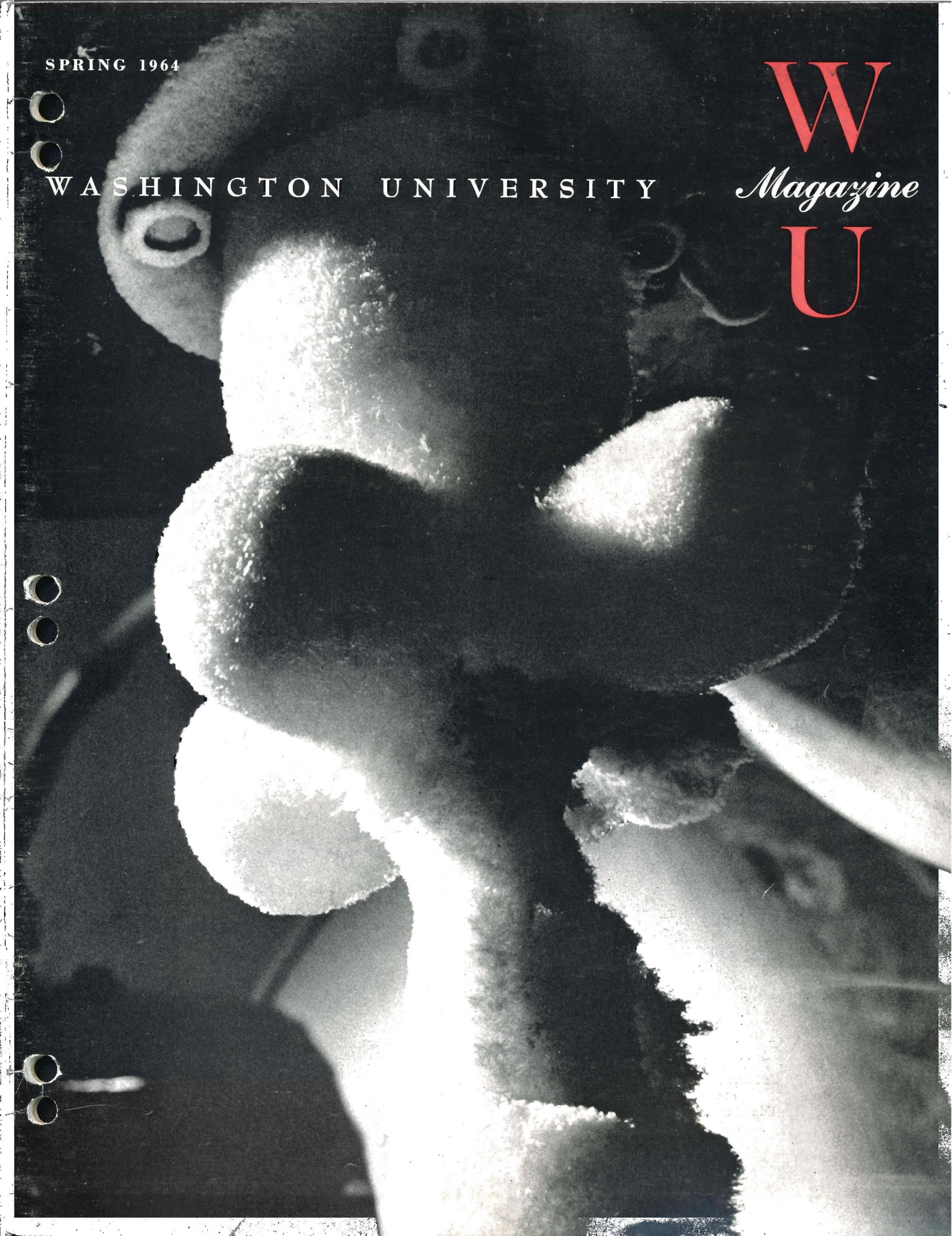


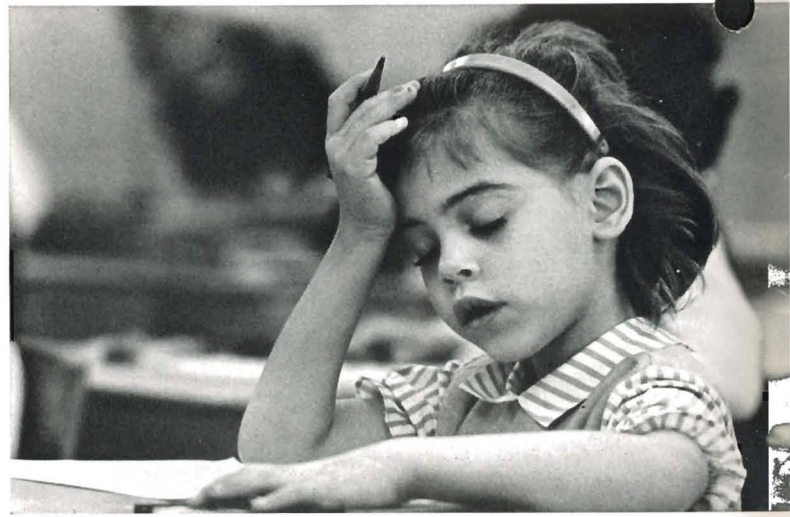
SPRING 1964

WASHINGTON UNIVERSITY

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*Magazine*  
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Problem-solving in the first grade can be serious business. This earnest scholar was pictured hard at work on a task set by Betty Rubin, WU Education senior, as part of her practice teaching assignment. See Practice Teacher, Page 14.



WASHINGTON UNIVERSITY *Magazine*

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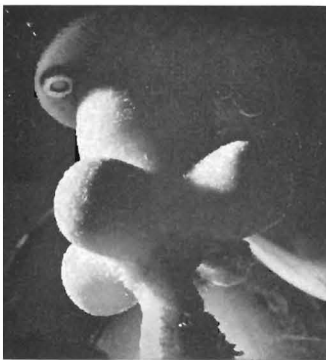
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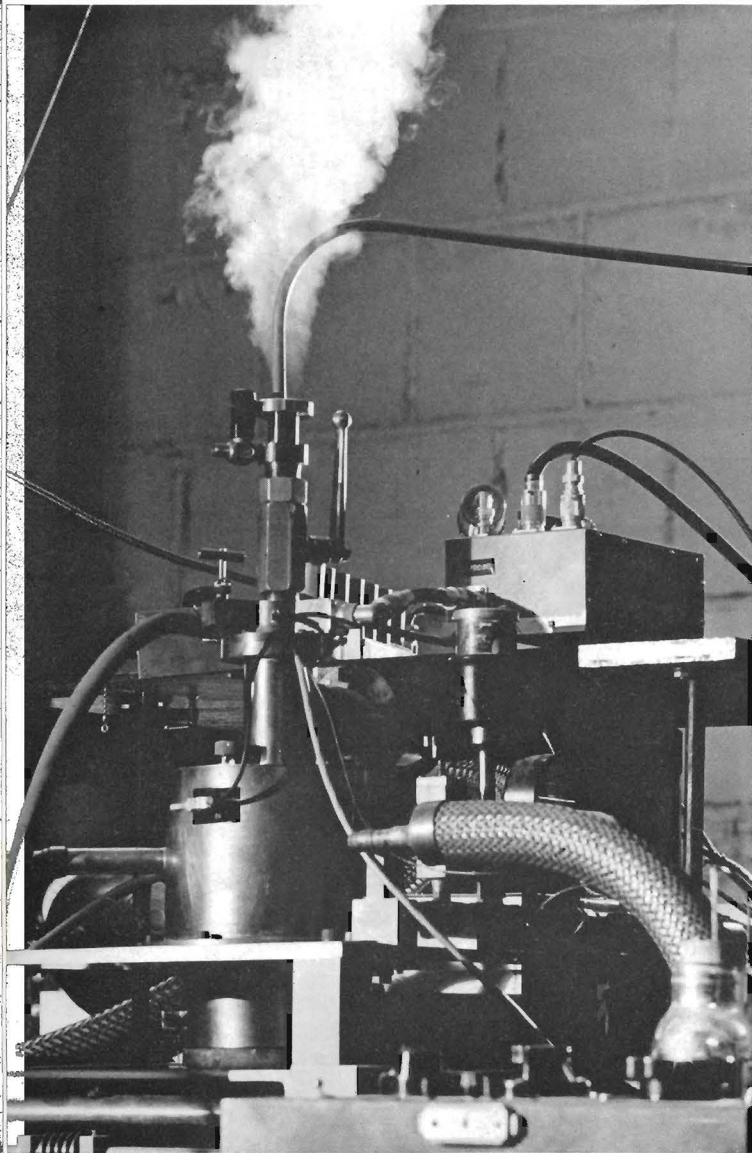
COVER: Water vapor freezes and collects on a valve of a storage tank containing liquid nitrogen at 320 degrees below zero Fahrenheit. See "Low Temperature Physics," Page 2.

- Low Temperature Physics 2 *University scientists explore the strange world of the very cold*
- On Regimentation 10 *Anthropologist Jules Henry views some local tribal customs*
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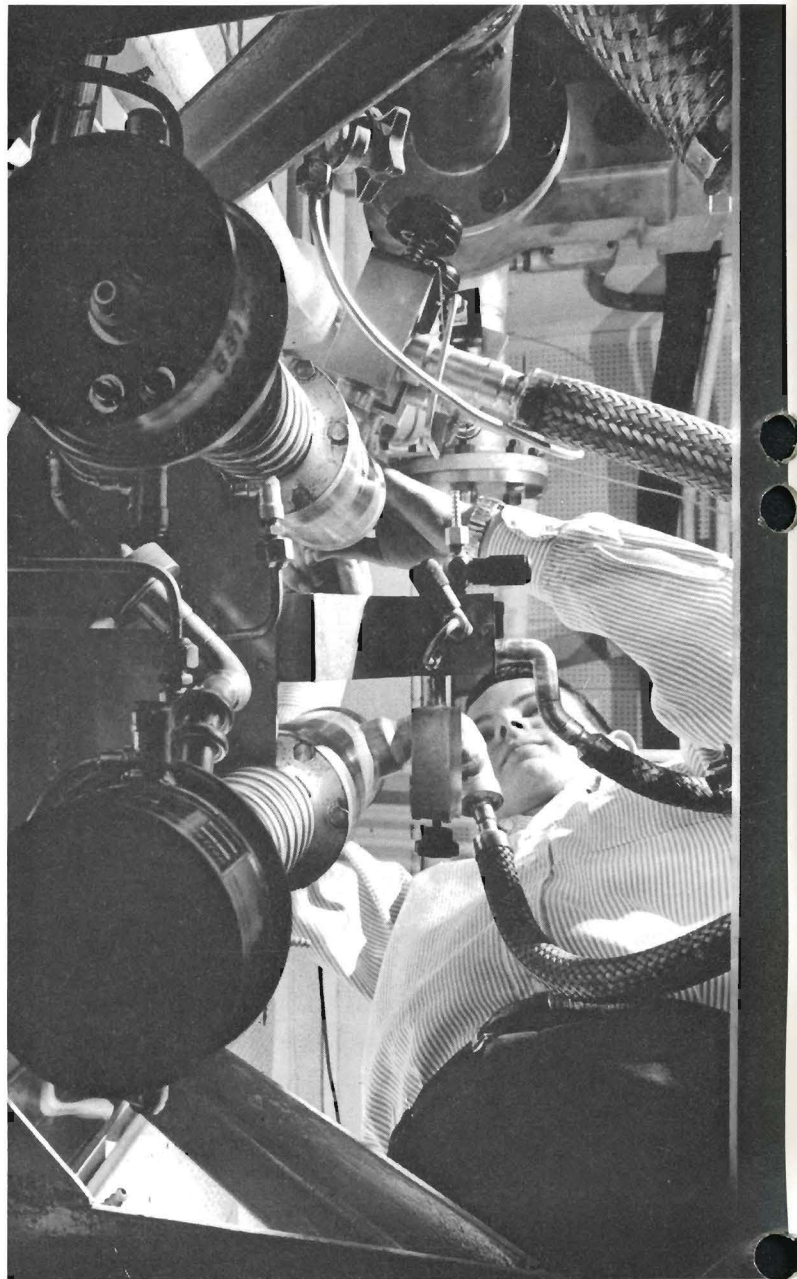
Photo Credits: Tom Stewart, pages 2 (left), 6 (right), 10, 54; Barry C. Bishop © 1963 National Geographic Society, pages 37, 39; I-Chi Hsu, pages 52, 53; all others, Herb Weitman.

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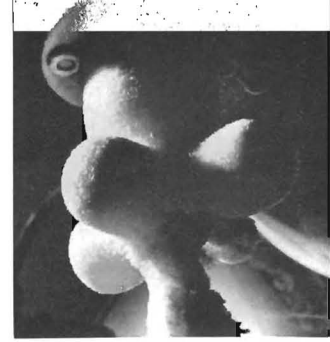


Frozen air, crystal particles of nitrogen and oxygen, forms in a plume as liquid helium is transferred from the storage vessel to the experimental apparatus.



Low altitude view of low temperature experiment shows Graduate Student Robert Guernsey assembling equipment for an investigation of ultrasound waves in superfluid helium.





## LOW TEMPERATURE PHYSICS

**T**HE WORLD OF THE VERY COLD is a strange and exciting one. When temperatures begin to approach absolute zero, some 459 degrees below the ordinary zero of our Fahrenheit thermometers, matter begins to exhibit fantastic properties and to show unique effects.

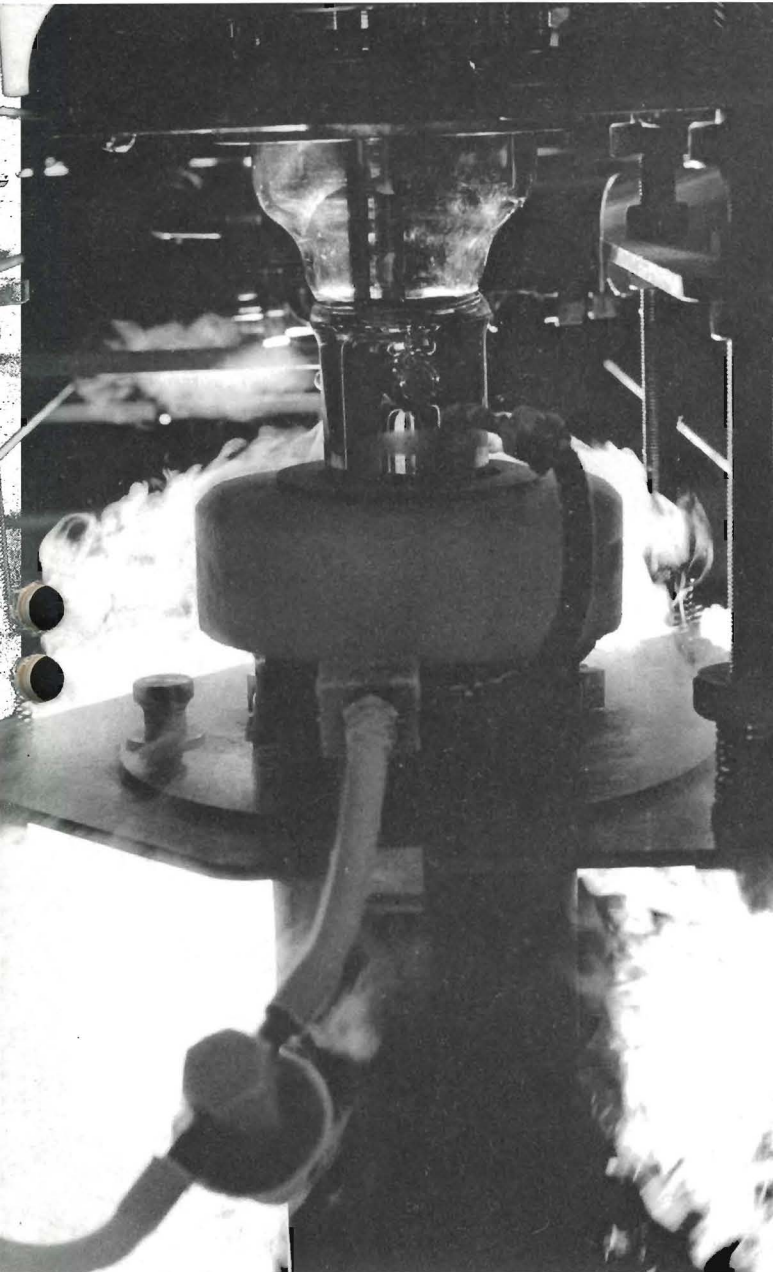
In the everyday world, the fundamental characteristics of matter are masked by violent thermal motion—that restless dance of atoms and molecules we know as heat. Only when this frenetic tarantella slows down to a sedate waltz do certain basic laws begin to reveal themselves.

An active program of research into this strange world of the very cold is being conducted in the physics laboratories at Washington University. The low temperature team is headed by Professor Richard E. Norberg, chairman of the Physics Department, and Dr. Kazimierz Luszczynski, assistant professor of physics, an Alfred P. Sloan Fellow. Working under their direction are four graduate students and two cryogenic engineers. The work receives active stimulation from the department's theoretical physics group and depends heavily on its machine shop and glass-blowing technicians.

The program illustrates the way in which federal support of basic scientific research makes possible a vigorous program of graduate education in physics. Main support of the Washington University program is provided by basic research grants from the U. S. Army Research Office and the U. S. Air Force Office of Scientific Research. Supporting equipment has been provided by a U. S. Navy equipment loan contract and by a grant from the Advanced Research Projects Agency. Three of the four graduate students whose doctoral research forms the basis of the program are National Science Foundation Fellows; the fourth is a Washington University Fellow.

The experiments currently being conducted by the group illustrate the many different ways extreme low temperatures are employed as tools of basic research. In some of the experiments, liquid nitrogen and liquid helium are used to reduce other substances to extremely low temperatures so that important effects can be studied. In others, experiments are being done directly on liquid helium to examine its unusual properties.

On the following pages, several of these important avenues of inquiry into the laws of nature are illustrated. From work of this kind, many technological benefits have come; but the object in these experiments is not to look for practical applications but to discover the fundamental laws of nature.

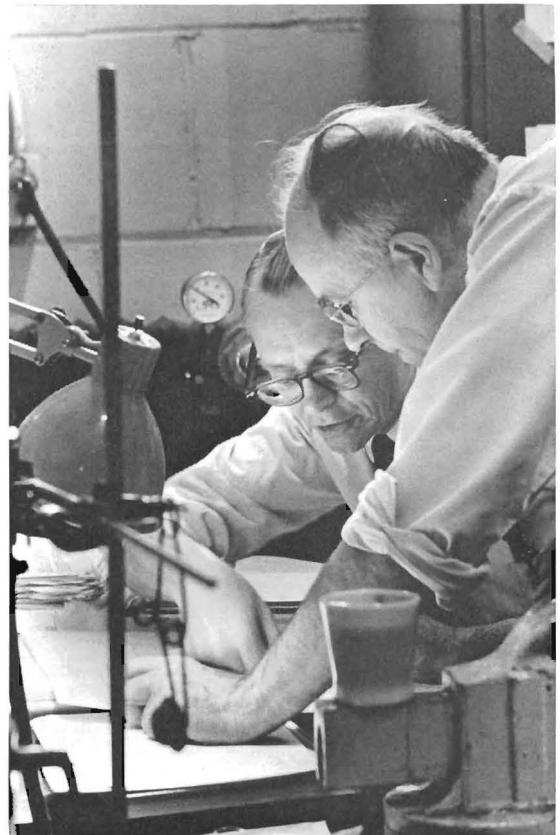


Clouds of frozen water vapor condense around liquid nitrogen container in Physics Department experimental low temperature apparatus.

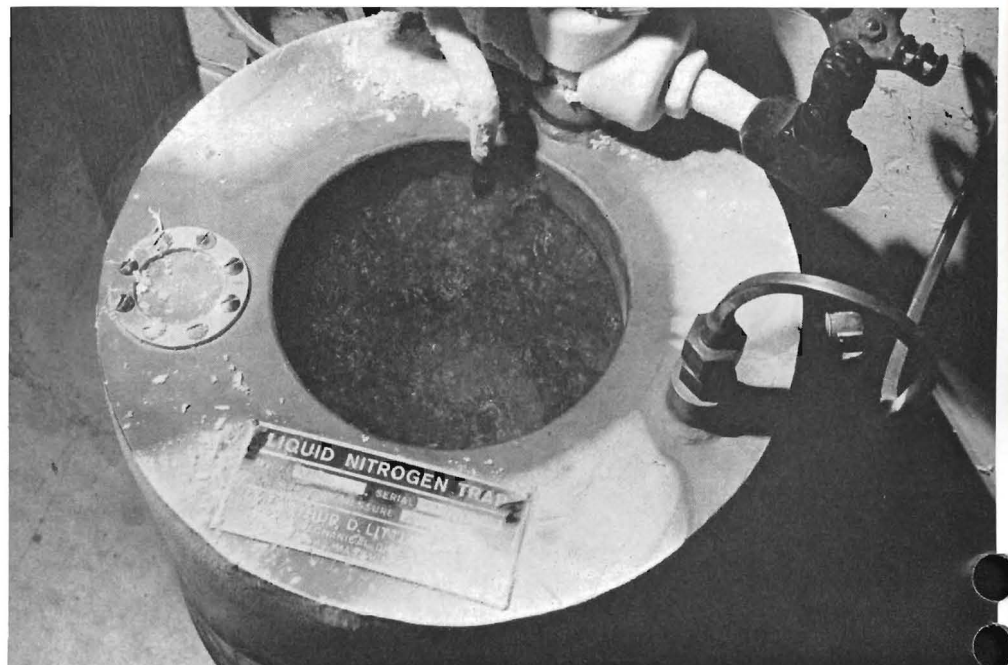




Cryogenic Machinist Gilbert Mulac peers through the viewplate on the helium liquefier to check the level of the liquid.

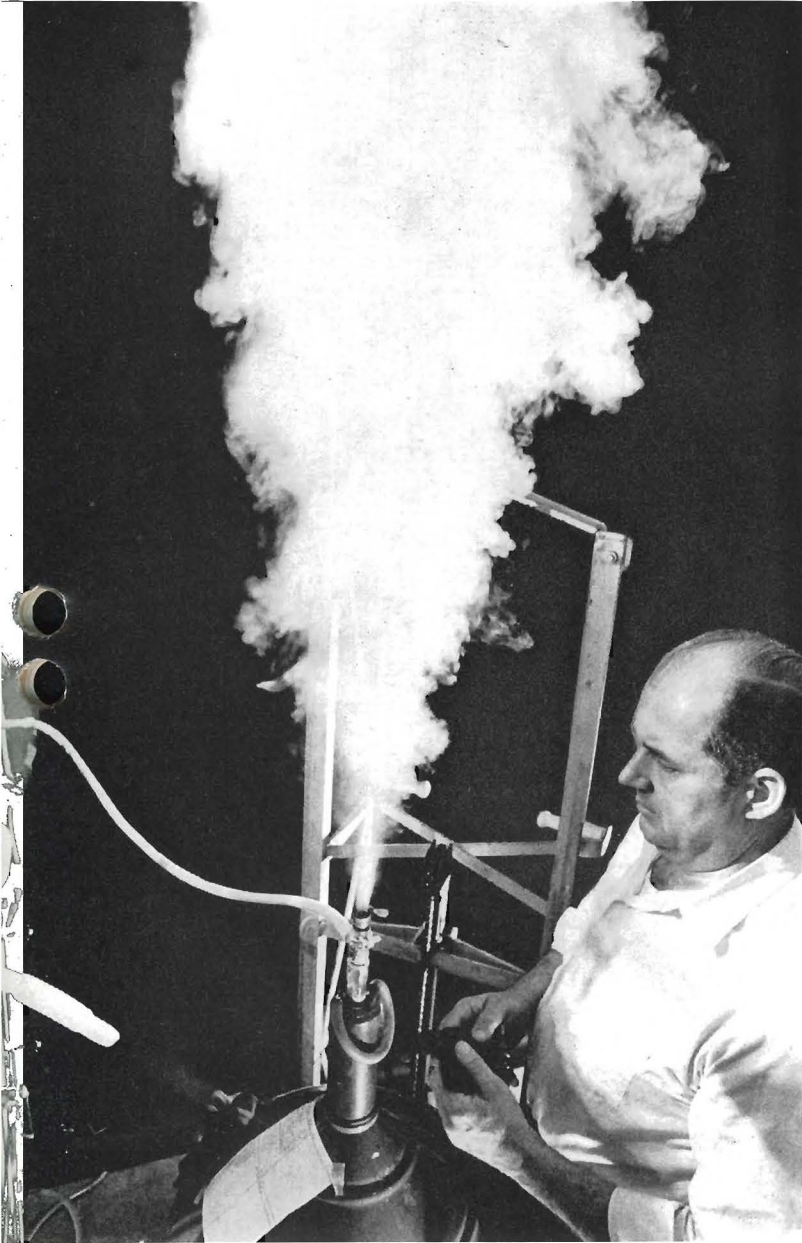
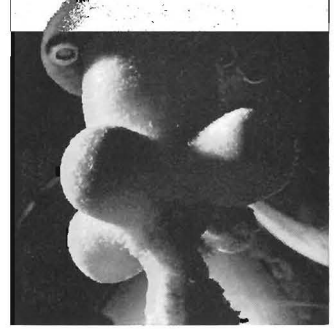


Lawrence Vossel, cryogenic engineer, and Otto Retzloff, supervisor of the Department's machine shop, discuss a difficult instrumentation problem.



Several gallons of liquid nitrogen at  $-320$  degrees Fahrenheit, shown here boiling violently, are required to fill this trap which removes impurities from helium.

## LOW TEMPERATURE PHYSICS



Frozen air in the laboratory: A plume of solid nitrogen and oxygen crystals forms above a storage vessel during transfer of intensely cold liquid helium.

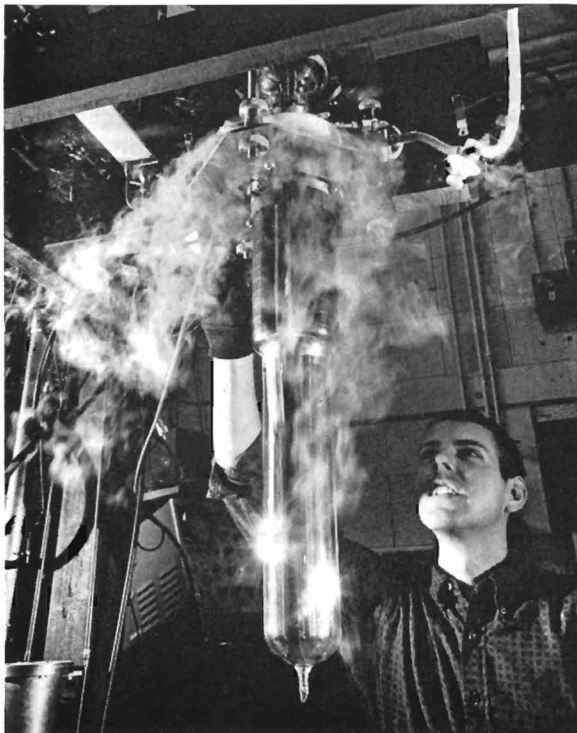
**H**ELIUM, THAT STRANGE ELEMENT which was discovered in the sun twenty-seven years before it was found on earth, was the last gas to be liquefied in the laboratory. While all gases become liquid if they are chilled sufficiently, helium remains a gas until it reaches a point 4.2 degrees above zero on the absolute or Kelvin scale (-452 Fahrenheit).

The University's low temperature research requires considerable amounts of liquid helium and its manufacture and transfer to experimental apparatus is one of the exacting and delicate techniques students in the field must master. The helium gas is first passed through a charcoal trap cooled by liquid nitrogen, which itself is at a temperature of -320 degrees Fahrenheit. It is then compressed and allowed to expand against piston expansion engines. As the gas does this work it cools and finally liquefies upon emergence from an expansion valve near the bottom of the liquefier. When a suitable amount of the liquid has been collected in the machine, it is transferred to a sort of super-thermos bottle called a "dewar," which is a storage vessel with two vacuum walls and an intermediate refrigerant layer of liquid nitrogen.

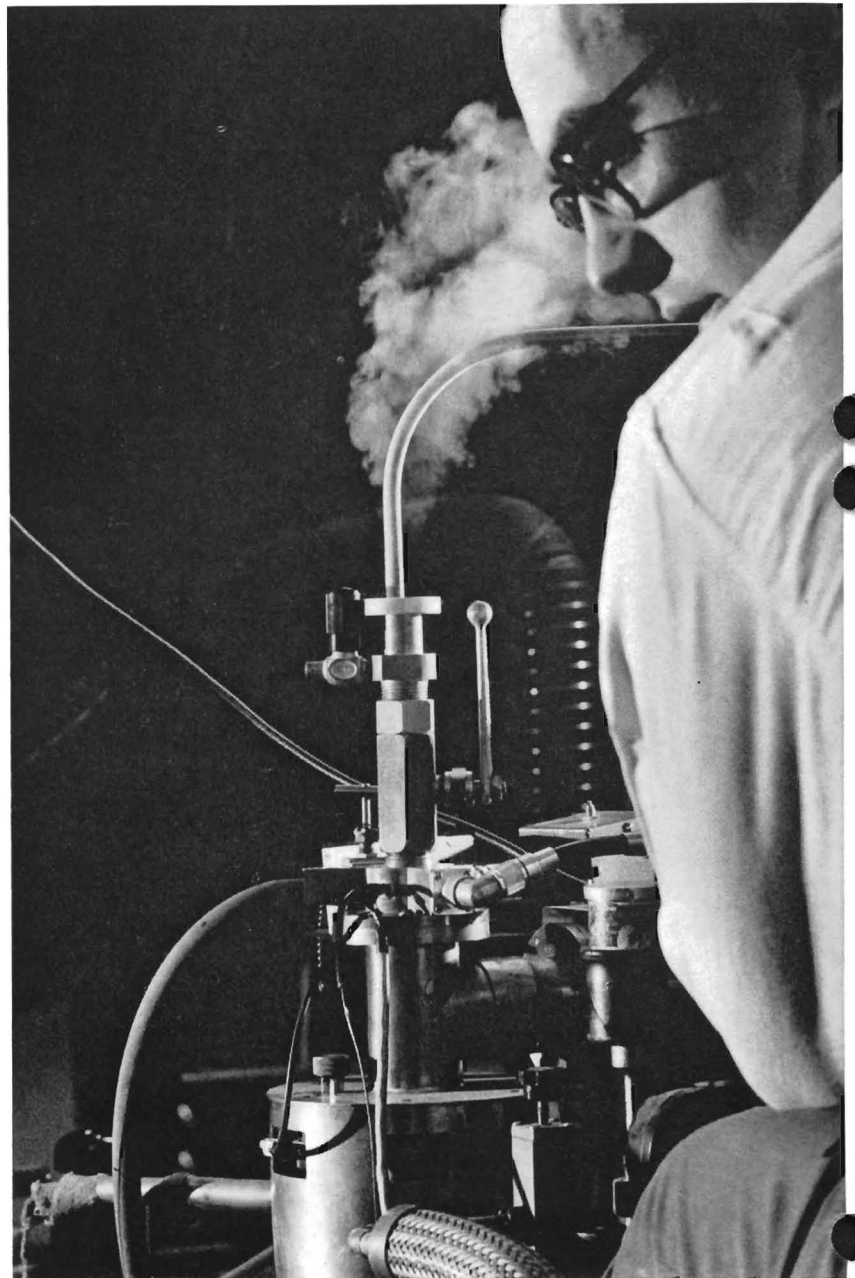




As the cold transfer tube from the container of liquid helium is removed, it freezes the air through which it passes. Note plumes of frozen air near the tube in researcher's right hand.

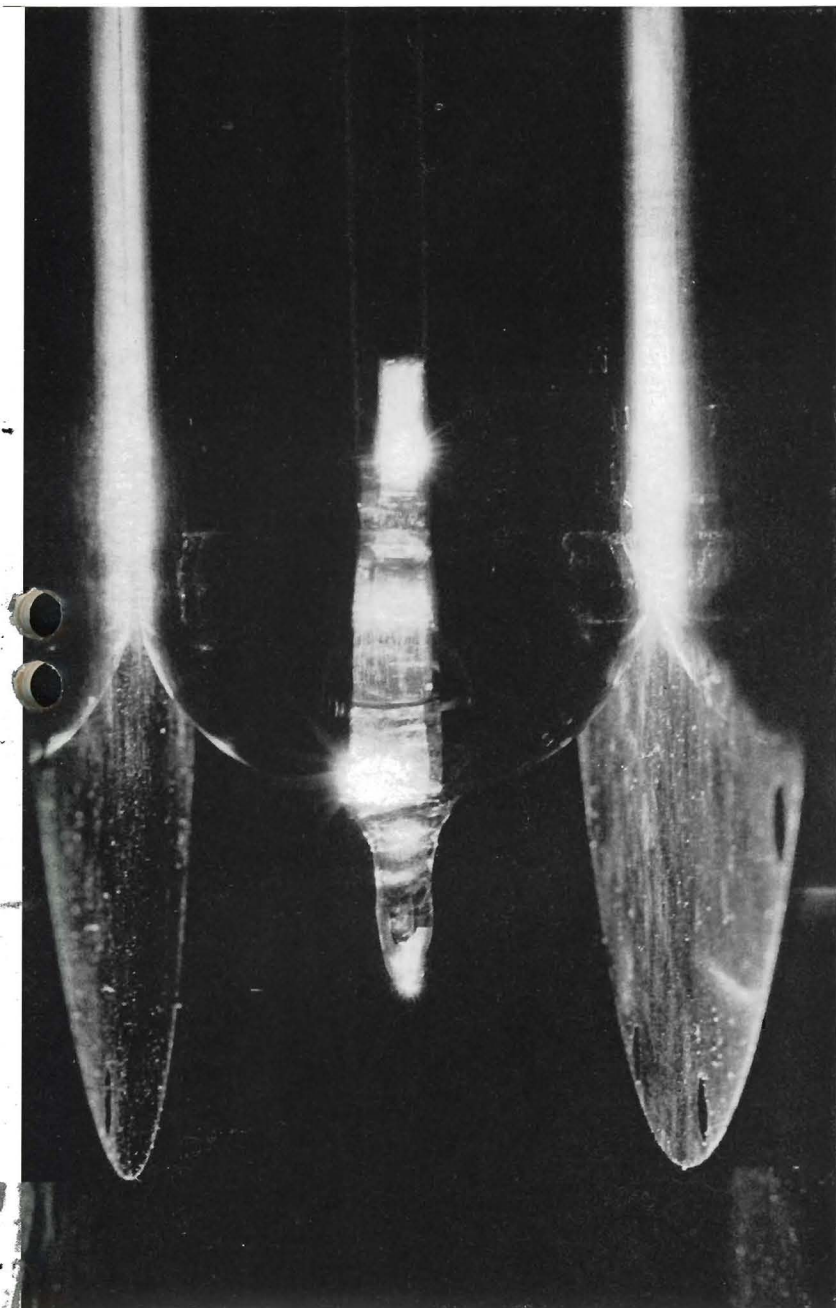


Water clouds condense as Graduate Student William Warren monitors the transfer of liquid nitrogen into experimental apparatus for the study of liquid and solid xenon.



Graduate Student Aaron Gara monitors the progress of the transfer of liquid helium into apparatus designed for magnetic resonance study of metals.

## LOW TEMPERATURE PHYSICS

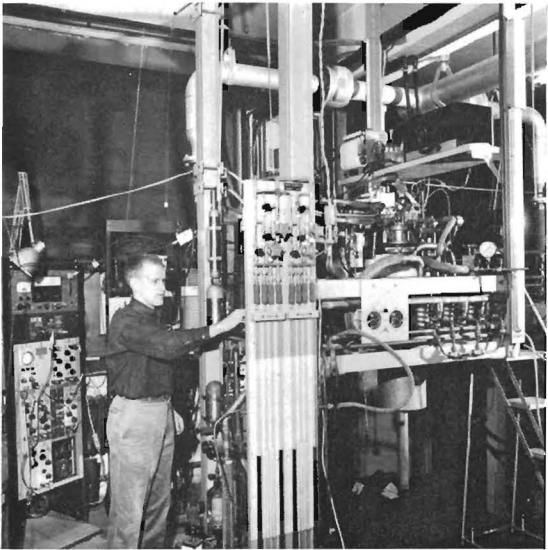


Small bubbles may be seen rising from the bottom of a glass vessel holding liquid nitrogen between the jaws of a large electromagnet.

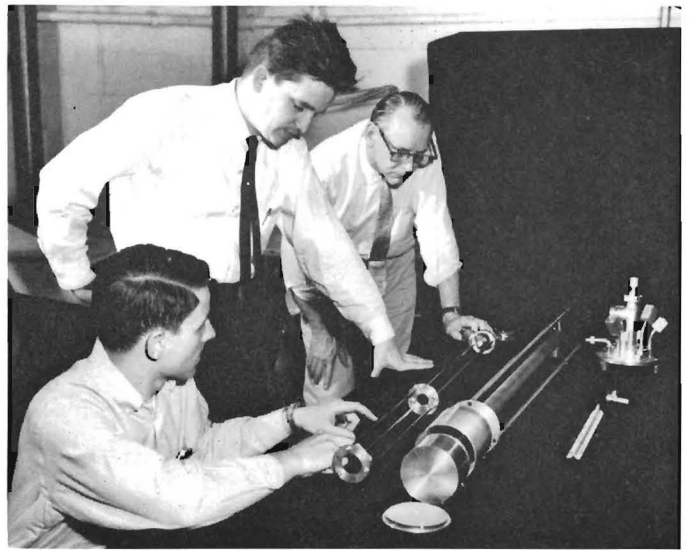
ULTRA-COLD LIQUID NITROGEN and liquid helium are used as refrigerants to cool samples of other materials to levels where important processes can be observed and important effects obtained without the interference of random thermal motion.

On these pages are pictured two experiments of this kind. In one, nuclear magnetic resonance experiments are being performed on liquid and solid xenon, one of the rare "noble" gases. The other experiment uses liquid nitrogen and helium as refrigerants in experiments on single crystals of aluminum and tin to investigate details of the electronic characteristics of the metals.





Equipment designed for experiments on light helium is checked by Graduate Student James Opfer.

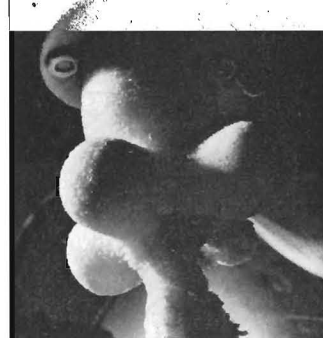


Graduate Student Robert Guernsey, Professor Kazimierz Luszczynski, and Cryogenics Engineer Lawrence Vossell discuss the assembly of a new sample probe for an experiment on superfluid helium.



For hypersound experiment, liquid helium must be reduced even lower in temperature. Here, Guernsey assembles apparatus used to pump on liquid helium to reduce its temperature.

## LOW TEMPERATURE PHYSICS



Opfer assembles the sample probe, which will contain the light isotope of helium.

ALL SUBSTANCES BUT ONE become solids if you cool them enough. The single exception is helium, which remains a liquid under ordinary pressures all the way down to absolute zero. However, when helium is cooled to within 2.2 degrees Kelvin of absolute zero it undergoes a sudden and dramatic change: it becomes a mixture containing a "superfluid." In this state, liquid helium is a friction-free fluid and a perfect conductor of heat. It displays the strange ability to flow freely through microscopically small openings.

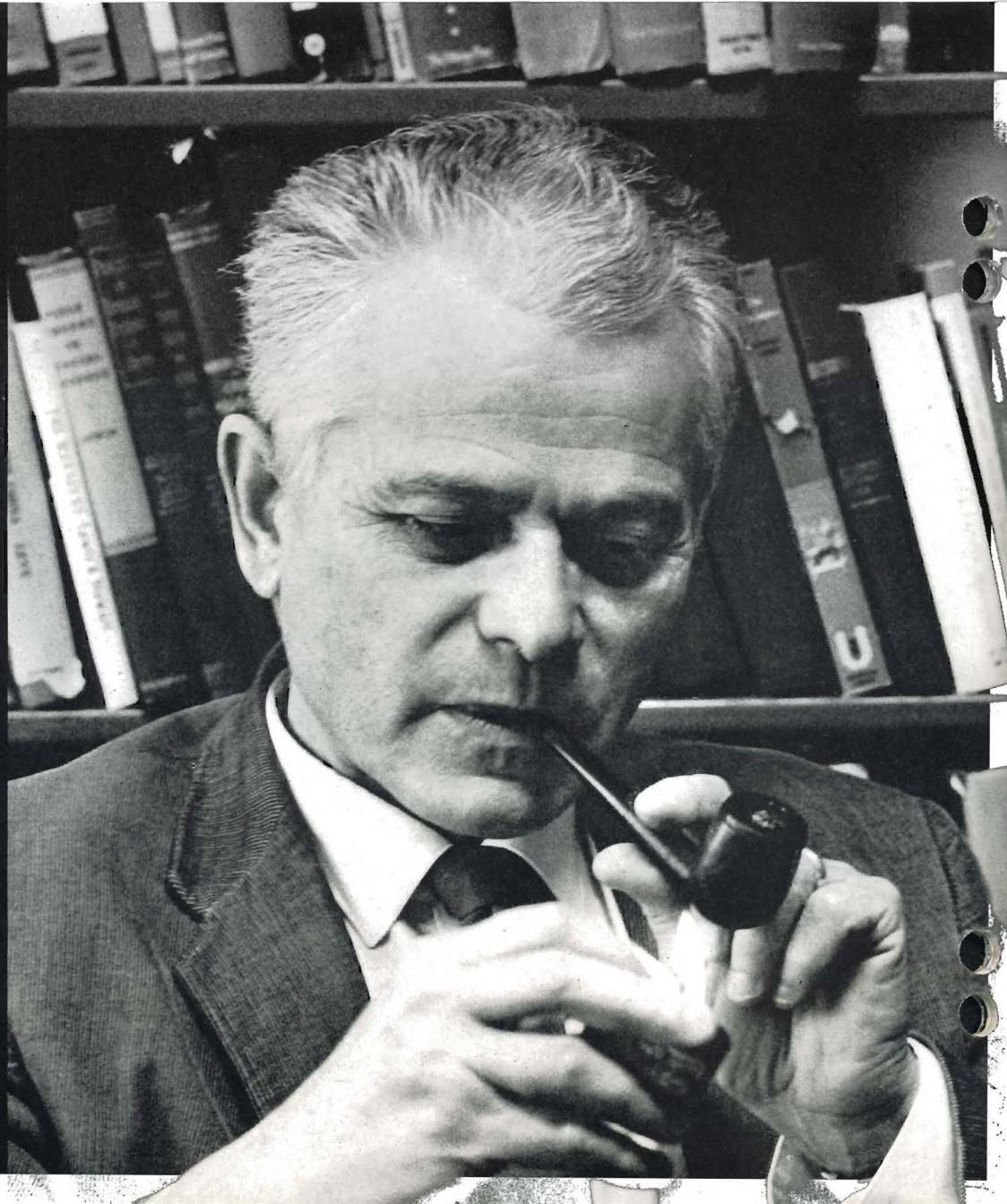
To verify modern theories of the nature of liquid helium, the propagation of very high frequency sound waves in superfluid helium is being studied. At temperatures of only one-tenth of a degree Kelvin above absolute zero, the experiment uses "sound" waves a hundred million times more rapid than the upper limits of human hearing. In this experiment, the liquid helium sample must be cooled even below its usual temperature by pumping and by magnetic cooling.

In nature, there is only one atom of the rare light isotope of helium for every million atoms of ordinary helium. This rare species does not become a superfluid and displays many other strikingly different properties from normal helium. It is being studied in a separate set of experiments.



*Professor Henry received the doctorate in anthropology from Columbia University, where he studied under Franz Boas and Ruth Benedict. His research in the field has been concerned with the Indian tribes of Brazil, Argentina, and Mexico, and with the inhabitants of contemporary America. His recent work Culture Against Man has won wide acclaim and national recognition. Ashley Montagu describes the book as "One of the most telling and creative examinations of American culture and its values written this century."*

*In this article, Dr. Henry discusses the current struggle against "regimentation," which he sees as embodying similarity, regularity, and compulsion.*



By JULES HENRY

*Professor of Anthropology  
and Sociology*

# on Regimentation

IN THE CONTEMPORARY WORLD, the reaction against constraints is united under the slogan "regimentation." Derived as it is from military organization, the notion embodies the ideas of similarity, regularity, and compulsion. What is striking about these ideas, however, is that they have never been missing from any civilization: Whether it be the simplest tribe or the most complex modern nation, society cannot survive unless there is similarity among its members, unless necessary tasks are performed regularly day in and day out, and unless there is some social force to compel people to do what they do not wish to do. There is *no* society where all work is done willingly, so that compulsion is unnecessary. Thus as we survey society through jungles and on pavements, we discover everywhere and at all times the essential components of regimentation: similarity, regularity, and compulsion.

Yet there is a difference between societies like the primitive ones anthropologists study today, where people complain little of being pushed around, and our contemporary society where youth mutters in resistive discontent.

What is the difference? The essential difference, I believe, emerges in answer to the questions: Regimentation for whom? and Regimentation for what? I think that you will readily understand from these that the central issue is neither likeness, regularity, nor compulsion, but rather in *whose interest* do I do necessary, routine work; in whose interest am I forced to do what I have to do? Obviously the soldier who fights for a cause that is worthwhile and important to him fights with courage and idealism, while the one who fights with no ideal at all but merely in fear of court-martial and disgrace readily complains and easily becomes a so-called coward or even a traitor. So I would urge that contemporary complaints about regimentation have nothing to do with the essential processes whereby we become identical and are compelled to do what society wants us to, but rather with the fact that the similarity and compulsion are hateful because they have no reference to what we really want to do. There are then two more questions: What do we really want to do with our lives and why don't we do it?

I would urge in this connection that for almost all of us the final decision on what we want to do with our lives is a second or third choice, and that often the final choice is made without the genuine innermost desire ever coming clearly into consciousness. Whether we are talking about the student of engineering who really wanted to be a violinist, the law student who wanted to be an Egyptologist, the medical student who wanted to be a journalist, or the student of business administration who wanted to be a medical missionary, the corridors of our colleges and universities are littered with the intellectual remains of students whose life-careers are second choices. Thus as professors we sometimes get the feeling we are lecturing in an intellectual cemetery; not because the students' brains are dead, but because motivationally they are zombies; because they are listening with ears that would fain be hearing other, mostly heterosexual, music.

Obviously under these conditions students will feel they are being regimented, but the regimentation comes in part from within. The complaint of "regimentation" is the spirit's protest against a fearful choice that considered the spirit itself expendable. When we buy a choice by selling the spirit we can have only dreams of being exploited and abused. What I am trying to say is that even a popular professor in a liberal arts college sees that before him sit, day in and day out, students who would rather not be in his class but somewhere else; perhaps on the golf links, working for the Salvation Army, or rearing children. In these circumstances the student's feeling that college is compelling him or her derives from the fact that long ago he or she had made the kind of compulsory choice which was antagonistic to the innermost wishes of the Self, and it is this Self—this Self thought to be expendable—that is giving no peace.

Leaving aside the working man's child and the child of the poor Negro, who never had a chance in the first place, and who often has accepted similarity, regularity, and compulsion as the natural order of things, and concentrating on students from more fortunate circumstances for whom choice is a real issue, why are undesirable



choices made? Why do we become "organization men" or uninterested professionals when we would rather write poetry or become professional skiers? The most compelling factor in choice in all social classes is the standard of living. After all, what girl coming from comfortable living wants to go to the jungle as a missionary or as an anthropologist's wife? What boy whose father's net is \$50,000 a year wants to live on the income of an archaeologist or risk the insecurity of writing or painting? And what manicured and coiffeured young woman would want to share life in a New York loft when her girl friends have all married well paid industrial scientists?

**T**HUS THE STANDARD of living and the prestige attaching to one job as against another muffles the real choice and suffocates the Self in the long run. And thus fear plays its role. When we do what is convenient rather than what we want to do in our hearts, we feel we have been pushed, that is, regimented.

I have just a word to say now about the choice that is made when one's very own desire has never quite entered consciousness. People who have made such choices have made them with the voices of others. All their lives they have been told what they are to become, or guessed it from intangible parental hints, so that schooled to early acquiescence, they quickly forget what they ever thought. But the Self never forgets, and it returns to torment them in their dreams. This is the dream of the lost and abandoned Self, that misses trains, stands on vacant street corners in strange cities, and talks to people who do not understand or do not themselves know the answers. Such lost people are disturbed by a sense of lack of fulfillment that comes to expression in the feeling that they are being pushed around.

Nowadays, while the Great National Nightmare, Fear of Russia, torments the academic world, over half the federal budget goes for armaments and space and less than a tenth for health, labor, and welfare. Adorned with golden fellowships in science, therefore, the Great Fear rolls her eyes before the gaze of the poor student. The irony of the Great Fear is that she comes to us bearing gifts. Who can withstand such seduction? But where fear is not, so also money is not. Where are comparable fellowships and scholarships in the humanities? Is it possible that they are so scarce precisely because they despise the very condition the sciences of destruction exalt? It is now commonplace among us that while the sciences grow fat the humanities starve. This is the consequence of fear; not just of one fear, but two. I would ask: suppose the scholarships in the humanities were increased ten-fold—a great unlikelihood—

who would take them? Who can get comfortable as a teacher of French in high school? But anyone with a degree in electrical engineering is in clover from the start. Thus the Great National Fear, joined to the living standard, narrows the choices and makes the student feel he is pushed around.

I would like to point out that once one has made the innermost choice, one does not yet escape from fear, nor from the obligation either to confront it or to become nothing in one's own eyes. If one chooses to be a school teacher one enters one of the most fear-ridden systems in the country, for boards of education, school principals, and the students' parents wag fingers, complain, shout, scold, and fire. In many school systems in the country the teacher who holds his job and gets his raises speaks softly, treads softly, and disowns the right to think. This need not be so. The university is better, but here the problem is the self-discipline of issue-avoidance—a form of discipline to which even Descartes was subject, as we know; for hearing of the condemnation of Galileo he withheld dissident writings and insisted on anonymity.

It is a pathetic fact also that Heidegger, the great modern existentialist, saw no way to realize the possibilities of the Self except through tradition. Thus fear often holds philosophy in bankruptcy. It is striking also that although Heidegger discusses a variety of emotions, he has nothing to say about courage, though much to say about anxiety. By manifold fears the mind and spirit are bound and the Self sold down the river.

In the United States a college education is largely a means to an end—the occupational niche—and colleges are oriented principally toward that end. It therefore borders on the absurd to call the university an institution of learning, for the *idea* of "learning," referring as it does to enrichment of the soul and the quest for truth, is an exalted one. Although what is specifically missing from institutions of education today *is* exaltation, the archaic idea of learning is still entertained by a few educators, largely scholars in the humanities.

Meanwhile we still get a few students in our classes who are caught between the concept of learning as enrichment of the soul through the quest for truth on the one hand, and the desire to get a job on the other. Fundamentally, however, the two goals are incompatible, for the Self that craves intellectual enrichment collides with the reality of the Person who wants a job, and the latter usually wins. In this struggle the Person becomes Lord of the Flies, but the Self which is ground down feels oppressed, regimented, bound, and beaten by the clubs and cords of the hunter, Reality. What has happened is that the goals



of education have been reversed: the Self instead of realizing its responsibilities through learning is imprisoned by its counterfeit, modern education. I hope it is understood at this point that schools are usually staffed by men of good will, fair intelligence, and moderate timidity; and a major concern of theirs has to be to provide the tools of the job-hunter rather than the instruments of the truth-hunter and to keep their students out of trouble—as they see it. Under these circumstances we do not condemn because we know that these men are trying to do their best for the students, for the country, and for knowledge, as they perceive it—dimly through a haze of vested interest, and there is no human being without vested interest.

Aside from the issue of the disappearance of education as learning there is the problem of the internal social structure of the university, more commonly called university politics. Actually educational programs are usually the product of contending forces within the university, each of which competes for a piece of the student's brain. Usually, when curricula are planned they are designed to express not only some vague and shifting notion of university and educational goals, but also compromises reached among the contending forces, specifically the university departments. Under such conditions—where what the student shall be taught is determined in considerable part by the power structure within the institution—we scarcely have an environment of spiritual exaltation, which is the only kind in which learning can thrive. I think it is clear, meanwhile, that the spirit of contention speaks with the voice of fear, for it is fear of eclipse that compels departments to contend. What should be an inspiring colloquy of enlightened spirits not infrequently becomes the muted quarrel of angry and frightened men. At the bottom is the student who is regimented to the consequences.

**Y**ET WE CANNOT LET the student off too easily, for it is in part his fault that the spirit of contention plays so strong a role in the formation of a curriculum. Fundamentally the students either do not know what they want or do not care; or if they care, they are too unsure of their premises; or if they care and they are sure, then they are afraid. This is the front door to that feeling of regimentation. Once students return to the role of learners and not of status seekers they will be able to give the role the careful, analytic consideration it deserves. And when they have done this the faculty will be compelled to listen to their voices with respect.

When a people has abandoned learning for status enhancement, the impulse to acquire knowledge for its own sake, to acquire knowledge because it is loved, vanishes,

and is replaced by the desire for knowledge as a protection against failure. For the professors the compulsive tool of choice then becomes regular examinations, and the student is then motivated to learn out of fear rather than out of love for what he learns. I should like to point out here that the problem in higher learning is clearly not merely the acquisition of knowledge but of loving what we know. Since what we learn in fear we try to forget, the consequence is the A.B.—the artful blockhead, the college graduate who has never been to school.

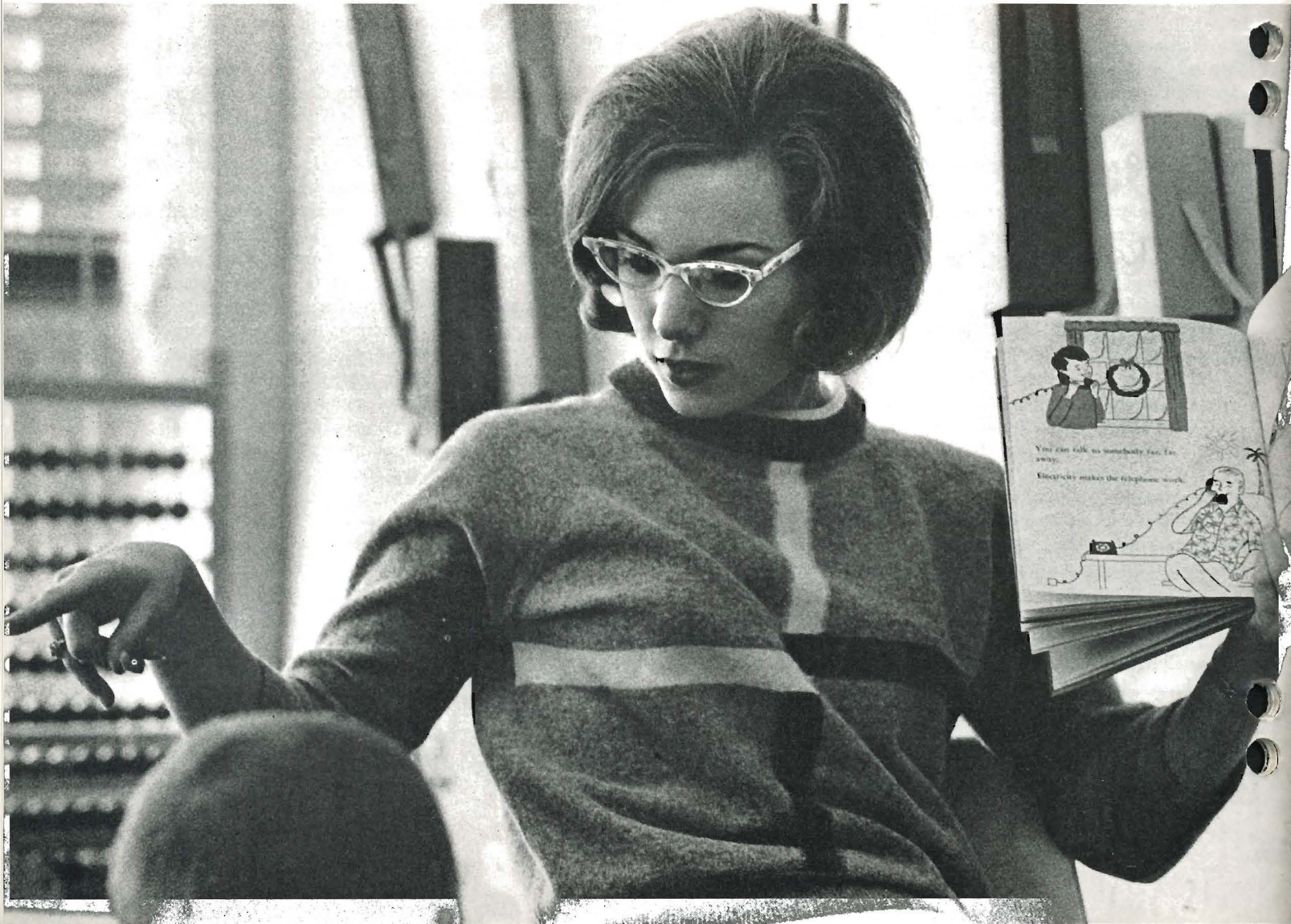
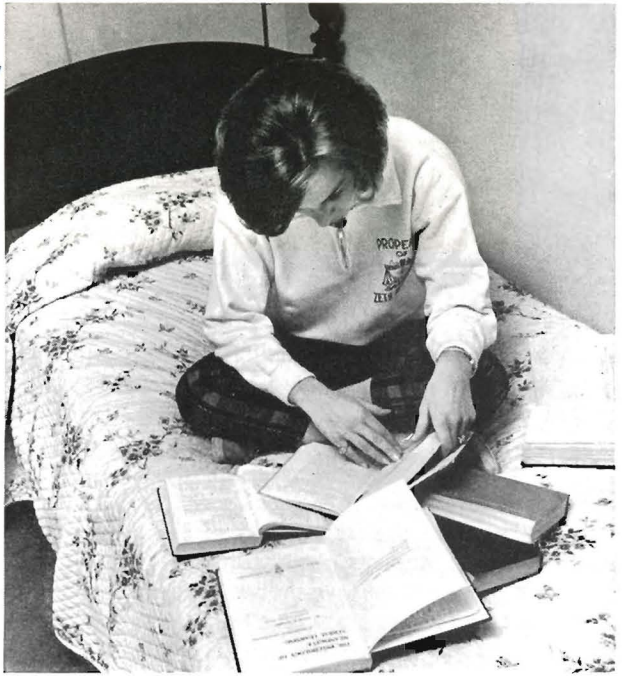
Another consequence is the feeling all through college that we have been regimented. It is almost beyond belief that having finished their courses in the humanities students should sell their copies of Thucydides, Herodotus, Xenophon, Homer, and Shakespeare. This is a consequence of hating what has been learned. It is also a tragedy beyond tears. This could happen only where the ideal of learning has been lost; where education has become a fearful but necessary evil; where education has become not exaltation but regimentation, and where the students escape with relief from their classes to the narcotizing, heterosexual environment of the varieties of courting pavilions and amusement parks which modern American universities provide students in recognition of the fact that they are temples of fear and boredom.

Central to our condition is that nowadays in the United States most of us are stronger than we think. Within certain limits we can stand alone and scream at those who annoy or oppress us. Within other limits we need companions to help us scream. So also we need a sensible cause. We need also to pick the right time to fight, the right target to fight, and the right weapon. Socrates said that courage is knowledge, and within reason this is true. Seen in this light the students' feeling of regimentation is in part the product of the assumption of impotence. Moral courage is not alone a matter of understanding but resides also in the realization that the loss of the battle is not the loss of the war and that it is better for the Self to be defeated in honest combat than never to have fought at all. Moral courage for the simple man resides finally in his willingness to lower his living standard. Unfortunately, courageous people in our society are not well paid for their courage in the goods the society has to offer.

Let us put it finally this way: in contemporary America, if you want to keep your mouth shut, have lots of friends, belong to the right fraternity, have a nice home, marry the sweetheart of the campus, get into the right business or profession and never make the professor mad, you will be deliriously happy but you will also feel regimented—and, by God, you will be!



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*Betty Rubin, a senior at Washington University, is "Miss Rubin, our teacher" to twenty first graders at a University City school where she is receiving her practice teaching training*

## PRACTICE TEACHER

"SHE'S LEARNING TO BE A TEACHER," the small pupils in the first grade at Greensfelder School in University City, Mo., pipe in unison when asked why they have an extra teacher this semester.

The pupils, well rehearsed by their full-time teacher, are right. Their extra teacher is pretty, blond Betty Rubin of Washington University, a senior in elementary education and one of 147 WU students doing practice teaching this semester at some 60 schools in St. Louis city and county. Practice teaching, a transition between theory and practice, can be a little frightening, but most of the new teachers like it. Betty Rubin is enthusiastic. "For the first time in four years, I feel I'm doing something with what I've learned," she says. "I knew principles, but until you can put them to use, they don't mean a thing."

Betty follows the usual practice teaching schedule: one full day and three mornings a week. (She also carries twelve academic hours.) The full-time teacher, Mrs. Lenore Rosen, who is working on her master's degree at Washington University, is usually present, but Betty is free to teach as she wants within the limits of the schedule. (Full-time teachers are not always so cooperative; Mrs. Rosen remembers being a "window-pusher" during some of her practice teaching days.) Primed with up-to-date education courses which put the emphasis on drawing out the student, Betty varies her presentation to her class of

twenty. She may give them number games one morning, straight fundamentals of arithmetic the next.

The class, a homogeneous group from middle-class suburban homes near the school, are responsive to Betty. Hands wave, loud whispers of "I know, I know" are heard, gasps of wonder greet an announcement that row four will receive gold stars (they won the number game). "First graders want to learn—it's exciting," says Betty, who wanted to teach first grade after observing one in action. "Of course you have to move around. I'm on my feet almost the whole time I'm here. And first graders have a short span of interest; they need more activities than the higher grades."

Her small charges have already given her their confidence. The class is busy with workbooks as she talks. A child approaches her, armed with a pencil, an enormous pink eraser, and a workbook. "Miss Rubin, I'm stuck. I can't do this problem."

Miss Rubin bends down (teachers do a great deal of bending in the first grade). "But you did this one."

"You helped!"

"No, I didn't—you can do it."

The child skips away, reassured.

Betty Rubin smiles. "Teaching?" she says. "I love it." Most of the Washington University practice teachers would agree with her.

*Photos by Herb Weitman*





Betty discusses a class problem with Mrs. Lenore Rosen, the full-time first grade teacher. She is usually present when Betty teaches.



Betty teaches one full day and three mornings each week, covering academic subjects in morning, when children are more alert.



The personal approach is stressed in Betty's teaching; she knows each child's name, draws out his knowledge with questions.





## PRACTICE TEACHER

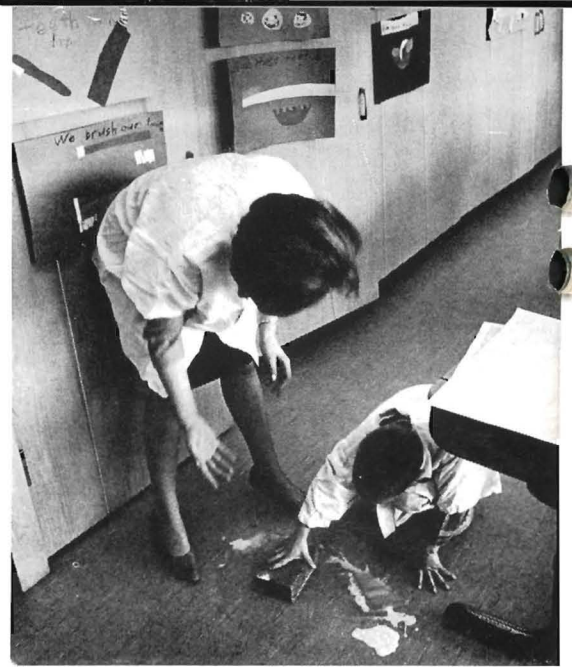
"What's that word?" ask the eager first graders. Below, Betty teaches a science lesson with help of a sweet potato.



"HOW CAN YOU TEACH READING?" Betty Rubin asked herself a little doubtfully before she took a course in the subject last semester. It gave her so much confidence that she was convinced she could teach it the first day at Greensfelder; she did the second. The emphasis in reading, as in arithmetic and other subjects studied by these youngsters, is on drawing out their own knowledge. "Do you boys ever wait for your sisters?" Betty questions a small reading group, relating their experience to an episode in the book they're reading. "What do you think the answer is?" she asks each child in a row during a

number game. "Come up and write the answer on the board" or, later, "Whisper it to me." The children respond eagerly to her personal approach and the variety of presentation. Discipline hasn't been a problem for Betty; her admonitions are soft-voiced but effective. "I'll never call on someone who makes a noise like that!" She keeps a log of on-the-spot observations to show her Washington University adviser, who will visit her class five times in the semester. Her mistakes will be rectified during practice teaching. The problem for practice teachers is to immerse themselves in teaching while remaining objective.



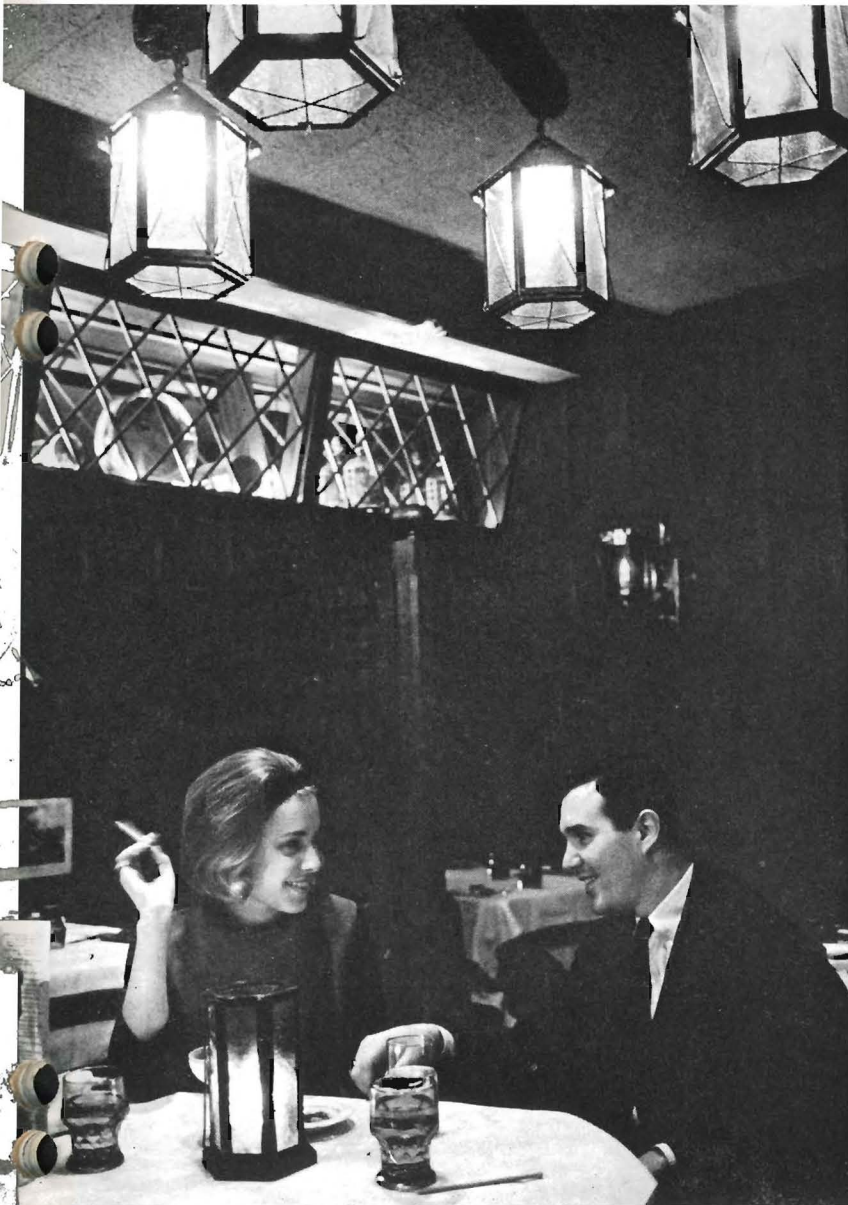


Product of art class is admired by Betty, somewhat wearily—the art class is one of the last of a busy day. Paintings are hung up in room and in hall.





Interested audience watches teacher dig up dirt for use in the science lesson.



Betty talks with fiancé Buddy Rosenbaum at a St. Louis restaurant after attending a PTA meeting at the school.

A TEACHER IS MORE THAN A TEACHER, especially in the elementary grades. In first grade, she's a comforter, a guide, a helper, and a bit of an artist, musician, and gardener as well. It's a rather big order, but that's part of its fascination for teachers like Betty Rubin. During a recent week, she not only taught reading, writing, and arithmetic, she also visited a bookmobile, dug up dirt for planting seeds, led a song, and helped an art class. She is taking both music and art at Washington University this semester. Encouragement is an important part of her job. "I'm dumb," announces one tiny girl after missing an answer in her workbook. "No, you're not—why do you say that?" says Betty gently, bending over her. "I don't know some of these words," says another youngster, looking ahead in his workbook. "Someday, you'll know them all," promises Betty. Sessions often end with praise. "Everyone got this question right—wonderful." Betty will be married in June to a 1959 alumnus of Washington University's School of Business and Public Administration, Buddy Rosenbaum, who strongly approves of her teaching career. She will begin full-time teaching in September; she hopes it will be in first grade.



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**“THE MONEY BEHIND OUR COLLEGES”**

is the subject of the special national report presented on the next sixteen pages. It is the product of a cooperative endeavor in which many colleges and universities, including Washington University, took part.

“The Money *Ahead* For Our Colleges” might have been a more appropriate title, for the urgent question that emerges from all the facts and figures is simply, “Where is the money coming from?”

To prepare the report, the editors gathered information from and about hundreds of American institutions of higher learning. Obviously, the statistics cannot be applied exactly to a given college or university, but the broad picture applies to most and most of the problems are faced by all.

This, then, is an informed and timely survey of the state of financial health of America’s colleges and universities. While it is a national survey, much of what this report has to say has great significance for the future of Washington University.

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# The Money

## Behind

# Our Colleges

**A**RE AMERICA'S colleges and universities in good financial health—or bad?

Are they pricing themselves out of many students' reach? Or can—and should—students and their parents carry a greater share of the cost of higher education?

Can state and local governments appropriate more money for higher education? Or is there a danger that taxpayers may “revolt”?

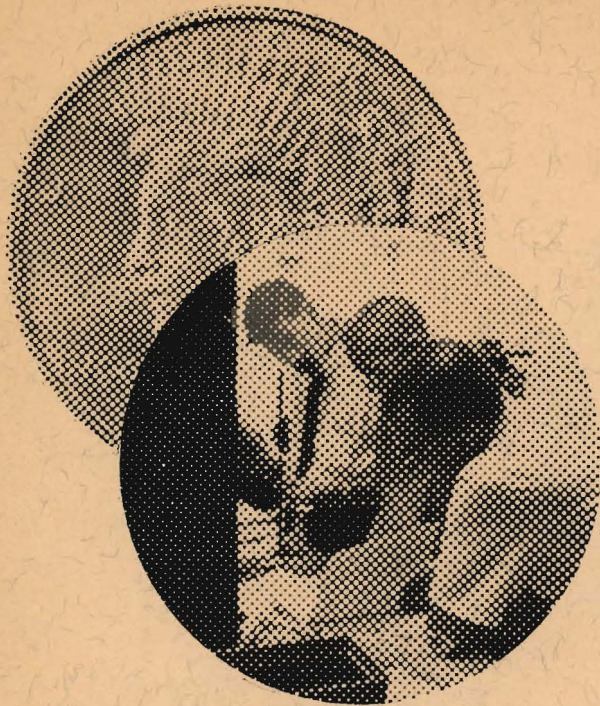
Does the federal government—now the third-largest provider of funds to higher education—pose a threat to the freedom of our colleges and universities? Or is the “threat” groundless, and should higher education seek even greater federal support?

Can private donors—business corporations, religious denominations, foundations, alumni, and alumnae—increase their gifts to colleges and universities as greatly as some authorities say is necessary? Or has private philanthropy gone about as far as it can go?

There is no set of “right” answers to such questions. College and university financing is complicated, confusing, and often controversial, and even the administrators of the nation's institutions of higher learning are not of one mind as to what the best answers are.

One thing is certain: financing higher education is not a subject for “insiders,” alone. Everybody has a stake in it.





## Where U.S. colleges and universities get their income

**T**HESE DAYS, most of America's colleges and universities manage to make ends meet. Some do not: occasionally, a college shuts its doors, or changes its character, because in the jungle of educational financing it has lost the fiscal fitness to survive. Certain others, qualified observers suspect, hang onto life precariously, sometimes sacrificing educational quality to conserve their meager resources. But most U.S. colleges and universities survive, and many do so with some distinction. On the surface, at least, they appear to be enjoying their best financial health in history.

The voice of the bulldozer is heard in our land, as new buildings go up at a record rate. Faculty salaries in most institutions—at critically low levels not long ago—are, if still a long distance from the high-tax brackets, substantially better than they used to be. Appropriations of state funds for higher education are at an all-time high. The federal government is pouring money into the campuses at an unprecedented rate. Private gifts and grants were never more numerous. More students than ever before, paying higher fees than ever before, crowd the classrooms.

How real is this apparent prosperity? Are there danger signals? One purpose of this report is to help readers find out.

**H**OW DO colleges and universities get the money they run on? By employing a variety of financing processes and philosophies. By conducting, says one participant, the world's busiest patchwork quilting-bee.

U.S. higher education's balance sheets—the latest of which shows the country's colleges and universities receiving more than \$7.3 billion in current-fund income—have been known to baffle even those men and women who are at home in the depths of a corporate financial statement. Perusing them, one learns that even the basic terms have lost their old, familiar meanings.

“Private” institutions of higher education, for example, receive enormous sums of “public” money—including more federal research funds than go to all so-called “public” colleges and universities.

And “public” institutions of higher education own some of the largest “private” endowments. (The endowment of the University of Texas, for instance, has a higher book value than Yale's.)

When the English language fails him so completely, can higher education's balance-sheet reader be blamed for his bafflement?

**I**N A RECENT year, U.S. colleges and universities got their current-fund income in this fashion:

- 20.7% came from student tuition and fees.
- 18.9% came from the federal government.
- 22.9% came from state governments.
- 2.6% came from local governments.
- 6.4% came from private gifts and grants.



9.4% was other educational and general income, including income from endowments.

17.5% came from auxiliary enterprises, such as dormitories, cafeterias, and dining halls.

1.6% was student-aid income.

Such a breakdown, of course, does not match the income picture at any actual college or university. It includes institutions of many shapes, sizes, and financial policies. Some heat their classrooms and pay their professors largely with money collected from students. Others receive relatively little from this source. Some balance their budgets with large sums from governments. Others not only receive no such funds, but may actively spurn them. Some draw substantial interest from their endowments and receive gifts and grants from a variety of sources.

"There is something very reassuring about this assorted group of patrons of higher education," writes a college president. "They are all acknowledging the benefits they derive from a strong system of colleges and universities. Churches that get clergy, communities that get better citizens, businesses that get better employees—all share in the costs of the productive machinery, along with the student . . ."

In the campus-to-campus variations there is often a deep significance; an institution's method of financing may tell as much about its philosophies as do the most eloquent passages in its catalogue. In this sense, one should understand that *whether* a college or university receives enough income to survive is only part of the story. *How* and *where* it gets its money may have an equally profound effect upon its destiny.



**PRIVATE INSTITUTIONS:**  
34.3% of their income  
comes from student fees.

## from Students 20.7 per cent

**L**AST FALL, some 4.4 million young Americans were enrolled in the nation's colleges and universities—2.7 million in public institutions, 1.7 million in private.

For most of them, the enrollment process included a stop at a cashier's office, to pay tuition and other educational fees.

How much they paid varied considerably from one campus to another. For those attending public institutions, according to a U.S. government survey, the median in 1962-63 was \$170 per year. For those attending private institutions, the median was \$690—four times as high.

There were such differences as these:

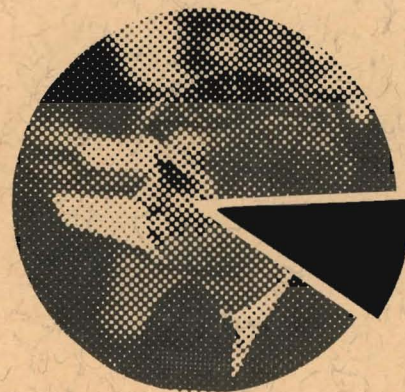
In public universities, the median charge was \$268.

In public liberal arts colleges, it was \$168.

In public teachers colleges, it was \$208.

In public junior colleges, it was \$113.

Such educational fees, which do not include charges for meals or dormi-



**PUBLIC INSTITUTIONS:**  
10% of their income  
comes from student fees.



## TUITION continued

### Are tuition charges becoming too burdensome?

tory rooms, brought the nation's public institutions of higher education a total of \$415 million—one-tenth of their entire current-fund income.

By comparison:

In private universities, the median charge was \$1,038.

In private liberal arts colleges, it was \$751.

In private teachers colleges, it was \$575.

In private junior colleges, it was \$502.

In 1961-62, such student payments brought the private colleges and universities a total of \$1.1 billion—more than one-third of their entire current-fund income.

From all students, in all types of institution, America's colleges and universities thus collected a total of \$1.5 billion in tuition and other educational fees.

**N**O NATION puts more stock in maximum college attendance by its youth than does the United States," says an American report to an international committee. "Yet no nation expects those receiving higher education to pay a greater share of its cost."

The leaders of both private and public colleges and universities are worried by this paradox.

**Private-institution leaders are worried** because they have no desire to see their campuses closed to all but the sons and daughters of well-to-do families. But, in effect, this is what may happen if students must continue to be charged more than a third of the costs of providing higher education—costs that seem to be eternally on the rise. (Since one-third is the average for *all* private colleges and universities, the students' share of costs is lower in some private colleges and universities, considerably higher in others.)

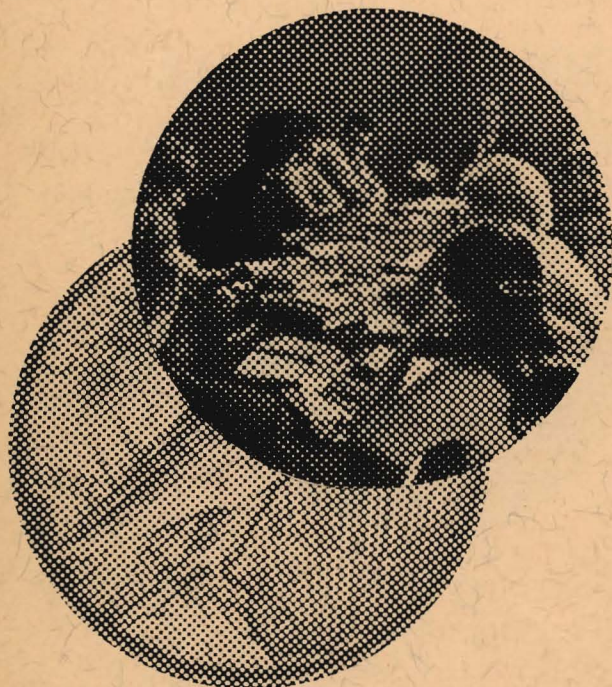
**Public-institution leaders are worried** because, in the rise of tuition and other student fees, they see the eventual collapse of a cherished American dream: equal educational opportunity for all. Making students pay a greater part of the cost of public higher education is no mere theoretical threat; it is already taking place, on a broad scale. Last year, half of the state universities and land-grant institutions surveyed by the federal government reported that, in the previous 12 months, they had had to increase the tuition and fees charged to home-state students. More than half had raised their charges to students who came from other states.

**C**AN THE RISE in tuition rates be stopped—at either public or private colleges and universities?

A few vocal critics think it should not be; that tuition should, in fact, go up. Large numbers of students can afford considerably more than they are now paying, the critics say.

"Just look at the student parking lots. You and I are helping to pay for those kids' cars with our taxes," one campus visitor said last fall.

Asked an editorial in a Tulsa newspaper:





“Why should taxpayers, most of whom have not had the advantage of college education, continue to subsidize students in state-supported universities who have enrolled, generally, for the frank purpose of eventually earning more than the average citizen?”

An editor in Omaha had similar questions:

“Why shouldn’t tuition cover more of the rising costs? And why shouldn’t young people be willing to pay higher tuition fees, and if necessary borrow the money against their expected earnings? And why shouldn’t tuition charges have a direct relationship to the prospective earning power—less in the case of the poorer-paid professions and more in the case of those which are most remunerative?”

Such questions, or arguments-in-the-form-of-questions, miss the main point of tax-supported higher education, its supporters say.

“The primary beneficiary of higher education is society,” says a joint statement of the State Universities Association and the Association of State Universities and Land-Grant Colleges.

“The process of making students pay an increasing proportion of the costs of higher education will, if continued, be disastrous to American society and to American national strength.

“It is based on the theory that higher education benefits only the individual and that he should therefore pay immediately and directly for its cost—through borrowing if necessary. . . .

“This is a false theory. . . . It is true that great economic and other benefits do accrue to the individual, and it is the responsibility of the individual to help pay for the education of others on this account—through taxation and through voluntary support of colleges and universities, in accordance with the benefits received. But even from the narrowest of economic standpoints, a general responsibility rests on society to finance higher education. The businessman who has things to sell is a beneficiary, whether he attends college or not, whether his children do or not. . . .”

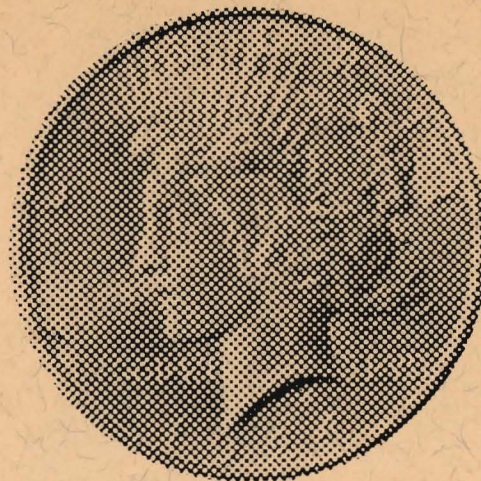
Says a university president: “I am worried, as are most educators, about the possibility that we will price ourselves out of the market.”

For private colleges—already forced to charge for a large part of the cost of providing higher education—the problem is particularly acute. As costs continue to rise, where will private colleges get the income to meet them, if not from tuition?

After studying 100 projections of their budgets by private liberal arts colleges, Sidney G. Tickton, of the Fund for the Advancement of Education, flatly predicted:

“Tuition will be much higher ten years hence.”

Already, Mr. Tickton pointed out, tuition at many private colleges is beyond the reach of large numbers of students, and scholarship aid isn’t large enough to help. “Private colleges are beginning to realize that they haven’t been taking many impecunious students in recent years. The figures show that they can be expected to take an even smaller proportion in the future.

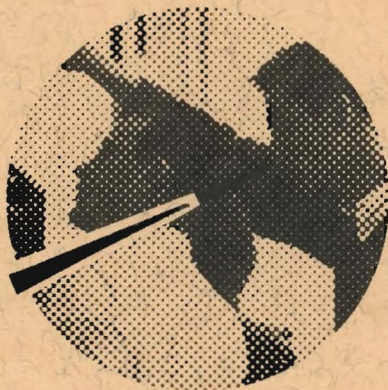


**Or should students  
carry a heavier  
share of the costs?**

**CONTINUED**



## TUITION continued



**PRIVATE INSTITUTIONS:**  
1.4% of their income  
comes from the states.

## 22.9 per cent from States



**PUBLIC INSTITUTIONS:**  
39.7% of their income  
comes from the states.

“The facts are indisputable. Private colleges may not like to admit this or think of themselves as educators of only the well-heeled, but the signs are that they aren’t likely to be able to do very much about it in the decade ahead.”

What is the outlook at public institutions? Members of the Association of State Colleges and Universities were recently asked to make some predictions on this point. The consensus:

They expect the tuition and fees charged to their home-state students to rise from a median of \$200 in 1962–63 to \$230, five years later. In the previous five years, the median tuition had increased from \$150 to \$200. Thus the rising-tuition trend would not be stopped, they felt—but it would be slowed.

**T**HE ONLY alternative to higher tuition, whether at public or private institutions, is increased income from other sources—taxes, gifts, grants. If costs continue to increase, such income will have to increase not merely in proportion, but at a faster rate—if student charges are to be held at their present levels.

What are the prospects for these other sources of income? See the pages that follow.

**C**OLLEGES and universities depend upon many sources for their financial support. But one source towers high above all the rest: the American taxpayer.

The taxpayer provides funds for higher education through all levels of government—federal, state, and local.

**Together, in the most recent year reported, governments supplied 44.4 per cent of the current-fund income of all U.S. colleges and universities—a grand total of \$3.2 billion.**

This was more than twice as much as all college and university students paid in tuition fees. It was nearly seven times the total of all private gifts and grants.

By far the largest sums for educational purposes came from state and local governments: \$1.9 billion, altogether. (Although the federal government’s over-all expenditures on college and university campuses were large—nearly \$1.4 billion—all but \$262 million was earmarked for research.)

**S**TATES HAVE HAD a financial interest in higher education since the nation’s founding. (Even before independence, Harvard and other colonial colleges had received government support.) The first state university, the University of Georgia, was chartered in 1785. As settlers



moved west, each new state received two townships of land from the federal government, to support an institution of higher education.

But the true flourishing of publicly supported higher education came after the Civil War. State universities grew. Land-grant colleges were founded, fostered by the Morrill Act of 1862. Much later, local governments entered the picture on a large scale, particularly in the junior-college field.

Today, the U.S. system of publicly supported colleges and universities is, however one measures it, the world's greatest. It comprises 743 institutions (345 local, 386 state, 12 federal), compared with a total of 1,357 institutions that are privately controlled.

Enrollments in the public colleges and universities are awesome, and certain to become more so.

As recently as 1950, half of all college and university students attended private institutions. No longer—and probably never again. Last fall, the public colleges and universities enrolled 60 per cent—one million more students than did the private institutions. And, as more and more young Americans go to college in the years ahead, both the number and the proportion attending publicly controlled institutions will soar.

By 1970, according to one expert projection, there will be 7 million college and university students. Public institutions will enroll 67 per cent of them.

By 1980, there will be 10 million students. Public institutions will enroll 75 per cent of them.

**T**HE FINANCIAL implications of such enrollments are enormous. Will state and local governments be able to cope with them?

In the latest year for which figures have been tabulated, the current-fund income of the nation's public colleges and universities was \$4.1 billion. Of this total, state and local governments supplied more than \$1.8 billion, or 44 per cent. To this must be added \$790 million in capital outlays for higher education, including \$613 million for new construction.

In the fast-moving world of public-college and university financing, such heady figures are already obsolete. At present, reports the Committee for Economic Development, expenditures for higher education are the fastest-growing item of state and local-government financing. Between 1962 and 1968, while expenditures for all state and local-government activities will increase by about 50 per cent, expenditures for higher education will increase 120 per cent. In 1962, such expenditures represented 9.5 per cent of state and local tax income; in 1968, they will take 12.3 per cent.

Professor M.M. Chambers, of the University of Michigan, has totted up each state's tax-fund appropriations to colleges and universities (see list, next page). He cautions readers not to leap to interstate comparisons; there are too many differences between the practices of the 50 states to make such an exercise valid. But the differences do not obscure



**Will state taxes  
be sufficient to meet  
the rocketing demand?**

**CONTINUED**



## STATE FUNDS continued

### State Tax Funds For Higher Education

	Fiscal 1963	Change from 1961	
Alabama.....	\$22,051,000	-\$346,000	- 1.5%
Alaska.....	3,301,000	+ 978,000	+42%
Arizona.....	20,422,000	+ 4,604,000	+29%
Arkansas.....	16,599,000	+ 3,048,000	+22.5%
California....	243,808,000	+48,496,000	+25%
Colorado.....	29,916,000	+ 6,634,000	+28.25%
Connecticut...	15,948,000	+ 2,868,000	+22%
Delaware.....	5,094,000	+ 1,360,000	+36.5%
Florida.....	46,043,000	+ 8,780,000	+23.5%
Georgia.....	32,162,000	+ 4,479,000	+21%
Hawaii.....	10,778,000	+ 3,404,000	+46%
Idaho.....	10,137,000	+ 1,337,000	+15.25%
Illinois.....	113,043,000	+24,903,000	+28.25%
Indiana.....	62,709,000	+12,546,000	+25%
Iowa.....	38,914,000	+ 4,684,000	+13.5%
Kansas.....	35,038,000	+ 7,099,000	+25.5%
Kentucky.....	29,573,000	+ 9,901,000	+50.25%
Louisiana....	46,760,000	+ 2,203,000	+ 5%
Maine.....	7,429,000	+ 1,830,000	+32.5%
Maryland.....	29,809,000	+ 3,721,000	+20.5%
Massachusetts.	16,503,000	+ 3,142,000	+23.5%
Michigan.....	104,082,000	+ 6,066,000	+ 6%
Minnesota....	44,058,000	+ 5,808,000	+15.25%
Mississippi...	17,500,000	+ 1,311,000	+ 8%
Missouri.....	33,253,000	+ 7,612,000	+29.5%

continued opposite

the fact that, between fiscal year 1961 and fiscal 1963, all states except Alabama and Montana increased their tax-fund appropriations to higher education. The average was a whopping 24.5 per cent.

Can states continue to increase appropriations? No one answer will serve from coast to coast.

Poor states will have a particularly difficult problem. The Southern Regional Education Board, in a recent report, told why:

"Generally, the states which have the greatest potential demand for higher education are the states which have the fewest resources to meet the demand. Rural states like Alabama, Arkansas, Mississippi, and South Carolina have large numbers of college-age young people and relatively small per-capita income levels." Such states, the report concluded, can achieve educational excellence only if they use a larger proportion of their resources than does the nation as a whole.

A leading Western educator summed up his state's problem as follows:

"Our largest age groups, right now, are old people and youngsters approaching college age. Both groups depend heavily upon the producing, taxpaying members of our economy. The elderly demand state-financed welfare; the young demand state-financed education.

"At present, however, the producing part of our economy is composed largely of 'depression babies'—a comparatively small group. For the next few years, their per-capita tax burden will be pretty heavy, and it may be hard to get them to accept any big increases."

But the alternatives to more tax money for public colleges and universities—higher tuition rates, the turning away of good students—may be even less acceptable to many taxpayers. Such is the hope of those who believe in low-cost, public higher education.

**E**VERY projection of future needs shows that state and local governments must increase their appropriations vastly, if the people's demands for higher education are to be met. The capacity of a government to make such increases, as a California study has pointed out, depends on three basic elements:

- 1) The size of the "stream of income" from which the support for higher education must be drawn;
- 2) The efficiency and effectiveness of the tax system; and
- 3) The will of the people to devote enough money to the purpose.

Of these elements, the third is the hardest to analyze, in economic terms. It may well be the most crucial.

Here is why:

In their need for increased state and local funds, colleges and universities will be in competition with growing needs for highways, urban renewal, and all the other services that citizens demand of their governments. How the available tax funds will be allocated will depend, in large measure, on how the people *rank* their demands, and how insistently they make the demands known.



"No one should know better than our alumni the importance of having society invest its money and faith in the education of its young people," Allan W. Ostar, director of the Office of Institutional Research, said recently. "Yet all too often we find alumni of state universities who are not willing to provide the same opportunity to future generations that they enjoyed. Our alumni should be leading the fight for adequate tax support of our public colleges and universities.

"If they don't, who will?"

**T**O SOME Americans, the growth of state-supported higher education, compared with that of the private colleges and universities, has been disturbing for other reasons than its effects upon the tax rate.

One cause of their concern is a fear that government dollars inevitably will be accompanied by a dangerous sort of government control. The fabric of higher education, they point out, is laced with controversy, new ideas, and challenges to all forms of the status quo. Faculty members, to be effective teachers and researchers, must be free of reprisal or fears of reprisal. Students must be encouraged to experiment, to question, to disagree.

The best safeguard, say those who have studied the question, is legal autonomy for state-supported higher education: independent boards of regents or trustees, positive protections against interference by state agencies, post-audits of accounts but no line-by-line political control over budget proposals—the latter being a device by which a legislature might be able to cut the salary of an "offensive" professor or stifle another's research. Several state constitutions already guarantee such autonomy to state universities. But in some other states, college and university administrators must be as adept at politicking as at educating, if their institutions are to thrive.

Another concern has been voiced by many citizens. What will be the effects upon the country's private colleges, they ask, if the public-higher-education establishment continues to expand at its present rate? With state-financed institutions handling more and more students—and, generally, charging far lower tuition fees than the private institutions can afford—how can the small private colleges hope to survive?

President Robert D. Calkins, of the Brookings Institution, has said:

"Thus far, no promising alternative to an increased reliance on public institutions and public support has appeared as a means of dealing with the expanding demand for education. The trend may be checked, but there is nothing in sight to reverse it. . . .

"Many weak private institutions may have to face a choice between insolvency, mediocrity, or qualifying as public institutions. But enlarged opportunities for many private and public institutions will exist, often through cooperation. . . . By pooling resources, all may be strengthened. . . . In view of the recent support the liberal arts colleges have elicited, the more enterprising ones, at least, have an undisputed role for future service."



	Fiscal 1963	Change from 1961	
Montana . . . .	\$11,161,000	-\$ 70,000	- 0.5%
Nebraska . . . .	17,078,000	+ 1,860,000	+12.25%
Nevada . . . . .	5,299,000	+ 1,192,000	+29%
New Hampshire	4,733,000	+ 627,000	+15.25%
New Jersey . . .	34,079,000	+ 9,652,000	+39.5%
New Mexico . . .	14,372,000	+ 3,133,000	+28%
New York . . . .	156,556,000	+67,051,000	+75%
North Carolina	36,532,000	+ 6,192,000	+20.5%
North Dakota . .	10,386,000	+ 1,133,000	+12.25%
Ohio . . . . .	55,620,000	+10,294,000	+22.5%
Oklahoma . . . .	30,020,000	+ 3,000,000	+11%
Oregon . . . . .	33,423,000	+ 4,704,000	+16.25%
Pennsylvania . .	56,187,000	+12,715,000	+29.5%
Rhode Island . .	7,697,000	+ 2,426,000	+46%
South Carolina	15,440,000	+ 2,299,000	+17.5%
South Dakota . .	8,702,000	+ 574,000	+ 7%
Tennessee . . . .	22,359,000	+ 5,336,000	+31.25%
Texas . . . . .	83,282,000	+16,327,000	+24.5%
Utah . . . . .	15,580,000	+ 2,441,000	+18.5%
Vermont . . . . .	3,750,000	+ 351,000	+10.25%
Virginia . . . . .	28,859,000	+ 5,672,000	+24.5%
Washington . . .	51,757,000	+ 9,749,000	+23.25%
West Virginia . .	20,743,000	+ 3,824,000	+22.5%
Wisconsin . . . .	44,670,000	+ 7,253,000	+19.5%
Wyoming . . . . .	5,599,000	+ 864,000	+18.25%
<b>TOTALS . . . .</b>	<b>\$1,808,825,000</b>	<b>+\$357,499,000</b>	
<b>WEIGHTED AVERAGE</b>			<b>+24.5%</b>

CONTINUED



# 18.9 per cent from Washington

**I** SEEM TO SPEND half my life on the jets between here and Washington," said an official of a private university on the West Coast, not long ago.

"We've decided to man a Washington office, full time," said the spokesman for a state university, a few miles away.

For one in 20 U.S. institutions of higher education, the federal government in recent years has become one of the biggest facts of financial life. For some it is *the* biggest. "The not-so-jolly long-green giant," one man calls it.

Washington is no newcomer to the campus scene. The difference, today, is one of scale. Currently the federal government spends between \$1 billion and \$2 billion a year at colleges and universities. So vast are the expenditures, and so diverse are the government channels through which they flow to the campuses, that a precise figure is impossible to come by. The U.S. Office of Education's latest estimate, covering fiscal 1962, is that Washington was the source of \$1.389 billion—or nearly 19 per cent—of higher education's total current-fund income.

"It may readily be seen," said Congresswoman Edith Green of Oregon, in a report last year to the House Committee on Education and Labor, "that the question is not *whether* there shall be federal aid to education."

Federal aid exists. It is big and is growing.

**T**HE word *aid*, however, is misleading. Most of the federal government's expenditures in higher education—more than four and a half times as much as for all other purposes combined—are for research that the government needs. Thus, in a sense, the government is the purchaser of a commodity; the universities, like any other producer with whom the government does business, supply that commodity. The relationship is one of *quid pro quo*.

Congresswoman Green is quick to acknowledge this fact:

"What has not been . . . clear is the dependency of the federal government on the educational system. The government relies upon the universities to do those things which cannot be done by government personnel in government facilities.

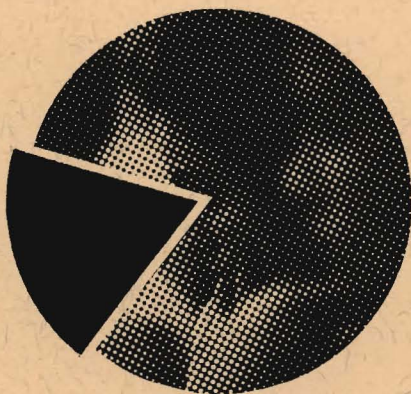
"It turns to the universities to conduct basic research in the fields of agriculture, defense, medicine, public health, and the conquest of space, and even for managing and staffing of many governmental research laboratories.

"It relies on university faculty to judge the merits of proposed research.

"It turns to them for the management and direction of its foreign aid programs in underdeveloped areas of the world.



**PRIVATE INSTITUTIONS:**  
19.1% of their income  
comes from Washington.



**PUBLIC INSTITUTIONS:**  
18.6% of their income  
comes from Washington.



“It relies on them for training, in every conceivable field, of government personnel—both military and civilian.”

**T**HE FULL RANGE of federal-government relationships with U.S. higher education can only be suggested in the scope of this report. Here are some examples:

**Land-grant colleges** had their origins in the Morrill Land Grant College Act of 1862, when the federal government granted public lands to the states for the support of colleges “to teach such branches of learning as are related to agriculture and the mechanic arts,” but not excluding science and classics. Today there are 68 such institutions. In fiscal 1962, the federal government distributed \$10.7 million in land-grant funds.

**The armed forces** operate officers training programs in the colleges and universities—their largest source of junior officers.

**Student loans**, under the National Defense Education Act, are the major form of federal assistance to undergraduate students. They are administered by 1,534 participating colleges and universities, which select recipients on the basis of need and collect the loan repayments. In fiscal 1962, more than 170,000 undergraduates and nearly 15,000 graduate students borrowed \$90 million in this way.

“The success of the federal loan program,” says the president of a college for women, “is one of the most significant indexes of the important place the government has in financing private as well as public educational institutions. The women’s colleges, by the way, used to scoff at the loan program. ‘Who would marry a girl with a debt?’ people asked. ‘A girl’s dowry shouldn’t be a mortgage,’ they said. But now more than 25 per cent of our girls have government loans, and they don’t seem at all perturbed.”

**Fellowship grants to graduate students**, mostly for advanced work in science or engineering, supported more than 35,000 persons in fiscal 1962. Cost to the government: nearly \$104 million. In addition, around 20,000 graduate students served as paid assistants on government-sponsored university research projects.

**Dormitory loans** through the college housing program of the Housing and Home Finance Agency have played a major role in enabling colleges and universities to build enough dormitories, dining halls, student unions, and health facilities for their burgeoning enrollments. Between 1951 and 1961, loans totaling more than \$1.5 billion were approved. Informed observers believe this program finances from 35 to 45 per cent of the total current construction of such facilities.

**Grants for research facilities and equipment** totaled \$98.5 million in fiscal 1962, the great bulk of which went to universities conducting scientific research. The National Science Foundation, the National Institutes of Health, the National Aeronautics and Space Administration, and the Atomic Energy Commission are the principal sources of such grants. A Department of Defense program enables institutions to build facilities and write off the cost.

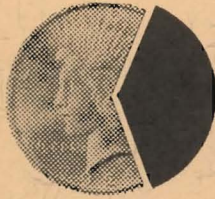
**To help finance new classrooms, libraries, and laboratories**, Congress last year passed a \$1.195 billion college aid program and, said President

**Can federal dollars properly be called federal “aid”?**





## FEDERAL FUNDS continued



**38%**  
of Federal research funds  
go to these 10 institutions:

U. of California	U. of Illinois
Mass. Inst. of Technology	Stanford U.
Columbia U.	U. of Chicago
U. of Michigan	U. of Minnesota
Harvard U.	Cornell U.



**59%**  
of Federal research funds  
go to the above 10 + these 15:

U. of Wisconsin	Yale U.
U. of Pennsylvania	Princeton U.
New York U.	Iowa State U.
Ohio State U.	Cal. Inst. of Technology
U. of Washington	U. of Pittsburgh
Johns Hopkins U.	Northwestern U.
U. of Texas	Brown U.
	U. of Maryland

Johnson, thus was "on its way to doing more for education than any since the land-grant college bill was passed 100 years ago."

**Support for medical education** through loans to students and funds for construction was authorized by Congress last fall, when it passed a \$236 million program.

**To strengthen the curriculum** in various ways, federal agencies spent approximately \$9.2 million in fiscal 1962. Samples: A \$2 million National Science Foundation program to improve the content of science courses; a \$2 million Office of Education program to help colleges and universities develop, on a matching-fund basis, language and area-study centers; a \$2 million Public Health Service program to expand, create, and improve graduate work in public health.

**Support for international programs** involving U.S. colleges and universities came from several federal sources. Examples: Funds spent by the Peace Corps for training and research totaled more than \$7 million. The Agency for International Development employed some 70 institutions to administer its projects overseas, at a cost of about \$26 million. The State Department paid nearly \$6 million to support more than 2,500 foreign students on U.S. campuses, and an additional \$1.5 million to support more than 700 foreign professors.

**B**UT the greatest federal influence, on many U.S. campuses, comes through the government's expenditures for research.

As one would expect, most of such expenditures are made at universities, rather than at colleges (which, with some exceptions, conduct little research).

In the 1963 Godkin Lectures at Harvard, the University of California's President Clark Kerr called the federal government's support of research, starting in World War II, one of the "two great impacts [which], beyond all other forces, have molded the modern American university system and made it distinctive." (The other great impact: the land-grant college movement.)

At the institutions where they are concentrated, federal research funds have had marked effects. A self-study by Harvard, for example, revealed that *90 per cent* of the research expenditures in the university's physics department were paid for by the federal government; *67 per cent* in the chemistry department; and *95 per cent* in the division of engineering and applied physics.

**I**S THIS government-dollar dominance in many universities' research budgets a healthy development?

After analyzing the role of the federal government on their campuses, a group of universities reporting to the Carnegie Foundation for the Advancement of Teaching agreed that "the effects [of government expenditures for campus-based research projects] have, on balance, been salutary."

Said the report of one institution:

"The opportunity to make expenditures of this size has permitted a



research effort far superior to anything that could have been done without recourse to government sponsors. . . .

“Any university that declined to participate in the growth of sponsored research would have had to pay a high price in terms of the quality of its faculty in the science and engineering areas. . . .”

However, the university-government relationship is not without its irritations.

One of the most irksome, say many institutions, is the government’s failure to reimburse them fully for the “indirect costs” they incur in connection with federally sponsored research—costs of administration, of libraries, of operating and maintaining their physical plant. If the government fails to cover such costs, the universities must—often by drawing upon funds that might otherwise be spent in strengthening areas that are not favored with large amounts of federal support, *e.g.*, the humanities.

Some see another problem: faculty members may be attracted to certain research areas simply because federal money is plentiful there. “This . . . may tend to channel their efforts away from other important research and . . . from their teaching and public-service responsibilities,” one university study said.

The government’s emphasis upon science, health, and engineering, some persons believe, is another drawback to the federal research expenditures. “Between departments, a form of imbalance may result,” said a recent critique. “The science departments and their research may grow and prosper. The departments of the humanities and social sciences may continue, at best, to maintain their *status quo*.”

“There needs to be a National Science Foundation for the humanities,” says the chief academic officer of a Southern university which gets approximately 20 per cent of its annual budget from federal grants.

“Certainly government research programs create imbalances within departments and between departments,” said the spokesman for a leading Catholic institution, “but so do many other influences at work within a university. . . . Imbalances must be lived with and made the most of, if a level of uniform mediocrity is not to prevail.”

**T**HE CONCENTRATION of federal funds in a few institutions—usually the institutions which already are financially and educationally strong—makes sense from the standpoint of the *quid pro quo* philosophy that motivates the expenditure of most government funds. The strong research-oriented universities, obviously, can deliver the commodity the government wants.

But, consequently, as a recent Carnegie report noted, “federal support is, for many colleges and universities, not yet a decisive or even a highly influential fact of academic life.”

Why, some persons ask, should not the government conduct equally well-financed programs in order to improve those colleges and universities which are *not* strong—and thus raise the quality of U.S. higher education as a whole?



**90%**  
of Federal research funds  
go to the 25 opposite + these 75:

- |                                  |                             |
|----------------------------------|-----------------------------|
| Pennsylvania State U.            | Wayne State U.              |
| Duke U.                          | Baylor U.                   |
| U. of Southern Cal.              | U. of Denver                |
| Indiana U.                       | U. of Missouri              |
| U. of Rochester                  | U. of Georgia               |
| Washington U.                    | U. of Arkansas              |
| U. of Colorado                   | U. of Nebraska              |
| Purdue U.                        | Tufts U.                    |
| George Washington U.             | U. of Alabama               |
| Western Reserve U.               | New Mexico State U.         |
| Florida State U.                 | Washington State U.         |
| Yeshiva U.                       | Boston U.                   |
| U. of Florida                    | U. of Buffalo               |
| U. of Oregon                     | U. of Kentucky              |
| U. of Utah                       | U. of Cincinnati            |
| Tulane U.                        | Stevens Inst. of Technology |
| U. of N. Carolina                | Oklahoma State U.           |
| Michigan State U.                | Georgetown U.               |
| Polytechnic Inst. of<br>Brooklyn | Medical Col. of Virginia    |
| U. of Miami                      | Mississippi State U.        |
| U. of Tennessee                  | Colorado State U.           |
| U. of Iowa                       | Auburn U.                   |
| Texas A. & M. Col.               | Dartmouth Col.              |
| Rensselaer Polytechnic Inst.     | Emory U.                    |
| U. of Kansas                     | U. of Vermont               |
| U. of Arizona                    | Brandeis U.                 |
| Vanderbilt U.                    | Marquette U.                |
| Syracuse U.                      | Jefferson Medical Col.      |
| Oregon State U.                  | Va. Polytechnic Inst.       |
| Ga. Inst. of Technology          | U. of Louisville            |
| U. of Virginia                   | Kansas State U.             |
| Rutgers U.                       | St. Louis U.                |
| Louisiana State U.               | West Virginia U.            |
| Carnegie Inst. of Technology     | U. of Hawaii                |
| U. of Oklahoma                   | U. of Mississippi           |
| N. Carolina State U.             | Notre Dame U.               |
| Illinois Inst. of Technology     | U. of New Mexico            |
|                                  | Temple U.                   |

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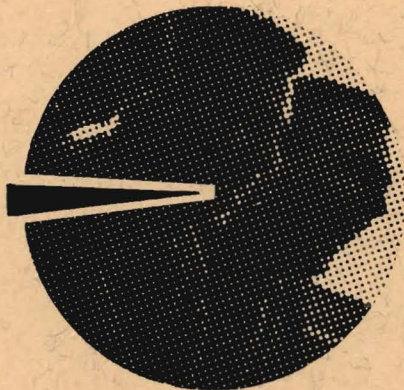


This question is certain to be warmly debated in years to come. Coupled with philosophical support or opposition will be this pressing practical question: can private money, together with state and local government funds, solve higher education's financial problems, without resort to Washington? Next fall, when the great, long-predicted "tidal wave" of students at last reaches the nation's campuses, the time of testing will begin.

## 6.4 per cent from Gifts and Grants



**PRIVATE INSTITUTIONS:**  
11.6% of their income  
comes from gifts and grants.



**PUBLIC INSTITUTIONS:**  
2.3% of their income  
comes from gifts and grants.

**A**S A SOURCE of income for U.S. higher education, private gifts and grants are a comparatively small slice on the pie charts: 11.6% for the private colleges and universities, only 2.3% for public.

But, to both types of institution, private gifts and grants have an importance far greater than these percentages suggest.

"For us," says a representative of a public university in the Midwest, "private funds mean the difference between the adequate and the excellent. The university needs private funds to serve purposes for which state funds cannot be used: scholarships, fellowships, student loans, the purchase of rare books and art objects, research seed grants, experimental programs."

"Because the state provides basic needs," says another public-university man, "every gift dollar can be used to provide for a margin of excellence."

Says the spokesman for a private liberal arts college: "We must seek gifts and grants as we have never sought them before. They are our one hope of keeping educational quality up, tuition rates down, and the student body democratic. I'll even go so far as to say they are our main hope of keeping the college, as we know it, alive."

**F**ROM 1954-55 through 1960-61, the independent Council for Financial Aid to Education has made a biennial survey of the country's colleges and universities, to learn how much private aid they received. In four surveys, the institutions answering the council's questionnaires reported they had received more than \$2.4 billion in voluntary gifts.

Major private universities received \$1,046 million.

Private coeducational colleges received \$628 million.

State universities received nearly \$320 million.

Professional schools received \$171 million.

Private women's colleges received \$126 million.

Private men's colleges received \$117 million.

Junior colleges received \$31 million.

Municipal universities received nearly \$16 million.



Over the years covered by the CFAE's surveys, these increases took place:

Gifts to the private universities went up 95.6%.

Gifts to private coed colleges went up 82%.

Gifts to state universities went up 184%.

Gifts to professional schools went up 134%.

Where did the money come from? Gifts and grants reported to the council came from these sources:

General welfare foundations gave \$653 million.

Non-alumni donors gave \$539.7 million.

Alumni and alumnae gave \$496 million.

Business corporations gave \$345.8 million.

Religious denominations gave \$216 million.

Non-alumni, non-church groups gave \$139 million.

Other sources gave \$66.6 million.

All seven sources increased their contributions over the period.

**B**UT THE RECORDS of past years are only preludes to the voluntary giving of the future, experts feel.

Dr. John A. Pollard, who conducts the surveys of the Council for Financial Aid to Education, estimates conservatively that higher education will require \$9 billion per year by 1969-70, for educational and general expenditures, endowment, and plant expansion. This would be 1.3 per cent of an expected \$700 billion Gross National Product.

Two billion dollars, Dr. Pollard believes, must come in the form of private gifts and grants. Highlights of his projections:

**Business corporations** will increase their contributions to higher education at a rate of 16.25 per cent a year. Their 1969-70 total: \$508 million.

**Foundations** will increase their contributions at a rate of 14.5 per cent a year. Their 1969-70 total: \$520.7 million.

**Alumni** will increase their contributions at a rate of 14.5 per cent a year. Their 1969-70 total: \$591 million.

**Non-alumni individuals** will increase their contributions at a rate of 12.6 per cent a year. Their 1969-70 total: \$524.6 million.

**Religious denominations** will increase their contributions at a rate of 12.7 per cent. Their 1969-70 total: \$215.6 million.

**Non-alumni, non-church groups** and other sources will increase their contributions at rates of 4 per cent and 1 per cent, respectively. Their 1969-70 total: \$62 million.

"I think we must seriously question whether these estimates are realistic," said a business man, in response to Dr. Pollard's estimate of 1969-70 gifts by corporations. "Corporate funds are not a bottomless pit; the support the corporations give to education is, after all, one of the costs of doing business. . . . It may become more difficult to provide for such support, along with other foreseeable increased costs, in setting product prices. We cannot assume that all this money is going to be available simply because we want it to be. The more fruit you shake from the tree, the more difficult it becomes to find still more."



**Coming: a need  
for \$9 billion  
a year. Impossible?**

**CONTINUED**



But others are more optimistic. Says the CFAE:

"Fifteen years ago nobody could safely have predicted the level of voluntary support of higher education in 1962. Its climb has been spectacular. . . .

"So, on the record, it probably *is* safe to say that the potential of voluntary support of U.S. higher education has only been scratched. The people have developed a quenchless thirst for higher learning and, equally, the means and the will to support its institutions adequately."

**A**LUMNI AND ALUMNAE will have a critical role to play in determining whether the projections turn out to have been sound or unrealistic.

Of basic importance, of course, are their own gifts to their alma maters. The American Alumni Council, in its most recent year's compilation, reported that alumni support, as measured from the reports of 927 colleges and universities, had totaled \$196.7 million—a new record.

Lest this figure cause alumni and alumnae to engage in unrestrained self-congratulations, however, let them consider these words from one of the country's veteran (and most outspoken) alumni secretaries:

"Of shocking concern is the lack of interest of most of the alumni. . . . The country over, only about one-fifth on the average pay dues to their alumni associations; only one-fourth on the average contribute to their alumni funds. There are, of course, heartwarming instances where participation reaches 70 and 80 per cent, but they are rare. . . ."

Commenting on these remarks, a fund-raising consultant wrote:

"The fact that about three-fourths of college and university alumni do not contribute anything at all to their alma maters seems to be a strong indication that they lack sufficient feeling of responsibility to support these institutions. There was a day when it could be argued that this support was not forthcoming because the common man simply did not have funds to contribute to universities. While this argument is undoubtedly used today, it carries a rather hollow ring in a nation owning nearly two cars for every family and so many pleasure boats that there is hardly space left for them on available water."

Alumni support has an importance even beyond the dollars that it yields to higher education. More than 220 business corporations will match their employees' contributions. And alumni support—particularly the percentage of alumni who make gifts—is frequently used by other prospective donors as a guide to how much *they* should give.

Most important, alumni and alumnae wear many hats. They are individual citizens, corporate leaders, voters, taxpayers, legislators, union members, church leaders. In every role, they have an effect on college and university destinies. Hence it is alumni and alumnae, more than any other group, who will determine whether the financial health of U.S. higher education will be good or bad in years to come.

What will the verdict be? No reader can escape the responsibility of rendering it.

The report on this and the preceding 15 pages is the product of a cooperative endeavor in which scores of schools, colleges, and universities are taking part. It was prepared under the direction of the group listed below, who form EDITORIAL PROJECTS FOR EDUCATION, a non-profit organization associated with the American Alumni Council. (The editors, of course, speak for themselves and not for their institutions.) Copyright © 1964 by Editorial Projects for Education, Inc. All rights reserved; no part may be reproduced without express permission of the editors. Printed in U.S.A.

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*Dr. Thomas Hornbein, a 1956 graduate of the Washington University Medical School and a former member of its staff, climbed to the summit of the highest mountain in the world last year with America's first Mount Everest expedition. He and another expedition member were the first men in history to make the hazardous ascent of Everest's West Ridge and the first to traverse a major Himalayan peak—climb up one side and down another. An anesthesiologist at the University of Washington in Seattle, Dr. Hornbein also designed the revolutionary oxygen mask used in the expedition.*



By THOMAS HORNBEIN  
MD 56

## THE INEVITABLE

### “WHY?”

THE INEVITABLE QUESTION asked of mountaineers, the question “Why?”, has plagued me through my climbing existence, from the first time I fell out of a tree.

The question was most succinctly answered by George Leigh-Mallory who, after the 1922 Everest expedition, when lecturing in Philadelphia, was asked the inevitable question, and replied with the now trite answer, “Because it is there.” This is awfully concise. It’s probably as good as I’m going to do, but it’s the coward’s way out. It contains a wealth of something inside it, but it’s buried deeply. Yet it’s really the only answer you can give in a short time when, as always happens, someone asks you.

As one grows in the mountains, he begins to think that this question really isn’t very important, at least in terms of having to provide an answer for someone else, other than to say, “Try it yourself and you’ll see.” I thought I would never succumb to the temptation of trying to philosophize about my reasons for climbing or about what Everest and mountains in general mean to me. Yet the question has hit me harder and harder ever since my return from the summit of Mount Everest. The answer

is different probably for every man who climbs or indulges in any other form of high adventure. And mountaineering is a form of adventure. It is more than a sport, at least to the mountaineer. There is something beyond and above the thrill of diving out of an airplane and waiting for your parachute to open or of racing motorcycles up and down hills. Yet this is part of it, to be sure.

The late Wilfred Noyce, a member of the 1953 British Everest expedition and one of the most articulate of mountaineering writers, chose once to tackle the question of what goes into the drive, the motivation behind man’s spirit of adventure. The first task he faced was answering the question: What is adventure? He came up with a definition that sort of leaves you up in the air, feeling as if something more should have been said: “A novel enterprise undertaken for its own sake.” Well, to me novel enterprise just doesn’t have it, and I’m sure that Noyce would be perfectly willing to admit this too, until you expand on it.

To me, in my existence away from the mountains, adventure lies in the laboratory, in research, in the search



for the unknown, and in the challenge of using one's capabilities both mentally and physically to the utmost as much of the time as possible. Adventure is not just the physical aspects that you tend to think of in terms of mountain climbing or Arctic exploration or flying and sky-diving. But I think the element of "undertaken for its own sake" perhaps contains far more than one might guess. And this is one of the things that I would like to expand on in terms of my own personal experience, my own personal reasons for wandering off and leaving a family for five months to go climb on the highest mountain in the world.

**T**HE PROSPECT OF climbing Everest was, of course, enticing. As a child, before I was old enough to read, I looked at pictures and I dreamed of this mountain that in those days had not been climbed. I suppose many boys did, and these dreams are really the figment of youth. Nowadays I don't know if children dream of climbing to the top of the highest point on earth or if they dream of being the first man on the moon. I think we dreamed of that even then, too, although it's much closer to fact now.

But as one grows up and becomes involved in education, in searching for and finding a profession, in marrying and raising a family, almost invariably these dreams are buried deep beneath many layers, and they really aren't thought of anymore. I kept climbing through the years, and I kept enjoying it, but I never really thought much again about going off to try to fulfill the dreams that I had written about when I was fourteen years old. When I returned from Everest in July, my English teacher at University City High School, Margo Johnson, handed me a theme I had written at the age of fourteen, in which I had said, "I know that someday I will gaze upon the highest mountains of the world, Everest, K-2, Kanchenjunga, Nanga Parbat." The dream of a child, utterly ridiculous. I would have said so myself. Even now, I still find it hard at times to believe that I have gazed upon all the highest mountains in the world.

It's strange to realize, just as it was the first time I saw Everest, in 3-D instead of as a picture, that there it was and that I was lucky enough, privileged enough, to be gazing at the highest point on earth; what's more, that I was even a small part of an attempt to reach that point. What a feeling to try to climb in the steps of those heroes of boyhood (and really, still, heroes of manhood), people like George Leigh-Mallory who said, "Because it is there," and who vanished climbing high on Everest along with Andrew Irvine in 1924; men like Smythe, Shipton, and Tillman and Wager and Harris; men who, in some cases without oxygen, had pushed to above 28,000 feet on that 29,000-foot peak, and yet encountered some invisible barrier of limitation that didn't enable them to go higher.

When the day came that we finally put foot on the West Ridge, trespassing, really, a bit off of it into forbidden territory of Communist Tibet, we were actually walking over the same terrain trodden by these heroes

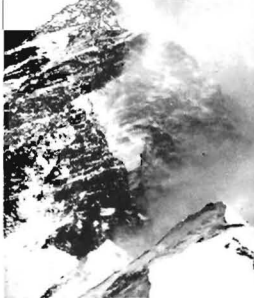
of the past. There was a feeling of great humility and awe and smallness that Willi, Dick, Al, Barry, and I felt as we stood upon those down-sloping slabs on the north face of Everest.

I'll confess, before going on, that I can't satisfy you as to why I climb mountains, because I don't even have all the answers as far as my own personal satisfaction is concerned; maybe this is one of the reasons I climb, to try to find them out.

A man can climb in the mountains, simply because it's just plain pretty up there. The mountains are beautiful; they're inspiring. But as a skeptic you can ask: "Why go to the top of a mountain for the view? Isn't the view of Mount Everest better from somewhere below than it is from the summit?" No question about it, if the view is what you see when a slide is projected on the screen. Everest is not a spectacular mountain; in terms of its sheer beauty, it's a large and massive thing. Its beauty perhaps arises in the mind's eye. The simple realization, for example, that you are looking at the highest point on the surface of the earth adds something to what you see. But you can't tell this by looking at it. That is something which has come from man's scientific knowledge, the ability to triangulate, to measure heights. So this is a sense of appreciation that is added to the scene by more sophistication.

Under the pure aspect of pleasure in relation to this adventure, there are many things that could be said, and pleasure is really one of the simplest justifications for why man climbs. Beyond the sheer beauty, there is pleasure in the environment and in the group of people with whom you are climbing. This is expeditioning, in contrast to the weekend type of mountaineering that we might do anywhere else in the world. One of the things that comes richest out of a mountain climbing adventure such as Everest, or any of the other high Himalayan peaks, is that you're living together day after day as close as you possibly can with a group of other individuals. Willi Unsoeld and I became almost inseparable over the months that we were climbing together, partially by virtue of our common interest in the mountains and partially by virtue of our common interest and pleasure in each other's company; and this was not mutually exclusive of a number of other people on the expedition (simply because so much of the aura of sophistication is immediately stripped away). The five of us in the West Ridge of Everest enjoyed a relationship that is hard to recapture in any civilized environment. There's just no room for sophistication, no need for it; it's impossible to maintain even if you try. When the chips are down, things begin to seep through that mark the true character of a man. You learn to know him for what he is, and you learn to know him for what he isn't; and the thing that I think I've learned in this respect, perhaps more than anything else, from a couple of visits to the Himalayas, is that you learn to like him and enjoy his company for what he is, to accept the things that he isn't as part of the total picture—and it becomes fun. The companionship is an interesting





## THE INEVITABLE 'WHY?'

thing. For those of you who have a husband or a wife, the analogy gets awfully pertinent. Willi would look over at me in the evenings, in the little tent we shared, and listen to the sound of me brushing my teeth. Because there was really no place to deposit the contents, there would be a loud "gulp" at the end of this. It somehow played havoc with Willi's diary writing. He just never could quite stomach that final gulp—so he never brushed his teeth at all, which had a similar effect on me.

These are little irritations that smack of living closely with an individual, whether it's out in the wilderness or in the home, and it is in living at this level of close companionship that you learn to know a lot about the individuals you're with. Perhaps even more important, you learn a lot about yourself. The pleasure of this companionship has been to me one of the most significant parts of why I would go on a Himalayan expedition.

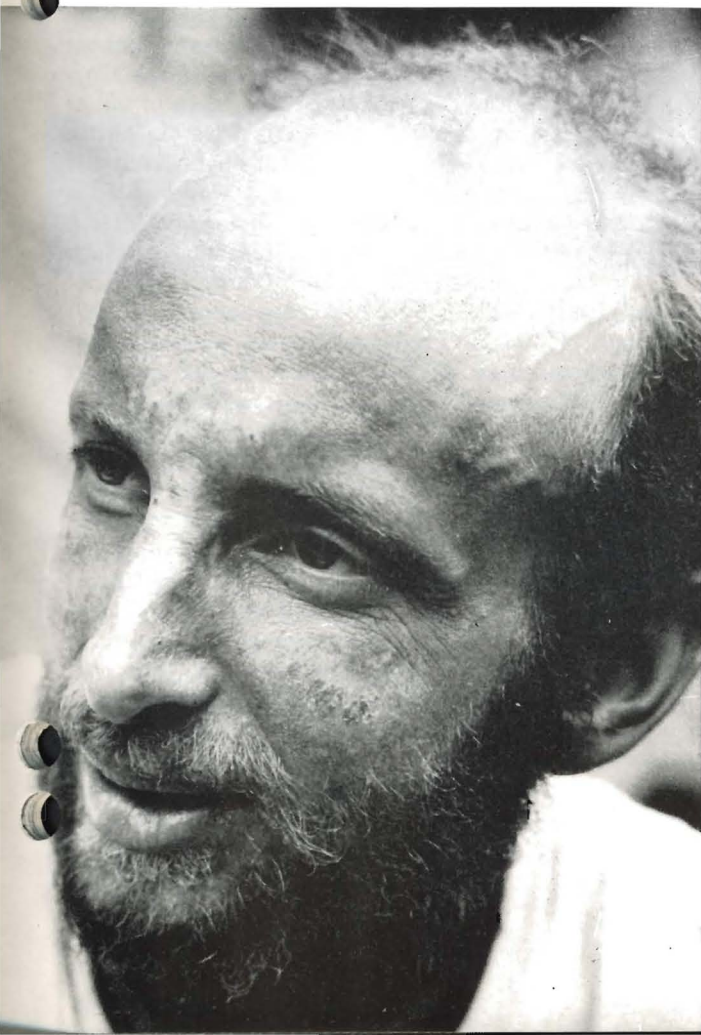
There's something more, though, something that is hard to find on an expedition in the Himalayas and particularly one as big, as well-endowed as this one was: aloneness, the chance to get off by oneself, to sit and think. You would think that when you are in the mountains this would be a wonderful and easy-to-come-by opportunity. The catch is that there just aren't too many places you can wander far from camp alone and hope

intelligently to come back again. It happened to me, though, about three days after we had been beaten down from 25,000 feet by a windstorm of over 100 miles an hour that annihilated our camp. We decided we would take one last crack at the West Ridge—just a long shot, a fling, just for the fun of it—with no really serious intention of getting to the top. But by golly, it's up there, and who knows, we might. We had drawn in our reins for about the umpteenth time, cut down our plans, eliminated a camp, eliminated a second assault team, put our reconnaissance two hours ahead of our assault team instead of two days ahead to prepare the route, and off we went.

We left our camp 3-W and headed back up to the crest of the West Shoulder. As we stood there, Willi turned around and he said, "Hey, Tom, you know, I forgot my haze filter." We debated about this for a while and then Willi decided to go down and get it. It was only ten minutes down, but another hour back up. The rest of the team went on to the remains of our camp to put it together again, and I sat at 24,000 feet on the crest of the West Shoulder, completely alone.

It was about two in the afternoon, the sun was shining down through a thin haze of cloud. Except when it dipped behind a little bit more thickness, it was comfortably warm, even with my mittens off. I had my oxygen bottle and mask beside me. I didn't need them while sitting there. It was completely silent, and I just gazed. I could look off to the north across the brown hills of Tibet, down at the Rongbuk Glacier winding past what used to be the old Tibetan monastery, and over the great sweep of the north face of Everest, the Second Step on which Mallory and Irvine were last seen. You can imagine the feeling of smallness, of being an infinitesimal speck in a massive, completely quiet, alone world.

Beyond that there were many other thoughts and feelings. I began to ponder the hour of the day at home, and although I could never quite solve the problem mathematically, I knew it was some time in the night. I thought about my wife, my four girls, and my young son, half a world away, and I wondered if they could imagine or sense that I was thinking about them up there. I knew that as we passed upward for this last time, whatever we did above, we were going home soon. It was almost over. One of the reasons for going up perhaps was just to get down again. The easy way would have been to go down in the first place, as we very nearly did after the windstorm. But something told us that we hadn't given it everything that we could, and we knew that the only way home was up. We also knew that the thing which brought us to the West Ridge in the first place would not let us go, that in the years to come it would be hard to live with our inner doubts and questions if we turned back now. The time of trying to go up was here. There would be no more delays. A few more days and we'd have the answer one way or the other. As I looked down over in the direction of base camp, there were some soft, billowy-white cumulus clouds floating across the





peak tops below me, casting their shadow on the undulating terrain of the Rongbuk Glacier below.

I could think back to the days when I was probably four or five years old—I can remember a few things from those days—to when in the afternoons I was supposed to be napping in my room and I'd gaze out the window at billowy clouds above, imagining faces and forms in them. The sensation was very familiar as I looked at the peaceful clouds floating by. The hour or hour and a half that I had there was one of pure, simple pleasure. The depth of the thoughts that I pondered are hard to recount. But this is part of the "why." Being on that mountain in a place where man had never been before made my lone thoughts even more special than they might be when walking through Forest Park, but don't sell that short either.

**S**TILL ANOTHER PART of the simple pleasure is the ability to perform a sport skillfully; the ability to climb sheer rock or steep ice; to know the swing and rhythm of that axe biting into the ice, one blow after another, hacking a step out, and doing it with a minimum of strokes and maximum of efficiency; to climb, delicately balanced on your toes and your fingertips.

The feeling of health, the sheer pleasure and delight of physical fitness and well being are part of mountaineering, but not so much a part of Himalayan mountaineering. By the time you've been above 21,000 feet for a few weeks, you see a dirty, grubby, unshaven character across the tent from you who hasn't brushed his teeth for a while; you look at his sunburned skin, blistered and cracked, with the plasma oozing out and caking in his beard; you experience the pain of lying on your burned left ear because you didn't keep it covered during the day. You listen to Tom, as Willi would say, as he tried to talk, breaking into paroxysms of coughing, out of which an occasional word would shoot. If you were alert in your listening, you could pick these words up and put them together and recreate the thought. But it was just downright irritating to listen to me talk because of this cough, which Willi claimed was psychological. Every time I coughed, I felt that pain under my right rib cage and wondered, "Hm-m, have I picked up some amoeba that have gotten into my liver on the march in? And the pain in my back, is that just a pulled muscle that I keep pulling every time I cough, or do I really have a touch of pneumonia back there?" So man at altitude, as Gil Roberts, our physician, used to say, is kind of half-sick all the time.

Perhaps one of the virtues of the Himalayan mountaineer, and the reason he is supposed to be a little bit older and more mature (or maybe a little older and less intelligent) than other mountaineers is that he can tolerate this existence of not feeling in the best of physical condition. He can accept it—not worry about it too much at any rate—and live within the context of it. It just doesn't seem to matter; it's just the way life is up there. He goes on with his daily life; he gets out of bed each

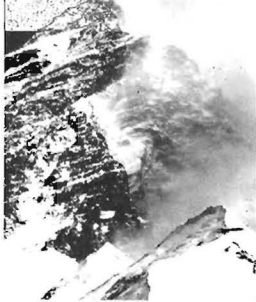
morning, crawls into his pack, and slogs upward again. There are very few days when he is able to enjoy the pure pleasure of sheer difficult climbing. Most of the time he is slogging back and forth from one camp to another carrying a heavy load on his back, moving supplies up towards the highest camp on the mountain. It's been called "hours of sheer boredom punctuated by moments of stark terror." So, it takes a man with a slightly queer outlook even toward mountaineering to enjoy this kind of climbing. But the outlook is there, it's staring you right in the face, a few thousand feet up—the top of the mountain.

Many people have referred to mountaineers and other types of adventurers as escapists. What are you running away from? Can't you tolerate, can't you adjust to your own existence at home? There is an element of truth in this, which varies from one individual to another. There have been those who have fled the world they knew with debts that they couldn't pay, to cross the Atlantic in small rafts and so on. Escapism is undoubtedly a part of it. And, perhaps even for those who on the surface appear most well adjusted, there's an element of it.

For years I used to ponder this question of whether it's wrong to want to escape from something, or to something. Depending on which side of the fence you're on, you would argue it one way or the other. I finally made peace with this particular issue by accepting the fact that there is reality in both these forms of existence. The reality of a mountain climbing experience is a simple reality. It's life stripped to its bare essentials. There are no income tax forms, no wondering where the next paycheck is coming from, or how you are going to keep your appointment at the doctor's office. There's no television, thank God. It's a life that can be characterized simply, first of all, as the desire for survival. It's a fairly rugged world, but it's not an unpleasant world; it's not, as you might think and as many of you undoubtedly do think, a world of sheer unpleasantness, of cold and hardship all the time. But it is a world that is composed basically of eating as much as you possibly can stuff in to keep yourself going, of sleeping, and of climbing to the top of the mountain. There's one simple goal in life. Right before you, you can see it; you can almost reach out and touch it. A goal can't get more tangible than the summit of a mountain or less tangible than the reason why you are going there. But it's solidly three-dimensional, staring you in the face; this is your only purpose for being there, to survive and to get to the top. Then, after that, to get down again. So, it's a reality that's different. It's a reality that you'll seldom find in the rest of your normal day to day existence.

There have been many kinds of escapists. George Leigh-Mallory was one, in a sense. He wrote in his diary scant days before he disappeared on the mountain, "The conquest of the mountain is the great thing and the whole plan is mine. My part will be a sufficiently interesting one and will give me perhaps the best chance of all of getting to the top. It is unthinkable with this plan that I shan't get to the top. I can't see myself coming down defeated."





So, Mallory, the man who when asked the question of himself, "Have we vanquished an enemy?" and answered, "None but ourselves," still would think in terms of the conquest of a mountain and a defeat by the mountain. But here was a man who days before he was last seen—and he didn't come down defeated—was so absorbed in that goal above that he couldn't let loose. Mallory was hooked. It's not impossible to feel as he felt, because there was a time when this came home very vividly to Willi and me.

On the last day of our climb from our high camp over the most difficult part of our route up the West Ridge, Willi and I started a little before seven in the morning, climbing on very low flows of oxygen so it wouldn't run out when we reached the top. During the first five hours of the day, we had succeeded in climbing, over rather difficult terrain, about 450 feet. Above our heads at one o'clock in the afternoon, more than 1,000 feet of mountain remained. We sat down and took stock of the situation. By all reason, we should have turned around. But all reason was influenced by the fact that if we turned around, we wouldn't be able to come back next Sunday.

We had been absorbed, Willi and I, Dick and Barry and Al, in the climb of this West Ridge for weeks. We had fought the political battle to keep this route alive against the lack of enthusiasm of those who were more eager to climb by the classical route and who figured, quite honestly, that we hadn't a ghost of a chance of getting to the top anyway. They had generously let us go on and play our game out with no prospect of success. But here we were now in a position where the summit of the mountain was up there somewhere above us. It was up there an unreasonable distance above us. The climbing had been far more difficult than we had anticipated.

**N**OW WE HAD TO MAKE a decision. As we surveyed the terrain over which we had come and looked at that above, the danger of trying to descend seemed unsavory enough to justify going upward. But even this decision, in all honesty, was influenced by the simple desire to go up. We wanted to go to the top of the mountain—nowhere else. I can remember Willi talking on the radio to Jim Whittaker at base and saying, "It's a real bearcat down there, Jim, so, it's up and over for us today." Through my mind at this time ran the thought of a wife and children back home. There was no fear, there was no remorse. There was hardly any sensation of being divorced from them in a way. There was the feeling that the thing that mattered most, and again it can be rationalized, was that thing just above us, that all life represented at that moment was the top of the mountain, the conclusion of an effort that we had been making for weeks. The return to the world below and to my family was dependent upon reaching the top. But the top, at that moment, seemed an end in itself.

From that point on it seemed that the two of us were part of the mountain, we belonged to it, and the mountain belonged to us. For the moment we, our hearts and

our souls, were wed to that highest point on the surface of the earth, which we reached at after six in the evening. There was the strange feeling that I was near the end of my search, almost there; just a few steps higher . . . what was it that was up there? Or was it really there at all? What was that mysticism, that feeling that we had been pondering weeks before? Why was it that we were out here again? What were we searching for? The answer was there somewhere if we were only smart enough, perceptive enough in the depths of our being, in the myriad cells that coursed through our brains, to put it all together. And there were those twenty minutes that we had been anticipating for weeks and months—and really for years. Here we were on top of the world and one of our most conscious thoughts was, "We've got a long way to go to get down."

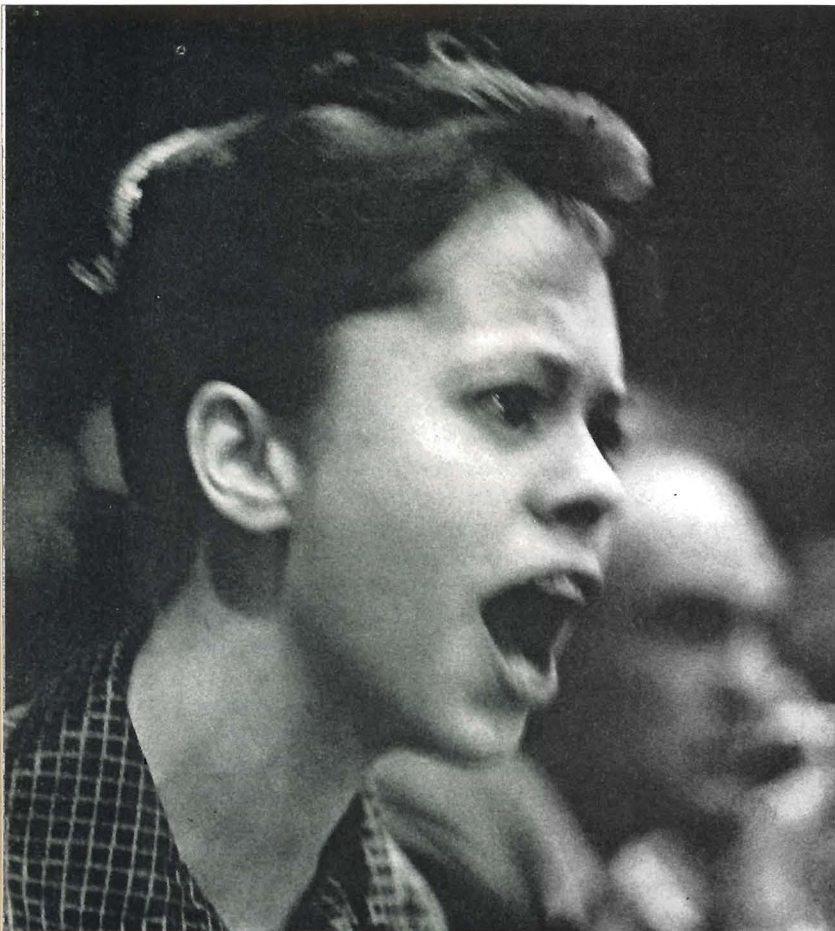
Yet, we were able to sense even in that span of twenty minutes a deeper bit of feeling. We were able to feel the intensity of the companionship, the two of us with the three inaccessibly far below. And out of this feeling we were able to carry away something from the top of this mountain which is still growing and forming and taking shape in our beings; the answers and the stirrings of them have not been unreservedly pleasant ones. We don't know the answers, I don't at least, and I know Willi is going through the same battle with himself. What did it all mean? Was it worth it? Were ten toes worth it for Willi? The absence for five months and the changes which invariably result in our lives afterwards—were these worth it? These questions, I suppose, will go on being formulated and tentatively answered for some time.

Basically, perhaps, rather than escape, it is the search for contrast, the means of finding in this experience the bases and the foundations for making the life back home, and the relationship with the individuals with whom I live and work deeper and more meaningful. Rather than escapism, maybe it's the contrast, as Noyce called it "the hair shirt feeling" of going out and torturing yourself. But whatever it may be, it's not a pure, simple form of masochism, a love of danger for the danger itself. We climb and take the minimum number of chances we can. We admit that in the climb to the top of Everest by the West Ridge we had to take some chances we wouldn't take on Pikes Peak or the Matterhorn or in Peru or Alaska. It's a once in a lifetime experience.

Perhaps this is something of the mark of the man with a thirst for adventure and a dissatisfaction with the busy way of the world. He seeks and has to seek to push himself beyond the limits of his known ability, perhaps to risk for a moment life itself in the hopes of gaining a return, an abstract return that, as Charles Lindbergh said, "is both existence supreme and valueless at the same instant."

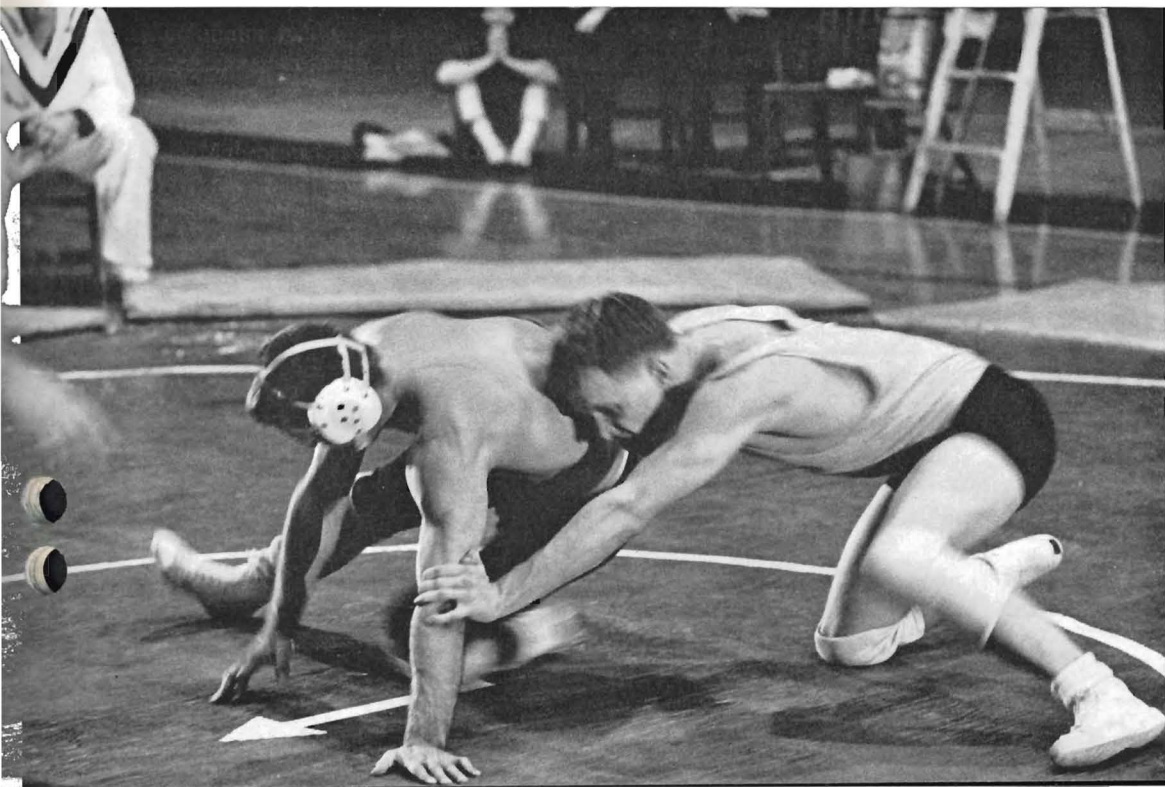
From this he comes, above all, to know himself. He learns his strengths and his shortcomings. Maybe this is the thing that gives him the drive toward future challenge. For he has been permitted to see into the depths of his being, there to glimpse the heights to which man aspires—whatever his Everest may be.





**VESTED INTEREST** / Collegiate wrestling is supposed to be a rather specialized sport with little of the audience enthusiasm the television variety of mat drama inspires. Yet, you'd never guess it from the rapt attention of these spectators at a recent Washington University-Missouri University wrestling meet. In action are WU's Terry Breeding (with headgear) and MU's Bob Blanner. The concerned observer at left is Mrs. Terry Breeding; at right is Mrs. Frank Blanner, Bob's mother. As you might be able to guess from the expressions, Bob won.







*Hodding Carter has spent most of his life in the Mississippi Delta Country and has written widely about it. As editor of the Delta Democrat-Times, he has won national recognition, including a Pulitzer Prize.*

*In his address at the 1964 Washington University Founders Day banquet, on which this article is based, Mr. Carter dealt with the conflict of racial groups in both America and Africa. Discussing the similarities and differences in the situations faced by the white populations of two continents, he said, in part:*

*"We in the Deep South have much in common with the Union of South Africa. . . . Alike we symbolize the old determination of white men to maintain political and economic control in areas where they conquered or cleared the wilderness. . . . We both take pride in what we have done and are doing to better our region. . . . We are both also victims of a world hypocrisy."*





## A TALE OF TWO CONTINENTS

WHEN I WAS ASKED to speak at Washington University, my thoughts quite naturally went back to my last visit here ten years ago. The speaker that day was a man with a hauntingly dedicated face—Charles Malik, a Lebanese, who was then Secretary General of the United Nations. I have heard a good number of commencement addresses, but I've never listened to one so moving as was that man's as he pled for the recognition of the essential dignity of the human spirit and for peace and understanding among men.

I wish I could say that his plea fell on fruitful ground; but today, ten years later, it cannot yet be told that Man recognizes the need for these essentials. We are as greatly quarrelsome, as militant, as bigoted, as hypocritical, and as fearful as we were ten years ago. And to the cauldron has been added a strong and bitter ingredient: the spread of the hatred of the peoples of color in the world for the white man in the world.

In this ingredient, African nationalism is presently perhaps the most dangerous element. Most of nationalistic Africa today is a near-anarchistic power vacuum tempting to the world's plotters against Western society.

So, I should like to dwell upon two regions of our world which are dear to me and which are prime targets of the counter-racists of Asia and Africa. One is the Deep South, the Louisiana-Alabama-Mississippi region where my people have lived more than 200 years. I am not blind to the faults of that region or to its present errors. I have spent a good part of my adult life trying to point out the errors and to help my fellow Southerners and fellow Americans correct them. But I would like to ask you this question: Do any of us love only that which is perfect? If we do, we love nothing.

The other region—and this may seem strange without an explanation—is the Republic of South Africa, which has been settled almost as long as has Jamestown, by men as brave as the Englishmen who landed on the Virginia coast.

The reasons for this latter affection are both direct and indirect. Two of my father's brothers were mining engineers who lived much of their lives in positions of responsibility in South Africa. One of them fought against the English on behalf of those brave, stubborn Dutch farmers, the Boers, in their doomed war for independence. From the time I can remember, South Africa was the country I wanted to go to. Possibly my favorite book is a classic written by an Englishman in South Africa, a story of a dog and of huntsmen, of Zulus and fighting men joining in the hunt. The name of the book is *Jock of the Bushveldt*, by Sir Percy Fitzpatrick. It makes any reader, and especially any youngster, want to share adventures in what was then a happier land than now.

During the war, I served in North Africa where I came to know many officers and men of the British Eighth Army. Among the most courageous were the South Africans, generally huge men who fought with as much courage as did other men who had more immediately at stake in the conflict. Since the war, some of them and other South Africans have been guests in our home at the rate of at least three or four a year. Then, three years ago, we had our first opportunity to go to this land I had cherished from afar. During our five months there, our home and headquarters was one of nature's paradises, Capetown, at the very southern tip of the continent.

South Africa itself could be a paradise, if it were not for the problems of race, and especially those problems derived from racial imbalance. It is a land of only three million white people not united except in their determination to survive: 1,800,000 of Dutch and Huguenot descent, 1,200,000 of largely English and Scots descent. Dwelling also in that land are some ten to eleven million non-whites, mostly African black men. Beyond their borders, in the Africa south of the Sahara, are some 200,000,000 other black men, living almost entirely in the so-called "emerging nations." They hate the three million white men of



South Africa with an intensity that doesn't exist elsewhere. Their leaders largely have vowed to run these three million whites into the sea.

We of the Deep South have much in common with the Republic of South Africa. We share racial dilemmas, though ours in the South are minor by comparison. Alike we symbolize the old determination of white men to maintain political and economic control in areas where they conquered or cleared the wilderness. I don't defend all of the tactics which were employed historically in either of these regions, my South or South Africa, but I do understand the motivations for them. And they were alike. And I know that no exhortation will change the determination of any people who have created a nation to release willingly their hold upon it.

South Africa is the only nation on the African continent which was cleared, occupied, brought alive, or made a nation by the people who are in control now. And I might add that this wish to keep historically white-dominated areas under white rule is imitated in those "emergent nations" of Africa which are at least as determined to rid that continent altogether of the white man save those whom they must employ to adapt themselves to twentieth-century civilization. The rest, they say, must go. Those who remain will become politically subservient.

Their special target is, of course, South Africa, because it stands as the epitome of the insistence of the white man upon supremacy in the lands that he has settled.

There is more in common. The white South Africans and we of the South are largely a Protestant, fundamentalist, and patriarchal folk. In both South Africa and in our South, you will find an abiding love of the homeplace and the past. A sense of nationhood in the South is evidenced in the feeling of not a few Southerners, especially the older ones, that ours is a nation within a nation. These points of view I don't necessarily defend; I do say they exist. We both lost long and devastating wars, each lasting approximately four years, some thirty-five years apart. The memories of the defeated last longer than the memories of those who win wars. We both take pride in what we have done and are doing to better our region; and, in spite of the headlines, all of the effort in the South and South Africa is not directed at bettering the dominant white groups. We are both also victims of a world hypocrisy. We are both descended from frontiersmen, and our civilization still rests greatly on a rural population, though decreasingly. To the friendly stranger, we can be unusually friendly. To the suspicious or the probing stranger, we can be bitter and inimical. We probably have—and this is important—the most uniformly anti-communistic populations anywhere in the world.

But there are important dissimilarities, some of them tragic. The first is the population ratio. We really have no problem here in the United States. The Negro here is only one man in ten. However abused, he has been a part of the American culture for from 300 to 100 years. He is completely identified with our society even though he is still largely a second class citizen in that society.

Consider again the population ratio, 200,000,000 Af-

ricans against a little more than three million Western whites in Africa, as compared to 160,000,000 white people against some eighteen to twenty million Negroes in America. And the vast dissimilarity between the identifying culture of the people of color in the United States and those in Africa strikes the newcomer more than anything else. Except for the relatively few, the Africans are still a primitively tribal people. I can assure you that no African nation, emerging or otherwise, has made greater efforts to help and educate its submerged people of color—if on its own terms—than has the Republic of South Africa. Nowhere else in Africa can you find the elementary, grammar, and high schools, the colleges, the hospitals, and the training schools for black men that you find in the Republic of South Africa.

Again, South Africa's three million white people are isolated from the rest of the white world, while we of the South are part of a nine-to-one majority in the strongest nation in the world. Again, a vital difference: segregation is a governmental policy in South Africa; integration is a governmental policy in the United States. Enfranchisement of the people of color is against governmental policy save to a very limited extent in South Africa; full and complete enfranchisement of the Negroes of America is a primary domestic policy of the United States government.

**T**HE SOUTH TODAY IS BOWING to the national intent, not generally willingly in some areas and some fields of conflict, but bowing to it; and I can say believingly that the further we go in our adjustment, the brighter the future looks, despite the setbacks that may come just ahead. South Africa will not respond similarly, and I don't see how she can respond to the pressures that come so largely, but not entirely, from the peoples of Asia and Africa and from the Communists of the Soviet and elsewhere.

To continue the dissimilarities, the South is in no danger from external or internal enemies. South Africa is in a veritable state of seige. You must understand this to understand the tragic stripping away of many of what we think of as constitutional rights; the existence of a virtual military society in which *habeas corpus* can be discarded and in which men can be jailed for as long as the government sees fit on any kind of charge. I'm not sure what our behavior would be in this respect if we in the state of Mississippi were surrounded by as many unfriendly people of different race who were training guerillas to send across our borders.

Now, I'd like to look at each of these regions in terms of our civilization. A community which is today's better South in microcosm is the little Mississippi city in which I live. Greenville is a lovely oasis, almost fifty thousand population now, where it was fifteen thousand when my wife and I first went there twenty-seven years ago. There are today fifteen relatively major industries where then there was only one; fourteen school buildings, equally divided between the two races who equally inhabit our town, where there were five in 1936; two outstanding hospitals where there was one average hospital. We have witnessed advances all along the line in racial relations:





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Negro policemen, the sharing of hospital facilities and operating rooms by qualified Negro doctors, and at least physical equality in the school system. We have had in-

tegration of bus and airport and railroad and library facilities without a single incident, as has most of the South. We are going forward because we want to go forward and because the national will insists that we go forward in terms of race as well as in the terms more palatable to my fellow Southerners.

And now again to South Africa, an amazing country. It is modern. Its cities, such as Johannesburg and Cape-town, are as contemporary as anything we have in the United States. It is clean. One thing the Dutch are proverbially noted for is their cleanliness. It is a wealthy nation with gold and diamonds and copper, vast acreages in cattle and wheat, a great fishing industry, and winemaking which rivals anything in France. Among the first white settlers were not only Dutchmen but great numbers of refugee Huguenots from France who planted vineyards and began the winemaking trade that persists and grows today. It is a determined country; it is a disciplined country; and it is the only nation in South Africa, emerging or otherwise, which is not trying to use the United States.

South Africa's allegiance to us is unquestioned and remains so. We don't have to bribe them or submit to blackmail to have them on our side. Others among the African nations, like the Ghanese, take grants of millions of dollars from us and then tear down our flag and attack Americans in our embassy. We don't have to worry about that in South Africa. And South Africa is trying, however dogmatically, to solve its problem, which is largely that of population pressure. It is trying by something that sounds like a very evil word and it has unpleasant connotations to us here: "apartheid," they call it, the enforced separation of racial groups. The South Africans have gone a step further than apartheid with an idea or goal which they call Bantustanism, which envisages the establishment of the greater number of black Africans in individual enclaves where they will live together, and where they will presumably govern themselves in local affairs. The idea isn't as evil as it sounds. I think the principal shortcoming, even as a stopgap, is in not providing enough good land in these Bantustans for the tribal people who will for generations to come remain agricultural. They've got to have more and better land under that system; but the Bantu by many, many thousands like the idea of staying together.

Those who come to the city are drawn there by the wages, the highest in Africa; by the living quarters, segregated and closely policed but the best anywhere in Africa, including the black nations; and the chance to make money and to go back to the tribe again. Many of these Africans necessarily cannot be a part of the Bantustan states. They are the ones who are familiar with the civilization of the cities, who have adapted to industrial pursuits. As South African industry expands, it is going to need the

skilled labor of these black men and the ones they call "colored," a mixture of any number of races with a somewhat higher status in the nation than the Bantu.

Separatism is the key to the present South African suggestions for solution. Many white Americans don't like that for several reasons. We've had it in the South for a long time, and I haven't liked it in many aspects there. But now, in passing, I speak of hypocrisy. England has been critical in the United Nations, along with China and some others, of the South Africans, and yet when no more than fifty thousand Jamaicans came to England within the past five years, there were race riots and great turmoil and terror in the streets because of "black invasion."

Speaking again of hypocrisy, I'd like to compare, in another direction, South Africa with another courageous nation far to its north and just off the African continent: Israel. There are some striking and valid similarities between the leaders and the people of Israel and the leaders and the people of South Africa. Both have an intense pride—even a sense of superiority—in their own racial or religious distinctions. Both peoples, Boer and Israeli, believe, many of them literally, even now, that they are God's chosen people. They believe implicitly that God led them to the respective lands in which they live. The Israeli and the Boer alike made the desert bloom like a rose. I have been in Israel a number of times. It represents a miracle. So does South Africa. Both have taken and hold what they have largely by force. Both are surrounded by numerically superior enemies and both are tough, fighting peoples with no intention of giving up.

**W**E IN THE UNITED STATES have a great admiration for the Israelis. We give them millions in loans and private subscriptions, and we give them moral help. It is unthinkable that we would let Israel be destroyed. It should be no less unthinkable that we should let South Africa be destroyed. The passing of these like as like people would be a blow not only to Western civilization, but to the world. Yet, hypocritically, many Western nations, including ourselves, withhold military supplies from South Africa while we sell the Israelis anything they want. If it's right for one, it should be right for the other.

And now let me pose a question or two. Are Mississippi or the Deep South and South Africa the worst exemplars of racial, religious, or economic oppression? Let's answer that by other questions. What about Russia, the bloodiest butcher—save perhaps Nazi Germany—the modern world has known? What about China, almost as great a butcher and as predatory today and historically as is Russia? What about that self-appointed censor of the world's morals, India, which preaches peace, pacifism, and passive resistance until the Chinese move close to or cross her borders and then come screaming to us for help? I am perfectly willing to give India military aid, but Mr. Nehru and his associates should know that we see through their hypocrisy too. What about Cuba? What about the African nations themselves? I'd say in comparison with any of these groups the South Africans and the Mississippians come out smelling like a rose. Everywhere else oppression is far greater. And



## A TALE OF TWO CONTINENTS

what about these emerging nations whose voices ring so loudly and often so idiotically in demands for the destruction of one lonely outpost of Western civilization? The voices are those of mostly primitive, highly venal folk, ridden by tribal notions and animism who were cut adrift too soon by the European colonial powers which could have set them more surely on the path to self-determination and self-government.

The United States greatly pressured the Belgians and French and the British to get out of Africa. We over-pressured them. Some of them became fed up. They didn't want internal clashes in which the native people would say that they had the moral backing of the United States, and so they left too soon. The African anarchy is not all the doing of people deserted by the white men who had taught them something but not enough.

I might ask now if you would take Ghana's Mr. Nkrumah in place of Prime Minister Verwoerd of South Africa in the dealings of that continent with us? I know what my answer would be, though I am no great admirer of Mr. Verwoerd, except in respect to his courage.

And who plays power politics while acting sanctimonious so often? We as well as any of the others. We sell grain to Russia, and I think we should. But, then we say piously that we must not assist the South African in defending himself. We are all hypocrites and it is becoming a little late for hypocrisy.

**T**HE ANSWERS TO THESE PROBLEMS are certainly not so easy to make as are the questions that can be asked. But certainly, or so I believe, no attempt should be made to expel South Africa from the United Nations. Her voice is at least as reasonable as that of Ruanda, a tiny nation not as big as Vermont, where in one week recently ten thousand minority group tribesmen were killed by their mortal enemies. Yet, that nation has a representative in the United Nations who speaks in the General Assembly on an equal basis, vote for vote, with the United States or Switzerland or Norway or France or Great Britain. It seems a little idiotic to me.

I also believe that we should expand our trade with South Africa. Unless we wish yet another road to war, the United States should guarantee the territorial integrity of South Africa. If we did that, a good many people, including the Russians and the Chinese, would think twice about training guerilla bands and armies to destroy 3,000,000 people among 200,000,000. Above all, I think we must vigorously admit to ourselves and to others we are not perfect in racial matters either, and show the world that we can have patience with people who likewise are not perfect in their dealings with dissimilar human beings. Patience and understanding are the two necessary keys.

In a recent issue of *United States News & World Report*, there appeared an article by one of the West's better interpreters of Africa, Elspeth Huxley, a member of the great Huxley family of England, who first went to Africa forty years ago. This moderate-voiced Englishwoman has a great deal to say about the involvement of Communists in the struggle for power in these African countries. In Zan-

zibar, she reports, the new prime minister studied in Russia and has a Russian wife. The minister of external affairs was a correspondent of the New China News Agency, worked for the Chinese Communists, and was openly connected with Peiping. One of the contenders for leadership in Kenya is Oginga Odinga, Minister of the Interior, who has also been to Peiping and is in close touch with the Chinese Communists. In Tanganyika, there is Oscar Kambona, Foreign and Defense Minister; in Uganda, several ministers with Communist affiliations are challenging Prime Minister Milton Obote.

Do you see a pattern running through these events in Zanzibar, Tanganyika, Uganda, and Kenya? I think it is fair to presume that it is not a coincidence that these bloody events should happen at the same time. After all, Mr. Okello arrived in the capital of Tanganyika fresh from leading the coup in Zanzibar. Two days later there was a mutiny of Tanganyikan troops.

Are these crises the first steps in a Communist effort to take over in East Africa? They are more likely to make a more open drive for power later, when the British troops leave Kenya, sometime this year. After all, the Communists have moved pretty rapidly. Zanzibar and Kenya have had independence for only a few weeks. So writes Miss Huxley.

And now more of her predictions: Where is trouble likely to boil up next? An all-out drive on Portuguese Angola is imminent. Guerillas are being trained in camps in the Congo as well as in Algeria and Cuba. They are being infiltrated into Angola, she says, at the rate of two thousand trained men every eight weeks from one camp in the Congo alone. They are well armed with automatic weapons and bazookas.

After that comes a drive on Portuguese Mozambique, then Southern Rhodesia and, finally, South Africa, which, as I say, is the only Western nation, the only long enduring nation, the only nation really friendly to us on that continent. There is no question of the white people in South Africa giving up or being easily pushed out. There you have the danger of a major conflict—even a global one.

The conclusion that I would like to submit is that we can no longer afford the luxury of scolding our potential allies or of punishing them if their ways are not ours. We haven't done it with other allies. "Practical politics," a nauseous expression, may make our leaders in the State Department and elsewhere think they have to play footsie with these emerging nations and let South Africa go by the boards. But I believe that if the American people come to realize what our stake really is, we'll see where our interests lie and act accordingly.

My heart goes out to those people who are so much like my own people and who are greatly imperiled as we are not. If tribes in Africa delight in killing each other at the rate of ten thousand a week, what do you think they're going to do, if they have the chance, to people who are like us? What are they going to do to people whose greatest offense is that they carved out as a tiny minority in that vast continent a white-directed nation for which we should all sympathize and who are groping toward a solution which may or may not be had?



By LEROY SCHARON  
*Professor of Earth Sciences*

## THE SILENT VOICE OF THE PLANET

*To the earth scientists, this planet's silent voice tells many strange and wonderful tales; the strangest, perhaps, the story of the wandering poles*

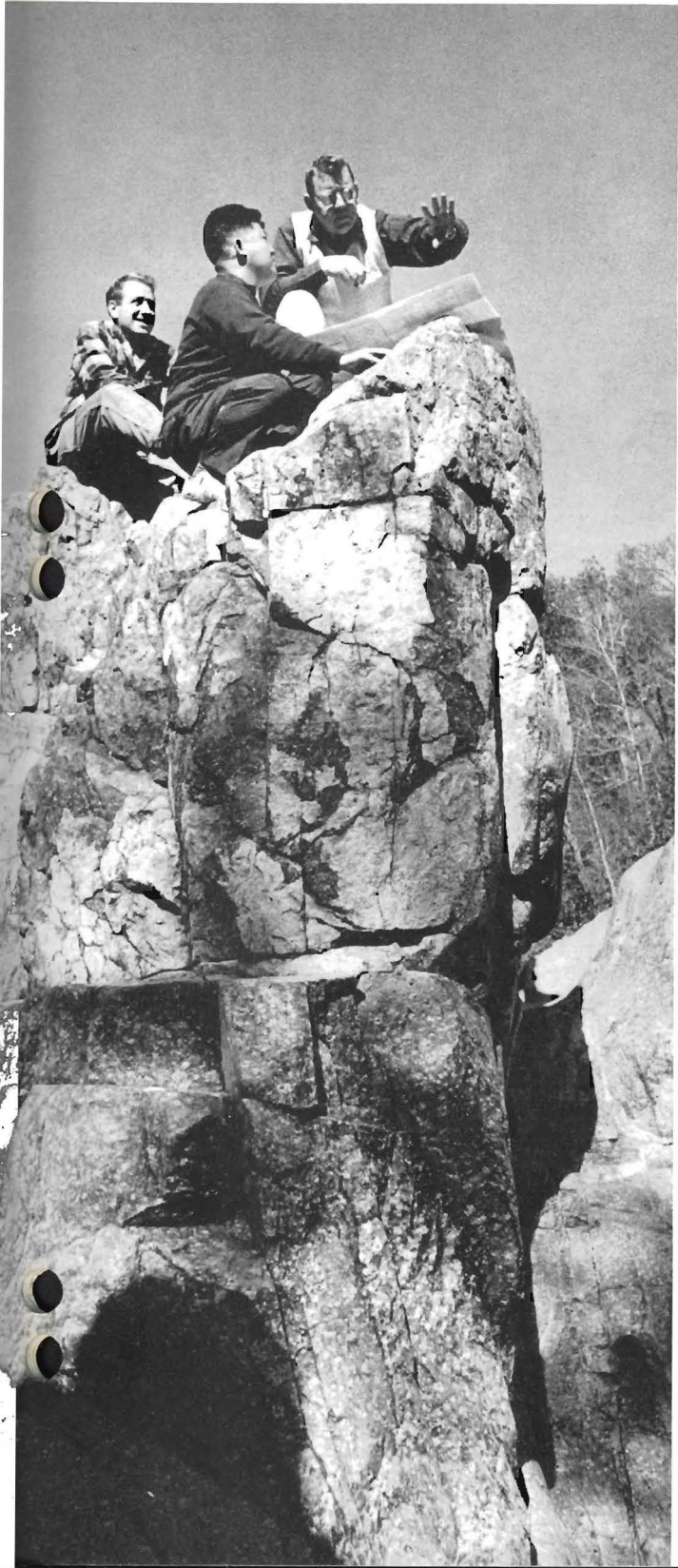
SUPPOSE THAT TOMORROW MORNING you were to board an airplane at St. Louis for a trip to Florida and, after being airborne a short time, you noticed a landmark that was undeniably Des Moines, Iowa, some 350 miles north of St. Louis. One conclusion might be that you were on the wrong plane; another that either the pilot's or the plane's controls had gone wrong. A third, unlikely but perfectly tenable, guess might be that the earth's north and south poles had suddenly reversed positions and a wholly sane and competent pilot was following his craft's quite accurate compass.

Such a reversal of the earth's poles is possible. In fact, there is much hard evidence to indicate that it has happened at about one million year intervals for at least the last thirteen million years. Since the last reversal was about a million years ago, another one is due soon and could happen tomorrow. Of course, on a geological time scale, "tomorrow" could mean 10,000 or 50,000 years from now.

While this erratic behavior of the poles may seem hard to believe, the record of the rocks, as interpreted by both American and Japanese scientists, seems to confirm it. Moreover, the change is not a gradual, but a rapid one. By carefully measuring the magnetic polarity of the rocks (studying the direction in which the magnetic particles they contain are aligned) and correlating this data with accurate rock-dating, it is possible to trace the phenomenon precisely for the past three million years, and roughly for ten million years before that.

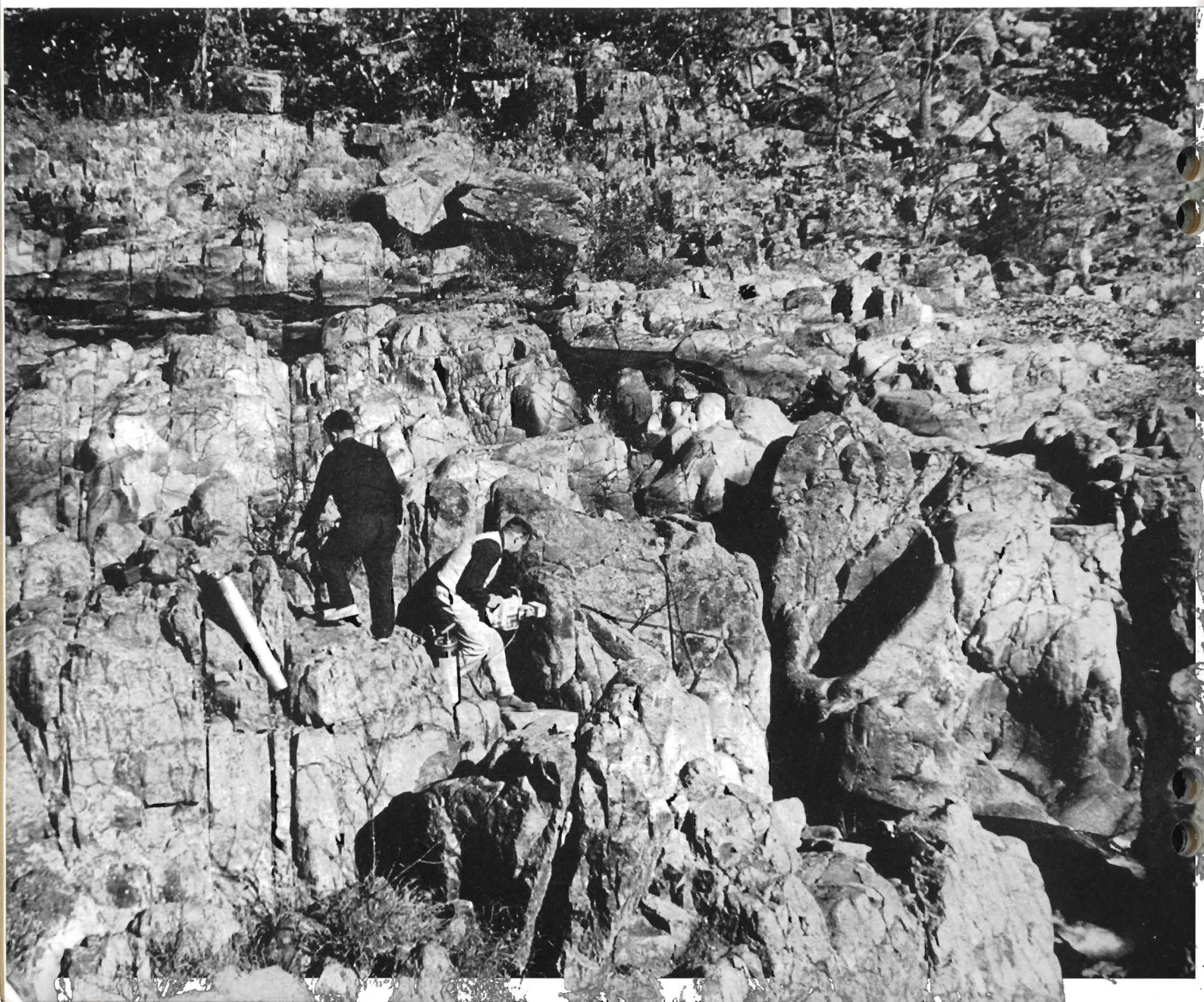
What is the explanation of this reversal? Is it an internal phenomenon, triggered by changes within the earth? Or is it caused by some external force, perhaps some unknown heavenly body that at million year intervals swings close enough to the solar system to reverse all magnetic phenomena, including the magnetic fields of the sun and planets? No one knows, but research now being conducted may give the answer.

Missouri's Johnson Shut-Ins State Park is site of frequent studies by WU earth scientists.

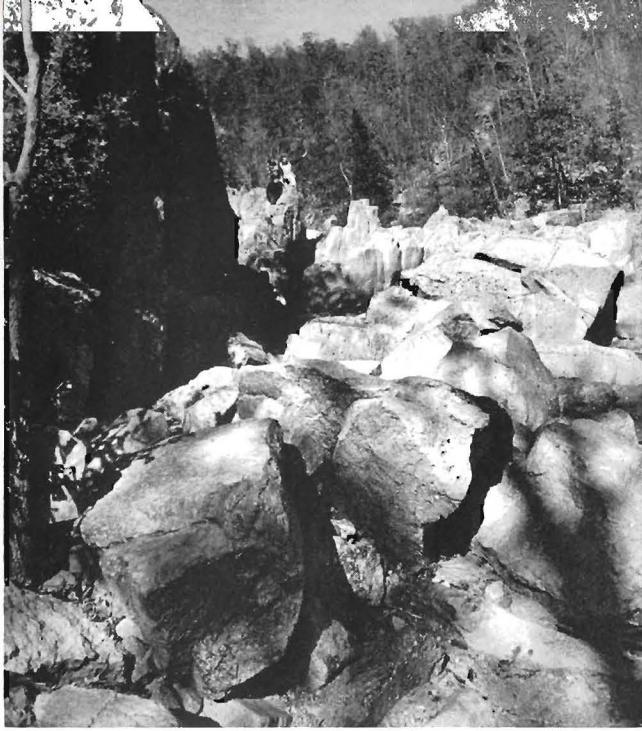




Terrain in parts of the Johnson Shut-Ins area resembles moon's surface—but with vegetation.







## THE SILENT VOICE OF THE PLANET

Unlimited magnetic samples are available in vast Shut-Ins area. Departments of Earth Sciences and Physics have cooperated in developing rock magnetic laboratory.

Data gathered during the past centuries at four magnetic observatories have been analyzed and show without doubt that the poles move. They move at different rates and at different paths for each of the continental areas represented by the observatories, located at the Ascension Islands, Hong Kong, Capetown, and London. While this polar wandering has strongly reinforced the theory of Continental Drift—that the continents are floating on a semi-fluid “sea” of mantle rock—a complete explanation is yet to be had.

Not only is there a strong suggestion that whole continents are moving, but there are indications of individual relative motions of land masses. Paleomagnetic information indicates impressively that the position of Australia has changed greatly during geological time and that millions of years ago that continent was probably directly over the South Pole. In Japan, Dr. Naota Kawai of the University of Osaka has made an analysis of the Japanese islands, in which he has measured and determined the direction of magnetization of rocks of very recent times and of 600 million years ago. He has found that the direction of magnetization in rocks of the past 60 million years are parallel to the present magnetic field; while in rocks older than that, the directions are quite different. To compensate for this difference, one must assume that at the end of the Mesozoic Age, the Japanese islands were bent from a straight line to their present shape.

Since 1958, the University's Department of Earth Sciences has been investigating the magnetic properties of Precambrian igneous rocks in southeast Missouri. This work has led to the development of a rock magnetic laboratory and the training of many graduates in the field, who are now working in various parts of the United States, the Philippines, Taiwan, and Korea. One interesting point resulting from these investigations is a strong indication that when Precambrian igneous rocks were formed, millions of years ago, the North Pole was located near Christmas Island in the South Pacific.

The story of the wandering poles is just one of the many strange tales the silent voice of the planet can tell once its secret language is understood. Some of the other stories are almost as startling.

In the early nineteenth century, Karl Friedrich Gauss demonstrated the similarity between the earth's magnetic field and that of a bar magnet. It is now known that the earth's magnetic field, unlike a simple bar magnet, has at least two fundamental components: a main field lined up with the earth's axis of rotation, and a secondary or residual field produced by some unknown mechanism within the earth. The secondary field is irregular in character, changing always in form and in intensity.

Washington University hopes to add to the research that is still needed on this subject with the proposed establishment of an Earth Sciences Observatory at its recently acquired Research Center on the Tyson Valley site. There earth scientists would measure the magnetic field, as well as deep-seated earthquakes, oscillations of the earth, and earth strains and currents.

Ten years ago, I had the opportunity to be lost in Labrador. During that time, there was one particular period in the evenings, from about 9 p.m. until midnight, that I always enjoyed. It was then I was able to witness one of the most unusual phenomena of nature: an aurora. As I sat there, I reflected on the only partially answerable questions: What is it? What causes it? Can it be given physical shape and form? Can it be located and measured? Now, these questions are beginning to be answered more fully.

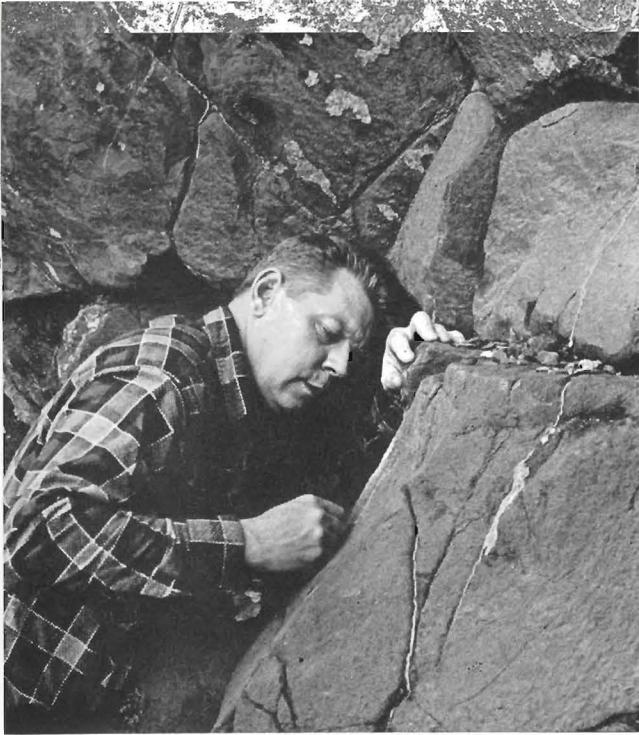
Charged particles coming toward the earth from the sun are captured by the earth's magnetic field and, when they are funneled toward the magnetic poles, they sweep through the atmosphere. During this sweep, the protons in the stream combine with electrons to form hydrogen atoms. This union radiates light: the aurora. Here is the silent voice which for centuries has astounded, frightened,



Professor Scharon's work has taken him to the Pescadores.  
Here he supervises Taiwan workers on a basalt flat.







## THE SILENT VOICE OF THE PLANET

The author closely examines a rock on Taiwan before extracting a sample.

and inspired men. Trying all that time to speak, the voice was finally heard and interpreted, and a greater understanding of our sun and its dominant and central role in our solar system was realized.

An entirely different form of manifestation of the earth's magnetic field seems to be related to deep-seated earthquakes. In 1960 the great Chilean earthquake, which wrought havoc in parts of South America and sent a devastating tidal wave through the Pacific to Hawaii and the coasts of Japan, put the entire earth into large torsional oscillations.

Recordings of these oscillations were made on a seismometer deep in the earth at Franklin Furnace, New Jersey. Simultaneously, at the Port Moresby, Australia, magnetic observatory, peculiar reflections in the magnetic field were recorded both during the earthquake and for several weeks thereafter. These data illustrate the intimate relationship that exists between the mechanical strains of the earth and its magnetic features.

A widely accepted explanation of the earth's magnetic field is based on the theory that electrical current rings are produced and circulated at the point of contact between the base of the earth's mantle and the top of its fluid core. The fluid core is subject to great deformations and expansion during the earth's rotation about its axis and during its orbital trip around the sun. These disturbances of the core-mantle contact, as well as those occasioned by earthquakes, are reflected by variations in the electrical currents and in the magnetic field of the earth.

Only in recent years has it been possible to observe another manifestation of the magnetic field: its performance in relation to the newly discovered Van Allen radiation belts. Deadly primary radiation emanating from outer space is trapped by the magnetic field of the earth. One cannot help wondering whether this phenomenon has been one of the main factors in the evolution of life on earth by providing a screen of protection against deadly radiation. Knowledge of this phenomenon is of prime importance

to man in his exploration of outer space and in any efforts to support life on space stations or on other planets.

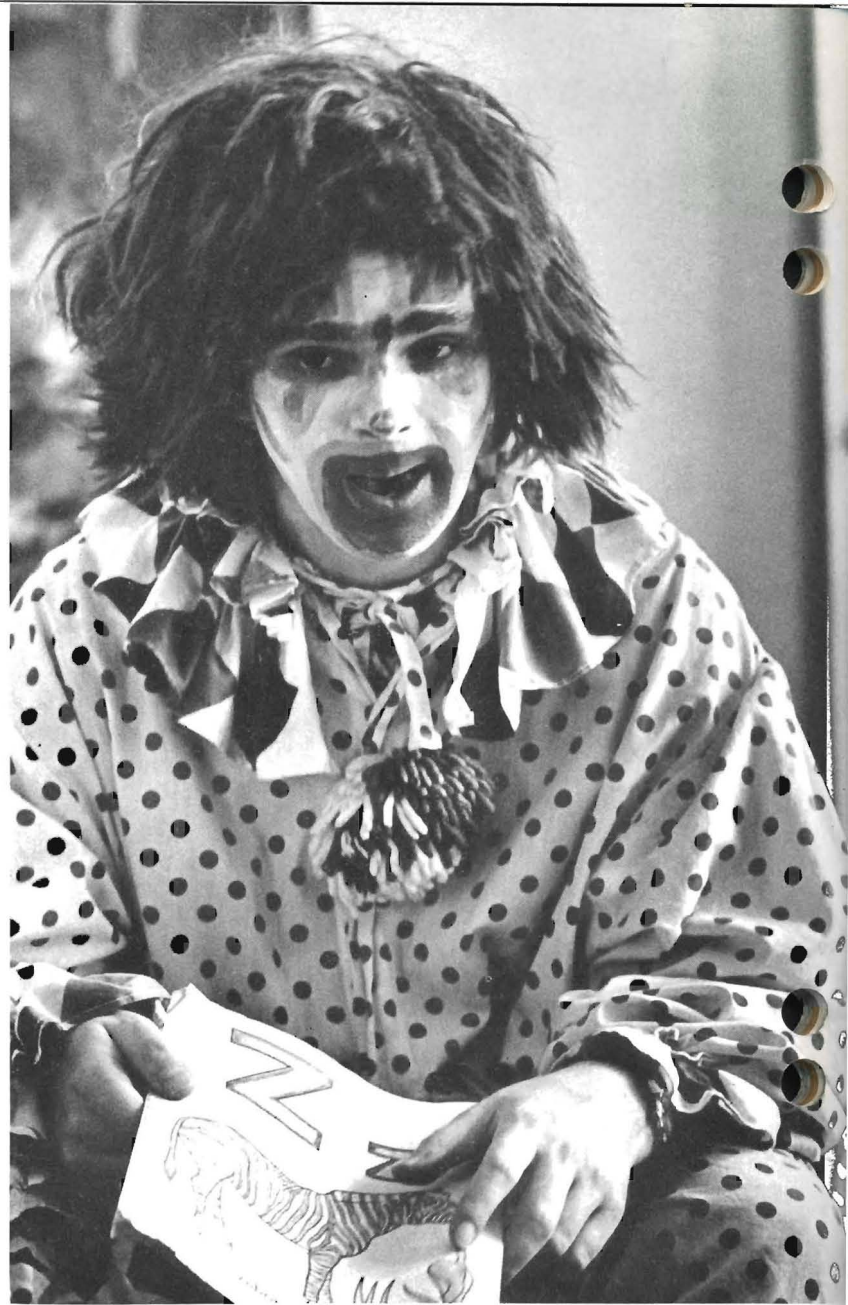
Just as the earth's magnetic field speaks to us today through its silent voice, it has, through another mechanism similar to a magnetic tape recorder, recorded its voice. Throughout geological time, igneous rocks have been in the state of formation, either by intruding into older rocks or by extruding onto the earth's surface. As these rock materials start to solidify, they frequently contain certain minerals capable of being influenced by the earth's magnetic field. With such magnetization comes a permanent record of the condition of the earth's field at that specific geological time. One might call these magnetic minerals "fossil" magnets, just as one refers to fossils of animals and plant life recorded in the rocks. These magnetic records can be played back and the silent voice interpreted with meaning.

There is one manifestation of the silent voice which, when discovered, can have prompt economic consequences. The detection of magnetic lines of force which completely defy the normal orientation of the earth's magnetic field—called "anomalies"—usually indicates the presence of a massive concentration of magnetic material: hundreds of millions of tons of ore containing iron, titanium, nickel, chromium, copper, silver, or gold. One of the largest recent discoveries of such a concentration led to the location of the rich iron deposits near Sullivan, Missouri, which is already changing the economy of the entire area.

The recording and interpretation of the planet's silent voice is one of the many challenging and exciting tasks of the earth scientists. As we attempt to understand the meaning of this mighty silent voice, we are reminded of the words of Thomas Carlyle, who wrote:

"Silence is the element in which great things fashion themselves together, that at length they may emerge full-formed and majestic into the daylight of life which they are thenceforth to rule."









## BE A CLOWN

**S**TEVE BENDER, LIBERAL ARTS senior at Washington University, gets paid for clowning around. He's a professional clown-magician who gives children's shows in the St. Louis County area on weekends and holidays at \$10 an hour. He expects to have earned \$10,000 from it and a few other enterprises by the time he graduates this June; he has already banked \$8,500.

Bender puts on a good show for his young audiences. Dressed in a red, white, and blue polka-dot outfit and a wild wig, he tells stories illustrated with tricks, plays games, gives prizes, and makes animal balloons. The kids love it and so do their parents—his repeat business is tremendous. On a typical Saturday or Sunday afternoon, he'll have four or five hour-long dates in a row at different private homes, where he does most of his work. Parents have to call weeks in advance to get a booking. Last year, he did 350 shows.

When Bender started clowning for pay, four years ago, he had never done a magic trick or entertained a child in his life, he got his first job on sheer nerve. A rubber company called WU's student employment office for a clown-magician to entertain children at shoe stores. Bender liked the salary and applied, with eight dollars worth of magic equipment that he had bought the day before. He got the job. After a summer's work for the company as "Kedso the Clown," he went out on his own, retaining the name "Kedso."

Most magicians have an assistant and Bender was no exception until recently. His fiancée, Carol Boxerman, who attended Washington University in 1962-63, helped him until she was good enough to present her own magician's act. Now she adds her earnings to the bank account. After they are married this summer, the couple plan to take a trip around the world on some of their profits. It isn't all clowning for Bender. He's an English major who wrote a novel last summer and is now at work on a play. He isn't sure exactly what he'll do after he returns from his world trip, but one thing seems certain—he'll make money.





## Comment / Stop Us If You've Heard This One

**F**OR MANY YEARS NOW, we have made a hobby of collecting rumors and assorted unfounded statements about Washington University. We hear them in many unlikely places and from people who should know better. Some of them have been making the rounds for decades and others are brand-new inventions. Listed below are our ten current favorites, all of which we've heard stated as fact recently:

1. Washington University is one of the wealthiest schools in the nation, with the second (or third or fourth) largest endowment in the country.

2. Washington University owns most of downtown St. Louis and derives huge amounts of income from rental property in the area.

3. Washington University owns the Kingshighway viaduct over the Wabash railroad tracks and collects a toll on every train that passes under it. (!)

4. Washington University has been offered a large gift from a prominent local philanthropist to finance a student union building (or an FM radio station or a new stadium) and has turned it down.

5. Washington University is working to become the largest university in the Midwest and is planning to build a new and gigantic campus on the Tyson Valley site.

6. Washington University is planning to discontinue all undergraduate education and to become exclusively a graduate school.

7. Washington University is discouraging attendance by local students and is concentrating on out-of-state students in order to fill its new residence halls.

8. Washington University is mainly for Jewish students (or, Washington University discriminates against Jewish students and operates a religious quota system).

9. Washington University is anti-fraternity and plans to ban all fraternities and sororities from the campus.

10. Washington University invites only "left-wingers" to speak on campus and never gives the conservative viewpoint a platform.

**W**E HAVE HEARD EACH OF these statements at least once just in the past month alone. While a good rumor endures in the very face of facts, let's try anyway to give the truth in each case, just for the record:

1. Washington University ranks twentieth in endowment among the nation's universities. Besides, the earnings from this endowment provide only 11 per cent of the University's total income (or, put another way, endowment income meets barely a tenth of the University's expenses).

2. Washington University has acquired, mainly through gifts and bequests, income property in the St. Louis area which produces approximately \$380,000 annually. The earnings from this property comprise slightly more than one per cent of the University's total income.

3. We wish we did! Actually, this is a beautiful example of how a rumor can grow from a tiny kernel of misinformation. The truth is that the University some time

ago purchased air rights over the submerged railroad tracks along the northern boundary of the Medical Center to provide access to the hospitals and room for possible future expansion. How this transaction led to our alleged troll role is a deep mystery.

4. No such offers have ever been made. Of course the University is always happy to consider offers of funds to finance any building or program appropriate to the University's functions and consistent with its objectives.

5. According to statements by the Chancellor and other officials, Washington University in the future will continue to "stress quality over quantity." Present estimates of future enrollment forecast a ceiling of about 4,000 full-time undergraduates, 2,500 graduate students, and modest increases in the enrollment in the professional schools. The Tyson site is being developed as a research center.

6. See above. In his inaugural address, Chancellor Eliot emphasized a long-term goal of giving all undergraduates a solid liberal arts education and providing all professional education at the graduate level.

7. Admission standards at Washington University today are the highest in its history. The increase in out-of-town enrollment is mainly because the University increasingly is coming to the attention of students and high school counselors all over the country. Applicants are judged on the basis of high school courses and grades, standardized test scores, rank in class, and evaluation of the student by his secondary school. Local students and out-of-town students are judged on exactly the same basis.

8. No religious test of any kind is required of Washington University students. The University has been a non-denominational institution throughout its 111-year history and the religious affiliation or background of a student is not one of the factors considered in the admissions procedure. There are no quotas.

9. The University is neither pro-fraternity nor anti-fraternity. The only official statement made about fraternities in recent times was the announcement of a University policy aimed at eliminating restrictive membership clauses of campus organizations.

10. A careful study of all the speakers who have appeared on the Washington University campus shows a broad range of opinion represented. Over the past three years, many spokesmen for the conservative viewpoint have given addresses on the campus and met in discussion groups with the students. Among the more prominent were William Buckley, Jr., Russell Kirk, William Rusher, and James Burnham.

**L**OOKING BACK OVER THE LIST of the top ten, the one we like best is the story about the University collecting tolls under the railroad bridge. Still, knowing the nature of rumors, we can expect even fancier ones than that in the future. Let's just try to give some of the old ones a little rest. They need it.

—FO'B





All college students don't join the lemming migrations to the Florida beaches in the spring. Some stay on campus, like these co-eds who combine sunbathing and study on a residence hall terrace.



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