Pictured at an exhibition—students at Steinberg.
It's Twins! It's Twins! 2  The drama of the delivery room

Who's in Charge Here? 10  The Chancellor on University governance

Integrated Circuits 14  Research project in "gnat-size" electronics

The University and the Dark Ages 20  On the purpose of the university

Dean Hudson 24  The fine art of being a dean

Social Science Institute 30  Interdisciplinary approach to the social sciences

Godfather of the Garden 38  On Dr. George Engelmann, physician and botanist

Crossroads Africa 44  An alumna in Kenya

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IT'S TWINS! IT'S TWINS!

Every year about 2000 babies are delivered at Washington University's St. Louis Maternity Hospital. This is the story of two of those 2000 babies who were born at Maternity Hospital this past year: the Marcus twins.

Maggie and Peter Marcus are a young faculty couple. Peter is an assistant professor in the School of Fine Arts and a noted printmaker. Four years ago, he sailed for Italy to study printmaking and met Maggie, who was going abroad to study Italian, aboard ship. They were married that year.

The first step to Maternity Hospital came when Maggie, suspecting she was pregnant, visited Dr. J. Leslie Walker, clinical instructor in obstetrics and gynecology, who diagnosed Maggie's condition, predicted twins from the very start, attended Maggie during her pregnancy, and delivered her twin boys.

In preparation for the delivery, both Maggie and Peter attended a six-week course for expectant parents, sponsored by the hospital nursing service. There, the couple heard lectures by University residents on every phase of childbirth, saw films on the subject, and received detailed instructions on what would happen in the delivery room.

Maggie took natural childbirth training, but Dr. Walker decided that with twins it would be better to use an anesthetic, because with multiple births it sometimes becomes necessary to go after the second baby in a real hurry. With a caudal anesthetic, Maggie felt no pain, was completely conscious, and in fact, was able to watch the proceedings in an overhead mirror. Peter was allowed in the delivery room because he had completed the prenatal course.

Everything went smoothly. The delivery of babies, even twins, has become routine business at Maternity Hospital. However, every precaution is taken to be sure it stays routine. The latest drugs and equipment are on hand and there is not a medical specialty that doesn't have many skilled representatives somewhere within the Washington University Medical Center.

Tens of thousands of babies have been delivered at St. Louis Maternity Hospital since the facility was opened in 1927, but space and facilities are growing inadequate rapidly. Plans have been announced for replacing outdated obstetrics and gynecology care areas with new facilities and for the old hospital to be remodeled for badly needed laboratory and office space.

Most of the work of the Department of Obstetrics and Gynecology, in both its teaching and research activities, is concerned with gynecology and especially gynecological surgery, according to Dr. Willard Allen, chairman of the department. However, he adds, "The delivery of babies is still an important function, and certainly it is the happiest one."
Dr. Walker enters the delivery room at Washington University's St. Louis Maternity Hospital.

Dr. Walker checks the heartbeats of the unborn twins shortly before the actual delivery begins. Everything checked out as normal.
IT'S TWINS! IT'S TWINS!

Peter Marcus, the expectant father, dons surgical cap, robe, and mask before entering the delivery room.

"OK. Give a push," the doctor says, and Maggie pushes. The delivery was performed under a caudal anesthetic and Maggie felt no pain at all.
As soon as the first baby arrived on the scene, Dr. Walker and two residents checked him over, cut the cord, and cleaned him up.

The second baby is held aloft for the mother to see. As soon as the babies are checked over thoroughly, cleaned up, and given identification, they are turned over to the Pediatrics Department.
First step in a lifetime of identity cards and social security numbers, the new baby is footprinted and given an identification tag.

It's all over and the new mother cranes forward to get a look at the second baby. Helping Maggie is Dorinda Harmon, chief delivery room nurse.
The proud father with "Baby B."
The twins are fraternal, not identical, although it was hard to tell them apart when they were only a few minutes old.

Mother and child. The Marcus babies were the first set of twins to "room-in" with the mother at St. Louis Maternity. However, Maggie did not try to cope with both at once, but instead took care of them on alternate days.
Nurse Mary Johnson displays the Marcus twins: Jeremy (left) and Gabriel.

"You have twin grandsons." Peter tells his mother in New York. Looking back on the experience, Peter feels that being with his wife during the delivery was extremely rewarding.
The Chancellor with the Board of Trustees

Faculty members in Holmes Lounge
The Chancellor's Quarterly Message for Spring, 1969, was devoted to the subject of University governance. Because this subject is so timely and so important to an understanding of how the University operates, the text of Chancellor Eliot's message is reprinted here.

WHO'S IN CHARGE HERE?

By THOMAS H. ELIOT
Chancellor

THE GOVERNANCE of a university is unique and so complex that it is hard to summarize it in a few pages. However, I will try to summarize some of its major aspects. I do so for three reasons.

First, with today's spotlight trained so intensely on universities, it is important that more people know how they are organized.

Second, the current demands for "student power" can be constructively considered only if we understand how "power" is now distributed and exercised within a university.

Third, and quite personally, I want to answer the kind of question that I often hear addressed to me: Why don't you do this or that—you run the place, don't you?

What I write here will be in terms of one institution, Washington University. But some of it will be applicable to virtually all American universities (and colleges, too), and much of it might be written about any one of a large number of privately endowed universities.

LEGALLY, WASHINGTON UNIVERSITY is a non-profit corporation, managed by a self-perpetuating board of trustees. The board delegates to the chancellor (whom it appoints and who serves at its pleasure) the responsibility of operating the institution. In certain matters, however, the chancellor can act only with specific board approval: appointing vice chancellors, or signing major construction contracts. The granting of "tenure" to professors, and degrees to students, is the responsibility of the board, ordinarily on the chancellor's recommendation. The annual operating budget is presented by the chancellor and approved by the board. The one thing from which the chancellor is specifically excluded is the investment of the University endowment; for many years, the bylaws have made this the exclusive province of the trustees.

That's the legal picture. It's misleading. True, the
board has responsibilities which it delegates to the chancellor who is answerable to it; but the fact is that the chancellor's actual authority is nowhere near as broad as his responsibility. I will illustrate this by referring to three areas in which you might think that, as the University's chief executive officer, I could do whatever I liked: hiring and firing professors, deciding what should be taught, and admitting or expelling students.

Any university's faculty is a combination of the separate faculties of the various schools that comprise the institution. Each school is headed by a dean. The dean is appointed by the head of the institution—the president or chancellor—but rarely will any such appointment be made without a pretty clear indication of faculty approval. Last year, for example, we had to fill vacancies in the deanships of the Schools of Business Administration and Social Work. In each case a faculty "search committee" proposed a candidate, my colleagues in the administration and I approved, but, more important, there was noticeably warm approval among the faculty members of the school involved. I can imagine a situation where a chancellor could feel that a particular school's future depended on his bringing in a new dean with a fresh approach, regardless of what that school's faculty thought. But if he imposed his choice on a hostile faculty, the faculties of other schools might be disaffected, too, for professors are quick to object to any exercise of administrative authority that runs counter to any faculty's wishes.

Professors are recruited by deans and, in the larger schools, department heads. Again, however, the major selections are concurred in by at least the senior members of the school's or department's faculty. Decisions to promote a junior man, or to let him go, are made in the same way.

The most significant decision in academic personnel administration is whether to grant a person tenure. Like most good universities, we have a tenure policy. This was adopted by our Board in 1953. A professor with tenure can be discharged only after a fair hearing, and then only on these grounds: gross incompetence, gross neglect of duty, moral turpitude, or conviction of treason. And while these rules don't protect young assistant professors who have not been accorded the tenure status, as a practical matter any wise chancellor would be very slow to use his power to fire them. If his decision to do so lacked the concurrence of the young man's dean, department head, and senior colleagues, a general faculty remonstrance would be certain and vehement. And just as a dean ordinarily needs a good measure of faculty support if he is to accomplish anything, so does a chancellor.

Normally the initial recommendation for tenure, in the larger schools, comes from the department head with the concurrence of all or almost all of his senior colleagues. Then it is considered by the dean—aided, in the Faculty of Arts and Sciences, by an elected faculty advisory committee. (In our School of Medicine, all the department heads, assembling as the "Executive Faculty," must give their approval.) Then the recommendation goes to the executive vice chancellor and the chancellor, and thence to the trustees.

The chancellor, then, ordinarily can affect the selection of the faculty only by (1) selecting (with faculty concurrence) a top-notch dean; (2) suggesting names to deans or department heads (and he had better be on friendly terms with them, or the suggestion may be resisted); (3) giving to the dean or department head his own opinion of active candidates for a position; (4) helping to persuade good men to join the faculty, or to stay here in the face of attractive offers, and (5) interposing a negative on a particular recommendation for tenure.

Day by day, the faculty of each school within a university has preponderant influence on the institution's central, essential job of educating young people. Each school's faculty ordinarily determines what courses shall be offered, what the prerequisites shall be for taking a particular course or for earning a degree, and what the grading system shall be.

Originally, I suppose, the faculty's control in these areas was simply a matter of power being delegated to people assumed to have expertise. Over many decades, however, it has come to be looked upon by many professors as an "inalienable right." Yet while this "right" is jealously guarded against administrative intrusion, there is a new interest in the possibility of sharing some of the authority with the students. In 1968, our largest faculty, that of Arts and Sciences, delegated to a joint faculty-student committee the power to establish new non-departmental "General Studies" courses. In 1969, it is beginning a two-year experiment in "bicameralism," whereby decisions to change the grading system, the requirements for a degree, and the General Studies program will require the concurrence of both the faculty and an elected student council.

Who decides what students are allowed to come here, how they should behave, and when, if ever, they should be sent away?

Admissions policy is determined by a combination of faculty wishes and administrative judgment, the latter being exercised in the light of both what the faculty wants and what practical realities require. For instance, a faculty might wish to admit only students who scored in the top 5 per cent of all those taking the Scholastic Apti-
tude Tests; but this might reduce the incoming class so drastically as to cause financial disaster. Conversely, a faculty desire to admit increased numbers of students would run up against a shortage of classroom, laboratory, and dormitory space. One thing, though, is clear: the actual decision on whether to admit a particular applicant must be made on the basis of impartial judgment uninfluenced by any chancellor’s or trustee’s or professor’s personal interest in that applicant.

Permissible student behavior—codified in a widely-distributed statement on the "Standards of Student Conduct"—is and should be a joint concern of administrators, faculty, and students. Thus the rules governing conduct in our residence halls are made and revised by house masters and students together. Our prohibition of actions which would seriously disrupt the operation of the University stems from a resolution adopted by the University Community Council—two administrators, four professors, and six students. While this council is advisory to the chancellor, its recommendations give to executive action the attribute of legitimacy. And this concept of legitimacy is especially precious in a community where anything that smacks of an arbitrary use of power is abhorrent.

Arbitrary exercise of the power to expel a student would be not just abhorrent to many professors and students alike, but probably ineffectual as well. All of us have read about angry university presidents saying that disruptive students "are expelled." It isn't as easy as that. Certainly in state universities, the courts now require that an accused student must be given a fair hearing before he can be expelled; and it looks as though this judicial insistence on due process will be applied to private institutions too.

I have described an institution where power is widely dispersed. This is primarily because of the concept of a university as a community for free and rational inquiry conducted by people, old and young, whom Lee DuBridge has described as "companions in zealous learning." It is their university, professors say; and nowadays students are saying the same thing.

But the chancellor (in our case, the executive vice chancellor also) is the one full-time official whose concern is the present and future of the whole University. He prepares the budget. This, of course, is his chief instrument of potent influence. There is never enough money to provide everything desirable. Limited resources have to be allocated, and policies, programs, and personnel are all affected by the budgetary allocations proposed by the chancellor and approved by the trustees. The chancellor, however, cannot wisely make these decisions without consultation with other administrators, deans, and professors, and an earnest effort to achieve something at least close to consensus.

A university's quality depends chiefly on the quality of its faculty. Able professors today are more in demand and more mobile than ever before. The university's chief executive, therefore, has the responsibility of sharing responsibility, especially with the faculty. Often he should refrain from using the power that is legally his, lest his use of it will alienate the faculty and damage the university.

A president or chancellor has plenty of executive functions to keep him busy: for example, overseeing the maintenance of the plant, controlling expenditures, managing research grants (a big business in itself), raising money, representing his university, staffing all the administrative offices, allocating space that is always less than needed. But in the central areas discussed in this message, he must think in terms not of power but of persuasion. What he says and what he leaves unsaid can have influence on his institution. In 1965, I suggested that it would be a good idea to permit undergraduates to take some courses without being graded—the "pass-fail option." Eventually the Arts and Sciences faculty did this, though whether it would have done it anyway, nobody knows. Also in 1965, I refused to accede to demands that I publicly denounce a professor because of his lawful but unpopular associations. My silence gave to the faculty renewed confidence that academic freedom would continue to prevail at Washington University.

Who's in charge here? The answer seems to depend on what aspect of the University we are talking about. But the very question itself is of dubious relevance. Companions in zealous learning need to have someone do the administrative jobs, and often they are glad to have leaders whom they will follow in the educational enterprise. They don't want bosses.
Working in atmosphere-controlled, dust-free "clean rooms," a team of University engineering scientists is doing pioneer work in the exciting new field of integrated circuits—those "gnat-size" devices that are revolutionizing electronics.

Henry Guckel, associate professor of electrical engineering, heads the integrated circuit research efforts, aimed at keeping faculty and students abreast of the latest developments in this new technology.

The basic material in integrated circuit manufacture is silicon of the greatest purity. The University's engineers have designed as many as 1600 transistors on one of these wafer-thin, quarter-size disks.
INTEGRATED CIRCUITS

A new breed of surgeons is operating on campus. They practice their art in the submarine-like depths of Crow Hall—the sub-basement to be exact. Wearing white coats and white boots, they toil in a dust-free atmosphere in which the temperature is kept at 72 degrees and the humidity at 50 per cent. They have to keep the dust out because even a speck will ruin their intricate experiments.

In their operations, the surgeons don't use a scalpel but they do use a special knife. They don't use forceps but they do use tweezers. In most of their work, these white-coated scientists center their attention on a thin silicon wafer or chip. What they do with that wafer can hardly be seen by the naked eye; what they do to that wafer can be seen only under a microscope.

This new breed of surgeons are really electrical engineers and they're making integrated circuits—gnat-sized devices which combine transistors, resistors, and diodes on silicon wafers. Working with equipment valued at more than $100,000, the five-man team under the direction of Henry Guckel, associate professor of electrical engineering, can design as many as 1600 transistors on one quarter-sized wafer.

The electronic scientists hope to find ways to improve the design of the IC's, as they are called in industry, so that better quality devices can be made. They also plan to study the process of making the devices.

What practical uses are made of integrated circuits? The big market is the computer industry, but the tiny devices are creeping into your automobile (voltage regulators), your office (desktop computers and dictating machines), and into your home (radios and color television sets). Nevertheless, integrated circuit technology is "now at a stalemate," according to Professor Guckel.

"One reason is that until now universities never took part in the work," he explained. "Usually, universities do the basic research that is necessary and then make it available to industry. In this area, the situation was reversed. Industry did all the work and only now are universities beginning to do research."

Without federal government support, a university could hardly set up an integrated circuit laboratory because of the expense involved. Washington University's facility, a research arm of the Computer Components Laboratory of the School of Engineering and Applied Science, is sponsored by the Advanced Research Projects Agency (ARPA). Such a research facility is necessary if faculty and students are to keep abreast of the art.

"There is a great need for heads-up research without economic pressures," Professor Guckel said. "Our facility has the potential to do many small jobs and we will make our research findings available to industry."

In industry, an IC producer sets up his facilities to make one type of electronic device in huge quantities. He may make one million circuits a year, but confines his research to removing any "bugs" in the one particular device being made. Professor Guckel said that the University's laboratory will make many different devices in smaller quantities. What's more, the team members will study all of the various phases of the process.

Last December the team completed its first test. "We made eighty transistors on a silicon wafer," Professor Guckel said. "After that, we broke out the champagne. We had good reason, for we had worked two years for this moment."

The magnitude of this achievement becomes more apparent if you examine a transistor closely. It is a shiny gray chip, one-tenth the size of a pinhead and usually made from silicon. To begin with, that silicon was perhaps the purest substance ever refined, certainly the purest ever made for large-scale commercial use. It contained impurities of only one part in three billion. Then that silicon was deliberately "dirtied." With dazzling precision, a few atoms of impurities were added in specific amounts and at specific positions within the silicon to regulate the behavior of the transistor. Manufacturing this device, an engineer has said, "is like solving a three-dimensional crossword puzzle the size of a pinpoint—only instead of letters we use atoms to spell out the right combinations."

Dr. Chushin Afuso, assistant professor of electrical engineering, makes the masks that are placed on the wafer. First, he draws the design of the electronic device on a plastic mask. Then, he photographs the mask with a camera that reduces it to one-twentieth of its actual size. The camera angle must be exactly perpendicular to the
mask because the slightest distortion will change the design on the film.

Professor Afuso’s research interests center on the electronic devices themselves. Currently, he and Dr. Guckel have been studying the unijunction transistor which could be used to make a light-sensor that might automate the device-making process. Two graduate students who are members of the team are William Connors, on leave of absence from Bell Laboratories, and H. Reid Vann, on leave from Conduptron.

The advantages graduate students derive by working in an integrated circuit laboratory are obvious: they can see how their electronic theories work in actual experiments, and the complex equipment they will use at the University won’t be any different from the equipment they will see in industry. Their experience in Crow Hall should give them an edge on other engineering graduates who will be seeing these intricate instruments for the first time.

Connors, who has a physics background, also is interested in developing new devices. His job in the laboratory is the evaporation process in which a metal, such as aluminum, is added to the silicon wafer to create the interconnections.

Vann, who has worked in integrated circuit laboratories both in California and in the St. Louis area, is studying the mathematical modeling of diffusion. He hopes to determine whether the current formulas for diffusion of the impurities are correct. He wants also to study the impurity density on a silicon wafer, which decreases from the top of the wafer to the bottom.

“In industry,” he said, “work on integrated circuits has reached a plateau. Now industrial producers are trying to get around the limitations. For instance, the quality of resistors varies wildly. Producers also are trying to eliminate ‘parasitics’—that is unwanted effects—in the circuits that are made.”

The fifth member of the team, technician Medford Kirk, keeps the laboratory running at all times and assists the other members with their experiments. He also tests the quality of the electronic devices that are produced.

Sitting in his office puffing on his ever-present pipe, Professor Guckel said, “We work as a group. No one man can make integrated circuits. A supervisor can know
H. Reid Varm and Medford Kirk load wafers into quartz "boat," which is inserted into electric furnace, where tiny quantities of impurities are diffused into the silicon, following the pattern of the photo-printed circuits.
only enough about each area of the process so that if something happens he can solve the problem. But it takes the whole team to make the circuits."

He pulled some more. "I remember back in the 1950's when we were building a computer at the University of Illinois. If we had built it with vacuum tubes, the computer would have been as large as a two-story building. Of course, transistors enabled us to put the computer in one small room. Now integrated circuits have enabled us to make a computer small enough to place in the trunk of a car. A guidance computer in a space capsule is an example. Its dimensions are two feet wide, two feet long, and two feet deep."

But miniaturization isn't the only advantage. Integrated circuits are more efficient, more reliable, and more economical. Professor Guckel pointed out that a complicated electronic structure could be made at a cost of a few pennies if integrated circuits were used, while the same structure would cost $30 if built with vacuum tubes. It is easy to see why industry is so interested in integrated circuits.

Professor Guckel foresees a future when television repair costs will be reduced because a repairman will not have to spend a long time diagnosing the trouble. "He'll just remove the defective circuit panel and replace it with a new one," he said. "What's more, redundancy is possible. In other words, you can install back-up systems in case some circuitry fails."

Maybe even the day will dawn when you will not need a serviceman to fix your TV set. You will be able to do it yourself just by replacing circuit panels.

Is that too far-fetched? Not if you study the advances that already have been made in microcircuitry. Right now engineers are wiring washing machine gearboxes with integrated circuits. Some cars already have electronically controlled anti-skid devices. A few more years may bring traffic control devices that will take the frustration out of rush-hour driving.

But the work toward those big improvements in modern living starts in the sub-basement of Crow Hall where those electronics surgeons operate on that small silicon wafer, joining transistors, resistors and diodes in a kaleidoscope of combinations and configurations.
The wafer is placed in a vacuum evaporator, where aluminum is first evaporated and then condenses in a thin coating on the wafer. The aluminum coating follows the conductivity pattern photoengraved on the tiny silicon wafer.

In top photo, devices are tested for conductivity. Below: a transistor mounted on a header. Tiny wires connect the conducting surface of the silicon chip with two bonding posts. The entire device is only one-quarter of an inch in diameter.
Pointing out that the good the university stands for may be the "best we know in this faulty world," Professor Gottfried in this essay defines the university's true purpose as the preservation and maintenance of "man's most hard-won gains against the darkness that howls without—and within."

Dr. Gottfried holds three degrees from the University of Illinois. Both an outstanding teacher and a noted scholar, his special field of interest is nineteenth-century English poetry and criticism.
THE UNIVERSITY
AND THE DARK AGES

It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of Light, it was the season of Darkness, it was the spring of hope, it was the winter of despair, we had everything before us, we had nothing before us, we were all going direct to Heaven, we were all going direct the other way—in short, the period was so far like the present period, that some of its noisiest authorities insisted on its being received, for good or evil, in the superlative degree of comparison only.

The date of these familiar, contradictory words is 1859; the period to which they refer is that of the eve of the French Revolution; the author is Charles Dickens. The closing words of the passage reflect the turbulence of England in the 1860's, struggling through strikes and riots towards the Reform Bill of 1867. Yet how mockingly the whole passage prophesies the tortured confusion and violent contradictions of our own times!

Trying today to see the shape of the future, whether for our world, our nation, or our university, we are sobered by the enormity and variety of the imperious demands which challenge us. Amid that chaos, however, one thing seems clear: that in the university and in what it stands for resides the best hope for the survival of sanity and decency in the coming world. To nurture that hope and to work towards its realization is the true purpose of the university.

Some will find my claim excessively modest. "Sanity" and "decency" are words which lack the dramatic force or the revolutionary significance they would hope to find in any statement of the purpose of the university. Others will find the claim vastly overblown; how, they will ask, can the university stake out for its province so large a share in the preservation of civilization? How especially in times like these?

For let us not be so careless or blind as to fail to see that the university itself is deeply threatened. With not only its traditional purposes but its very existence in danger, can it rise to the challenge of the times, or meet the task of the future? The financial survival of the private university today is in doubt. In the search for excellence, new and costly programs of research and graduate instruction proliferate with astonishing fertility, while faculty salaries and all other operating costs are rising rapidly. If society were happily committed to spending as much as another one per cent of its Gross National Product on education, such an explosion of knowledge and advanced research would pose little danger. But faculties and students are becoming daily less popular, and the private universities which fail to take steps to ensure their own financial survival, hoping that surely God—or Congress—will provide, are certain to have a shattering awakening.

The financial threat and others such as those of social disapproval, trends toward censorship, and the like are important but external. As a teacher and scholar, my more immediate concern is with those threats which are internal in the sense that they grow out of the nature of the enterprise itself. These threats, if not averted, could, without necessarily destroying the institution, so pervert it that if it survives at all, it would survive only as another kind of entity in which the values of free inquiry and intellectual rigor would be ruthlessly sacrificed in favor of conformity to the utilitarian purposes of a new kind of educational elite.

The essential quality of this internal danger, from whatever quarter, is a confusion over ends and means. On one side stands the party of change, believing, apparently, that any change must be for the better. This party is frequently motivated by high moral purpose, or rather, moral passion, and is outraged by any sign of institutional or scholarly neutrality. Regarding knowledge as instrumental, it moralizes all issues and attempts to force the university to become primarily an agency of social
change, even of social revolution. If that means severing the university from the society which supports it, why then, cry the extreme spokesmen for this party, so much the better—as though a head could go on living severed from its body!

On the other side, and strengthened in proportion to the excesses of their opponents, stand those who are satisfied with things as they are, are fearful of any change, and are hostile to vigorous dissent. They accept the traditions and assumptions of their group or class without examination, and they are likely to misunderstand or underestimate the seriousness and moral intensity of their antagonists. Jealous of their traditional prerogatives, they regard the university as a facility for maintaining the status quo and for providing society with its trained personnel.

In their extreme forms, neither of these parties really respects the independent life of the mind, even when they pay lip-service to it. In the contempt they show for the conditions which have been painfully evolved as the necessary ones in which that life can be lived, they reveal their true feelings. Both regard the university as a facility, the one for maintaining, the other for overthrowing the existing order. In a pinch, and the pinches come often these days, both are ready to dispense with the processes of reason and fairness, with the basic decencies of adversary proceedings in a scholarly setting, and with truth itself. Both of these anti-intellectual groups possess a taste for the repression of disagreement, for moral and even physical aggressiveness, even for violence. For both groups, in those instances where their principles are put to the test, ends justly means.

Exactly one century ago in England, Matthew Arnold, a critic frequently enough maligned in his own time by the spokesmen of both left and right, was vigorously speaking out on behalf of the value of disinterested inquiry based on a recognition that truth was never absolute and assuredly belonged to no one cult or party. To those who urged the priority of commitment over reflection he responded with characteristic irony, "The passion for doing good is apt to be overhasty." But culture, by which he meant nothing less than the study of perfection, never forgets that "acting and instituting are of little use, unless we know how and what we ought to act and to institute." The freedom to do and to say what we like—to do our own thing—may be offered as an ideal, although with different specifications, by both parties to our present controversies. But Arnold's ideal of culture comes again to hint that its aspirations are not satisfied "unless what men say, when they may say what they like, is worth saying," what they do, worth doing.

It is precisely here that the purpose of the university may be defined. In the face of a shameful war, of spreading squalor, alienation, and despair in our cities and suburbs, of the pollution of the natural world, and of careerism and entrepreneurship in the universities, only the selfish, the blind, or the smug can say that our institutions are functioning satisfactorily. The need for far-reaching changes is urgent. But we must not use the defects of these institutions as an excuse for dispensing, even temporarily, with the values of respect for self and others, of truth-telling, of tolerance, of scholarly discipline, of disinterestedness. If we do, we shall endanger not just for a moment but perhaps for an epoch the values of sanity and decency which are all that make our living together bearable. And in our society, the university is the single institution whose reason for existence is bound up with the preservations of precisely those values. As the noted historian Richard Hofstadter said in his commencement address at a deeply wounded Columbia University last June, if change must come to the university, let it come by means which would preserve, not destroy the good it stood for, since the good the university stands for may be the best we know in our faulty world.

It follows, then, that one of the first duties of the university is to preserve its own nature, by which I mean its character as an institution striving constantly toward an ideal autonomy, belonging to no party or government, committed to no program or ideology but that of providing for its members, faculty and students, a place where their own mental autonomy may be protected from all control except the rigorous control of superior reasoning, sensibility, and knowledge. In this way the university can best serve as an agency for fostering orderly change. Only in such an atmosphere can its members freely pursue the life of the mind with minimal fear of harassment, even if in their private lives they use more active means to enforce their principles, for if the university cannot always protect its members who break society's laws, it can and does protect those who outrage society's feelings and prod society's conscience.

Let those who press for drastic changes in the structure of the university consider not only their ultimate purposes but also whether their means of achieving them are consonant with the purposes of a university. For if they
are not, these means, regardless of the ends for which they are supposedly fashioned, may so tear the fabric of good faith and intellectual responsibility that we shall all find ourselves naked and shivering on the heath in a storm of unreason and despotism. Admittedly, there are those who would welcome even such an outcome, but against such ultimate threats as these, surely the university must protect itself and the values of discipline and freedom of which it is the embodiment, however imperfect.

IT IS UNFASHIONABLE these days in intellectual circles to say a word in defense of liberalism. The liberal, abashed by the spreading horror of our times, may feel guilty that he is not a radical. On the other hand, shocked or repelled by much of the puerility and cultivated mindlessness that passes for radical thought today, he may sometimes find himself pressed unwillingly into postures of reaction. His programs lack drama, his leaders lack charisma, his philosophy lacks clear, simple answers to complex questions. He feels inadequate, and his opponents of the right and left can scarcely despise him more than he may in certain moods be led to despise himself. In spite of the wretchedness of his situation, or perhaps because of it, I should like to say that good word on behalf of the liberal, and to link his name to another term of dubious value and meaning today—liberal education.

What are the principal characteristics of the man of liberal mind? First of all is his belief in the flawed nature of all men and of all human wisdom and human institutions. But immediately to this I should add his deep conviction that with luck, reason, hard work, and good faith, things can be made steadily better. The first of these beliefs preserves him from fanaticism and moral imperialism. The second protects him from cynicism, despair, or the temptation of the desperate Absolute. He is reluctant to use any form of coercion beyond reasoned persuasion to gain assent for his positions, for he does not believe that even he himself and his circle of friends have a monopoly of truth. He is tolerant, for indeed at least formal tolerance is a necessity to his existence as a political or a scholarly being. He is devoted to the cause of seeking to make human institutions more responsive to human need and more hospitable to human possibility, but he is also inclined to seek in any existing institution its meaning, its reason for existing, lest in the process of altering it he should at the same time lose some kernel of human value unknowingly. He usually weighs the consequences of actions, attempting by whatever rational means he can command to balance moral gains and losses. He imputes good faith to his opponent—until proof to the contrary is overwhelming—for he requires also to be trusted himself. If he views life as comic, he does not sneer at the comedy; if he views it as tragic, he does not laugh at the tragedy. He abhors violence. He would consider it immoral to kill a person here and now on the promise of happiness for thousands—later. In the totality of these qualities, he who wishes to may read the fragility—if you prefer, the weakness—of liberal culture, as well as its strength. Perhaps the values of civilization always seem weak or fragile against the fury of barbarism.

The values of the liberal mind surely inhere also in liberal education—the education of free men. The mistrust of partisan concepts of truth, the scholarly dedication to accuracy of data, the certainty that no truth is final, the faith in the widening circle of knowledge and in the ultimate utility of wisdom in improving the quality of life, the recognition of the value of diversity of opinion, and the dedication to live—even, if necessary, to die—for the freedom of the mind: surely these are the roots as well as the flowers of liberal education. In an increasingly hostile world, it remains the task and the glory of the university to maintain these values, to maintain them not only against the indifferent or suspicious outsider, but above all against the self-important, the selfish, the over-zealous, and the fanatical within its own domain, whether these are members of the board of trustees, of the administration or faculty—or even of the student body. The liberal mind cannot accept the view that the main stronghold of freedom in our society, the one whose very nature expresses the ideal of freedom, would be better destroyed because it is flawed by the flaws of imperfect society, just as the liberal mind cannot tolerate the abridgment of freedom for the university’s most extreme members to express their views freely.

ENDANGERED BY SO MANY kinds of illiberalism, the university and all its members must renew their dedication to these ideas of freedom and tolerance, respect and mutual trust, sanity and decency. The cause is a proud one and requires no apology.

The university’s purpose is as challenging as any ever taken up by a human institution, and as simple as a few words: it is to preserve and to further man’s most hard-won gains of civilization against the darkness that howls without—and within.
Kenneth E. Hudson is an anomaly in academic circles—he started at the top and has stayed there for over forty years. It was in the late twenties when the young painter, fresh out of Yale, picked up his palette and went West to the University of Oregon. He had scarcely had time to begin work on a memorial mural there when the chairman of the School of Art fell ill and Hudson was asked to assume his duties. It was this sudden stroke of fate which changed the course of his life and led him to embark on a career in art school administration which has brought him national recognition and distinction.

After two years at Eugene, Oregon, he headed for the Middle West and the job of chairman of art at the University of Missouri. In 1938 he became dean of Washington University's School of Fine Arts. During the more than three decades that Ken Hudson has been in residence at Bixby Hall, he has shaped and molded the School of Fine Arts into an institution of eminence which ranks among the best in the country.

When asked how he's been able to accomplish so much, the dean is inclined to change the subject with an offhand remark, "Oh, I've been lucky." His colleagues are not so reticent. They point out that he is a man of unusual gifts who, by some fortuitous combination of genes, possesses both creative and executive talent.

In addition to leading the transformation of the Art School from a provincial training center which awarded only certificates into a prestigious degree-granting institution, he has had the uncanny ability to identify and persuade leading members of the art world to join the Washington University faculty. Philip Guston and the late Max Beckmann and Paul Burlin are representative of the talent which he brought to the campus. Fred Conway, one of Hudson's closest friends and oldest associates, says that this introduction of "fresh blood" made all the difference. That and the glittering parties which the dean and his ebullient wife, Gwen, gave regularly at their home. "We learned a great deal at those affairs," Conway emphasized. "Artists and all sorts of visiting firemen would gather at the Hudsons, and there were wonderful discussions. We faculty members found it very stimulating."

Sometimes the guests would spill over into Hudson's studio where there was nearly always an unfinished portrait of the dean by Siegfried Reinhardt, AB 50, who was a member of the School of Fine Arts faculty from 1955 to 1968.
"If This Not Be I," by Phillip Guston (University Collections). About Guston, who taught here from 1945 to 1949, the dean points out, "Though fully established as a romantically expressive painter of subject themes when he joined the faculty, he then went on to build an even greater reputation as an abstract expressionist."

Oil resting on an easel. For painting is what the dean wanted to do in the first place, and what he expects to do when he retires this June. There are those who suspect that it has not been easy for him all these years to focus his energies on administration instead of concentrating on being a full-time painter himself. If this decision involved a painful sacrifice, however, only Dean Hudson knows. For he is a reserved man who keeps his own counsel.

But it is revealing to note that he has guarded his faculty from such interruptions. And of all the things he has done, they are most grateful for this consideration. "He protected us from endless committee meetings, from the minutiae of detail which require so much time, and left us free to concentrate on our work," William Quinn said. Perhaps his wife put it best when she said:
"Metempsychol Eype," by Paul Burlin (collection of Mr. and Mrs. Joseph D. Murphy). Through a long and highly creative career, he was among the leading influences on American painting. Beginning with the Armory Show in 1913, Burlin was always in the forefront of advancing concepts," Dean Hudson comments.

"Eskimo," by Fred Becker (collection of Mr. and Mrs. Herb Weitman). Becker, who was on the faculty from 1948 to 1968, is described by Hudson as "a major innovator in the techniques of intaglio prints and an internationally known creative artist."
"Old Tree," by Werner Drewes (Kenneth and Gwen Hudson collection). Now professor emeritus, he served on the faculty from 1946 to 1965. He is described by Hudson as "another German emigre and one of a small group of very important artists who transmitted the philosophy of the Bauhaus to this country and its educational institutions."

"My husband looked primarily for people who were artists rather than art educators per se. You've got to have artists to turn out artists."

A story which reveals a great deal about Kenneth E. Hudson, the man, and his innate modesty concerns Bernie Fuchs, one of the school's most famous graduates and an illustrator who ranks among the top half-dozen in the country. Hudson was dining with a friend in New York some years ago when an artist approached the table. The dean's host introduced him to the fellow with the comment that Hudson headed the school which Bernie Fuchs had attended. "What did you do to turn out a chap like that?" the man asked incredulously. The dean thought a minute, and then said simply, "Thank God we didn't ruin him!"
"The Oracle," by Arthur Osver (artist's collection). Of Osver, who joined the faculty in 1960, Dean Hudson has written, "He is clearly in love with paint: thick paint, thin paint, paint in all its variety; paint put on tenderly or fiercely; with knife, brush, rag, fingers; paint used to extract everything possible out of itself as physical substance."
Dr. Rodney M. Coe (left) and Dr. David J. Pittman, both sociologists, are the top administrators of the Social Science Institute. Dr. Pittman is director of the Social Science Institute. Dr. Coe is associate director.
The Social Science Institute at Washington University is a vital, innovative, interdisciplinary agency concerned with basic and applied research in the social and behavioral sciences. Its research laboratory is the world itself with S.S.I. personnel pursuing studies in places as widely separated as Santiago and St. Louis for one fundamental purpose—to find new solutions for a society, which if it does not solve its very human problems will ultimately destroy itself.

SOCIAL SCIENCE INSTITUTE

By DOROTHY BROCKHOFF
Office of Information

The surname Brown colors our history and folklore. The most famous of the clan is, of course, the ubiquitous Charlie of Peanuts fame, but other celebrated Browns include B. Gratz, a former Missouri governor and vice-presidential aspirant; H. Rap, the militant Negro spokesman; and Buster, the shoe company trademark. But the Brown who is pertinent to this piece was named Clarence and he came from Ohio.

Elected to Congress in 1939, the late Representative Clarence J. Brown is best remembered in scholarly circles for his contempt for the social sciences. A little over two decades ago, he fought bitterly against any federal support of these disciplines, arguing that it would result “in a lot of short-haired women and long-haired men messing with everybody’s personal affairs.”

Fortunately, the majority of Brown’s colleagues did not share his views, and today our government has an important stake in social science research. True, it is not so large a commitment as many would wish. In 1966, of the $3.5 billion spent on basic and applied research in this country only $221 million went to the social sciences; but this, coupled with grants from private institutions, helps support some thirty centers devoted to social science research in the United States.

One of these is the Social Science Institute at Washington University. In 1967, when it celebrated its tenth anniversary, its director, Dr. David J. Pittman, noted that the Institute had received approximately $7,150,000 in research and training grants during its first decade. Presently, the Institute is sponsoring twenty projects funded with grants of almost $1.5 million, and it has applied for over $1.3 million of additional aid to continue current investigations and launch new ones.

The Social Science Institute is an interdisciplinary group with its specialists drawn from architecture, anthropology, economics, education, journalism, law, medicine, political science, psychiatry, psychology, public health, social work, sociology, and history.

The staff includes fifteen project directors, most of them University faculty, twenty-two research assistants, and thirty-three research associates. Among their numbers are a Hungarian Ph.D. who speaks five languages, a woman with an encyclopedic knowledge of alcoholism, and a psychologist born in Italy and educated there, in Belgium, and the United States, who will soon receive his doctorate.

Unlike their counterparts in the physical sciences, most of these researchers work in the field or in offices instead of in laboratories. Some live in the slums in order to study poverty; others travel to India to grapple with population control, to Latin America to learn more about social attitudes, to Great Britain to study drug addiction, or to Saskatchewan to understand the Hutterites.

Their interests encompass such widely assorted subjects as retarded children, identification of residential blight, and computer analysis of interaction. Collectively and individually they have published enough books, journal articles, and reports to fill a small library. Over 287 publications are listed in the three separate bibliographies compiled by the Institute.

Yet, except for a few whose research has caught the interest of lawmakers and the press—notably Dr. Lee Rainwater with his Pruitt-Igoe investigations, and Dr. Pittman, himself, internationally famous for his work with alcoholics—the Institute staff is not widely known outside of scholarly circles. They prefer to keep it that way, for social science research like diplomacy is best carried out without klieg lights and television.

As head of the Institute, Dave Pittman needs many talents. He is a first-rate scholar with an impressive knowledge of sociology and the other behavioral sciences.
He also happens to be a skillful administrator, a master of public relations, and a man who knows how to read a balance sheet. Despite his own personal success and that of the Institute, Dave Pittman is sharply critical and impatient, perhaps because he sees so much more to be done. "We've run out of space," he explains. "Until we get that long-awaited social science building, we're going to have to go off campus."

The Institute came into being some eleven years ago. It was then that Ethan A. H. Shepley, Chancellor at the time; Dr. Thomas Hall, then Dean of the College of Liberal Arts; and Dr. Carl Tolman, then Vice Chancellor and Dean of Faculties, together with the chairmen of key departments in the social sciences, decided that something must be done to stimulate research in the behavioral sciences at the University.

"At that time," Dr. Pittman reminisced, "the amount of research in the social sciences here was almost nil. A little investigative work, supported by fellowships, was being done in psychology, political science, and sociology-anthropology, but there were few grants of any significance from foundations or government agencies."

Fortunately, Shepley and his colleagues were men of vision with the foresight to see that such a situation was intolerable at a first-class university. So they set out to create a research institute and hired Professor Nicholas J. Demerath of the University of North Carolina's Institute for Research in Social Science to head it. At the time of his appointment Demerath was also made chairman of the Department of Sociology.

Today, of course, it is becoming fashionable to look to the social sciences for the answers to problems which rack our society, but when the Institute was founded there was not nearly so much appreciation or understanding of what social scientists can contribute to the community and the country.

There are still those who assign a low priority to the social sciences, but the image of social scientists on Capitol Hill, at least, is rising. Currently, bills have been introduced in both houses of Congress to strengthen governmental support of the social sciences, with one sponsor, Senator Fred K. Harris, going so far as to propose a National Foundation for the Social Sciences.

But these are developments of the sixties. In 1956 there was no legislation such as that proposed by Senator Harris pending in Congress, and those who launched the Social Science Institute were regarded by the more circumspect as being about as daft as Seward when he bought his Alaskan Icebox.

Nevertheless, it was a fait accompli, and Dr. Demerath went to work. He started out in the basement of Brown Hall with one secretary and a budget of $14,430, out of which he was to staff and equip the office, cover traveling expenses, and make grants for research in the social sci-
ences by faculty and graduate students. Less determined men might have quit right then, but fortunately Dr. Demerath was not one of these.

"How do you go about forging an institute and what is the strategy?" Dr. Demerath speculated as he reconstructed his thinking during those pioneering days. "It seemed to me that we needed to relate the social sciences to the community. We needed to work with those parts of the University and the community that had strength and distinction in urban and health affairs. Above all we needed to work with those professors who wanted to do field work and had ideas for research development." These convictions led Dr. Demerath to cut across departmental and professional school boundaries and into the St. Louis community to form alliances.

His principal allies included Dr. Edwin Gildea, then chairman of the Department of Psychiatry; Dr. David Littauer, then director of Jewish Hospital; H. Sam Priest, then president of the St. Louis Board of Police Commissioners; and Dr. Herbert Domke, then Commissioner of Health for St. Louis County. Through the association with Dr. Gildea came one of the Institute's first programs: the Community Mental Health Research Training Program.

Another Demerath innovation was to bind the Institute to the community by interesting business and civic leaders in the promotion of the social sciences. Key citizens were placed on a Citizen's Advisory Board, so that, Dr. Demerath explained, "the Institute became a truly cooperative enterprise, allied not only with departments and professional schools of the University (like medicine, and later architecture and engineering), but also with influential people in the St. Louis area. We never got big amounts of money from our local sources," Dr. Demerath said, "but we did get all sorts of research entree. We gained access to data, to groups and institutions important to our studies, and finally from our friends in the town who were on our board we developed a real feeling for what was needed and practical in St. Louis affairs."

From the beginning, Dr. Demerath was careful to seek funds only for projects in which the faculty had a specific interest. "One of the troubles with so many research institutes," he says, "is that administrators go out and raise money and then come back and tell their faculty about it. Many times the faculty couldn't care less, for the project funded frequently has no relation to the investigations they are eager to pursue. So our first principle was—start with the research idea, and then, with the faculty or acting as their salesmen, go out and find the money."

Early in its history, the founders of the Institute also established another guideline which distinguishes its operations from many other research groups. The Institute does not purely commerical or market research; nor does it conduct any opinion polls or survey samples for commercial or government agencies. "In one sense," Dr. Pittman explains, "we become brokers for the faculty. We help them find support for their research ideas and encourage them to develop new trajectories of research."

Since the Institute began, the faculty has never lacked research ideas. In accordance with the Institute's avowed purpose "to develop new knowledge of man in society, to test and extend present knowledge by applications in the public interest, and to give research training to students," some sixty-six projects have been undertaken. This is quite a record, particularly when it is remembered that in the early days Dr. Demerath had trouble recruiting young people with research orientation because some of the more conservative professors were skeptical of them.

"A few individuals," Dr. Demerath says, "were alarmed because they felt that the newcomers attracted to the Institute wouldn't teach a full load, keep regular hours, or stay on the campus between September and June. Of course, universities don't win acclaim and research doesn't get done that way, but we had to fight quite a battle to win our point. In the early days, to pay a man's salary, we sometimes had to make a joint appointment, which isn't easy to do. Dr. Pittman and Dr. Albert F. Wessen, the first director of our Medical Care Research Center, for example, had joint appointments in the departments of psychiatry and sociology. There were three of us who used to execute triple plays—Dr. Gildea, Dr. Robert Schaefer, then director of the Graduate Institute of Education, and myself. We'd get a little money here and some more there and put together a position. That's the way we hired many assistant professors."

Gradually the research at the Institute became oriented around five basic areas: human relations in small groups; crime, delinquency and deviance; health and medicine; community and intergroup relations; and administrative sciences and organizational behavior.

From the work with small groups, originally started with an early grant from the Office of Naval Research by Dr. Richard de Charms, professor of education and psychology, and Dr. Robert Hamblin, professor of sociology, have come several projects, including the widely discussed Social Exchange Laboratory. Now directed by Dr. Hamblin, this laboratory is currently doing a series of experiments with different types of problem children. Affiliated researchers work with ghetto children struggling with the three R's at the Dunbar and Carr Lane Schools and with hyperactive children, many of whom are also hyperaggressive, at Buder School. On the campus, Dr. Hamblin and his group have organized a program for autistic and schizophrenic children.

"We are introducing new therapy and teaching systems to help these children over their problems," Dr. Hamblin explained. "We have developed reward systems that avoid all types of punishment because we have found the latter does more harm than good. We tailor the rewards to the particular types of children we're working with and the process is far from a simple one, but we've achieved considerable success."

Less cautious observers might characterize the results as remarkable. The Laboratory's accomplishments are at-
tracting widespread attention and some child psychiatry units in St. Louis are beginning to send their most difficult cases to Dr. Hamblin's group. These specialists are impressed with the response of the various types of children being treated by the Social Exchange researchers.

The thirty-five disadvantaged Dunbar youngsters essentially flunked kindergarten and were floundering miserably when Dr. Hamblin's associates began working with them less than two years ago. Through artful teaching based on the use of rewards, the children's I.Q.'s have improved on the average by twenty-five points, and their achievement tests are normal in reading and arithmetic. This year at Buder and Carr Lane Schools the program has been expanded to include several kindergarten and first- and fourth-grade classes.

Last year at Buder School, a teacher trained in Social Exchange methods, was able to "settle down a group of hyperactive-hyperaggressive children so that they were able to work effectively about 90 to 95 per cent of the time." On the average they changed their rate of academic improvement from .4 to 1.2 levels per school year in reading and arithmetic.

On the campus a group of sixteen psychotic children, many of whom had retreated into a world of their own, are all talking and relating now. Some have done so well that Dr. Hamblin has put them in classes where all are taking normal kindergarten work together.

Another psychologist connected with the Institute is Dr. Jane Loevinger. Named a Research Scientist by the National Institute of Mental Health some months ago, Dr. Loevinger's primary interest is in the theory of ego development and its measurement. She and her associates began to concentrate on this problem almost a decade ago.

"We started," she reminisced, "by devising an objective test for measuring mothers' attitudes toward problems of family life. As we worked on this test, it became apparent that the prevailing ideas about psychodynamics weren't helping us to understand our data. So we were driven toward the concept of ego development, what personality tests 'test,' whether they're designed to or not.

"Then we wanted to get a second test to confirm that the first test was really a measure of ego development, and so we worked out one involving sentence completions. Next, we had to come up with an objective scoring manual for this sentence completion test," she explained. The whole procedure sounds relatively easy, but it has taken years of effort. But the end is now in sight. The sentence-completion scoring manual will be published soon, and she is confident that once it becomes readily available it will be widely adopted as a measure of ego development.

Dr. Loevinger foresees numerous applications for the test, which can be used as a tool for learning more about people and their motivation. "It will probably come to be used to understand more about kids in the slums and delinquents," she predicted. Out on the West Coast, for example, a group whose work dovetails with Dr. Loevinger's is already assisting the California Department of Correction. Their purpose, through a similar ego development measurement, is to match therapists with certain kinds of delinquents. Such application is vitally important in order to avoid placing in charge of a group of youthful offenders a person who either isn't equipped to handle them or has a personality that the delinquents can't tolerate.

That part of Dr. Loevinger's research would find practical use in the rehabilitation of delinquents was not foreseen when she began her work on testing, but it is a source of satisfaction to Dr. Pittman, for the Institute is vitally interested in research on crime and deviance. Its investigators have completed a number of projects related to this subject, including a depth study of juvenile delinquency and adolescence and an intensive analysis of the relationship between childhood experience and behavior problems vis-a-vis adult adjustment and psychiatric disorders, particularly sociopathic personality types.

More recently, the Law Enforcement Study Center has been organized by the Institute to help the police deal more intelligently with the socially deviant in our society, particularly alcoholics, drug addicts, the mentally ill, sexual deviants, and would-be suicides.

In medical sociology probably the best known work of the Institute is Dr. Pittman's intensive research on alcoholism. As principal author with Dr. C. Wayne Gordon, (who received his advanced degrees from Washington University and is now professor of sociology-anthropology at UCLA) of a book called Revolving Door: A Study of the
Chronic Police Case Inebriate, Dr. Pittman has helped bring about a nation-wide re-evaluation of the alcoholic's predicament. Through cooperation between the Institute and the Department of Psychiatry and with financing by the City of St. Louis, private gifts, and the N.I.M.H., the first public treatment facility for alcoholics was founded at Malcolm Bliss Mental Health Center in St. Louis.

The Institute, with Dr. Pittman acting as the driving force, has also played an important part in setting up the Detoxification Center now at State Hospital in St. Louis. Dr. Pittman is also vitally interested in drug addiction and is a director of the Narcotics Service Council.

Currently, the Institute is conducting two alcoholism training programs financed with awards from the state and federal governments. The program, operated with a $56,000 grant from the Missouri Division of Mental Diseases, is known as the Alcoholism Education Training Program (AETP). A continuation of a program begun in 1962, its purpose is to bring state employees from such areas as the highway patrol, employment security, welfare, vocational rehabilitation, and public health nursing to the University to learn how to deal more effectively with the alcoholic in their communities.

The other program, sponsored by a $75,000 grant from the N.I.M.H., is known as the National Alcoholism Training Program for Professionals (NATPP). Through the academic year, ten short-term seminars have been organized for key people at the policy-making level in the fields of community planning and development, public health, community mental health, civic administration, law enforcement and the judiciary, and alcoholism. The aim of these five-day training sessions is to enable trainees to return to their localities equipped to serve as consultants and catalytic agents in the development of alcoholism treatment programs. It is also expected that participants will initiate and implement new programs and facilities in the field of alcoholism.

Laura Root, nationally recognized for her knowledge of alcoholism, is director of both programs, and John F. Mueller is co-director. She characterizes the NATPP effort as an attempt to take high-echelon people and motivate them to "implement, innovate, and renovate existing alcoholism programs in their home towns."

That the Root-Mueller team, with an assist from the communications media, is doing an effective job is evident from feedback reaching the Institute. One delegate from Waco, Texas, returned from a University session so fired with enthusiasm that she was able with the aid of publicity given her St. Louis visit to persuade her fellow Wacoians to establish emergency care facilities and a half-way house for alcoholics. She also played an important part in influencing a general hospital to accept alcoholics for treatment.

To measure the effectiveness of all the delegates to the various NATPP seminars held at Washington University, Dr. Pittman and some of his researchers expect to do a follow-up survey next year.

The Medical Care Research Center, established originally as a cooperative effort of the Social Science Institute and Jewish Hospital, is now linked with the St. Louis County Health Department and the St. Louis University School of Medicine. With headquarters at Jewish Hospital, it has undertaken some forty projects since it was established in 1960. Currently, its major efforts center around four principal projects: the development of two community laboratories; a medical education project; a series of gerontological investigations; and studies concerned with preventive medicine services for different population groups.

Of these, the operation of two community laboratories, one in the city and another in the county, is the most dramatic. Representative of a cross-section of the people living in Greater St. Louis, the 203,000 persons residing in these areas comprise what are among the largest laboratories in the world. One of these unique laboratories is in a neighborhood generally surrounding the St. Louis University School of Medicine; the other is located in southwest St. Louis County.

For nearly three years Institute researchers have been studying the residents of these areas, not with a microscope, but with census data and household interviews. They have accumulated a storehouse of information not only on the people residing in these laboratories but also the kinds of health and welfare services available to them. Now the Medical Care Center proposes to use all of these data as a base for extensive research.

Dr. Rodney M. Coe, executive director, expects to do a
Laura Root, noted authority on alcoholism, counsels patients at the St. Louis Detoxification and Diagnostic Evaluation Center.

While associated with the Institute, anthropologist Alvin W. Wolfe directed research in the Soulard District of St. Louis.
series of epidemiologic surveys, for example, designed not only to reveal what kinds of problems are there but also their causes. It is envisioned that these laboratories will serve as training grounds for graduate students in the social sciences, as well as medical students. “An infinite number of research projects is possible,” Dr. Coe said. “One might involve a study of faith-healing in one segment of the population; another might be the determination of urban attitudes toward mental health.”

The problems of poverty, housing, and employment in St. Louis have attracted the attention of several Institute staff members. At the request of former St. Louis Mayor Raymond R. Tucker, Professor Demerath in 1963 and 1964 served as chairman of a citizen’s commission and then directed the planning and establishment of the St. Louis Human Development Corporation, the city and county anti-poverty agency.

Probably the best known research dealing with community and intergroup relations is that relating to public housing, known informally as “the Pruitt-Igoe study.” Its executive director is Dr. Rainwater and the principal investigators are Dr. Pittman and Dr. Alvin W. Gouldner. Some of their findings were revealed in Dr. Rainwater’s testimony before the Ribicoff committee in Congress in 1966. During the course of the Pruitt-Igoe study, some 40,000 pages of data have been obtained through interviews and observation.

All of this information is being compressed into four separate reports. One will deal with the community aspects of the area, another with the daily routine and social habits of the residents, and the third with a discussion of the implications of this research on poverty. A special publication, based on a detailed study by Mrs. Muriel Sterne of Negro drinking patterns in the ghetto, will be the first such investigation reported in the nation.

Recommendations will be submitted relating to large-scale policies which the investigators think could alleviate some of the more serious problems of the ghetto. To help them move from a diagnosis to a concrete prescription, Dr. Rainwater has enlisted the aid of University economist Dr. Hyman Minsky.

Dr. Rainwater cooperated with anthropologist Alvin W. Wolfe, now at the University of Wisconsin at Milwaukee, on another project known officially as “Adaptations by Urban White Families to Poverty.” This study centered largely on 150 households in the so-called “Soulard area” of South St. Louis, where five research assistants and one research associate lived in an effort to come to grips with the problems of the residents.

It is difficult to generalize about the Soulard neighborhood, for the residents vary in income and background. The streets are lined with row houses, most of them seedy, but here and there is a well-cared-for dwelling with a more affluent tenant or owner. But for the most part the people are poor, with a median income of $4,161 in 1959, the lowest of any census tract in the St. Louis area containing over 90 percent whites. Their most distinguishing characteristic is their mobility. “A good many of the people move from house to house within the neighborhood itself, and frequently back and forth between the country, which many of them left originally, and the city,” Dr. Wolfe explained.

An attempt is being made to compare the findings of this research with those of Pruitt-Igoe, but this is not easy, for the Soulard neighborhood is more comparable to a “middle income” Negro neighborhood than to the high-rise public housing settlement. Nevertheless, some interesting discoveries have been made and summarized in a report to the Office of Economic Opportunity which financed the research.

In the area of comparative culture and organizational behavior, one of the most exciting projects is El Grupo Interamericano de Sociologia Comparativa.” Supported by a $100,000 Ford Foundation grant, its investigators are Professors Joseph A. Kahl and N. J. Demerath. Working with them on “El Grupo,” as it is generally known, are two Brazilian sociologists, Dr. Glauco A. D. Soares, visiting professor this spring, and Dr. Aparecida Joly Gouveia, and two Chileans, Eduardo Muñoz and Dr. Werner Ackerman. To learn more about urban life, they will undertake simultaneously a series of studies in Rio de Janeiro, Santiago, and St. Louis.

“Most of the comparative research in the social sciences has generally been based on trying to make comparisons from data that were collected for different purposes by different people at different times,” Dr. Kahl explained. “We want to have a genuine partnership group from several countries in which the very problems to be studied and the research designs will be worked out cooperatively by the individuals involved.”

In St. Louis, Dr. Kahl is directing research intended to provide more information about middle class and working class Negro and white families. “Our purpose,” Dr. Kahl declared, “is to learn more about their values and their adaptation to urban demands. Comparable work will be done in Latin America particularly with new migrants to the city.” Muñoz participated in the St. Louis research when he was a graduate student in sociology, and has returned to Santiago to teach and direct parallel research in that city.

These are representative illustrations of the work of the Social Science Institute. This list is by no means inclusive, but it is enough to suggest some of the ways in which the Institute is making a contribution to the study of man and his response to a changing environment. Over the years, the curiosity of its investigators has led the Institute to pursue many other projects, including a monumental three-volume study of the Meramec River Basin, but a complete account of all this work remains the task of an official University historian. The record they have made is impressive, but much more needs to be done both at Washington University and throughout the world.

For as C. P. Snow has warned, “There was some excuse for our ancestors not foreseeing the effects of the first industrial revolution. There is no excuse this time . . . we should be investing more . . . in the social sciences . . . we are more ignorant than is wise, or safe, or human.”
George Engelmann was a noted St. Louis physician and surgeon, a pioneer meteorologist, and a world-famous botanist. His association with Henry Shaw is largely responsible for the development of the Missouri Botanical Garden as a leading scientific center as well as a horticultural showplace.

**GODFATHER OF THE GARDEN**

By EDGAR S. ANDERSON

Engelmann Professor of Botany

During most of his seventy-five years in St. Louis, Dr. George Engelmann was active in promoting a botanical garden for St. Louis that would be outstanding both horticulturally and scientifically. There is a possibility that without him there would have been no Missouri Botanical Garden. Almost certainly it would never have become an outstanding scientific center but for him.

Dr. Engelmann was a born botanist. Late in life he wrote: "I began in my fifteenth year to be greatly interested in plants."

He was born in 1809 at Frankfurt am Main, the eldest of thirteen children. His father was a professional man with a doctorate, who with his wife conducted a school for girls. Frau Doktor Engelmann was as able as her husband. Her father had been an artist at the Weimar Court and her mother came from a refugee Huguenot family.

Engelmann entered the University of Heidelberg on a scholarship to begin his medical training. He was an outstanding student, but because of his liberal views he had to transfer first to Berlin and then to Würzburg. Engelmann's doctoral thesis on plant monstrosities was more closely related to philosophical botany than to medicine. Goethe (who was a botanist as well as a philosopher) was so impressed by it that he offered the young man his own notes on the subject, on which Goethe was the world's authority. The excellent drawings in the thesis undoubtedly helped to impress Goethe. The artistic ability which came to Engelmann from his mother had stood him in good stead. It continued to be one of his special assets as a physician and as a botanist. When the thesis was published, it was illustrated with "five plates of figures drawn and transferred to the lithographer's stone with his own hand."

As a surgeon, Engelmann had the trained and gifted hands of an artist; as a botanist, he delighted in studying plants which required careful dissection before they could be understood. For example, he monographed the genus Cuscuta, the dodders, strange leafless plants which grow as a tangled mass over the plants they parasitize by sending out feelers that digest a path into the host and may ultimately kill it. With a plant with no real leaves and a mass of stems, where could a botanist look for characteristics which would serve to classify the different kinds? Dr. Engelmann studied the stamens of their minute flowers and catalogued the different ways they were fringed at the base of each stamen. He also studied the tiny flower buds and noted whether or not they bore hairs. His judgments about these and other matters are still respected by modern experts.

A tabulation of the species of dodder listed in the last edition of the authoritative Gray's Manual of Botany shows that Engelmann is responsible for as many of the scientific names of our dodders as are all the rest of the world's experts, both before and after his time. Not only did he make the dissections, he drew a diagnostic sketch of each one and filed it carefully away. The Library of the Missouri Botanical Garden has large bound volumes of these records. Unfortunately, Dr. Engelmann's lawyers, who carried out the provisions of his will, spent the funds he left on ornate bindings and not on arranging the sketches so that they would be easy for future students to consult.

After receiving his doctorate, which in those days always included botany as well as medicine, Dr. Engelmann spent the summer of 1832 in Paris with Agassiz and other young liberal and radical student friends. It was a joyous summer. "We led a glorious life in scientific union..."
in spite of the cholera," he wrote in his memoirs. In the fall of that same year, he sailed for America under circumstances somewhat different from those of many of his intimates and friends. He was no fugitive from an oppressive state, although he shared the thoughts of his revolutionary friends; nor was he leaving his parents behind in the melancholy of enforced separation. His uncle had commissioned him to make a study of western American lands, for he had money to invest at a time when many Germans were eager to buy American land for investment, if not for emigration.

Engelmann reached Baltimore in September, 1832, and proceeded to the community of the "Latin farmers" at Belleville, Illinois. Here he fell in with Ferdinand Jackob Lindeheimer, George Bunsen, and other associates of Frankfurt and university days who had come together in this strange community of displaced persons in the Middle West.

Engelmann took his uncle's commission seriously. He made long, lonely, and adventurous trips into the thinly settled areas of Illinois, Missouri, and Arkansas, investigating the soils and the water supply and talking with the settlers in those remote places. Finally, he ventured all the money left in his uncle's account in a glorious trip to the far Southwest, far enough to see the Saguaro, the giant tree cacti, which he studied along the Gila River in what is now Arizona. He used every penny on the trip. In his later years Dr. Engelmann wrote that he even had to sell his gun and horse.

However, his adventure paid him well for the sacrifice. He had a chance to study not only the giant tree cacti along the Gila River, but many other kinds of cacti there and on the trip out and back. He already knew more about cacti in general than anyone else. For the rest of his life he was the world's authority on cacti and was welcomed by the greatest living botanists when he came to visit them as a young man. Even the great Professor Asa Gray wrote a complimentary letter when he ran across some of Engelmann's specimens in Berlin.

When Engelmann set himself up as a physician and surgeon in December, 1835, he was an immediate success. The young city of St. Louis was trilingual and Engelmann was fluent in all three languages: German, English, and French. He had good European training and his experience as a naturalist had sharpened his powers of observation. He made as shrewd judgments about men as about plants. Engelmann is credited with being the first doctor in St. Louis to use obstetrical forceps and the first in the community to give quinine for the relief of the victims of malaria. At the end of five years he had saved enough money to go back to Germany and marry his fiancée, Dorothea Horstmann.

On his wedding trip, Dr. Engelmann had a wonderful piece of good luck. In passing through New York City, he paid a call on an American botanist with whom he had already corresponded, and learned that Professor Asa Gray of Harvard, "the father of American botany," was in the city. They were introduced and became lifelong friends. They were both deeply interested in botany and each was as devoted to the interests of the other as to his own, but they had quite different personalities.

Asa Gray was a born diplomat. Dr. Engelmann once described his own deficiencies in that area in a letter to Gray: "I do not understand 'soft-soaping,' as the western phrase is . . . a man who has no scientific zeal nor knowledge who must be got to do things by diplomacy, I cannot do much with. The proper way would be to get him interested in what interests us, but that I unfortunately do not understand." Both men were perceptive, but Dr. Engelmann in his blunt way once wrote another
Birdseye view of Missouri Botanical Garden from a plate in Compton's Pictorial, 1876. From left: Tower Grove House and its service buildings; the Museum, with Henry Shaw's Mausoleum rising in the grove behind; the Cleveland Avenue gate; the Pagoda; the main gate. Along the right margin is part of the tropical greenhouse and beyond that Shaw's arboretum and his entrance drive.
botanist that although Asa Gray was highly intelligent, his capacity for original investigation was not well developed. Other students of the work of the two men would concur in that judgment.

The two worked as one man not only in studying the flora of the United States but also in the development of Henry Shaw's botanical garden. Asa Gray's services to the Garden (which started through Engelmann's hopes for a combined horticultural and scientific center) increased after Dr. Engelmann's death, with important consequences for the relationships between the Missouri Botanical Garden and Washington University.

One of the ways Gray and Engelmann worked together effectively was in employing the "Latin farmers," particularly Lindheimer and other displaced refugees, to make herbarium collections in the West and Southwest. Dr. Engelmann became the great authority on our western flora; Dr. Gray on that of the eastern United States.

Dr. Engelmann's medical practice prospered so well that he was able to spend the summer of 1856 working with Gray in the Gray Herbarium and the Harvard Botanical Garden, where among other things he published his pathfinding master work, "Synopsis of the Cactaceae" (the whole family of cacti) in the Proceedings of the American Academy of Arts and Sciences. He also advanced his over-all understanding of American oaks, conifers, and grapes.

A year later Dr. Engelmann was at Kew, visiting Sir William Hooker at the Royal Botanical Garden and using Sir William's prestige to get Henry Shaw's garden off to a good start scientifically and horticulturally. He had made his plans carefully and had persuaded Mr. Shaw earlier in the year to dispatch a good collection of living cacti to the Royal Garden.

On August 11, 1857, there was a letter from Sir William congratulating Henry Shaw on having launched his botanical garden. Sir William's letter, headed by the royal seal, began: "My dear Mr. Shaw: I have the pleasure of addressing you at this moment, with Dr. Engelmann under my roof. I read to him your letter of the 28th of April, the last I had the pleasure to receive from you; he was well pleased to learn that you had commenced plans of the botanical gardens by trenching, etc., and that you expected to be ready for planting next year." In Engelmann's own letter written the next day on the same official paper with the royal seal, Engelmann assured Henry Shaw that "very few of the appendages to a garden are of more importance than a library and economic museum, and these gradually increase like a rolling snowball."

Dr. Engelmann's prediction has been fulfilled. At Henry Shaw's death, the library and the herbarium in the Museum Building had both grown so rapidly that the books and specimens were too crowded for the comfort of those who consulted them—so crowded, in fact, that they were deteriorating as books and specimens. As soon as Mr. Shaw's town house had been taken down and moved to the site on Tower Grove Avenue, where it still stands, the herbarium and library were moved there.

In the early nineteen hundreds, the building was greatly extended toward the south and has been known ever since as the Administration Building. Decade by decade every available part of the four-story structure has been taken over by the continuously growing library and herbarium, leaving only a small portion at the north end for administrative purposes. A new storage building is now being built at the northern end of the Garden's property, but it will bring only temporary relief. This continuing growth is the basic underlying problem of many modern libraries, herbaria, and museums.

Another of Dr. Engelmann's letters explains the charmingly antique atmosphere of the Museum Building. Through an error either of Mr. Shaw or of his architect, it is copied from the old north wing at Kew and not from the new improved wing that Engelmann or Sir William Hooper would have recommended. Consequently, the building suggests even earlier times than those in which it was erected. There are neo-classical pillars flanking the entrance and a matching pair on either side of the rostrum in the small auditorium; but they do give the building added charm, and its peculiar features are now being used advantageously. We need a big auditorium and are now raising money to build one, but this is an almost perfect meeting place for small groups, classes, conferences, committee meetings, the scheduled monthly meetings of various horticultural and natural history societies, luncheons, staff meetings, and seminars. It is a room which stimulates informal discussion but somehow keeps it on a pleasant give-and-take basis.

All the building is put to good use. Mr. Shaw's old museum cases on the ground floor are given over to exhibits of important discoveries by staff members. The cases on the second floor house the world's most complete collection of different kinds of corn from all over the world. In the basement is the world's largest collection of prehistoric corn from caves and excavations. The basement houses an important biophysical laboratory. Mr. Shaw's original herbarium cases on the second floor are used for study collections and demonstration material of plants used for food and ornament, poisonous plants, weeds, all in some way illustrating the history of man's association with plants. Dr. Engelmann would probably be pleased about the uses to which Mr. Shaw's "Museum and Library" are being put.

A little later during the same visit to Kew in 1857, Dr. Engelmann wrote to Henry Shaw on the stationery with the royal seal, urging the purchase of the Bernhardi Herbarium. By this one act he did as much for the technical efficiency of the Garden's herbarium as in all his other efforts put together.

As the science of naming particular plants has developed, more and more reliance has been placed on the specimens referred to by the first botanist to use a scientific Latin name for them. Such specimens serve as a voucher for what he had in mind when he used that name. The Bernhardi Herbarium contained more important herbarium specimens for such purposes than any herbarium which could have been purchased before or since. No other herbarium in the New World has anything to match it.
After Engelmann’s death, Asa Gray devotedly kept in close touch with Henry Shaw and his emerging botanical garden. In addition to diplomacy, Gray had other unusual gifts. He had the prestige not only for a Harvard University professor and of a scientist with a European reputation, but he had published several important books; his editorial and literary abilities were widely recognized; he had championed Charles Darwin; and in various other ways made himself persona grata to the Boston Brahmins of his day. This made him uniquely effective in dealing with Dr. William Greenleaf Eliot, the founder of Washington University. On the other hand, in quite practical ways, he could help Mr. Shaw from his wide horticultural experience. He himself had made the area around his charming old house in Cambridge into a useful and beautiful small botanical garden. In one of his letters to Henry Shaw, he outlines in detail some of the things which must be done the very first year so that the planting out of the new display beds could go forward smoothly the next spring.

It was Gray’s suggestions that were followed, and not Eliot’s original proposal, in setting up the effective working relationship between Washington University and the Missouri Botanical Garden. It was Gray’s idea that the executive head of the Garden should be called the director and that he should have an endowed professorship in the Henry Shaw School of Botany. In one letter Gray added the comment that “this would give the director a clear title to the name of professor.” On February 8, 1885, Gray wrote Shaw after having talked over administrative matters with Dr. Eliot and getting him to agree that “the University would provide lecture room and other needful appliances” for the School of Botany. He also lead in selecting an outstanding scientist, Professor William Trelease, as the first Director of the Missouri Botanical Garden and Engelmann Professor of Botany in the Henry Shaw School of Botany.

Dr. Engelmann was effective in the way he phrased his letter to Mr. Shaw. He told him quite truly that the Bernhardi Herbarium could be purchased “for something like $600 and has cost more thousands to amass.” The next year Sir William wrote Shaw, congratulating him on the purchase.

In 1879, Dr. Engelmann’s wife died. She had been his constant and devoted companion. The next year he wisely accepted the invitation of Professor Charles Sprague Sargent of Harvard to join a survey party to study the forests of the Pacific Coast. In discussing Engelmann’s contributions to the survey, Sargent wrote: “though rather infirm, crippled with rheumatism, and very stout, his pluck, good nature, good spirits, and good fellowship were obvious. He was always interesting and always zealous.”

Dr. Engelmann and his son, George, a physician like his father, went to Europe together in 1883, but the next year, two days after his seventy-fifth birthday, the elder Engelmann died and was buried in Bellefontaine Cemetery. His death itself resulted from his scientific devotion, for his terminal illness was caused by what seemed a trivial cold caught while sweeping a path through the snow to the thermometer in his garden. In addition to botany and medicine, he took a deep professional interest in the weather and was the pioneer meteorologist of the Mississippi Valley. His accurate thermometric, barometric, and hydrometric observations, which go from January, 1836, to December, 1882, were eventually turned over to the U.S. Weather Bureau. They continue to be of great value whenever precise studies are made of long-term trends in weather patterns.

Dr. Edgar S. Anderson, Engelmann Professor of Botany.

The connection between the Garden and the University has been continuously effective, partly because all the Garden’s directors have been not only outstanding scientists but effective teachers. When the University’s Graduate School was founded, few other departments of the University were prepared to counsel candidates for the Ph.D. Of the first twenty-one doctorates from Washington University, nineteen were in botany. Just as the zoologists at the University have been helped in various ways through their associations with the Washington University School of Medicine, so the botanists are stimulated by their connections with the Missouri Botanical Garden. Young men on the staff are broadened by their repeated exposure to its multi-faceted library. The Garden is integrated with the life of the city of St. Louis in ways so different from the University’s that those with joint appointments come to feel completely at home in St. Louis in a shorter time than they would otherwise. This understanding between the city of St. Louis and the botanists at the Missouri Botanical Garden would never have developed without the vision and the persistence of Dr. George Engelmann.
Miss Hefner first became interested in the study of people—their customs, values, and ways of life—when, while still in high school, she took an anthropology course at Columbia University. After receiving her A.B. in anthropology from Washington University in 1968, she spent the summer in Kenya as part of Crossroads Africa. She is now working on her M.A. at New York University and serving as a volunteer in Mayor Lindsay's Urban Task Force in New York.
CROSSROADS AFRICA

SOMETIME TOWARDS MORNING early last July, I was awakened from a troubled sleep by the sounds of drums beating and people wailing. It took me a minute to remember that all of us—eleven other Crossroads and our leader, Larry Dixon—were spending our first night "on the road" in a Luo village in western Kenya, East Africa. Later, I learned that the wailing was part of a funeral ceremony for a two-year-old child who had died the previous night, but at the time, it seemed as unreal as most of the other fantastic experiences we had had since arriving on June 29.

We had already been introduced to Nairobi, Kenya's capital, sprawling with white buildings, a huge open market place, and palm-lined streets. (If only some of our cities had as many trees and flowers!) Now, we had almost completed our 350-mile journey across Kenya to an isolated spot called Tarang'anya in the Kenya highlands.

Tarang'anya was to be "home" for six weeks, and the site of our Operation Crossroads Africa project—the science laboratory which we were going to help African students and workers build. Traveling and stopping briefly in our old yellow safari bus had already given us a good chance to see the land virtually untouched, and to meet the often curious, sometimes timid, but always friendly African people.

We had started early in the morning, while the mountains and deep valleys were still misted over. At frequent intervals, the bus would round a bend, and there would be a big herd of cattle and sheep, with startled tribesmen leading them across the road. Actually, it was hard to tell who were more surprised or curious: the Africans who had never seen Americans, or the thirteen of us who had never seen anything like this before!

Upon our arrival in Nairobi, we had been greeted by officials and dignitaries of the Kenya government. It was the people of the bush, however, especially these Luo villagers who had never seen white people before and who thought that "America" was the name of a boat, who introduced us to African life and made us feel truly welcome in a foreign land.

During the five-day orientation session in Canada, we had been well instructed in the health hazards—the risks of malaria and especially dysentery—and prepared for the lack of running water, electricity, nearby medical facilities, and other amenities to which we had always been accustomed. When we did arrive in Tarang'anya, amid the enthusiastic greetings of the schoolboys and the missionaries, we were all slightly ill at ease, not knowing what to expect. After the first week, however, hectic as it was with settling down in our house of mud and thatch and trying to associate the many new, eager faces with unfamiliar names, we found many of our primary fears to be exaggerated. During the summer, however, ten of us contracted malaria, along with gastroenteritis.

The missionaries, especially Mr. Roy Cooper and his wife, Carol, lent us blankets and pressure lamps and allowed us to use their outhouses and the rainwater from their catchment tanks. We took turns riding with them into Migori, the nearest marketplace, to buy our meat (at 15 cents a pound) and other staples. The boys of Tarang'anya Secondary School, anxious to make us comfortable, donated steel-framed beds and bunks for our sleeping bags. Everyone took turns with the primary tasks of straining and boiling water and learning to cook our meals in assorted pots and pans balanced over a wood fire.

The first week was one of beginnings. Not only did we begin adjusting to the idea of thirteen people living in the cramped quarters of the little hut and a life of "eating out," but we began establishing the relationships with one another, with the school boys, and with the surrounding country people which made the summer a priceless learning experience for the Crossroads and, I think, for everyone else involved.

Apart from the other advantages which we experienced individually and in a group throughout the summer, our first day on the worksite was one of the most significant, at least in the differences in values and cultural behavior we encountered. Eager to begin our work, we arrived at the schoolhouse at 8:00, dressed in work pants, boots, and gloves, and quickly became the object of stares from the local "fundis" (workers) who had been recruited to work with us. We later learned from the headmaster that most of the men had never seen Western women before; moreover, African women, whom we were to see invariably in brightly colored cotton print dresses, never appeared in pants—to do so was considered quite improper! To the African men, in this case, men from the local Kuria and Luo tribes, we seemed at first not real women, but a cross between the sexes. After we had carried water to the worksite in big tin "debis" (cans) from the river a half-mile away, one mason shyly asked me—through one of the students—"You look like a man, work like one, and yet you are a woman?"

For the African man, the idea of a woman working was not unusual; in fact, all of us became impressed with the amount of work for which the African woman was responsible, including caring for and feeding her children and cultivating her "shamba" (garden). They were also great entrepreneurs, coming to our hut in steady
For all of us, the first day, and the others to come in the course of six weeks, were ones which will be hard to forget. For the girls, there were initiations into the fine arts of hauling sand, breaking rocks for cement, and mixing mortar. They were days of working under the scorching sun, sweat dripping while we labored with the discomfort of sticky jeans and work shoes. Added to the physical discomfort was the frequent frustration of waiting: for cement blocks and sand to arrive, for tools to be found, for work to begin, for things to be done. Eager to finish what we had set out to do, we became critical of a different idea of “progress,” and were prone to complain of the “inefficiency” and “waste of time.”

At times during the summer, we all seemed to think like “tourists”—impatient with the slowness of the bus service, or angered by what we saw as the consistent disregard for “being-on-time.” This was nowhere more apparent than in the African home. I remember especially the afternoon on which I received an invitation from the tailor in Migori to come to his home for lunch. By one o’clock, we were threading our way through the fields and into the hills surrounding the town. We passed several huts before we came to the right one. There, we were met in the clearing by the host and taken into the main room. I remember writing home to my parents:

... it was dark and small, and earthy, but there was a table squeezed in somehow, six chairs, and a little record player playing Luo love songs. The little children, who kept peeping around the corner at us, started to dance outside. We thought that since we had been told to come around 1:00, lunch would soon follow; but 2:00, and then 2:30 came, and still no sign, except that the wife was very busy. At 3:00, we were served African tea in china cups; I thought we had been mistaken, but we were told that lunch would be coming very soon. At 4:00, we were given a wonderful cooked chicken and ugali, a very good, big, sticky ball of stiff “bread” ... the tailor and his wife were so anxious that everything turn out just right, and were greatly appreciative of our thanks ...

It took most of us a good part of the summer to realize that what we were so quick to call “inefficiency” in everything from African food preparation to work and public transportation was just as strongly rooted in its cultural milieu as is our own concern for—and obsession with—timekeeping. As one of my friends, Joel, asked me with a smile, “Tell me, Pat, don’t you ever take off your watch?”

In a world so oriented to youth, its influence on the future, and its calls for change, the African students, with whom we were in close contact throughout our stay, occupied a special place in our interests. If they could be characterized by one trait it would be a great willingness and eagerness to learn. We were constantly sought out and questioned about our way of life, and about all of the issues which had been given such wide coverage in Kenya newspapers: the upheavals in our cities, black-white relations, the assassinations of men who had become beloved world figures, the Vietnam conflict. “Why,” they asked, “do so many Americans carry guns?”

Bettyann, the black member of our group, was often asked, “Is your life really a happy one? Are you treated well in the United States?” It was amazing to hear these eager, but very serious teenagers question us and converse knowingly on a variety of subjects, including their own national political scene.

When I asked one of our African friends, Harrison Alongo, what he thought of our talks and whether he had helped to provide answers for some of the questions, he asked me with a smile, “Tell me, Pat, don’t you ever take off your watch?”

He thought of our talks and whether he had helped to provide answers for some of the questions, he asked me with a smile, “Tell me, Pat, don’t you ever take off your watch?”

The students were attuned to American educational opportunities, but wanted to know more. Could one really go to school for free? Were there actually laws keeping one in school until a certain age? What was each of us studying and what did we want to become? How does one get to study at an American university? It was not difficult to realize that education for the young African was and is the one key to future opportunities and social mobility. Already, those who became our friends had reached the enviable positions of high school students. Education in Africa is so competitive that only the very brightest and most dedicated to study are privileged to continue to the college level. One is considered fortunate, indeed, to have finished what is the equivalent of our high school education.

Wherever we went, the paraphernalia of our Western life—the cameras, the tape recorders, even our clothing—held a great attraction for the African people, young and old alike. We found our tin can collection to be highly valued by the “mamas” for carrying water. They didn’t mind exchanging their beautiful brown gourds for them! Always, the question which accompanied the request to look at something or to learn how to use my movie camera was, “How much does it cost?” When I thought of how difficult, if not next to impossible it was to raise the necessary 100 shillings ($14) for one year of high school education for a youngster, I began to understand the look of disbelief when it was explained that my desert boots cost all of 98 shillings. When we left, we found that we
could not give away some of our clothing or other belongings lightly, for socks, shoes, and other material gifts were regarded as important tokens of friendship.

From the many times that I listened to my fellow Crossroaders answering questions, trying to convince many African people that not all Americans are rich, educated, and employed, I began to develop what has become one of the most valuable and disturbing insights of my life: an understanding of how people in so-called “underdeveloped,” but dynamic and growing countries, can rationally defend an idea of the rich—and “ugly”—American. When we attempted to bargain for souvenirs in the market places, we often met with joking, sometimes disdainful remarks about our great wealth.

When one thinks of what we had in the way of clothing, cameras, and other equipment, compared to the average African youth’s one pair of shoes (if that) and maybe a coat or sweater, such reasoning becomes logical.

In our own way, however, we were just as eager to possess some of the articles of everyday African life: the woven bowls and mats, the wooden spoons, the jewelry and musical instruments. Our attempts to buy these things were sometimes met with stern refusals, but, more often than not, unconcealed amusement. After all, how could one want something so commonplace?

Just before we left Tarangany.a, we were fortunate enough to visit a market place crowded with Masai tribespeople. The Masai, who have remained proud keepers of their traditional dress and their ancient custom of smearing themselves with oil and red clay, also make and wear ingeniously beaded necklaces, bobs, and ear flaps. When we made clear our intentions to buy the bead and leather flaps which hung from ear lobes stretched shoulder-length, the women, who were at first fascinated by our long hair (they shave their heads), peered at and fingered our “tiny” holeless ears, looked at each other in puzzled amusement, and then laughed.

One of the especially memorable moments of the summer came when I awakened on the train taking us back to Nairobi and our plane for home. Dawn was just breaking on the horizon; and in the light I could see herds of elephants and giraffe moving across the plains with not a fence in sight! My African friends sometimes found it hard to believe that we could be sincerely enthusiastic about Kenya’s beautiful land and that I could want to know the names of all the unfamiliar birds and plants. My great and undisguised excitement at seeing zebra and wildebeest living there—outside of a zoo—always provoked smiles. I suspect, though, that the boys regarded our compliments to their land with pride.

Of all of the experiences which we had as a group and I had individually, of all of the attachments made and the opinions formed, I have tended to remember and talk about two things especially: the African land and the character of its people. It is easy to convince someone of the unparalleled beauty and natural richness of the country through good pictures. It is not so easy to communicate the character, the strength, and the great kindness behind the big eyes and the brown faces.

Four years of college and many books had given me the basic ideas, the problems, and the issues involved in Westernization; I saw process and change in terms of models of development. It took eight weeks in Africa to add the all too often forgotten human dimension. I began associating the confusing, often tediously described “process of modernization” with real people—people with individual personalities, feelings, and hopes, who ate and lived much the same as their fathers and their fathers before them, but who had record players and drank Coca Cola. I remember my friends, especially the young, involved in the constant struggle to keep up with change, to be Western, to somehow maintain village ties with friends and obligations to parents and relatives, while trying, above all, to get an education and all of the advantages of job and position that would come with it.

A wonderfully eloquent but forthright man, Dr. James Robinson, Crossroader’s founder, urged all of us to go to Africa not only to help build schools and bridges, but to understand, to respect, and, above all, to learn and to be ourselves. To this day, I cannot really say how much I “gave” to the African people I came to know, but what I learned—about Africa, her people, and, oddly enough, my own way of life and my country—cannot be measured.

47
As part of this research, Dr. Fox recently participated in a project that provided fresh insight into lupine behavior among four ten-month-old and two two-year-old wolves. The Washington University animal psychologist was the scientific advisor on a project in which six wolves were introduced to each other for the first time when they were released into a four-acre enclosure. Remaining inside the enclosure during the observation period, Dr. Fox and four cameramen watched and filmed the social interaction among the wolves. In a far more orderly fashion than is seen often in human social activity, the wolves soon organized their own enclosures and made their own decisions. The wolves developed their own rank and file system through behavior patterns previously observed in other studies of wild wolves.

In short order and with no violence, a two-year-old male wolf was established as the recognized pack leader. In Dr. Fox's opinion, the appeasing gestures by the submissive animals “short-circuited” the leader's aggressiveness. The standardized displays of dominant versus submissive behavior the wolves showed in the research study are part of what scientists term the “ritualization of aggression.” This ritualized mock-combat, using the recognition of appeasement and various submissive “cut-off” gestures, prevents actual fighting and sustains the social stability of the pack.

The wolf study is one example of research in Dr. Fox's field of ethology, which seeks to analyze animal behavior through careful observations and comparisons. There are close parallels, Fox points out, between the social organization of the wolf pack and that of primitive human tribes. Both have a dominance-submission order, a recognized leader, and various rituals. It is not inconceivable, he thinks, that at one time man bioculturally controlled his aggression just as the wolf does with its innate aggression rituals. The problem of human aggression has mushroomed, he says, because man's technological evolution has outstripped his biological evolution.

"Man is biologically aggressive and individualistic, but develops social rituals to get on," Dr. Fox observes, adding, "Most of our social organizations—the office, the factory [and the university?] are based on a wolf-like dominance hierarchy."

A Distinguished Alumnus will return to the Washington University campus next month. Edward Kennedy (Duke) Ellington, Doctor of Music (hon.) '67, will present his celebrated sacred music concert, "In the Beginning, God," on May 6 as the final event in the "Mystery of Man" series. Sponsored by the Student Academic Committee and several other student groups and dedicated to a “continuous exploration of contemporary theological and philosophical questions,” the series has brought many outstanding theologians to the campus to speak and to talk with students.

Appearing with Ellington on the program will be his entire orchestra, a dance group led by Bill Frank, and the Washington University choir. The Ellington work is a wholly original worship service program that was performed by its composer “music of ecumenical character in a contemporary idiom,” when it was first performed in 1965 at Grace Cathedral in San Francisco. Since then it has been given in more than fifty churches, cathedrals, and temples throughout the United States and Europe.

STILL ANOTHER HONOR has come to Washington University's Dr. Albert W. Levi, David May Distinguished University Professor in the Humanities: One of his books has been pirated by “bookleggers” on Taiwan. James F. Fixx, writing in the "Trade Winds" department of the March 22 Saturday Review, reports that the Indiana University Press had informed him that Professor Levi's Philosophy and the Western World is being offered for sale on Taiwan in an unauthorized, pirated edition without benefit of royalties to the author or the publisher. Still, it is quite an honor.

"Trade Winds" quotes Susan W. Howard of Indiana University Press, who wrote, "In the past, almost all such pirating has been for textbooks and popular books. It is almost unheard of for a scholarly work in the humanities to be considered important enough to steal." The theft, she pointed out, is "the climax and proof of Professor Levi's distinction."

IN OUR UNENDING efforts to bring our readers news of Washington University alumni, we put in a considerable amount of overtime one night early this month—officially three hours and nineteen minutes worth (or fourteen full innings). The occasion was the 1969 season opener of the St. Louis Cardinals, whose general manager (as everyone knows) is Bing Devine, AB 38. Unfortunately Bing's Cardinals managed to lose the game, but some beautiful plays were turned in at shortstop by Dal Maxwell, BSEE 62, so the evening wasn't completely wasted.

An unexpected bonus was the appearance at Busch Stadium of Jeral Becker, Washington University graduate student in music and recent district winner in the Metropolitan Opera auditions. Jeral led the crowd of 38,163 in singing the National Anthem and he was tremendous. He was so good, in fact, that he received the second biggest hand of the evening. The biggest hand came when Vada Pinson, newly acquired from the Cincinnati Reds, drove in a run with a double in his first trip to the plate as a Red Bird.

However, Jeral thrilled the crowd almost as much as Pinson. One lady fan sitting behind us remarked to her companion, as Becker's ringing tones faded out, "That's the best I've heard The Star-Spangled Banner sung since Kate Smith!" —FOB
One chilly day late this winter, this steam-spewing metal spider materialized on the terrace of Givens Hall, the School of Architecture building. Inspired by steam escaping from a manhole, architecture student Gregory Jacobs constructed the creature from a wash bucket and sections of galvanized pipe. It just shows that when architecture students let off steam, they do it in style.