nose—for news. Some view with the perspective of the historian; some look down from the soapbox of the political scientist.

Some look out of faces that are black. Some—slanted and shaped like almonds—are set in bland Oriental faces. Most are the eyes of Americans; a few belong to visitors to this land.

Could we put all these eyes together and multiply them into seven million pairs, we would produce something comparable to the compound eye of a fly, which those who know tell us has more than 4,000 facets, enabling its host to see in many directions at once and become instantly aware of movement.

This composite eye—representing all the viewing ability of this nation's college and university students—might be termed "the student retina." Through it we might view the many facets of modern life with a new vision and we might begin to understand what all these young eyes see as they look about.

Then, if seeing truly is believing, if in fact "seeing" is behaving, we might have some clues to what the present student generation thinks and feels. And, those of us who are older might find the sights something like a familiar old movie or one of those occasional incidents which make a person feel suddenly, "This surely has happened before."

Certainly those who are students now are convinced they are seeing the world fresh; that their ideas and thoughts and insight are novel, even ahead of their time.

Well, let's look through our student retina and see. Most who fall into the student category would agree with this excerpt from an editorial in a Galveston, Texas, newspaper:

"The paradox is this: Young men and women in American colleges and universities are urged—by their professors—to improve and sharpen their minds and to do their own thinking. For years, American educators have been complaining that college students do not show sufficient interest in current affairs. Yet when those students do follow the advice of their professors and do their own thinking, what happens? . . . "If students do their thinking along the proper, approved and conventional lines, then it is perfectly all right. If the students become yes-men, then everything is lovely and higher education is a wonderful thing.

"But if the students begin thinking in their own way and in another direction—if they begin asking embarrassing questions of those who sit in the saddle—that is rank radicalism, impertinent heresy, subversive communism and all that sort of thing.

"And if the students begin talking about free speech and their rights as American citizens to express their opinions on various topics, the aforementioned, unable to answer such an argument, begin tut-tutting and deploring and viewing with alarm. . . .

"College students are not children. They are young men and young women who are being trained, ostensibly, to take charge of affairs. . . . To prohibit these young men and women from forming or expressing their opinions . . . seems unwise, intolerant, fantastic. It also shows that the big boys simply can't take it—they love to be yessed but they certainly hate to be argued with."

I hope the shock will not be too great when I explain that the editorial appeared in 1937, when the "big boys" of today were the students demanding from the older generation of that era exactly what students seek from them today.

If we could move the student eye and the older eye to look through an imaginary stereoscope, we might find innumerable pairs of identical pictures—one from today and one from the past—to fuse into three-dimensional scenes familiar to all associated with higher education.

For example, a picture from this Spring would show much criticism being leveled at what was termed an obscene cartoon of the Statue of Liberty included in material distributed by the Students for a Democratic Society.

Its twin would come from more than thirty years ago when an editor of the *KERNEL* responded to a British cartoonist's suggestion that the symbol of "Uncle Sam" should be modernized by calling for a replacement of that same Statue of Liberty.

He wrote:

"Possibly the statue should now be that of an evening-gowned butterfly with a cigarette held high in place of old Miss Liberty's torch, and a cocktail shaker could be substituted for the book she clutches in her left arm."

Another pair of matching views:

A twenty-five-year old psychology major at San Francisco State College wrote last year:

"I am not drawn ahead by the apron strings of Heaven; I am pushing at crashing speeds into the unknown. I've made no contract with God; His promises and threats do not interest or frighten me. My power is in me, in all of us. Life is this power."

A twenty-one-year old philosophy student at the University of Kentucky wrote in 1943:

"I have no want for foolish man-made gods;
I satisfy my own religious needs. . . ."

There are other sets of pictures.

This Spring, students were holding forums to discuss how to keep out of military service, how to resist the draft and war. In the Spring of 1937, "Peace Week" observances at the University—paralleled over the nation—included an open forum on methods of preventing war, the causes and cures of war, ways to keep out of war.

Peace strikes were the order of the collegiate day thirty-one years ago, and a poll of sixty-two Kentucky students indicated that only three would support the United States in any war in which it might engage, forty-three would fight only if this nation were invaded and fourteen would not support any war. Of course, after the attack on Pearl Harbor, such idealism vanished in the necessity for defense of this nation, and Kentucky students—like those across the land—did fight, courageously and valiantly.

But in the 30's, as today, organizations such as the American Student Union, the Youth Committee Against War, the Veterans of Future Wars, flourished, holding their meetings and their forums and their protests.

Women of that era pushed for more freedom, more nights out from the dormitories. Students opposed the return of prohibition, admitted they drank alcoholic beverages, favored compulsory sex education in college. The *KERNEL*, being daring in the extreme, waged a campaign to eliminate syphilis.

A forum, sponsored by the YM and YWCA, examined these questions:

Is the student press supervised too closely? Aren't students capable of governing themselves? Have students a right to uphold certain political theories without suppressive measures exerted?

Certainly, we've passed this way before.

And, if we examine the past that has become prologue to this present, those of the older generation may be amused and those of the younger surprised to find that yesterday's student rebel has become today's respectable member of the Establishment, bridging the generation gap simply by living and learning.

The names won't mean a lot to those who don't know Kentucky well—but there was Jim Wine, a

student who felt peace strikes would "stir the conscience of the college generation to an understanding of the horrors of war," a man who until recently served with the Department of State, now an attorney and Special Counsel to the Interational Bank. Elizabeth Hardwick, now a distinguished alumna of the University, and Tom Spragens, now President of Centre College, were among those considered more than a little "progressive" in their student days. Jim Caldwell, John Ed Pearce, L. T. Iglehart and others have moved from a sometimes far-out student viewpoint to become responsible members of the State's middle-aged generation, leaders of the not-to-be-trusted over-30 group.

Even Bart Peak, who as a retired county judge probably shakes his head these days over campus activities, had some liberal views in 1939. As advisor to the Campus YMCA, he spoke in favor of the students right to protest, as long as it was done in peaceful fashion.

We must reach the conclusion then that life is a giant cycle with the idealistic—sometimes radical—young mellowing and becoming more conservative as they reach middle age.

Agreeing on that, however, does not devalue the fresh and pointed criticism that spurts from today's student generation or invalidate the truth of what registers on today's student retina.

Certainly as the student looks at his elders, he must see much that is false, much that is sham. He sees those who should be wiser, because they are older, espousing values only for selfish, personal purposes.

As pointed out through that chilling comedy, "The Graduate," he sees a generation that demands stricter moral codes for its offspring than for itself—the mother who married under threat of pregnancy insisting on virginity not only in her daughter but in any who would woo the child. He sees the hollowness of church sanction to a union of man and woman without love, only convenience.

He sees want and slum conditions in spite of the adults' war on poverty. He suspects that the interpretation given to Christian charity by many makes a basket of food at Christmas equivalent to meeting social responsibilities for the rest of the year.

He demonstrates against a war he feels is unjustified and immoral, perhaps because in his history books he sees details of war to make the world safe for democracy and a war to end all wars but nothing of progress toward real peace. Perhaps also in his history books he has seen the principle that a state of war is to be decided by the legislative body to protect the people of a democracy.

And yet, even with this sharp vision that cuts through the pretense, much of his behavior is no more than imitation and echo.

As Professor Richard B. Sewall of Yale has written:

"Students have a way, because they are young and experimental, because they have endless energy and cast-iron digestions, of first trying out, often to excess, all the indulgences of the society into which they were born. Gambling, sex, liquor, narcotics, social-climbing—these are all in college just as they are in adult America. The wonder is that each new little undergraduate scandal hits the country with such a shock. What does adult America expect, the way it behaves? Colleges can educate but they can't insulate."

But Professor Sewall believes—and I must agree—that what he terms an "undergraduate culture" is emerging and that this is different both from the "official culture" of the era, which is set forth in editorials, governmental pronouncements and commencement addresses, and from the traditional personal culture of materialistic, success-oriented, power-minded, middle-aged America.

This new student culture is marked not so much by rebellion, negation and denial of the values of the older generation as by a re-affirmation of values which the old still preach but do not practice.

The student, as it were, is saying to the professor and the parent, "Don't do as you do. Do as you say I should do."

He would be upset, perhaps, if he realized that this attitude is faintly conservative, even nostalgic and radical only in that it goes to the root of things.

As we look through the complex student retina, then, we see one big question—"Why?"—and we see a demand that authority remember its proper function and permit the young to realize certain basic ideals.

Those ideals which shine brightest in the student eye include seeing justice done, exemplified by the movement for civil rights, and virtue rewarded, having morality, honesty and the principles of democracy applied to international as well as national and institutional affairs.

Perhaps more politically sophisticated than the student of a generation ago, today's student feels he can and should influence the world beyond the campus.

The violence that sometimes erupts signals, I suspect, not so much the student's desire to run the world but his wish to be heard in it. When no one will listen, he screams louder and louder and, if he has not reached full maturity, he reverts to the equivalent of a childhood tantrum.

Dr. Nathan Pusey, President of Harvard, deplors such "belligerent nonsense" from the relatively rare revolting students.

He says:

"Safe within the sanctuary of an ordered society, dreaming of glory—Walter Mittys of the left (or are they left?)—they play at being revolutionaries and fancy themselves rising to positions of command atop the debris as the structures of society come crashing down. Bringing students of this persuasion back to reality presents a new kind of challenge to education. . . ."

TIME magazine, concluding that students have much more to gain by working actively for change within the existing system than by dropping out of it, suggests that their education should teach them this:

"Student power can be beneficial, student tyranny never is. Student involvement in politics should be encouraged, but student abuse of the democratic process must always be resisted. Students might well bear in mind the fine distinctions between reasoned dissent and raw intolerance, between knowledge and wisdom, between compromise and copping out."

If we in education can teach students these things and preserve the nation's colleges and universities as places where the search for truth can be carried on through free inquiry, we can each Spring award our degrees without feeling that perhaps they should carry the notation, "This represents only half—or at most three-fourths—of an education."

And, if we can continue to look through the bright, minutely-focused student retina, perhaps society will no longer follow "The Calf-Path" described by Sam Walter Foss, who wrote:

"One day, through the primeval wood,
A calf walked home, as good calves should,
But made a trail all bent askew,
A crooked trail as all calves do.
Since then two hundred years have fled,
And, I infer, the calf is dead.
But still he left behind his trail,
And thereby hangs a moral tale."

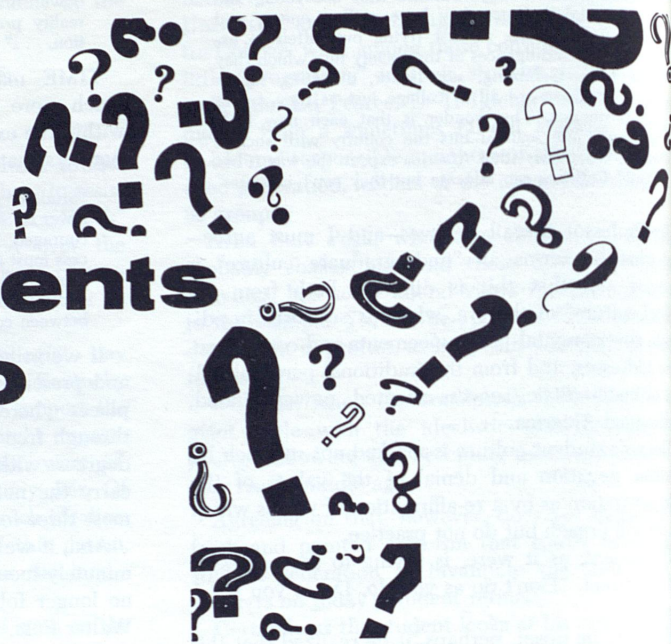
The poet then explained how this crooked trail, simply because it was there, was taken by a dog, then a sheep, until a path was made; the path became a road, a village street, and finally a city thoroughfare. He continued:

"And o'er this crooked journey went
The traffic of a continent.
A hundred thousand men were led
By one calf near three centuries dead.
They followed still his crooked way,
And lost one hundred years a day;
For thus such reverence is lent
To well-established precedent."

Let us, then, not dismiss the criticism of the young with the thought that soon they will be the old, settled into well-established ways. Let us, instead, continue to look through the student retina in the hope that thus we can discover a more direct path by which man can improve his lot as he traverses life.

WHY

Do Students Come to UK



Why do students choose to attend the University of Kentucky? A recent survey reveals most come for the courses offered and the University's recognized academic prestige.

This was the conclusion of a study by the UK admissions office. The survey sought to determine factors influencing students to choose a particular college or university—specifically UK—for the purpose of revising University public relations materials.

"The number one reason a student in the upper part of his high school graduating class (a grade average of at least 3.0 or B) makes a particular college choice is to enroll in his desired curriculum," Ray Fore, research assistant, reports.

Second on the list is financial consideration. Third in importance to students choosing a college is the prestige of the school, Fore continues.

"The results indicate that the image of UK as pro-

jected to the perspective student is an academic one," Fore found.

The UK entering freshmen indicated they had a "long time desire" to attend the University. Among those who most influenced their choice in schools were first, parents. Then came UK publications and close friends. Lesser influences were teachers and counselors.

Fore concludes that materials which stress the reputation of the athletic teams will not attract the better student. "It is evident that UK has an obligation to prospective students to not only emphasize academic excellence, but to project a more lucid image of academic offerings and requirements."

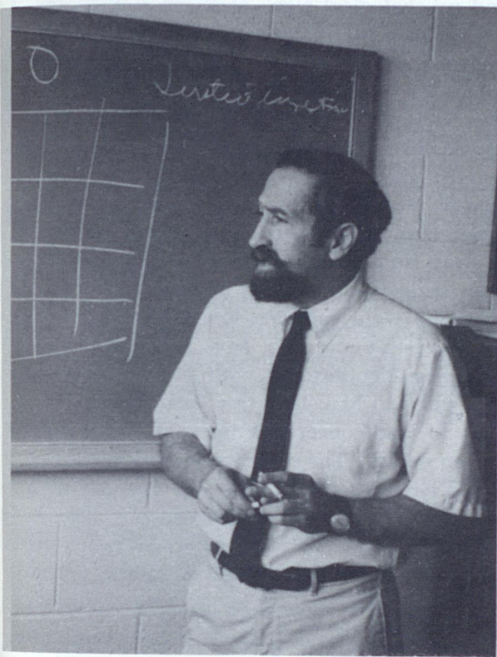
Fore's study was based on answers from 400 students accepted by UK for the fall 1967 semester—half of them chose UK. The students all had at least a 3.0 standing (on a 4.0 scale). The average standing of the group was 3.47 with a mean American College Test (ACT) score of 24.5 with a range of .3 through 31.

Presently a Professor of Psychology, Dr. Lerner received his Ph.D. in Psychology from the University of Kentucky since 1961. He holds a Bachelor of Arts degree from the University of Kentucky and a Master of Arts degree from the University of Kentucky. Dr. Lerner was awarded the title of Professor at the University of Kentucky in 1967. His area of Social Psychology is in the field of the Sage Resident in the field of Social Psychology and following this he completed his doctoral study in Clinical Psychology while also serving as an Assistant Director of the Alto Veterans Administration Hospital. Dr. Lerner served as a consultant to the New York State Commission on the Office of Mental Health, the Department of Labor, Dr. Lerner is a member of the American Psychological Association, the American Psychological Association International Relations Association). Numerous articles on mental patients, problems of observation, and other observations. With his wife and two children, he has a year's leave of absence from the Graduate Department of Psychology, State University of New York.

WHY

Are People Sometimes Unjust

By M. J. Lerner



A few years ago, a murder took place on the street of a residential area bordering a large city. At least 38 people watched from their windows as a man assaulted and stabbed to death a young woman—Catherine Genovese. Although this public horror lasted approximately 30 minutes, not one of the observers tried to help the woman. Their failure to attempt to fight off her attacker perhaps may be explained by the natural fear of being stabbed or murdered themselves. But how can one explain the fact that not one of these citizens telephoned the police? Subsequent interviews revealed that one of the main reasons for their failure to perform even that simple act of concern was “*I didn't want to get involved.*” It seems that this reaction must be a reflection of a cold, cynical view of life and of one's fellow man.

Since this now famous case, many others have received widespread publicity. Each is accompanied by considerable public speculation as to what is becoming of us as a people. Privately, at least, most of us are convinced we would behave differently. We would try to help the poor victim in some way. But what if one stops and thinks for a moment about the many not so dramatically visible victims we all tolerate in our midst? All of us know that the lives of great numbers of people in our country are filled with suffering—pain, emotional anguish, deprivation of the body and spirit. Many people are born into, or live under, conditions of devastating poverty. Many others spend the greater part of their lives in mental hospitals with budgets barely adequate to provide minimal care, let alone the kind of treatment which could give them back their lives. And many children spend their most vulnerable and formative years in overcrowded and potentially crippling institutions.

The question which plagues the concerned observer is why do we allow such suffering to continue? As a nation, we have the money and technology virtually to eliminate poverty and to provide the kind of professional facilities and services which would alter dramatically the life chances of the parentless child or the emotionally ill person. Yet we allow this suffering and deprivation to exist and continue while pursuing

Presently a Professor in the departments of Behavioral Science and Psychology, Dr. Lerner has been on the faculty of the University of Kentucky since 1961. A native of Lorain, Ohio, he received his Bachelor of Arts degree from Ohio State University in 1952 and his Master of Arts degree from the same institution the following year. In 1957, Dr. Lerner was awarded the degree of Doctor of Philosophy from New York University and he then moved to California for further training in his area of Social Psychology. From 1957 until 1959, he was a Russell Sage Resident in the Department of Psychology at Stanford University and following this he remained at Stanford first for a year of post doctoral study in Clinical Psychology and then as a Lecturer for a year while also serving as a Research and Service Psychologist at the Palo Alto Veterans Administration Hospital.

Dr. Lerner served as the Project Analyst and Field Director for the New York State Commission Against Discrimination. He has been a consultant to the Veterans Administration Hospital in Lexington and also to the Office of Manpower, Automation, & Training of the U.S. Department of Labor. Dr. Lerner is a member of the American Psychological Association, the American Sociological Association, and The Committee on International Relations (Division 9, of the American Psychological Association).

Numerous articles in psychological journals have been authored by Dr. Lerner, especially within the areas of the treatment of long-term mental patients, problems of lower class Negro and white youth, and reactions of observers to “innocent” victims.

With his wife and two children, Dr. Lerner recently returned from a year's leave of absence during which he was a Visiting Professor in the Graduate Department of Psychology and the Research Center for Human Relations of New York University.

a multiplicity of comparatively frivolous, self-interested, and often quite expensive goals—our television sets, elegant cars, special clothes for special occasions, liquor, etc. We seem not to care enough or possibly we do not care at all. We are apparently callous, indifferent, and cynical about the suffering of others.

One of the explanations that has been offered for these traits points to the traditions coming out of our history as a land of frontiers. The early development of our country is, in the main, a story of pioneers, rugged individualists who struggled to carve out a life for themselves and their families in a difficult and often dangerous environment. In order to survive in this kind of world, a man learned to depend upon and put his trust in only himself and his family. This pattern of individualism persists as a traditional theme in our contemporary life. Now, as in the days of the frontier, each man makes his own way and takes care of his own. The other man's suffering is probably a result of his own failures. In any case, help offered to him deprives me of what I earned and what I will need to take care of my family in the future.

The second kind of explanation looks to our more recent history. The relatively rapid development of our industrial economy brought with it a migration of people from stable rural communities to the cities where they live as strangers among people who are strangers to one another. This leads to a sense of having no roots—of belonging to no place, group, or tradition—and to a sense of isolation—of being essentially alone in an indifferent world. When one adds the constant exposure to reports of organized crime, acts of violence, corrupt public officials, then it is easy for these feelings of isolation and alienation to turn to more extreme reactions of "cynicism" or feelings of "anomie"—that one lives in a kind of human jungle where no one can or should be trusted. A natural solution to these problems is to pull in one's emotional ties and concerns to the immediate family. A man comes to believe that the important thing is to learn the techniques of getting along with "them" out there so that he can make his own way for himself and his family and get some pleasure out of life.

These explanations fit well-established facts about our history and changes in our society. On the other hand, is it possible that the original diagnosis is incorrect? While one cannot really argue about the fact of our tolerance of widespread suffering and deprivation, does this necessarily indicate that we are callous, indifferent or cynical? Fortunately there is a great deal of evidence coming out of recent research that

indicates an opposite conclusion about our character. Our behavior does not reflect directly what is going on inside of us. Let us look first at the attribute of indifference or callousness in our reactions to the suffering of other people. Recently a psychologist at Rockefeller University had a number of people view a film of an African boy undergoing some painful surgery as part of his tribal initiation rite. Virtually all of the observers of this film exhibited strong physiological and psychological signs of stress at the sight of the boy's suffering. It was an extremely upsetting experience for these observers. Why should it have been? The observers were not selected because they were known to be especially sensitive. They were just people, like those who had witnessed the Genovese murder. In fact, it is probable that some of the observers were from the same general community in which that murder had taken place. One thing which is clear from this study and similar ones that have been done in other parts of the country is that the observers were suffering along with the boy in the film. And this could not have happened had they not felt some identification with the boy and what was happening to him. Isn't this what is meant by "sensitivity to" and concern for the suffering of one's fellow human beings? The evidence indicates that most of us would have reacted in the same manner. We are not callous or indifferent, whatever our behavior may indicate. On the contrary, we are extremely open and vulnerable to feeling the pain of another person.

If this is true, how then can one explain the often cruel or cold behavior we show toward victims? One part of the answer to this question has been known for some time by those who study the problems of rehabilitating the physically and mentally handicapped. They describe how a healthy person who is confronted with a cripple may become so overwhelmed by his own suffering with the victim that he is forced to run away. His strong identification with the victim makes him unable to help and, in fact, makes it emotionally intolerable for him even to be around the victim. If the healthy person has a strong moral commitment to helping people in need, then a further reaction may occur. The healthy person who is forced to avoid the victim because of his own inability to tolerate the suffering will feel guilty for having done this. This guilt leads him to justify his failure to help. This may mean persuading himself that the victim is a hopeless case and help would have made no difference, or that the victim, because of some inherent failing or defect in his personality, does not deserve help or compassion, or that the victim's suffering is an inevitable, if not desirable, product of the laws of nature or God.

The ironic and tragic aspect of this process is that the outcome for the victim is rejection or condemnation, while underlying this cruel act is not callous indifference, but its opposite—a strong identification with and moral commitment to helping one's fellow man. The same tragic theme of indifferent or cruel treatment of victims growing out of essentially humane and decent traits appears again and again in the study of what happens when people become aware of another person's suffering.

Another process, which has greater application in our daily life, centers around our concern with justice. Most people care deeply about justice for themselves and others—not necessarily justice in the legal sense, but more basic notions of justice. We want to believe we live in a world where people get what they deserve or, rather, deserve what they get. We want to believe that good things happen to good people and serious suffering comes only to bad people. In the same vein, we want to believe that people who work hard will get what they deserve, what they have earned and worked for. We like to think that people who fail or are deprived came to their fate because of their inability or unwillingness to do what was necessary to achieve their goals or avoid suffering.

Unfortunately, we are confronted, regularly, with incidents which seem to contradict this belief. We learn of an innocent child killed or brutalized or of a man whose fruits of a lifetime of hard work are wiped out by an illness, a flood, the closing down of a mine, the act of a criminal. Each such incident may be frightening and often sickening. We do not want to believe that these things can happen, but they do. At least we do not want to believe they can happen to people like ourselves—good, decent people. If these things can happen, what is the use of struggling, planning, and working to build a secure future for one's self and family? No matter how strongly our belief in an essentially just world is threatened, most of us must maintain it in order to continue facing the irritations and struggles of daily life. This is a belief we cannot afford to give up if we are to continue to function.

To be sure there are many of us who view such events from a religious perspective. These perspectives can vary greatly in the interpretation of human suffering, from considering it a divine privilege or test of faith, to a clear sign that the victim is being punished for having committed a sin. However, whether the suffering is viewed as a blessing or a punishment, it is seen as deserved or as having its own intrinsic or later rewards. In essence, from the religious per-

spective the fate of man follows a divine law and order. But what of those of us whose sense of religious faith is not so inclusive, and does not encompass all such human suffering? How do we maintain the belief in a just world when we become aware of apparently undeserved suffering?

One reaction is to try to convince ourselves that the victim did deserve or earn his suffering, after all. We try to believe that he did something stupid, foolish, inept, or that he failed to do what was necessary to avoid the suffering. An illustration of this reaction can be found in a study where people learned about an accident that had been "caused" when a rusted brake-cable snapped and a car rolled down a hill. The descriptions these observers were given of the circumstances surrounding the accident were identical. However, some of them learned that the accident had serious consequences—great damage and suffering. Others were told that there was relatively little damage done. The important finding here was that the observers reacted quite differently to the owner of the car, depending upon what they were led to believe about the outcome of the accident. The more serious the outcome, the more blame they attached to him and the more irresponsible and careless they considered him. Since there was nothing different about the description of the events leading up to the accident, it is clear that in this, as in other similar studies, the blaming of the owner was caused not by what he had done but by the outcome. The observers wanted to believe that the suffering was caused by his failures and so they invented them.

At other times, however, it is obvious that a victim is clearly not responsible for his fate because of what he did or failed to do. How does the observer come to terms with a victim's suffering when it is caused by another person and the victim is innocent of any wrongdoing? The results of some studies done in various parts of the country confirm the same general pattern. When we observe the suffering of an innocent victim we feel badly—become upset, bothered, angry. The greater the victim's suffering or the more good and worthy a person he is, the greater is our anguish and desire to see justice re-established.

Although this desire for justice can, and often does, lead to responsible acts of compassion and help, there are times when this same motive can lead to quite different reactions. These are most likely to occur if the victim is beyond help or the person inflicting the "undeserved" suffering on the victim is powerful and important to us. For example a well-known psychoanalyst has reported how many German citizens, living under the Nazi regime, reacted to the awareness

of the concentration camps. They were faced with a problem. If the people seized by their police and put in these camps—women and children as well as men—were truly innocent as they appeared to be, then their government was capable of inflicting terrible cruelty. This conclusion was too frightening for most people to accept—in spite of what they saw directly. They wanted to believe they lived in a world governed by law and order. What they did as a way of maintaining their own feelings of security, if not their sanity, was to persuade themselves that those who were sent to the concentration camps really deserved their fate—they were criminals of some kind and the government was acting to protect all the good German people from this criminal element. The average German citizen could then continue to go about his daily life with the secure belief that his government was just and good.

These same reactions have been found in a series of carefully controlled studies. A number of people watch the same scene—an important person inflicting suffering on a victim. Some of them are given the opportunity to help the victim and they do. Others are prevented from helping and they believe the victim will continue to suffer. Consequently they tend to reject the victim, they view him as an undesirable, bad person. The greater the victim's unjust suffering the more extreme is the condemnation. All of the observers have viewed the same injustice, the same victim. These observers are not citizens of Nazi Germany but people who live and grew up in various parts of our own country, people like us who want to believe they live in a just world. The important point here is that this desire leads, in some circumstances, to help for the victim, and in others to rejection of him.

There are other situations in which our concern with justice can lead to a similar condemnation of a victim. For example, if we feel responsible, even most indirectly, for a victim's fate, we may reject him to reduce our own sense of guilt. The kind of guilt engendered by a feeling of indirect or unintentional responsibility for another's suffering can be illustrated by a common-place example—the kind of "accidental" harm most of us have done from time to time. At a dinner party while talking to the person on our right, we accidentally bump a glass on the table which spills in the lap of the woman sitting on our other side. Clearly we didn't mean to do it. Everyone realizes that this kind of accident can happen to anyone. And yet we feel a sense of guilt. We try to make it right but if we cannot erase the embarrassment or damage, or if the victim does not relieve us of guilt by the assurance that "no harm was done" what do we

do with our guilt feeling? One reaction is to convince ourselves that the woman was, if not at fault, a kind of undesirable person after all. It is not so bad if we cause her some harm.

It is possible to extend this kind of example to the way many of us react when confronted by the charge of our indirect responsibility for the suffering of minority groups. We are told we are racists; that somehow by our unintended acts or failures to act in the past, we have caused the misery and suffering of innocent women and children. To be sure, many of us react with outraged indignation at such baseless charges. For others of us one of the dangers of this kind of accusation is not that it is easy for us to dismiss it as groundless, but on the contrary, that it may be convincing. If I have "caused" this kind of suffering, and I am unable to correct it, then I am a bad person unless I convince myself that these victims deserved their suffering, that they were and are bad, dangerous people. The irony in this example approaches the tragic. The accusations leveled against us arise, at least in part, from the victim's sense of injustice. Our indignation is based on a sense of justice. Our rejection of the victim comes from guilt aroused by these accusations. But where does this guilt come from? If we too did not believe strongly and deeply that good people should not suffer and that we should help innocent victims, then there would be no guilt and no need to condemn and reject the victims.

To summarize, the main point of this discussion has been an attempt to correct an error in the light of what we have known and are learning about people. The error was an easy one to make. It seemed to fit the facts. We do tolerate widespread suffering in our midst. We often condemn and blame our victims. If one then looks at our behavior in the light of some historical facts—and what we are often willing to admit about ourselves—a picture emerges of a people who have become relatively estranged from one another, callous, and even cynical.

However, if one looks carefully, an entirely different, virtually opposite, explanation emerges. We are not cynical, callous or indifferent. More likely it is our sensitivity, our tendency to identify with our fellow man, our strong concern for justice, which account for the way we react to victims. Both our acts of compassion and our condemnation of victims can stem from this same source. What we are beginning to learn about, and need to know much more of, are the conditions under which these profoundly human and decent traits will lead to direct expression in human acts rather than to seeming indifference or further cruelty.



WHY
**Computer
Foulups
Occur:
It's the People**

By JACKIE BONDURANT

A computer can't smoke, drink, commit a crime or make love. It can't goof off, lose its temper or lie. But, with human help, it can call you a rat and beat you at chess. And it can become everything from an

aviator testing a plane that has never flown to an artist drawing pictures of buildings that exist only in the mind's eye of the architect.

The mistakes it makes are not its own but those of the people operating it. Its memory is perfect, and it only forgets when so ordered by a human boss. Thus, if you keep getting that magazine subscription bill you paid three months ago someone forgot to tell the computer to forget it.

But, basically, the computer is a labor-saving device—a leap-forward projection of such simple modalities as the typewriter and the adding machine.

And it fits into the scheme of University operations as though it had belonged there from the beginning.

New Factor in Education

Higher education traditionally has been divided into three basic elements—the faculty, the physical plant and the library. Now, however, the computing center is developing into a fourth factor on modern campuses across the nation.

The University Computing Center in McVey Hall on the Lexington campus is a throbbingly active operation. Essentially its 40-odd staff members and its two computers (IBM 1410 and IBM 360 Model 50) perform systems analyses and programming for education, research and administration.

In serving these University areas, for example, the computer compiles information on all students from their parentage, previous school records and current addresses to grades, schedules, fees and health records. University authorities also can record all automobile license and parking permit numbers of cars which regularly are driven on campus. Another key function is keeping track of all University income and expenditures.

M. B. Solomon, acting director of the Center, lists among the services offered to faculty, staff and students: machine operations, programming consulting, project planning consulting, a generalized computer library of programs, keypunching, input and output handling services, magnetic tape loans, program documentation, training sessions and non-credit seminars.

Technical Aspects

On the technical side of the complexed operation, the Center is divided into two major groups (a) Operations and Systems Programming Group, operating the computers, performing keypunching and input-output handling, and maintaining highly complex language translators and control programs which partially operate the computer, and (b) Data Pro-

cessing Group, performing systems analysis and programming services for the administrative offices of the University.

The area of computer-work—perhaps most fascinating—is in teaching and research. The Research and Development Group performs programming, project planning consulting, statistical and mathematical consulting, maintains a generalized library of computer programs and produces documentation for users. These services enable professors and students to use the computer for solving intricate problems in a matter of hours which normally would take years to complete.

The capabilities and potentialities of the computer are common knowledge among laymen. Unlike humans, machines can be instructed to detect and correct errors in their own performance. Furthermore, they can tell men how they made a mistake. With perfect memory, machines can make judgments, based on programmed instructions or through manipulation of new data. Among instructions given computers are those to analyze market portfolios for brokers; compute the best combination of crops and livestock for given farm conditions; design and “fly” under typical and extreme conditions rockets and airplanes before they are built; design, in term of costs and traffic-flow characteristics, the appropriate angles and grades for complex traffic interchanges; keep up-to-date inventory records and print new stock orders as automatically computed rates of sales and inventory status indicate; write TV dramas, music or poetry; translate from one language to another; solve puzzles and play games such as chess and checkers.

With all its accomplishments, however, the computer is only a machine. Man is still needed to feed the raw data, list the instructions and analyze the results. Surprisingly, the only mathematical background one needs to begin studying the computer and its operation is the ability to add one plus one. Many elementary schools across the nation are beginning computer courses for their students. With this simple mathematical step and a knowledge of “computered” programs, the grade schooler or UK professor can open a whole new world of information.

In the 20 years computers have been in existence most of the less complex tasks of the machine have been reduced to a common set of instructions. These instructions, known in the trade as programs, are easily adapted to fit the individual's problem.

Dr. Malcolm Jewell, UK professor of political science finds the computer science center a necessary luxury. Specializing in Kentucky voters, their likes and dislikes, their habits and quirks at the polls, he has

found the computer most useful in printing out roll calls of the state legislature, tabulating on cards the opinions and attitudes of the legislators in six different states he visited last year, and allowing students to conduct, tabulate and analyze opinion polls in a semester's time.

"The computer is an important research and teaching tool," Dr. Jewell says. "Most graduate students in political science take at least one course in computer usage—at least to know what possibilities are available; however, I don't believe it feasible for every political scientist to be an expert programmer."

Economics is one area in which the computer is easily programmed to transform thousands upon thousands of facts (raw data) into meaningful comparisons and general theories. So important has the computer become in economic research that the UK department has hired a specialist to work with two professors on a \$120,000 project.

Dr. F. Ray Marshall, chairman of the department, and Dr. Virgil L. Christian, associate professor of economics, are studying Negro employment problems in 13 Southern states. The two researchers hope to account for the areas where Negroes are or are not employed, project trends in Negro employment, and then to recommend measures that might be taken by various governmental and private organizations to improve Negro employment opportunities. Detailed studies of each of the cities and industries and useful combinations of both categories will be included in the report. The researchers estimate that the entire project will take two years. Without the computer such an undertaking would be impossible.

Vietnam Study

Vietnam also has been the source of raw data for a University professor. Dr. Robert H. Stroup, associate professor of economics, spent two years in the war-torn country collecting facts which would outline the economic picture of rural Vietnam. His survey of the country included supervising a rural-income expenditure survey that covered nearly 3,000 Vietnamese households. Called the "largest, most comprehensive collection of information on the Vietnam countryside in existence," the data consists of levels and sources of income, objects of expenditure, consumption levels, size of families, and educational levels.

A similar study of Kentucky counties is beginning to develop under the guidance of another UK economist, Dr. Niles Hansen. By collecting information on the determinates of income and educational levels in all 120 Kentucky counties, Dr. Hansen

plans to use this basic research in other governmental projects. The Economic Development Administration in Washington is currently studying the ten lowest income counties in the country. In the past, it was thought by supplying these areas with money, the counties would automatically prosper. Time proved this wrong and the governmental agency now has decided to give money only to those areas where there is a potential for growth. It will be Dr. Hansen's job to find these "growth" areas. Of the 10 counties ranked by the officials as the poorest in the nation, four are in Kentucky. The UK professor's research on all Kentucky counties will serve as a comparison or variable for examining the underdeveloped counties.

One factor in the use of the computer which Dr. Hansen feels must be checked constantly is that correlations can be forced into predesigned patterns. Suppose the researcher decided prior to his research that one reason the people of a certain area were underprivileged was because the ground was rocky. However, when he compares these two factors through the computer, it doesn't quite fit—something else is causing this situation. But our researcher is so positive that rocky soil is the cause that he keeps juggling and "playing" with the figures until—sure enough—rocks cause the people to be poor.

We can't control an experiment like physical scientists," Dr. Hansen said. "We may assume that two factors are equal when they are not." Most researchers in this area are aware of the dangers of presolving problems and have checks and cross-checks to verify their findings.

Sociology bridges both the humanities and the sciences. Use of the computer, still relatively new in this field, depends on the orientation of the department. The humanistic sociologist may deal with research problems which involve only the use of a desk calculator, or he may work with the analysis of data involving thousands of people. Dr. C. M. Coughenour, professor of rural sociology, does not find it necessary to be a computer expert. "Computers keep changing and most professors lose touch with the current trends," Dr. Coughenour says. "Primarily, we use computer specialists. A whole new area of 'translators' is available—people who act as intermediaries between the faculty and computer translators."

Dr. Coughenour has found that graduate students in sociology often volunteer to take classwork in this area. "They find it necessary to use the computer for their theses and dissertations, and no one is available to help them." One graduate student is conducting a simulation study on Knox County, Kentucky. With

the help of the computer, the student is attempting to define the process by which information is distributed and accepted by people in a county undergoing the processes of modernization.

"The computer permits us to attack problems involving large masses of data," the professor said. "Many problems which couldn't be considered before because of the time factor in solution we now can do. There are still problems in the use of computer systems. In simulation of social processes the question is not of accuracy but of validity—does this really apply. We can simulate a bridge with much better accuracy than we can the social processes of Knox County."

When approximately 800 students signed for classes in first, second and third year French at UK last year, they not only were involved in learning a new language, but in helping University researchers learn more about effective teaching. Dr. Theodore H. Mueller, professor of French, is researching the types of teaching most effective in training language pronunciation. "Our project this year was a starting point in solving the problem," Dr. Mueller said. "It merely raised more questions which must be examined later." One area of the research deals with an attitude study of the students. What did they like or dislike about the professor, textbook, language laboratory, and other aspects of the class? "Examining the thinking of 800 students on nearly a dozen items would be impossible by an individual," Dr. Mueller said.

The French professor has had no experience with computer-usage or programming. He, like many University professors, works with the Computing Science Center or other researchers on campus who are more informed in the technical aspects of the machine.

Student use of the computer has changed the nature of a college course in many academic areas. One such course in chemical engineering is taught by Dr. Noel E. Moore, assistant professor. By familiarizing students with "canned" programs and explaining how to adapt particular problems to these programs, students are capable of solving problems which normally would take three months.

"Without the computer," Dr. Moore explained, "our problems would be tremendously oversimplified." For example, in the making of antifreeze, various chemical components are combined to make ethylene glycol. However, in combining these elements other undesirable by-products are also produced. The problem is how to set up a reaction so that the most ethylene glycol is made with the least number of by-products. If the students were to work this problem by hand they could compare the ethylene with only one undesirable; however, with the computer, they can work with 15 by-products at one time.

Dr. Moore thinks it unnecessary for a student to study the computer in detail. "The less concerned a student is with the actual workings of the machine, the more time he can spend analyzing the results and understanding their significance."

Within three weeks after the special computer class begins most students master programming and are solving problems.

Engineers and the Computer

An the new engineering curriculum, a student will be required to take the basic computer science course 220. "We tried teaching a computer course within the college and found it to be unsatisfactory," Dr. Moore said. "But this was before the department of computer science was established. Now college officials agree that their students will gain much more knowledge in a course taught by computer specialists."

"All this is not to say that the computer will someday replace the slide rule," Dr. Moore cautioned. "We assume that entering freshmen in engineering already have some knowledge of the slide rule. However, the computer will enable students to work with larger and more realistic problems—more like the 'real world'."

In the beginning years of computer use, some feelings of hostility against the mechanical brain were registered among scholars in the creative arts. A true artist gained his inspirations directly from the Muses. He could recede into a dark cave for a year or more and emerge with a grandiose work of art. The scientist, however, not only had to work in the world with real objects, but he had to prove to the world that his work was correct. The artist had to account to no one for his efforts. The public only demanded that his work be his own.

Today, however, the arts are beginning to realize the value of the computer. Machines can be programmed to trace motifs—music note patterns—through various composers and compositions to determine who originated the pattern and who copied it. The perfect memory of the machine can be trained to "hear" these note patterns where man can only rely on his imperfect ear and memory. Thousands of notes from musical scores can be fed into the computer after being translated into mathematical forms and sorted and rearranged according to the desires of the researcher to find repetitions of motifs, basic patterns and irregularities. Such research is now being conducted in the UK music department.

Michael Kennedy, assistant dean of the UK School of Architecture and assistant professor of architecture, is an engineer rather than an architect. However, because of his vast knowledge in the field

of computer science, his work in the professional school (besides administrative duties) is to help the professors and teach students the many ways an architect can use the computer. In a recent survey conducted by the Association of Collegiate Schools of Architecture (ACSA) Kentucky's architectural school ranked with Pennsylvania State, Harvard, Michigan, and the Massachusetts Institute of Technology in computer usage. The report reads in part:

"The road ahead is not likely to be smooth. As one of the ACSA Research Committee's own members warns: 'It might be a better preparation for more active computer use for a school to begin thinking in terms of ordinary data processing. It is a different kind of thinking to direct the analysis of design projects toward more massive use of data. The premature use of a computer may be similar to some of the operations in Vietnam where 15-foot sampans are clobbered with 20-ton bombs. You might say there is danger of an architectural overkill.'

"On the other hand, to quote the cliché of our times, the medium is the message—and in this case the medium is still in its infancy. As an infant technology, it brings more than a gentle message. Educationally, it is already packing a wallop."

Kennedy is enthusiastic about the "wallop" the computer is delivering at UK. "The architect, like the artist, does not need to prove where or how he designed a building," he explained. "In this sense, architecture is less like a science and more like art. However, in a more practical sense, the architect needs to know such things as how many elevators to put in a 20-story tower designed to accommodate 1,000 people; how much floor space per person should be allowed, and how much natural lighting to provide. The computer can provide answers to these questions in a matter of minutes—once it is fed the proper data."

The Computer as an Artist

Perhaps the most fascinating area of computer usage in architecture is in its graphic capability. Computers at the University are being used to draw pictures of buildings before they are built showing exactly what the eye would see and not see were a person to walk from a point, say 20 feet in front of the object to another point three feet from the object. In a research project for the Kentucky Department of Highways, a UK professor-researcher in architecture is using the computer to draw highway interchanges in areas where highways do not now exist, showing exactly what a driver would see off or over such roadways. This will enable state highway officials to

plan in advance for possible "blind spots" caused by slopes, trees or rock formations and to place traffic signs in the most convenient places.

"One does not realize the true meaning of the adage, 'a picture is worth a thousand words,' until he tries to translate a picture into computer language," Kennedy said. However, he and others like him across the country are making such translations daily.

Students in the school also are learning the advantages of computers through a special course taught by Kennedy. Titled "Computecture" (a word coined by the computer specialist) the course is not intended to make the students experts in the operation of a computer, but merely to introduce them to the many ways a computer can save time in calculations and routine work as well as to portray the architect's ideas in graphic form. "The less preoccupied a student is with the mechanical details of a computer, the more time he has to analyze his findings and create new designs," Kennedy explained.

Suppose an architect wanted to design a building in the shape of four hexagons. He can instruct a computer to enumerate all possible arrangements of four hexagons. Within minutes the number of choices are pictured on paper before him. All he then needs to do is select the best of the lot. This could be done by hand, but the architect might forget one arrangement—perhaps the best one. The computer can not forget.

The study of linguistics, the English language for example, is an area which crosses several academic boundaries. Dr. George P. Faust, a linguist and UK professor of anthropology, is interested in what happens after the verb. "People rarely think about how they form sentences or phrases," Dr. Faust said. "We arbitrarily do or do not put prepositions before complements without consciously realizing why. My job is to define the model or set of standards that are used."

In his examination, Dr. Faust is working with a compiled set of samples of more than 1,000 words. Published on a computer tape by a linguist at Brown University, Dr. W. Nelson Frances, the base material consists of 500 samples, each running approximately 2,000 words. The samples were drawn from press reportage, press editorials, press reviews, fiction, religious writings, popular lore, and other written sources. Dr. Faust used a concordance program for the Corpus. That is, the material was divided into listings of individual words. He currently is working with a number of verbs including "ask." A print-out of all sentences which contain the verb "ask" in the samples has been made by the computer in a matter of minutes.

"The material, entitled "Standard Corpus of Present-Day Edited American English," is not a complete listing of every possible sentence formation," Dr. Faust explained. "However, it will prevent you from overlooking something—one sentence formation will remind you of another."

People constantly are being controlled by other people. When two persons engage in a conversation, for example, one begins to speak and the other automatically stops talking and listens. If one person asks a question, the other will usually answer.

Psychologists such as Dr. John W. Donahoe, UK associate professor of psychology, are not trying to control people but they are attempting to discover exactly how they are controlled. By studying lower animal forms, psychologists can define general theories which will apply to human beings. Dr. Donahoe's research deals with the interaction of classical and instrumental conditioning and the interaction between appetitive or aversive stimuli. Without the computer, such research would be impossible.

"This isn't to say that rats are equal to humans," Dr. Donahoe said. "The main difference between a rat and a human is not that the human acts on principles, but that he acts on additional principles that a rat doesn't have." If the behavior of man is tested with an experiment that involves language, the man will act differently from the rat. If the experiment does not involve language, the rat and the man may often react the same.

Human Behavior in a Machine

It is possible for psychologists to instruct the computer to behave like a human subject. Dr. Donahoe explained that although the machine has perfect memory, it can be instructed to forget at random intervals.

"With the computer, we can reproduce the model behavior of the 'average' human," the UK researcher-scientist said. "The laws we designate for this particular act will be general laws that have relevance for all human beings, although they will be modified by particular individuals." Study of operant conditioning techniques—the various kinds of learning that man undertakes—is the basis of the teaching machines in public schools. Behavior therapy, used with the emotionally ill, has been refined through such research as well as treatment of psychosomatic disorders.

"Currently, we are developing mathematical models of the behavior of animals," Dr. Donahoe continued. "The models, called state-rats, perform via the com-

puter and are compared with the performance of real rats." In order for the machine to behave like a rat the theory must be very explicit. The math involved is so complexed that there is no way to estimate the results by using straight mathematics and hand calculations. Often the researchers must run the state-rat and real rat through a 1,000 test runs in order to estimate an average performance.

Dr. Donahoe would like to see the department establish its own "computing center."

"Often our use of the computer is limited by the fact that we have to leave the experiment and take our data to another building to be programmed and analyzed. We need a computer which can be wired directly to the experiment."

The pros and cons of computer usage have been, and perhaps will be, argued for many years. Most University professors-researchers view the mechanical brain as they would any labor-saving device. As one professor remarked, "People blame the computer for dehumanizing individuals, reducing them to numbers, and stripping them of all individual aspects. I resent this. The computer is, after all, only a machine, and it can dehumanize individuals only as much as society permits."

Arthur L. Samuel, a scientist with the International Business Machines Corporation who invented the program instructing the computer to play checkers, summarizes the moral implications of the thinking machine in the following manner:

Good or Evil

"As to the portents for good or evil which are contained in the use of this truly remarkable machine—most, if not all, of man's inventions are instrumentalities which may be employed by both saints and sinners. One can make a case, as one of my associates has jokingly done, for the thesis that the typewriter is an invention of the devil, since its use in the nation's war offices has made wars more horrible, and because it has enslaved the flower of our young womanhood. On the whole, however, most of us concede that the typewriter, as a labor-saving device, has been a boon, not a curse.

"The digital computer is something more than merely another labor-saving device. It augments man's brain rather than his brawn and it allows him to look into the future. If we believe, as most scientists do, that it is to our advantage to increase the rate at which we can acquire knowledge, then we can hardly do otherwise than assert that the modern digital computer is a modality whose value is overwhelmingly on the side of the good."

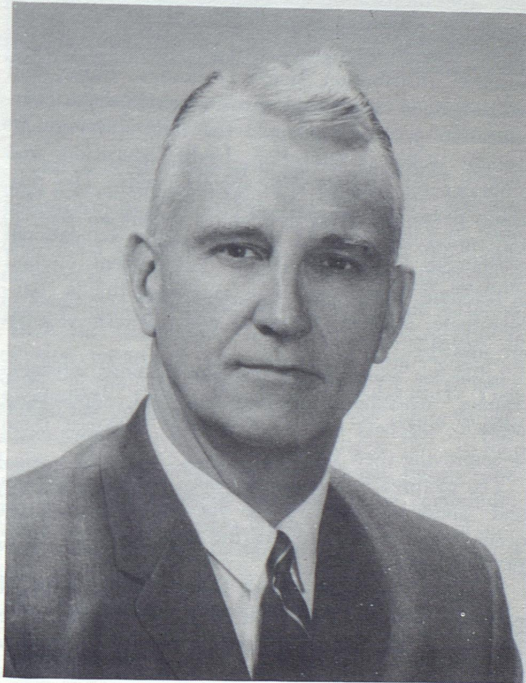
WHY

Vocational Education Aids Kentucky

*By Dr. Harold Binkley
Chairman, Department of Vocational Education
College of Education*

In a vocation, one produces more goods or services than he needs for himself and exchanges the excess for the goods and services produced by others. The economic world is a world of production, price, and exchange—a world of division of labor and of specialization.

Vocational education in this article deals with occupational preparation under the Federal Acts which is provided below the baccalaureate degree level. The first of these Acts was the Smith-Hughes Act of 1917.



Dr. Harold Binkley was graduated with a B.S. from the University's College of Agriculture in 1938 and earned his doctorate in Education at UK in 1956.

He is married to the former Ellen Meade Bruce, Tucson, Arizona. They have four daughters, three of whom have been graduated from the University.

Dr. Binkley has served as county agent and manager of cooperative farms and has been a member of the University staff since 1949. His professional activities outside the state include addresses at state and regional conferences, consultant services and summer teaching in Arizona, North Carolina, North Dakota, Minnesota, Missouri and Utah. He is a Colonel in the U.S. Army Reserve, serving as chief of staff of the 100th Division.

"Vocational education," however, is much more inclusive. Professions are vocations, too. They require extended college training—years of special preparation.

Vocational Education at the University

The functions of vocational education at the University can be divided into teaching, research and service. In actuality, the first two merge with the third to provide an overall service to the Commonwealth.

For purposes of clarity, however, they are here separately detailed.

Teaching at the University has as its primary purpose the preparation of qualified teachers for the vocational program in the high schools, area vocational schools, and community colleges: agriculture, business, distribution, home economics, trades and industry, and vocational guidance. Other teacher-education programs planned for early development include technical education, health education, and programs for persons with special needs. The programs in teacher preparation include both pre-service and in-service courses in philosophy, educational psychology, human growth and development, method in teaching, student teaching, and other things. Baccalaureate, Masters', Specialist and Doctoral degrees are awarded.

In-service education of teachers includes intensive courses, workshops, conferences, and supervisory visits to teachers and administrators to assist them in improving their programs.

The pictures in this article show typical classroom and laboratory exercises of vocational students in occupational training under the direction of a vocational teacher.

Research is a fundamental, integral, and functional part of vocational education at the University. The Kentucky Research Coordinating Unit is located in the Department of Vocational Education. The Research Coordinating Unit (RCU) provides a program of research and development to improve the quality of the programs and to chart new programs of vocational education. The activities of the RCU are statewide and involve other universities and colleges, public and non-profit agencies and institutions, the State Board of Education, local educational agencies interested in research and training programs and related educational programs designed to meet the vocational education needs of youth and adults below the baccalaureate level. The staff of the RCU renders consultative service and guidance to individuals and agencies in their research, developmental and pilot proposals in vocational education.



Student nurses study a patient's record—part of their training to become practical nurses.

Service: The service program of vocational education at the University is significant. The major aspect is preparing instructional materials for use in the high schools and area vocational schools of the state—with some 1,500 teachers. The Instructional Materials Laboratory has a staff of seven professional people, an artist technician, and two secretaries. This staff prepares instructional units with supporting visual aids for teachers of agriculture, business, distribution, health, home economics and trades and industry. The staff members work closely with the teachers in their service area to determine the needs for instructional units, for up-to-date technical information and for the aids needed to enrich the instruction. In particular, the staff works with new teachers on how to use instructional units in their teaching. Vocational teachers must be provided good and timely assistance in developing courses of study where content is rapidly changing and becomes increasingly complex.

Other service activities include the follow-up of first-year teachers to help them become established in teaching and to render consultative services to teachers and school administrators concerning the need for programs. Classroom and shop design, facilities and equipment required for good vocational programs and instructional references and aids needed also are involved in this consultative program.

All vocational education at the University is located in one department, in the College of Education. This is unique—one of the few such organizations in the nation. In many states, the various programs in vocational education are fragmented among several colleges, such as agricultural education in the College

of Agriculture, business education in the College of Business Administration, and home economics education in the School of Home Economics.

General Education and Vocational Education

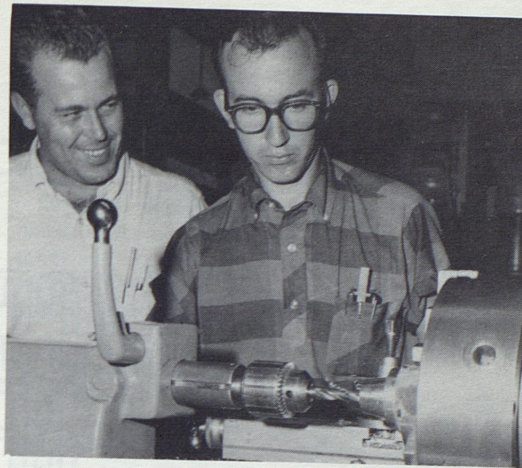
General education and vocational education are phases of a single educational process to promote full realization of the potentialities of each person. There is, however, a distinction between general education and vocational education, and it should be clearly understood by those responsible for educational programs. Each supplements and complements the other.

It is largely in purpose that general education and vocational education are different. General education is needed by *all* persons. It is *general* in the sense that it is the education common to all. The term general education should be used to include all the education which is not specifically directed toward educating for employment and which applies alike to all persons regardless of the occupation they will follow. The "problems of vocations" are not common to all; they differ from one vocation to another. In providing for the total education of an individual, vocational education can be most effective only when the necessary foundation and support from general education are provided. The guiding purpose of vocational education is to develop the competencies needed to enter and advance in a vocation.

The Need for Vocational Education in Kentucky

The time is upon us when two out of three maturing youth will be high school graduates. But a high school education does not necessarily provide one with vocational competence—a marketable skill. A large part of the graduates, perhaps half of them, may become unemployed, underemployed, or be delayed in employment because they have no marketable skills—not because they are incapable of acquiring the skills.

How many people in Kentucky should be served by vocational education? Here are a few figures: In June, 1967, there were 40,850 students graduating from high school. Of this number 18,196 entered college, and 3,528 entered vocational schools—a total of 21,724 seeking additional education. Thus, 19,126 graduates did not seek further training. Add to this the number who will not complete college (9,000 or so) and the number of students who dropped out of high school over the four years (13,284). This gives us 41,410 students, at an average age of 18, who are dropouts and high-school graduates not enrolled in college or a vocational school. For ages 18 to 23 (five years) the number exceeds 207,000 young people, most of whom could profit a great deal from vocational education.

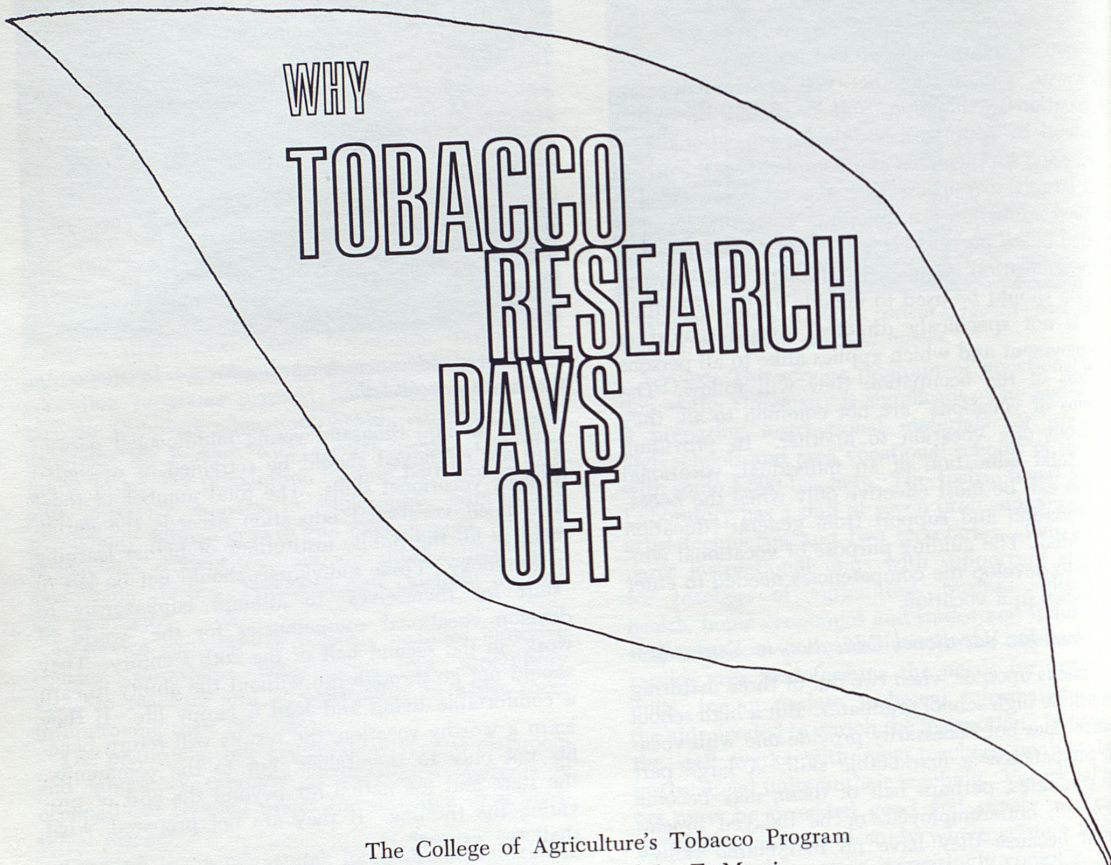


Industrial education teacher supervises a student in the use of a metal lathe.

Also, several thousand young middle-aged persons who are employed should be retrained or upgraded in their vocational skills. The total number of those who need vocational education exceeds the enrollment in all the public institutions of higher learning in Kentucky. These individuals should not be left to "shift for themselves"—to attempt haphazardly to develop vocational competencies for the "world of work" in the second half of the 20th Century. They should not go through life without the ability to earn a comfortable living and lead a happy life. If they learn a worthy vocation, the results will return benefits not only to themselves, but to the community, the state and the nation far beyond the cost of providing the training. If they are not prepared, what shall we expect?

Scope and Programmed Expansion

In the school year 1967-68, there were 101,609 students enrolled in the vocational programs in the high schools and vocational schools of Kentucky. The instruction was provided by 1,700 teachers. In 1973 or before, the State will need at least 2,300 teachers to handle an enrollment of 151,000 students to meet the needs of these groups: 1) students in high school who desire vocational training, 2) youths out of school who can engage in full time study, 3) the socio-economic handicapped who should have special programs to meet their needs, and 4) the employed who desire retraining to upgrade themselves in their skills. Seeking to meet the obvious instructional requirements, the several universities in Kentucky share in the preparation programs for teachers in many of the vocational areas.



The College of Agriculture's Tobacco Program
By J. H. Smiley and Ira E. Massie

It was the winter of 1885. The Brooklyn Bridge had been built two years earlier, Edison was perfecting the forerunner to the radio tube, and the Kentucky Agricultural Experiment Station had published its first research bulletin—a study into the value of fertilizing burley tobacco.

Luke Wadlington, a central Kentucky burley producer, hadn't heard of the bulletin. As a matter of fact, he hadn't heard of the Agricultural Experiment Station.

He did know, however, that his crop hadn't put on much body this year, and he'd be lucky to get 400 pounds from his entire acre.

As his mules jerked the wagon of tobacco toward the Louisville market, he mentally calculated his in-

come: 400 pounds at somewhere around 18 cents a pound or about \$72 for 500 hours of labor.

Now while 14 cents an hour wasn't a bad return on labor and investment in 1885, Luke was thinking how much money he would've made if the root rot hadn't wiped out about 200 plants in a low spot by the creek.

Of course, it didn't make too much difference, for Luke wouldn't replant that field anyway. He and his neighbors believed that every tobacco crop had to be set in virgin soil, and Luke was already planning to clear another little branch bottom for next year's crop, unaware that the root rot organism would be there too, awaiting a new host.

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If it were possible for Luke, our fictitious burley producer, to have a great-grandson growing tobacco on that same acre of land today, that descendant could expect a yield of three to 4,000 pounds at a price of about 73 cents a pound.

What's the great-grandson's secret? That first research bulletin and hundreds of others following it, along with the Extension and Regulatory work in the College of Agriculture has had much to do with increased production. In fact, the College has made major contributions to the approximate \$260 million annual income from burley, plus an additional \$15 million from dark tobacco. Without the endeavors of the College staff, 500-pound yields would still be the rule.

Five departments in the College of Agriculture are engaged in tobacco research and Extension work: Agronomy, Plant Pathology, Entomology, Agricultural Engineering, and Agricultural Economics. Two other departments, Regulatory Services and Public Information, offer support and service to both the Extension and research function of the College.

EXTENSION

Let's first take a look at the Extension function of the College's tobacco program. State Extension specialists, act as a liaison for the Extension field staff, the producer, researcher, and the tobacco industry.

The state specialists interpret the findings of the research staff working on tobacco and pass this information on to the people who need it. The state specialists'



An important role of the Extension Tobacco Specialist is disseminating current research and recommended cultural practices to the producers. Here Ira Massie gives—"Tobacco Talk," weekly television show.)

greatest responsibility is developing educational programs, based on current research, for use by the 16 area extension tobacco specialists located throughout the Commonwealth. Thus, through publications, radio and TV programs, visual aids, and field days and demonstrations, the producer can be as up-to-date on recommended practices as the scientist himself.

Extension actually takes the Agricultural Experiment Station to the people, and in so doing, Kentucky burley producers are enjoying (1) higher yielding tobacco varieties, (2) disease resistant varieties, (3) improved fertilizer practices, (4) better general crop management, (5) chemical control on weeds and insects, and (6) better curing facilities and practices.

Another important function of the state tobacco specialist is his ability to register and relay to the entire tobacco industry the needs of individual segments of the industry. If producers encounter a new problem for which no known cure exists, Extension specialists relay this need to the scientists. If the scientists determine a special formula of fertilizer, for example, is required, Extension specialists work with commercial firms so that the product is made available to farmers. If tobacco buyers' preference for leaf qualities change, Extension works with plant breeders and growers to insure a continued market and good prices for the product.

RESEARCH

The tobacco research program in the College of Agriculture, indeed, reaches from seed to smoke. Tobacco geneticists in Agronomy, plant pathologists and entomologists strive to give the grower varieties that have the greatest potential for producing a crop useful to the tobacco industry.

A desirable tobacco variety must be one that the farmer can grow and the manufacturer will buy. For the farmer to grow it, it must do well in the environmental conditions common to Kentucky and have disease and, if possible, some insect resistance. The manufacturer desires a cured leaf of certain weight, texture, color, and chemical composition. The tobacco breeders, thus, are involved in a continuing contest to develop varieties to meet the needs of all concerned.

Tobacco falls victim to at least eight diseases, and the best control, of course, is preventive measures—or built-in resistance. Through the work of the geneticists and pathologists, the natural protection often found in wild tobacco species is transferred to the economically important plant. The Department of Agronomy collects cousins in the tobacco family from around the



Wild tobacco species from around the world are grown on the Experiment Station farm, and tested for disease and insect resistance. Dr. Glenn Collins, plant geneticist, inspects a sapling-like wild tobacco species from Palestine.

world. Scientists then test these tobacco relatives—some resembling vines, others bushes or even saplings—for resistance to burley diseases. When such resistance is found, a breeding program is initiated to transfer this immunity to a new variety. For the past ten years, all new varieties released have had resistance to at least two or more diseases.

Entomologists also work along with the plant breeders to develop insect-resistant plants. The wild *Nicotiana* species, for instance, secretes an alkaloid through its tiny leaf hairs that is toxic to aphids. Research on resistance to other major insects such as tobacco budworms and hornworms is underway. If this sort of resistance can be introduced into the commercially grown plant, the producer will save the cost of chemical sprays, the labor in applying the insecticides, and, at the same time, reduce residues on the marketed product.

Entomologists, of course, work constantly on other measures to control insects in the tobacco plant bed and in the field. They determine the effectiveness of insecticides, the rates of application, and the stage in the insect's life cycle most susceptible to the material. Non-chemical methods are also under investigation, such as tiny metal "scarecrows" (silver aluminum strips) to drive the pests away. Even "special treats" are being tried; rows of plants, especially liked by the insects, are set in the tobacco field in an effort to divert the pests attention from the crop the farmer plans to harvest.

A level teaspoon will hold approximately 45,000 tobacco seeds, each seed, if properly cultured, will produce about a seven-foot plant. Understanding just what occurs during the growth and development of the plant is an important part of the tobacco research program. In this phase of the research, Department of Agronomy physiologists study the movement of fertilizer nutrients into the plant. Some varieties of tobacco, for example, are unable to accumulate sufficient potassium for normal growth even though a plentiful supply is available in the soil. We have found that one tobacco variety (Ky 10) will show potassium deficiency symptoms before other varieties do even when grown on the same soil. With more basic information on nutrient movement, varieties unable to accept and use plant food efficiently will not be released to the grower.

Many field trials are conducted by the Department of Agronomy Extension staff where different rates of nitrogen fertilizer, spacing or plant populations, and irrigation practices are studied. These tests are important from the grower's point of view because he needs to know what happens to the yield, quality, and value of his tobacco when he uses a certain level of fertilizer, changes the row spacing, uses irrigation, decides to top (cut out the flower stalk to arrest upward growth and add body to the lower leaves), and harvest the crop at different stages of maturity.

Sucker control is another cultural practice under investigation. Suckers, plant growth originating between the stalk and main leaves, rob the plant of nutrients, damage the money leaves, and require considerable labor to remove. Chemicals to reduce or eliminate this unwanted growth, therefore, are an important facet of the total research program. One group of chemicals presently under study, came to light when it was found that using oil squeezed from tobacco seeds and then sprayed onto the tobacco plants suppresses sucker growth. Since the tobacco seed oil was found to be high in fatty acid content, College of Agronomy scientists are studying fatty acids from other sources as a possible control measure for sucker growth.

"The UK Cooperative Extension Service recommends that you close your barn today and open it tonight." Cryptic messages of this sort, broadcast on radio and television during the late summer and early fall, probably remain mysteries to the city dwellers. But it is vital information to the burley producer who is "curing out" his crop. The weather plays a major role in preparing tobacco for market, and as temperature, humidity, and curing stages of the leaf change, the farmer must adjust his barn to insure proper curing. The message, cited earlier, would indicate that

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weather and that the tobacco was curing too rapidly. Closing the barn would trap moisture to slow down the curing process.

Climatologists in the College of Agriculture work together with the Extension Tobacco Specialists in gathering weather data and making curing forecasts and recommendations. This information is then sent by teletype equipment located in the Agricultural Experiment Station to mass media outlets throughout the Commonwealth.

A complete weather station located on the Experiment Station farm near the UK main campus is a vital tool not only in curing forecasts, but in supplying scientists with data such as soil moisture and soil temperature. These factors, of course, must be known, for they have bearing on seed germination, nutrient utilization, pesticide effectiveness, and a host of other considerations.

Research into the curing process is yet another phase of the tobacco program in the College of Agriculture. Scientists in the Department of Agronomy are studying the physiology and biochemistry of tobacco during air curing. Although a freshly harvested tobacco plant is no longer growing, the plant still possess the capability of carrying on almost all the processes of the living plant. During the curing period, changes in chemical composition occur. Such chemical changes do not occur haphazardly but are controlled and directed by proteins called enzymes, present in the plant when it was harvested. These enzymes break down certain compounds and synthesize others. As the leaves dry some enzymes are soon rendered inactive while others remain active for a time. Since temperature and humidity affect both the rate of the enzyme-controlled chemical reaction and the rate of enzyme destruction, producers must exert some control over these factors to produce high quality tobacco. These chemical reactions and the enzymes which control them are being investigated to determine which reactions are most important, which enzymes become inactive soon, which enzymes persist for long periods, and how these changes can be modified. The possibility of modifying chemical composition by modifying the curing procedure or speeding up the curing process depends a great deal on this research.

The Department of Agricultural Engineering is directing much of its effort toward mechanization to improve the tobacco cropping efficiency. In other words, the engineers are attempting to reduce the amount of manual labor required to produce a crop of tobacco. In some cases, the number of man-hours may not necessarily be reduced, but hopefully, the work will be made easier.



Agricultural engineers are developing a tobacco harvester in an effort to speed up harvesting and reduce the labor involved.

Much research is being conducted toward developing a stalk harvester which requires only one trip through the field. A working model, while still experimental, has been built and used by the engineers. Considerable progress also has been made on an experimental system called "pallet handling" to reduce the labor required to place tobacco in the barn. The old system of hanging tobacco, one stick at a time, may soon be replaced with open frames loaded with sticks full of tobacco. These loaded frames are moved to the barn where a fork-lift tractor stacks the pallets in the barn, thus reducing the amount of labor needed in hauling and housing the crop.

New curing barn designs and air curing systems are under investigation by the engineers. This research is directed toward using the conventional tobacco barn but installing forced air systems in the barn to assist nature in the air curing of tobacco.

The Department of Agricultural Economics is involved in many activities which affect the tobacco research program and the farmers. They are conducting research in the areas of marketing, pricing, production, and farm management.

For example, research is being done on the alternatives of different directions for the development of the tobacco control program. Economists are investigating the alternative programs so that if changes are needed, the type of program that would be the best for the Commonwealth, the farm people, and the tobacco industry as a whole could be initiated.

Others are studying the value of farm allotments in the different areas of the state. This research could be most helpful to the farmer. For instance, if a farmer were to sell an allotment, what would it be worth in his area of the state? If the farm is sold, what is the value of the tobacco allotment?

As mentioned earlier, Regulatory Services and Public Information contribute to the total tobacco program.

Regulatory Service chemists and inspectors analyze fertilizers and pesticides for manufacturers' guaranteed content. Soil scientists perform tests on soil sent in by the farmer to determine his fertilizer needs, and inspectors check the certification and accuracy of seed sold to the farmer.

Public Information assists in preparing information—Extension and research—for distribution throughout the Commonwealth. In the course of the years, hundreds of thousands of newspaper releases, radio programs, publications, and visual aids concerning new production methods and recommendations have been made available to the people of Kentucky.

TOBACCO AND HEALTH

Tobacco and health is not a new topic at all. Earlier observers tended to laud tobacco as a boon to mankind. Physicians and gravediggers during the terrible plague in England in the 17th century always smoked to discourage the dread disease, according to the writings of Daniel Defoe and Samuel Pepys. Cigar ashes, an early hygienist wrote, mingled with camphorated chalk, make an excellent toothpowder.

The tobacco and health question today, of course, is looking at the other side of the issue. The "Smoking and Health" report of the advisory committee to the Surgeon General of the Public Health Service, published in January, 1964, expressed the opinion that the association of smoking and health was serious enough to require remedial action.

The need for further research was recognized by Congress, and the University of Kentucky, realizing the importance of the problem to society and the Commonwealth, in particular, pledged its total resources toward solving the problem. Congressional appropriations of over \$4 million have come to the University for smoking and health research, and the annual operating budget for this work exceeds \$1.5 million.

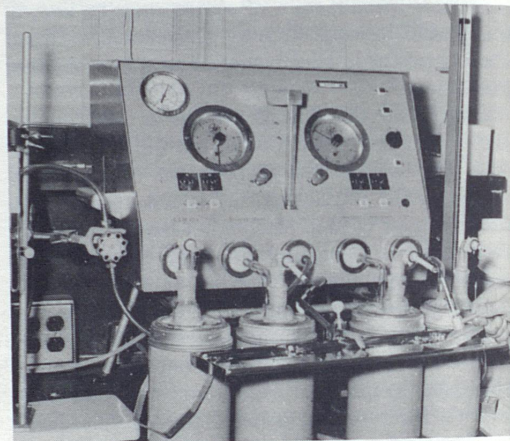
This program involves plant, chemical, and medical research. Thirty scientists representing nine departments in the Colleges of Agriculture, Arts and Sciences, Medicine, and Dentistry are included in the total program.

The objective of the program is to determine the nature and magnitude of the relationship of smoking to health and, should a causal relationship be established, develop ways to identify and eliminate the detrimental compounds.

The College of Agriculture's role in this program is, in many instances, an extension of the work which has been conducted within the College for years. With

this established expertise, plant geneticists, plant physiologists, and soils scientists are continuing to study the use of genetics and cultural practices to control the substances or precursors of substances in tobacco that are believed by some to have biological significance.

A first step in this procedure is to identify and measure the specific constituents in the various cigarette tobaccos. A survey of over 150 types has been completed, and studies have also been concluded on quantitative differences of phenols, sterols, and nitrogenous compounds in these various tobacco types. The influence of environment on tobacco (fertility, moisture, etc.) on the quantities of compounds in the tobacco leaf has been done by agricultural scientists.



Tobacco smoke is a complex mixture, and smoke chemists are attempting to further identify its specific components. Here, a cigarette smoking machine collects smoke for analysis.

In short, can "quality" smoke be built into the tobacco seed? This is essentially the question agricultural scientists are asking. Tobacco smoke is a complex mixture, and the smoke chemists are attempting to develop analytical techniques to further identify specific components. An attempt is being made to relate smoke composition to leaf composition and to control leaf composition by genetic and cultural means. These studies will determine how far plant science can go in the control of smoke composition. The limits of biological control must be studied and identified.

The tobacco program in the College of Agriculture, indeed, encompasses the crop from seed to smoke. As changing conditions dictate new production methods, leaf quality, or marketing practices, the College's research and Extension staff will intercept the problem and work toward solving it.

We express our appreciation to James R. Russell, Chairman of the Department of Public Information, for his assistance in preparing this article. JHS and IEM.

WHY

Is UK Involved in Latin America?

(reprinted by permission from the Courier-Journal & Times Magazine)

By F. W. Woolsey, Magazine Staff Writer

It may have taken a faculty raid or two, but the University of Kentucky has suddenly emerged as a leading center of Spanish-language and Latin American studies and a friend of the Alliance for Progress.

The impact of this quietly dramatic development not only is pumping new energy into old programs linking Kentucky with Latin America but is leading to the creation of new programs as well. And the intensity of Latin American scholarship at UK may eventually influence curriculums at the secondary-school level.

Some of the research data, technical know-how and first-hand knowledge about the lands and peoples of Central and South American has been at UK all along. But some of it is quite new to the Lexington campus.

Part of it was acquired dramatically, as in the case of Dr. John E. Keller, the new director of the Spanish Department. He and a number of others came to UK last fall from the University of North Carolina after what a UK colleague called "one of the largest academic raids that has ever been successfully concluded. It brought most of a very strong Spanish department from Chapel Hill [the University of North Carolina] to Lexington."

With the professors came some 40 of their brightest students, candidates for doctoral degrees. In the future, as these Ph.D.s in Spanish settle into teaching roles around the nation, they may well send promising graduate students to UK.

Dean Keller—he's associate dean of the College of Arts and Sciences—said he expects there will be more than 70 graduate students in Spanish at UK this fall. In academic terms, that's a landslide.

Another newcomer to UK, Dr. Henry F. Dobyns, is an expert on Latin America. He's the new chairman of the Anthropology Department.

His evaluation of UK's strong points in the Hispanic and Latin American realm is based on first-hand knowledge of the kinds of scholarship and technical know-how that have application in either urban or rural settings.

Among the assets, he includes:

The departments of community medicine and public health in the UK Medical Center.

The College of Dentistry, which is developing concepts of community service akin to those in community medicine.

The "very significant concentration of expertise" in the UK Spanish Department which has "one of the largest doctoral programs in this area in the country—if not the largest."

Increasing rapport between the engineering colleges of UK and Central University at Quito, Ecuador.

Furthermore, Dr. Dobyns' anthropology department is rated a major contributor to the emergence of UK in the Latin American field because of his own background and because he brings to UK from Cornell, where he was a professor, a vast amount of unanalyzed Latin American research data—grist for graduate students for some time to come.

There are other strong points. The chairman of UK's sociology department, Dr. Thomas R. Ford, is the author of a text on "Man and Land in Peru" that has been required reading for Peace Corps volunteers going overseas. A professor of French, Keating, headed an educational project in Peru for two years in the early 1960s. Dr. Daniel Reedy of the Spanish depart-

ment is an authority on Peruvian theater. He, too, has had a long period of residence in that country.

Molding all of the universities varied Latin American interests into a program will be the job of Willis Griffin, director of UK's Office for International Education Programs and a member of the College of Education faculty. The university, with the Kentucky Partners of the Alliance for Progress, a private organization of businessmen, educators and civic leaders. The Commonwealth group is partnered with Ecuador under the Alliance for Progress program begun by the State Department in the early 1960's. (Quito, Ecuador's capital, is one of Louisville's two "sister cities.") Other states are paired with other Central and South American nations to foster "people-to-people" aid projects.

The UK's new found role as a center of Latin American studies has radically changed its relation ship to Kentucky Partners. Just two years ago Dr. Griffin had characterized the Partners program as "poorly organized and overcommitted."

"That was early 1966," he recalled recently. "I attended a meeting of Partners in Louisville with the purpose of making a judgment as to whether there was a role in it for the university. . . . I came back with a negative report."



A NON-PROFIT ORGANIZATION IS CREATED. K. P. Vins I, seated, is shown signing the Kentucky Partners of the Alliance of Progress incorporation papers as James C. Zimmerman, Kentucky Chamber of Commerce, left; J. K. Smith, Kentucky RECC, and Lee Thomas, Thomas Industries, Inc., look on. Mr. Zimmerman and Mr. Smith also affixed their signatures to the document. The organization is designed to assist Ecuador in economic and social development.

He said he was nudged by colleagues into a re-evaluation of Kentucky Partners in late 1967 and, as a result, felt much better about the program. He then began to work for UK's involvement in it, he said.

No one is happier about the change than Robert Hensley, a Louisville insurance executive who has been chairman of Partners for the last two years. Hensley decided the time had come for a delegation to Quito, so that leaders in Kentucky Partners could meet their opposite numbers in Ecuador. There have been earlier trips on behalf of Partners, but the group that shortly will conclude a 10-day visit to Ecuador is the largest—and the university has never been so well represented.

Quito, their destination, is the capital city and educational center of Ecuador. It is the site of the campus of Central University, where some members of the faculty have personal and professional acquaintance with UK faculty members.

Spectacular but poverty-ridden, Ecuador's mountains include presumably active volcanoes. These Andean ranges rear majestic and snow-covered peaks above dense equatorial jungle country, where aboriginal Indians shrink the heads of foemen. The major cities are overcrowded. The farms are insufficiently productive. At the base of the economic pyramid are the patient Indian peasants whose life is grim but whose good humor seems boundless.

Although there are exotic differences between Kentucky and Ecuador—like headhunters, volcanoes, and jungles—Ecuador's social and economic problems are very similar to those that trouble many parts of the United States, including Kentucky.

Ecuador has many rural, isolated poor people—mostly among its Indian peasant population. It has in its two biggest cities large numbers of recent arrivals from the country, culturally and educationally remote from urban life. As in the United States, such people are difficult to assimilate into the city population.

The out-migration from Ecuador's farms compares with that from Kentucky's Appalachian counties. Many of these uprooted people return home as soon as they earn a little money. Their contribution to the urban economy is virtually nil.

Ecuador and her Andean neighbors have a problem with medical and hospital facilities common to underdeveloped areas the world over, including much of rural Kentucky; these services are concentrated in metropolitan areas and nonexistent out in the boondocks.

Kentucky Partners in the past has faced these problems completely dependent on volunteer help.



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WILLING AND ABLE INDIVIDUALS help load trucks with heavy transformers donated by the people of Kentucky to the people in Santo Domingo de los Colorados.

One of the most valuable volunteers has been the Kentucky Rural Electric Cooperatives Corporation. In two years it donated electrical equipment, outgrown by Commonwealth power needs but still quite usable, worth \$288,000. Two cooperatives exist in Ecuador that probably wouldn't have materialized without this help.

The Kentucky Hospital Association has contributed diagnostic and treatment equipment and hospital beds. School children have raised funds. The Spanish Club at Waggener High School in Louisville has helped. Individuals have given their skills and others have given money and equipment.

However, the era of material aid may be on its way out and an era of exchange of knowledge, know-how, and technique may be on its way in. At any rate, that seems to be what the extensive participation of UK would indicate.

"We are not interested in maintaining a one-way street," said Dr. Ralph Eichenberger, head of the UK Medical Center's public-health department and a veteran of many years of work in Latin America (and a member of the group visiting Quito). "There can be exchanges of faculty, students, and ideas but not in money and materials because we simply don't have

them to give. What we do have to offer is multidisciplinary team work."

An example of this developing "know-how-exchange" can be seen in the work being done at the UK Medical Center in Lexington. Here the departments of community medicine, dentistry and public health have been working on solutions to problems such as the disparity in medical services between city and countryside and, in translation, some of these solutions are making their way around the world.

Since 1964 there have been 19 UK medical students in Latin America on community-medicine department "clerkships." These are sort of mini-research stints of six weeks' duration. The student is under the immediate supervision of a physician in the area where he works, be it in Bolivia or rural Kentucky.

While Dr. Eichenberger is talking this month with the medical faculty at Central University in Quito and at other medical schools in the country, the dean of the College of Engineering, Dr. David Blythe, will be discussing closer ties with Central University's engineering faculty.

The assistant dean of engineering at Quito was in Kentucky this spring as spokesman for the whole of Central University. He was at the universities of Louisville, Cincinnati and Kentucky in this role, talking about the possibility of cooperative efforts in a variety of scholastic fields.

All this flurry of interest in Latin America must be gratifying to Kentucky Partners. They will have the help of the vast resources of knowledge at the University of Kentucky in accomplishing their aims—and the knowledge that their efforts have gained some recognition.

Dr. Griffin said he understands that Gov. Louie Nunn has agreed to put some public money into Partners, perhaps as much as 50 per cent of the \$25,000 that Hensley believes the organization must have as a yearly budget.

Dr. Griffin has agreed to serve as chairman of Kentucky Partners' education committee. He, in turn, wants to involve people from the state Department of Education and said, "I would hope [by this involvement] there could be an impact made on the secondary-school curriculum in terms of what we teach about Latin America. . . ."

That impact is basic to Dr. Griffin's conviction that "our relations with other countries have got to be put on a much more mutual, reciprocal basis than they have been in the past. . . . We have a lot to learn. We must get off our preaching podium . . . learn to value other points of view."

WHY

Political Action: A Growing Force in the Nation's Politics

EDITOR'S NOTE: The following article appeared originally in the Public Affairs News Digest and is reprinted with permission and with slight revision.

By JOE D. MILLER, '54

Lawmaking is one of the nation's major activities. It keeps Congress busy for most of each year. Fifty state legislatures add more thousands of laws annually. Cities contribute a flood of ordinances to the total. Regulatory agencies crank out regulations in awesome numbers.

At a dime a word (the price once paid a good hack by the pulp magazines) spending for this spat of laws, directives, restrictions, prohibitions and authorizations each year would exceed the gross national product. And, if the wordage could be sold at the pulp rate, the proceeds so realized could retire the national debt.

Far more important is the effect this entire process has on a business, an industry, a profession, a group of people, or the individual taxpaying citizen who must conform to the rulings of the legislative majority.

With stakes so high, it would seem logical to expect breathless attention to all these goings-on from every person of voting age in the United States. But as all of us know, it doesn't work out that way.

Not one person in five is a political activist in the sense that he works for the political party of his choice, supports it financially to the degree that he is able, or turns a hand to the necessary work of helping a candidate win.



The author—former executive director of the Kentucky Tuberculosis Hospital Commission, president of the Kentucky Junior Chamber of commerce and Jaycees national director and chairman—now is executive director of the American Medical Association Political Action Committee.

A paratrooper in World War II, Mr. Miller served with the 17th, 82nd and 1st Allied Airborne Divisions and participated in five major European theatre campaigns. A native of Frankfort, he is married to the former Mary Richardson Kinnaird, '48, of Glasgow. They now reside in Wheaton, Illinois.

Mr. Miller writes:

Mary and I often recall those wonderful days at UK, and more often, reflect on what that experience has meant to each of us in the years that have followed.

Personally, I give maximum credit to the men and women of the University who did so much to create the educational and social foundation which many of us have found so rewarding in our business and professional activities. The work in the classrooms, the campus activities and the total environment of UK life were basic to whatever success I have enjoyed.

Today's pursuit of excellence in every field dictates that the business and professional communities be more demanding than ever before. I have no doubt about the University's ability to continue to meet this growing challenge. The record of the past and present still argues forcefully to those who choose UK as their springboard into an enriched, rewarding future.

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Until recent years, business, industry and the professions did little more than lobby.

Apart from that, they tended to remain aloof from government and politics. Especially politics. For while recognizing that politics is the process from which government evolves, they viewed political activity as properly restricted to the individual and the political parties.

This attitude is changing. Clearly, a loner in politics accomplishes little more than the casting of his single vote, important though that is. Just as clearly, a group of like-minded individuals can multiply their political effectiveness.

Why not work within the party instead? No reason at all, and many individuals do. Certainly both parties display the welcome mat to those willing and able to commit spare time to political work for 12 months a year.

But nothing prevents separate political groups from forming, on the basis of a shared point of view, and then working for a particular candidate as an auxiliary to his party apparatus during a three or four-month campaign. Does this splinter party effort? It shouldn't, if the group accepts a party nominee and conforms to campaign discipline.

As a matter of fact, this approach is far from new. Voluntary committees have been formed to support a particular candidate in a particular election from time immemorial. Just as there were "Citizens for Eisenhower" there were probably "Veterans for U. S. Grant," or a reasonable equivalent. But these were one-shot affairs. Such groups formed when the campaign started and dissolved when the election was over.

The new look in candidate support committees is different. They now function as parts of a permanent organization tied to neither party.

They are candidate oriented, but work for a selected candidate only during his campaign. They then sever the relationship until the next time the office is being contested and may, if they choose, decide at that time to support someone else.

These political hybrids are the political action committees, and they are not only here to stay but constitute a force of growing power.

First of all, just what is political action in the presently accepted use of the term? It is not a belated course in civics; not a formalized study of issues; not a device for developing legislative positions; not an inspirational Chautauqua intended to animate the politically apathetic.

Political action is just what the two words imply: action taken within the political arena with the purpose of affecting the outcome of an election. It re-

quires that a group of people, allied through a common interest, go to the aid of the chosen political party or certain selected candidates thereof. The aid to be provided consists of financial support, volunteer work in the campaign, or both.

Group political action is, however, circumscribed by Federal law. A business, for example, cannot contribute corporate funds to a candidate for Federal office. Neither can a labor union donate the funds it amasses from the collection of dues to such a purpose. But a voluntary, non-profit, unincorporated group of similarly-minded people can, if they wish, pass the hat among themselves and contribute the proceeds to any candidates they choose.

It took the leaders of labor to see the advantages of putting the political action committee on a permanent basis. To name just a few of those advantages, continuity of operation makes possible increasingly skilled, experienced direction; better trained volunteer workers; easier administration; and above all, identification of the committee, its goals, and the extent of its political contribution by the party leaders and candidates supported.

Obvious as these advantages now seem, labor was first to recognize them in the 1930's; and other groups were bewilderingly slow to follow suit. Labor's reasoning behind this landmark decision is hardly difficult to guess at. If the Federal and state governments were not being responsive to labor's legislative wishes, why not work to elect a majority of legislators who would be?

It is impossible to quarrel with that, logically or as a matter of civic right. Labor's political discovery, as simple in its way as the discovery of the wheel, quickly led to a mechanism which revolutionized American politics.

In no time at all Franklin D. Roosevelt was saying, "clear it with Sydney" and his party leaders were routinely clearing appropriate matters with Mr. Hillman and the other members of labor's hierarchy.

Since 1955, following the merger of the AFL and the CIO, we've had the Committee on Political Education (COPE)—smooth, savvy, expert, well-heeled and very powerful indeed. Avowedly bipartisan, COPE more realistically comprises the shock troops of the Democratic Party. Along with the political action arms of such powerful unions as the Machinists, the Steel Workers, and the United Automobile Workers, the combination is formidable.

How effective has all this labor politicking been? Those who haven't been withdrawing to monasteries, or hiding out in caves for the past three decades, know full well that labor has often been able to pipe the

legislative tune in Congress and the state assemblies: if not all the time, at least some of the time.

In the 89th Congress, for example, 65 members of the Senate and 298 members of the House were elected with union support. Not surprisingly, these men and women tended to "vote right" as labor viewed it. And not surprisingly, arguments running counter to labor's, however well-founded they might have been, often fell on deaf ears.

As for labor's power at the state and local levels, let readers assess it for themselves.

All of which makes it even more remarkable that effective countervailing forces did not develop sooner in response to labor's brilliant success story. It is true that in the '40's and '50's a few Paul Reveres lashed their lathered horses around the countryside sounding an alarm to which nobody seemed to listen.

And some few of the politically precocious leaders of business, industry and the professions also sought vainly to rally their colleagues, on an organized basis, into some form or other of political action.

But nothing happened until 1961, when the medical profession launched its own political action movement. The American Medical Political Action Committee (AMPAC) was formed with the American Medical Association's official blessing as a voluntary, non-profit, unincorporated organization whose purpose it was to help its members participate effectively in public affairs; further their political knowledge; and develop the means for concerted political action.

Recognizing that able, intelligent candidates are to be found within the ranks of both political parties, AMPAC is resolutely bipartisan. This is reflected in its membership, which incidentally has built dramatically each year.

Autonomous political action committees are now operating in each of the fifty states as well as in the District of Columbia, with members belonging to their State PAC and AMPAC as well.

Candidates are chosen by PAC members at the local level on the basis of political principles, chance to win, need for help, and several other factors. The PAC members within a Congressional District then set out to form a candidate support committee, raise money, and provide volunteer services for the candidate they choose.

If additional financial help is needed, the candidate support committee applies to the State PAC, which may or may not grant it. Political realism governs that decision. But assuming the State PAC agrees that the candidate is in a close race, needs more money, and should be helped, it honors the request to the degree

that it is able. If still more supplementary financial help is required, it is requested of AMPAC, which reviews the case and arrives independently at its own decision.

AMPAC is involved primarily in races for the House, but occasionally commits itself to a campaign for the U. S. Senate. The State PACs, although similarly oriented to Congressional contests, increasingly involve themselves in campaigns for the state legislatures.

At the national level, AMPAC seeks to provide coordination, liaison, and political training for its members. In terms of this training, a variety of political education programs is made available for use by PAC members at every level. Courses in precinct action, films on politics, pamphlets on how to form political opinion, a membership periodical, exhibits: these are some of the materials AMPAC produces and disseminates. In essence, this sort of political education is comparable to the programming done by many of the public affairs departments of the nation's large corporations.

Does this over-all approach work? It does indeed. AMPAC is now second only to labor in the total of its dollar support to Congressional candidates. And AMPAC's files are filled with testimonials from political candidates who believe that the margin between their defeat and victory at the polls was provided by the combined effort of physicians and their wives.

In these troubled days when Congress is called upon to consider a plethora of bills involving the nation's health (there were more than 1600 of them introduced in the 89th Congress), medicine clearly has a gigantic stake in the election of intelligent men and women who will at least listen to both sides of an argument before they make up their minds.

Medicine's PAC movement is helping to assure the election and re-election of such people, recognizing that legislative arguments minus candidate support often equal futility squared.

Other groups are reaching a similar conclusion. Business Industry Political Action Committee (BIPAC) entered the arena shortly after AMPAC was formed. The Life Underwriters started LUPAC recently. And present indications are that other groups will form PACs in the not-so-distant future.

All such organizations seem to agree on one thing:

It is far more productive to help elect a wise Congress than to sit around hoping Congress will act wisely.

That realization explains why, in the view of many, political action organizations constitute a force of growing importance in U. S. politics.

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Are Engineers' Questions Difficult

The following is reprinted from *The Kentucky Engineer*. If you score in the genius category, perhaps you should have been an engineer.

1. If you went to bed at 8:00 at night and set the alarm to get up at 9:00 in the morning, how many hours sleep would this permit you to have? _____
2. Do they have a 4th of July in England? _____
3. Why can't a man living in Winston-Salem, North Carolina, be buried west of the Mississippi River? _____
4. How many birthdays does the average man have? _____
5. If you had only one match, and entered a room in which there were a kerosene lamp, a wood burning stove, and an oil burner, which would you light first? _____
6. Some months have 30 days, some have 31. How many have 28? _____
7. If a doctor gave you 3 pills and told you to take one every half-hour, how long would they last? _____
8. If a man builds a house with 4 sides to it, and it is rectangular shape, and each side has a southern exposure; a big bear walks by. What color is the bear? _____
9. How far can a dog run into a woods 4 miles across? _____
10. What 4 words appear on every denomination of U.S. coins? _____
11. What is the minimum number of active baseball players on the field during any inning? _____ How many outs in an inning? _____
12. I have in my hand two U.S. coins which total 55 cents. One is not a nickel. Please keep that in mind. What are the coins? _____
13. A farmer had 17 sheep and all but 9 died. How many did he have left? _____
14. Divide 30 by $\frac{1}{2}$, and add 10. What is the answer? _____
15. Two men playing checkers. They play 5 games and each man loses the same amount of games. How can you figure this? _____
16. Take two apples from three apples and what do you have? _____
17. An archeologist claimed he found a gold coin dated 46 B.C. Do you think he did? _____ Why? _____
18. A woman gives a beggar 50 cents. The woman is the beggar's sister, but the beggar is not the woman's brother. How come? _____
19. How many animals of each species did Moses take with him on the ark? _____
20. Is it legal in North Carolina for a man to marry his widow's sister? _____
21. What word is *mespelled* in *thes* test? _____
22. You know how to pronounce "too"? And also "two"? But how do you pronounce the second day of the week? _____

- 16 correct—genius
- 10 correct—normal
- 8 correct—idiot
- 6 correct—professor
- 3 correct—candidate for Engineering student.

(See Page 32 for the correct answers.)

Alumni *FORWARD*

Man and Monster

The WCEX 101—known as “The Monster”—was built recently in Cleveland.

It is the world's largest railway car, 119 feet long empty which expands to 159 feet when loaded. It weighs 1,575,000 pounds and can haul a 1,046,000-pound payload.

And it can wiggle in the middle like a slow-motion Go-Go dancer.

The giant car is the product of the McDowell-Wellman Engineering Company, Cleveland, of which a UK alumnus, R. C. McDowell, is chairman and chief executive officer.

Built for the Westinghouse Electric Corporation to transport huge electric generators but usable for other cargo, the car was recognized by the Ohio Society of Professional Engineers as “One of the Seven Engineering Wonders of Ohio for 1967.” At its Spring meeting this year, the Society awarded a commemorative plaque to Mr. McDowell for this outstanding engineering achievement by his company.

Mr. McDowell earned his B. S. at the University in '35 and his C. E. in '43. He was awarded an honorary Doctor of Science degree in 1962 and received the

ANSWERS TO “APTITUDE TEST”

1. One.
2. Yes.
3. He isn't dead.
4. One a year.
5. The match.
6. Every one.
7. One hour.
8. White (He is at the North Pole, and the bear must be a polar bear.)
9. 2 miles. Then he is running *out* of the woods.
10. In God We Trust.
11. 18; 6.
12. A fifty-cent piece and a nickel. (The fifty-cent piece is not a nickel.)
13. Nine.
14. 70.
15. They play five stalemates.
16. Two apples.
17. No. A coin couldn't be dated B.C. when the birth of Christ wasn't known at the time.
18. The beggar is a girl.
19. None, but Noah took two each.
20. No, he would be dead.
21. You guess this one yourself.
22. Monday.



Robert C. McDowell, B. S., '35; C. E., '43; Honorary Dr. Science, '62

Distinguished Alumni Centennial award in 1965. He is a life member of the Alumni Association and a member of the Century Club, serves on the Advisory Council to the College of Engineering and provides the McDowell scholarship for freshman engineers at UK. He also is a substantial supporter of UK as one of the University of Kentucky fellows.

A native of Simpsonville, Mr. McDowell first was employed by the R. C. Mahon Company, Detroit, in 1936. The McDowell Company was organized in 1944 and he has been moving forward ever since.

McDowell - Wellman engages in a broad range of consulting-engineering work and has advanced to a preeminent position in the materials handling field. Among many other projects, it has engineered and constructed the world's largest coal shiploading pier, produced the materials handling system for the world's largest earth-filled dam and is engineering the materials handling system for an internationally important new iron ore mining project in Australia.

Of his vast operation, Mr. McDowell says:

"It is a natural human desire to have all the knowledge and experience of maturity while retaining the drive and energy of youth. We have attained this enviable condition in the McDowell-Wellman organization.

"Our management and engineering teams consist of younger, vigorous men, with up-to-date training and

experience in modern techniques and development, working side by side with veterans in the professions who have originated numerous innovations and have created spectacular projects for many industries."

But back to "The Monster."

After a maiden Pittsburgh-Toledo run recently on Penn-Central lines, carrying a 660-pound Westinghouse generator, the car was termed "a giant step forward in railroad technology" by Glenn D. Graff, Penn Central assistant engineer of clearances, who rode with the car.

"This means we can now haul certain loads that formerly had to be ruled out because of size," Mr. Graff continued. "If more cars of this kind are built we will see a new dimension in transportation."

The car is made up of two separate sections, which can be unbolted and spread apart. The load is suspended between the two sections, partially supported by a pair of steel girders. In a sense, the load thus becomes part of the car.

Officially known as the "Schnabel" car, it has 20 axles and 40 wheels and carries its load only six inches above the rails, compared with a 30-inch minimum clearance for conventional heavy-duty rolling stock.

The "wobble" feature is provided by a built-in hydraulic system which can move the load vertically and laterally to get it over, under or around obstructions along a rail right-of-way.



The world's largest railway car, one of the "Seven Engineering Wonders of Ohio."

Beauty Queen; Distinguished Citizen

Ruth Dowling Wehle, Washington, D.C., '33, has received the Alpha Gamma Delta Distinguished Citizen Award for Outstanding Achievement in Administration.

A native of Lexington, she was one of 11 alumnae of the sorority to be so honored at the organization's international convention achievement dinner this summer.

The Distinguished Citizen Award recognizes outstanding achievement by alumnae members in fields of public service and the professions. It is the highest award given by the sorority for service in these areas.

An alumna who has had wide experience in world affairs, Miss Wehle — a UK May Queen in undergraduate days — was a member of the CBS radio staff in the Educational Division and spent two years with the American Red Cross Clubmobile Service as a tour director for entertainment units visiting U. S. troops during World War II. She was editor and research director for New York's Town Hall, Inc., and Public Relations Director for the Women's Division of UNICEF.

Chief of the Visitors and Speakers Department, British Division, Office of War Information, and Director of the visitor's office at the American Embassy in London, Miss Wehle also was a Radio Information Officer for the Economic Cooperation Agency and Special Assistant to the Ambassador in the American Embassy in Pretoria, South Africa. She received the Department of State Certificate of Service in 1960 and the CIA 20-year Service Certificate in 1967.

She recently became Director of the Community Affairs Division of the National Council of Catholic Women in Washington, D.C.

EDITOR'S NOTE: Earlier honors accorded Miss Wehle, including her reign as May Queen in undergraduate days, were reported in the spring, 1966, Kentucky Alumnus.



Ruth Wehle, distinguished citizen

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Research To Dollars

"Informal, unconventional and dedicated to his work" are the words Ohio State University uses to describe Bonner S. Coffman, M.A. '50, its 45-year-old civil engineering professor specializing in soil mechanics and highway pavement design.

A native of Bell Buckle, Tennessee, Mr. Coffman works in short sleeves and loosened tie, blows clouds of cigarette smoke and speaks in a mild Southern drawl. Rather a non-faculty type, he does not maintain an average-professor image. Weather permitting, he arrives at work on a Vespa he has owned since 1959. "Some people just don't see you on a scooter" is his major complaint. "People aren't programmed for anything except cars and pedestrians. If a battleship came down the street they probably wouldn't see it either."

Mr. Coffman, who joined the Ohio State faculty in 1961 "to get back into research and teaching," says that, "At a university I'm free to cut my own throat if I want to." He still calls Ohio State "a healthy environment" after six years' hindsight.

Basic to Mr. Coffman's "healthy environment" is money.

"Scientists and engineers are blessed because capital has learned to need them to make a profit," the professor says "scientists and engineers deal with what people consider 'good'—like automobiles.

"There is always sponsored research and someone will always benefit. Scientists and engineers have won the right for research because their work shows an economic benefit. Their research pays off with a net gain that is easily translated into dollars."

Mr. Coffman believes that research by social scientists too often lacks economic incentive and that social scientists lack freedom for experimentation. But he adds that "My work won't make a difference 100 years from now with the American culture."

A research-oriented engineer who also teaches, Mr. Coffman does not believe that engineers on campus can "efficiently" combine teaching and research.

"You can't put a time limit on creative processes like research and teaching. Some people can't do research and others can't teach so you are always going to have both kinds of people. The person who can do one should be exploited to the fullest."

Mr. Coffman also is a committee man. At Ohio State, he is a member of the high school conference committee and, at the national level, he holds membership on the Highway Research Board, a division of the National Academy of Sciences—National Research Council, and the pavement design panel of the National Cooperative Highway Research Program.

After finishing high school in 1942, he entered the Air Force during World War II and served three years as a radio operator on a B-17.

He graduated from the Tennessee Polytechnic Institute in 1948 with a bachelor degree in civil engineering. In 1950, he received a master's degree in civil engineering from the University of Kentucky.

About a doctorate, Coffman says: "What do I want with a Ph.D.? I've got \$300,000 in research and all the work I can handle."

Mr. Coffman was a "troubleshooter" for the Federal Housing Administration from 1959 to 1961. As chief of the site engineering section working principally with federal housing sub-



BONNER S. COFFMAN, M. A., '55, checks a paving project involved in his highway structural performance research.

divisions, he saw engineering problems all over the nation.

"Problems came up and out I went," says the UK alumnus. His job was to review plans and assignments to help exclude or minimize risks for insurance mortgages.

Mr. Coffman is presently involved in a pavement study which is the latest in a series of projects carried out at Ohio State over the past 10 years.

According to Mr. Coffman, his general research aim is to find a "rational method" for the design of flexible pavements. If this is accomplished, he said, researchers will be able to predict, from lab tests, the structural performance of a pavement at any time under any load moving at any speed.

"We, the profession," he says, "will probably achieve our goal at the same time some method or transportation system is devised which makes our work unnecessary."

Mr. Coffman believes that pavement research at Ohio State "has gone so far that we are ahead of the herd. We have done this by our willingness to forget some things that we presumably knew. We culled out some sacred cows and now we just concentrate on the problem the way it actually is."

One of his discarded cows is the idea of an average pavement. "There is no such thing as a static pavement because seasonable factors cause the soils, and bases, to change and respond all the time," explains the teacher-researcher.

"Now we handle the vast complexity of the problem," he says, "by using computers to correlate pavement changes at all times."

His newest research is a \$308,000 study of "The Fatigue of Flexible Pavement."

For the Ohio Department of Highways and the U.S. Bureau of Roads, Mr. Coffman and his research team went first to the field to find failure criteria. In the second phase, in the lab, stress is being applied to highway materials to duplicate field conditions. The lab data will be evaluated in a computer and, if the hypothesis is correct, lab and field findings will correspond.

If he is able to measure pavement fatigue, he then can specify pavement thickness for any projected life expectancy of the pavement.

"It all means," explains Mr. Coffman, "that pavement designers will get the most for their money because we will have devised a completely 'rational' design for pavements."

Astrogeologist

Gerald Gene Schaber, '60, will be one of the first to know whether the moon is made of green cheese.

As an expert with the U. S. Geological Survey, Center of Astrogeology at Flagstaff, Arizona, Dr. Schaber is concerned with unmanned and manned lunar and planetary geologic exploration and mapping. And he is well prepared for this esoteric assignment.

After earning his B.S. degree in geology at the University, Dr. Schaber obtained his M.S. in the same field at the University of Cincinnati and then won teaching and tuition scholarships for graduate work there.

In 1965, he was awarded the Nevin Fenneman Fellowship in Geology at UC and won his Ph.D. in Mineralogy and Geochemistry the same year. His thesis dealt with the Mineralogy and Crystal Chemistry of the Sulfosalt Minerals: Bournonite, Seligmanite, Diaphorite, Aikinite and Freieslebenite.

Dr. Schaber is the author of the geologic map of the Sinus Iridum Quadrangle of the Moon and of several NASA papers on evaluation of side looking radar imagery for use as remote sensing devices for geologists.

With the Geological Survey, he has served as chief of the Apollo Applications Program Analytical Instruments project. The objectives here were to test and refine miniaturized prototype instruments developed for use on extended lunar and planetary missions.

He has been photo mission adviser to the Lunar Orbiter V mission and a member of the Langley, Virginia, Research Center working group on evaluation and mapping of Lunar Orbiter photographs. Currently, he is administrative and technical director of the Flagstaff Geological Survey Analytical Laboratory and a member of the Apollo and post-Apollo Astrogeologic Teams which are developing geologic techniques to be used in manned lunar and planetary exploration missions.



Dr. George Schaber, '60 checks data during a recent test of the Early Apollo Remote Geologic System at his office in the Astrogeologic Data Facility at Flagstaff, Arizona.

Dr. Schaber's memberships in scientific organizations include Sigma Xi, the Association for the Advancement of Science and the American Vertebrate Paleontological Society.

A native of Covington, Dr. Schaber is married to the former Sandra Jean Gall of South Fort Mitchell and they have two daughters, Lynn, 4, and Nancy Ann, 1. The Schabers are members of the Flagstaff Federated Community Church and Mrs. Schaber has been an active volunteer aide in the Flagstaff Community Hospital.

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Helicopter Hero

In every war since Andy Jackson's Kentucky riflemen stopped the British at New Orleans in 1814 and Kentuckians fought their way to certain death with Davey Crockett at the Alamo, citizens of the Commonwealth have taken their courage to the battlefronts of the world and have engraved a record of heroism that brings honor and pride to their native state.

Comes now Captain George W. Kyle, '57, Dawson Springs, who just returned to the United States for advanced career officer training at Fort Benning, Georgia, after completing two one-year tours of duty as an Army aviator in Vietnam.

An Aircraft Commander in the 478th (Heavy Helicopter) Aviation Company, Captain Kyle is the most highly decorated officer in his company and one of the most highly honored in the 1st Air Cavalry Division. He has received three Distinguished Flying Crosses, a Silver Star, two Bronze Stars, 30 Air Medals, the Air Medal with the "V" device for heroism, the Army Commendation medal, and the Vietnamese Cross of Gallantry.

But his decorations tell only the iceberg tip of the story. Hear this from a DFC citation "for heroism by voluntary action above and beyond the call of duty:

"Captain Kyle distinguished himself by exceptionally valorous actions on 31 March 1968 while serving as Aircraft Commander of a Giant CH-54A Flying Crane helicopter which had the mission to airlift vital firefighting equipment from Dong Ha to the besieged post of Khe Sanh, Republic of Vietnam.

"After picking up the fire truck and equipment the CH-54A was joined by four Marine gunship helicopters and two Air Force fighters to provide suppressive fire and cover for the CH-54A. When Khe Sanh was contacted by radio Captain Kyle was notified that the besieged post was under heavy mortar, small arms and artillery attack. With a fearless devotion to duty, Captain Kyle elected to complete the mission under threat of destruction of the aircraft and loss of life for the entire crew.

"As the CH-54A Flying Crane came into the final approach, the enemy directed withering anti-aircraft fire upon it and continued this all the way into the fire-swept airfield. The gunships and the fighters were providing covering fire. The enemy barrages had been light but steady until the giant CH-54A lumbered into view on its slow approach. The hostile gunners, upon sighting such a lucrative target, intensified the fire until Khe Sanh became a screaming, roaring holocaust of flame, smoke and flying steel.

"With cool professionalism and complete disregard for his own safety, Captain Kyle skillfully completed the approach, positioned the load on the side of Khe Sanh's pockmarked runway and executed a tactical takeoff. Through his courage and sound judgment, he contributed immeasurably to the success of the relief of Khe Sanh.

"Captain Kyle's outstanding flying ability and devotion to duty were in keeping with the highest traditions of the Military Service and reflect great credit upon himself, his unit and the United States Army."



Captain George Kyle, second from left, with other helicopter crewmen in Vietnam.

Captain Kyle is the son of Mr. and Mrs. Frank W. Kyle and is married to the former Judith Ann Hayes, all of Dawson Springs. The younger Kyles maintain their home there.

The Khe Sanh action alone would warrant a hero's tribute but there is much more. A small part of it follows from the Captain's citation accompanying award of the Silver Star:

"Captain Kyle distinguished himself by exceptionally valorous action on 8 August, 1967, while serving as Aircraft Commander of an unarmed helicopter during a combat mission near Duc Pho, Republic of Vietnam.

"Observing a helicopter making a forced landing in an insecure area, Captain Kyle quickly landed his aircraft and left the maintenance crew to assist with the repairs. He then executed a takeoff without his co-pilot and hovered his aircraft over the enemy positions, drawing hostile fire away from the downed aircraft.

"He then landed his helicopter and remained in the area to assist with the night defense, leaving only to secure needed parts for the downed helicopter. After returning with the parts, Captain Kyle made repeated low level passes over the enemy emplacements, succeeding in neutralizing several enemy bunkers."

And Captain Kyle can teach as well as fight. In receiving the Army Commendation Medal for service as an instructor pilot, he was cited for "his vast technical knowledge," his "unequaled enthusiasm" and his "high degree of professional competence."

The 478th Aviation of the 1st Air Cavalry was the first Flying Crane Company in the world. This aircraft it operates can carry an 18,000-pound load in the Vietnamese climate and, during the April 1-May 17, 1968, period alone, flying cranes recovered from enemy territory 60 downed aircraft with a value of \$33,226,000.

These huge helicopters have flown bridges into position, carried bulldozers, backhoes and road graders and airlifted more than 100 155 MM howitzers weighing 710 tons to mountain top positions.

Could enemy "Charlie" have seen inside the howitzer tubes he would have seen artillery rounds inscribed: "THIS IS CAV COUNTRY."

Cancer Crusader

Thomas P. Bell, '48, is a man of many affairs who still found time to head the 1968 Fayette County Cancer Crusade.

Mr. Bell, a member of the Lexington law firm of Fowler, Rouse, Measle & Bell, earned his LL.B. at the University in 1950 and has been moving forward ever since.

During cancer control month in April, Mr. Bell emphasized the importance of annual checkups and knowledge of cancer's warning signals as the best protection against the disease. The need for research, education and service also was stressed.

Only one fourth of those who developed cancer 10 years ago were saved. Now it is one third and, if detection and treatment were early, it could be one half.

Mr. Bell, who served with the 8th Air Force in England during World War II, now is a Captain (ret.) in the Air Force Reserve. He participated in football and track at the University and, in the past, has been an official for Southeastern football and basketball games and for Big Ten basketball. He has handled numerous Bowl games and two NCAA basketball finals.

A National Football League referee for the last six years, he also is manager of the Giants in the Eastern Little League.

But, with all this sports activity, he carries on an active law practice and, in 1966, was awarded the Henry T. Duncan Memorial Plaque as the outstanding attorney in Fayette County.

He is general counsel and director of the Kentucky Family Security Insurance Company and a director of the Citizens Union National Bank and Trust Company, Lexington; general counsel and secretary, Stanley Penn & Sons, Inc., Miami, Florida; President of the Greater Lexington Area Chamber of Commerce, and past member of the Board of Trustees of the Second Presbyterian Church, Lexington.

Serving as vice president and director of the Lexington Club, Mr. Bell is a former president of the Lexington Country Club, a member of the Thoroughbred Club of America, a Mason, Shriner and Rotarian.



Thomas P. Bell

His professional memberships include the National Trial Lawyers Association, the Fayette County, Kentucky State and American Bar Associations and the Phi Alpha Delta law fraternity. In the past, he chaired the Fayette County Legal Aid Committee.

Married to the former Leslie C. Bruce, Stearns, Mr. and Mrs. Bell have one son, Thomas Bruce Bell. They reside on Glenhill Drive in Lexington.

"The best recollections I have about my days at the University," the happily married Mr. Bell reports, "are the wonderful and lasting friendships—especially the one with the former Leslie Catherine Bruce of Stearns, Kentucky.

"Any measure of success I may have attained is directly attributable to the training and guidance received at the University of Kentucky.

"UK has made such tremendous progress in all fields of education since my graduation in 1950, it makes me proud to be an alumnus."

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RICHARD ALLISON

The new president of Spindletop Hall, the faculty-staff-alumni club on picturesque Iron Works Pike, is Richard Floyd Allison.

Majoring in ornamental horticulture in the College of Agriculture, Mr. Allison became secretary-manager of the Lexington Cemetery in 1936, the year of his graduation, and has held this position since.

The cemetery is widely regarded as one of the most beautiful in the nation and visitors come from near and far to view the landscaping, brightened with many shrubs, flowers and other plantings. On many weekends, solid lines of cars move at a slow walking pace through the lovely area which nature, with Mr. Allison's guidance, has made possible.

In addition to his Lexington Cemetery duties, the UK graduate has served as president of both the Southern Cemetery Association and the American Cemetery Association.

A cemetery designer and consultant and a landscape consultant, Mr. Allison holds an advisory position with Transylvania College and is director and landscape consultant for "Ashland," Henry Clay Foundation.

An elder, trustee, church school superintendent and choir member of the Second Presbyterian Church, Lexington, he also is an honorary member and cantor of the Adath Israel Temple, business manager of the Central Kentucky Youth Symphony Orchestra, a member of the Community Concert Association and of the Salvation Army Advisory Board.

Prominent in Rotary affairs, he is secretary and bulletin editor of the Lexington club and is district governor-elect for 1969-70. He finds time, too, to be a Scout Master.

As president of Spindletop Hall, Mr. Allison has top responsibility for a 40-room, showplace clubhouse where UK faculty and staff may mingle and where may gather alumni whose active membership in the Alumni Association entitles them to apply for membership in Spindletop Hall.

EDITOR'S NOTE: Two alumni Allisons—Rex, '31, and Richard, '36—are no kin and have different fields of interest but they have three things in common: hard work, imagination and success.

Rex Allison is a successful businessman; Dick Allison is a successful ornamental horticulturist, manager and new president of the University's Spindletop Hall Faculty-Staff-Alumni Club.



RICHARD F. ALLISON heads Spindletop Hall

The University's Kentucky Research Foundation acquired the manor house and a 1,066-acre farm as a "gift-purchase" from Mrs. Pansy Yount in 1959. Renovated to make it suitable for use as a clubhouse, Spindletop Hall now draws thousands of tourists to view the grandeur of the mansion itself, its furnishings and its grounds.

The great Hall, with its stone-gated, tree-lined approach, its swimming pools, tennis courts and other club facilities is becoming even more attractive and useful under Mr. Allison's administration.

REX ALLISON

Rex L. Allison, who received the coveted Sullivan Medallion as the outstanding man in his depression-year graduating class, followed up his Bachelor of Science degree with a General Electric Company job in Schenectady, New York. He soon moved on to Allied Stores, the nation's second largest department store group, starting as credit manager of a little store in New Jersey.

Now senior vice president in charge of the company's operations west of the Mississippi, Mr. Allison this year was named to its special honors group by the National Collegiate Athletic Association. A commemorative plaque in recognition of his notable contribution to the nation's welfare and progress was presented at the NCAA honors luncheon in New York earlier this year by Donald C. Power, chairman of the General Telephone & Electronics Corporation.

In his business career, Mr. Allison moved on from the New Jersey store to become a vice president of Allied Stores, with home offices in New York, and then, in 1963, was elected senior vice president.

His imaginative approach to the business was demonstrated—when he developed the first regional shopping center in the world—Northgate—just north of Seattle.

Mr. Allison is chairman of the board of Bon Marche, Seattle, and many other subsidiary stores of Allied

Stores Corporation. In its total operation, the corporation has grown from an annual sales volume of \$65,000,000 to a figure approaching \$1,250,000,000 during the 36 years of Mr. Allison's employment.

At the University, this business executive was on the rifle and tennis teams, president of the student body, cadet Lt. Colonel in the ROTC, Editor in Chief of *The Kentuckian*, president of the Board of Publications and of the Student Council, the dramatic society, Strollers, and his fraternity, Sigma Alpha Epsilon.

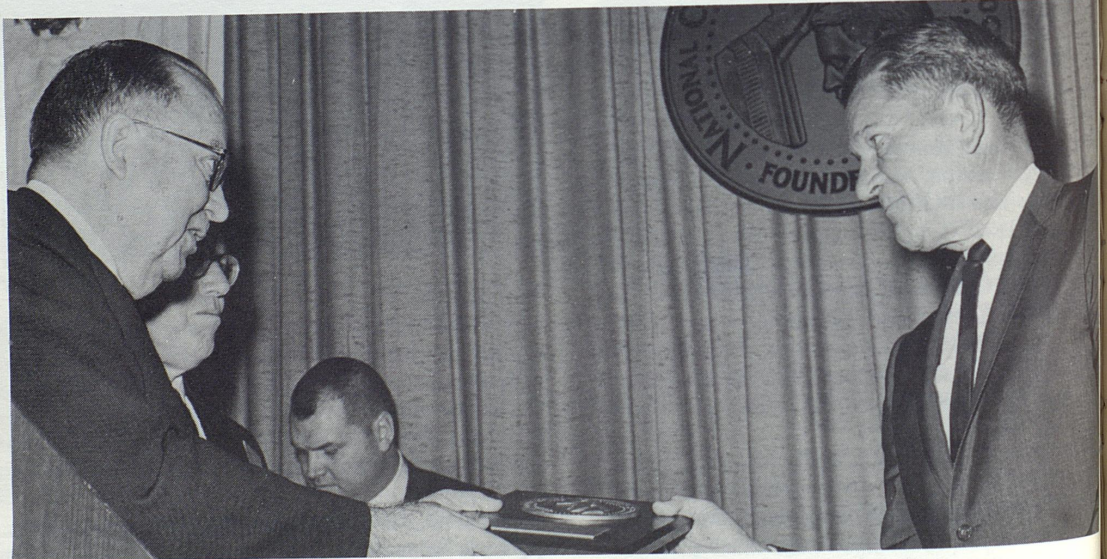
He is a member of Omicron Delta Kappa, leadership fraternity; Lamp & Cross, senior honorary; Delta Sigma Pi, business and professional fraternity; Seaboard & Blade, military, and Beta Gamma Sigma scholarship honorary.

Mr. Allison's picture hangs in the Hall of Distinguished Alumni at the Helen G. King Alumni House and he is the holder of the University's Centennial Award and a member of the Century Club.

With his wife (the former Genevieve Couch) and two daughters, Mr. Allison resides in Paradise Valley, Arizona, and has offices in nearby Scottsdale.

Commenting on his Alma Mater today, Mr. Allison says:

"I take a great deal of pride in the University's continued growth and progress."



REX ALLISON receiving NCAA commemorative plaque for his contribution to the national welfare.

WHY

YOU SHOULD BELONG TO THE ALUMNI ASSOCIATION

The Question of why alumni of the University of Kentucky should belong to the Alumni Association should have extended meaning—such as, why you should belong and be an ACTIVE MEMBER of the Association, which is an organization established to represent your continuing interest in and concern with the welfare of your Alma Mater.

When one reflects on the important happenings in one's life, it quickly becomes obvious that a profound life influence is an individual's college experience. This is particularly true for graduate alumni. A continuing affiliation with the college or university is somewhat like a business proposition because I'm sure that we would all agree that it would indicate a lack of basic intelligence if we worked hard for four years to accomplish a goal in a business operation and then, after achieving the goal, we walked away unconcerned about whether the enterprise continued or failed. Concern for our school of higher learning and the advisability of active involvement in the organization that is established to present the expressions of alumni, affects every facet of the betterment of the State of Kentucky and its people.

For example, the prime effort of the Alumni Association and of good active alumni is to attract top students and encourage their remaining in universities within the Commonwealth of Kentucky and thus avoid the brain drain of good students going to universities outside the State. Corollary to this is the attitude of the watch-guard that must be kept by your Alumni Association to assure that the educational system is properly developed and, with collective numbers, to encourage good effort on the part of the State and University Administrations. This watch-guard section should have the collective strength of the Alumni Association and be properly represented by active alumni—and, when necessary to be critical and carry the message of alumni opinion to those who might wish to destroy or injure the University. This opinion can only be obtained when alumni belong to the Association and are active in expressing themselves.

The need for belonging and being active is further highlighted by the support necessary and warranted in the areas of financial and leadership assistance. As we would not walk away from a business enterprise, we should not walk away from the institution that provided our basic training and enabled us to open all the doors through which we reached our present life station. Rather, we should give at least some of our talent and treasure to furthering the objectives and improving the character of our Alma Mater.

It is much better to be for things than against things. Everyone should be something; whether for or against, and the future strength of our University—our State—our country—rests with those of us who will assume the responsibility of voting and expressing ourselves in all areas in which we are affected. In particular, the alumni of the University should have the intelligence to realize the gravity of these areas of representation and, in turn, the importance of belonging and being active in the Alumni Association.



Charles O. Landrum

Charles O. Landrum

