Dr. Paul Reeder of Washington University's Chemistry Department operates a gamma ray detector used to study radioactive isotopes. Professor Reeder, who tries to find the more unstable species of these short-lived atoms, recently became the first scientist to detect the isotope titanium-42. His research, which took him to troubled Paris last summer, is described in the article, "Out of the Valley of Stability," which begins on Page 18.
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Cover: Professor and student at work. Beginning on Page 2 is a portrait in words and pictures of today's professor and his many and diverse roles. His central role and main concern, however, is the student.

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Professor Riesenberg came to Washington University eight years ago from the faculty of Swarthmore College. He is both a recognized research scholar and a stimulating and popular teacher. He has also found the time and energy to serve as a Master in the Forsyth Houses Program, to participate in the freshman advising program, and to serve on a multitude of University committees. When the University's Board of Trustees met this fall, Dr. Riesenberg was asked, as chairman of the Faculty Senate Council, to talk to them about today's university professor: what he is like, what he is trying to do, how he resembles other people, and how he differs. Here is a transcript of Professor Riesenberg's presentation to the trustees. He wishes to acknowledge the benefit he gained from conversations about the presentation with Professor Paul Lucas and Dean Merle Kling.
REPORT ON THE PROFESSOR

The purpose of this little conference, I understand, is to try to illuminate the very complex nature of university government. I have been asked to focus upon the human condition, to reveal what a faculty member, a professor, is really like. The assumption is, and I think it is justified, that the true life of the professor is obscure despite the fact that he has been "experienced," so to speak, by everyone in this room. We all have some concept of each other's careers, and there is probably some truth in those concepts—enough to permit compatible, intelligent, and effective relations. The real question is whether there is knowledge enough to permit understanding and indeed sympathy.

In passing may I suggest that a member of the Board of Trustees speak to some future session of the Faculty Senate. When I attended a Trustee meeting last June, I caught a glimpse of a highly complex sense of responsibility that I would like to see spelled out. Today I'm going to tell what it means to be a professor at this university. Another time a trustee might spell out his notion of what it means to be entrusted with the present and future of a distinguished institution.

I think it is imperative that trustees be aware of the psychology of the professor and the nature of his fields of action. In a recent New York Times we read that Professor Sidney Hook "favors bigger role for faculty," and in a recent issue of the Atlantic, McGeorge Bundy writes on "Faculty Power." And from all the writers on the Columbia crisis we learn that one reason for the very survival of Columbia as a university is the present new commitment of the faculty to university politics and affairs.

If it is important for the trustee to perceive the actual professor, the same is true for the student. Some of what I say this afternoon I said some six weeks ago to a group of student leaders. They too must realize that there is more to a career in a university than lecturing from a podium. They must realize that the professor has hang-ups and problems like any other human being. I may be positing a straw man, but my impression is that students and many others may have a romantic, idealized view of the professor—yet one that is highly critical for reasons that may or may not be justified. My plea is for clarity—that is, that you can see the professor as I see him. It may be that he doesn't shape up to an ideal image—but then perhaps he can't, given the actuality of his day-to-day existence.

In many ways the professor is, of course, like people outside the university—for example, in his search for reputation, money, happiness. But, as I hope to make clear, his concepts of reputation and happiness and his uses for money are somewhat different and distinct. In what follows, my purpose is to describe a way of life, being as clinical and objective as I can possibly be.

A distinctive feature of the professor's real life is that he must constantly perform a variety of tasks before an audience of colleagues and students whose very function it is to be reserved and critical. Standards of performance and levels of tension are quite high.

He is most obvious as a teacher and most immediately thought of as a teacher, yet teaching is something about which he may be very ambivalent. He knows that despite all the talk these past few years about the value of teaching, his standing in the profession, on campus as well as throughout the university circuit, will be determined by his research and not by classroom performance and success. And it is that standing, ultimately, that will win him greater dignities and financial reward.

Perhaps this is the place to say something about Washington University's faculty that may not be understood. There are many kinds of faculties. At one end of the spectrum is the kind of faculty that teaches at Antioch or Kenyon or Swarthmore, composed of men whose lives are pretty much consecrated to the students twenty-four hours a day. Berkeley and Columbia have faculties quite different. There, many professors still visit classrooms and offices a few hours a week and the rest of the time remain hidden in the library or at home. Here
at Washington University, we are a faculty tilted towards the second model. We are professionals, able to meet colleagues from coastal universities with ease; but we are also teachers who, aware of the scale and traditions of Washington University, and sensitive to this atmosphere of real sympathy for student demands, tend to spend much more time with students than do our peer professionals at many other schools. Moreover, having lived through this period of universal student unrest, we are aware that university peace (which means for us teaching and research) depends upon meaningful association with students in many new ways.

What I'm trying to emphasize is the rather special pressure that people here bear—and have borne now for more years than is usual throughout the profession. We have felt this special pressure no matter what the imperative of such words as "professional" and "national." This is a good thing, a matter for pride, but difficult.

To be recognized is to publish. Much has been said about the complex issue of "publish or perish." I'd like to indicate what some of the real issues are. Too often it is automatically assumed: first, that he who publishes must be a poor teacher, and second, that he who has reputation for being a great teacher serves the students more. This is not necessarily the case, for the research professor may also teach brilliantly—enlivening his lectures with the excitement of his discoveries—and, what is more, inspiring his students to work of their own through the clarity and importance of his research. The great lecturer may be more stage performer than sound scholar. His words may perish with the class bell, while those of the research professor may live for generations in his own books and those of his graduate students.

People publish for a variety of reasons—because it is the thing to do, because publication brings job offers at higher pay, because publication brings the respect of colleagues here and elsewhere that one needs to function well as a human being, and because discovery, power over the past or nature, is pure joy. This love for the non-material reward, I'd say, is one of the determining qualities of faculty life—this attempt to create with all one's talents and training something that will contribute, in some fashion, to the great scientific or humanist tradition.

It is vainglory, perhaps, to quest after a place in history, and it is a high goal: so high, sadly, that many men eventually realize they can never make it. Perhaps most men realize it, early or late, with the result that the academy is filled with people somewhat bleak and disappointed. These must find new careers and new relations to more successful colleagues of their own age and aggressive younger colleagues armed with new techniques who may be pushing them from the rear. The title of the disappointed professor does little in the academic world to soften his condition or preserve his real status. His colleagues are simultaneously humane and cruel: humane in allowing him to stay on in the university, cruel in making clear that his voice carries no weight. There is little upstairs into which one may be kicked, so feet are just aimed left and right. This situation may well be different from that in the corporate world, where judgment may be less critical and where the tolerance of the institution may support the superannuated.

The professor—returning to my theme of variety—is, then, teacher and scholar. He is also administrator. There are committees for everyone in this queer world of authority and egalitarian democracy. And if there is one thing training does not prepare us for, it is committee life. Nothing is further from the dream career of the undergraduate who wants to be a teacher than the universal, burdensome, yet necessary and rewarding service in university government. Its value is immediate and parochial, and the level of talk is often quite unintellectual. It is a far cry from the vision of academic life as a kind of creative cloister safe from the roughness of the world.

I've discussed this matter many times with colleagues. We see the realities of active participation in administration—the sheer quantity of it and the importance of our commitment to it—as perhaps the greatest shock to our youthful picture of what a university career was to
be like. This tension I'm describing is that between the cloister and the world. And many a monk has found himself a bishop, like it or not. On this campus one may serve on University or department committees, administer large introductory courses, or direct more delicate graduate programs. He may serve as academic adviser to freshmen and sophomores or may handle problems of sex and drugs in the residence halls. Always he asks: Is the time spent worth it? And just how much time in relation to everything else? And what is my essential role? Who am I?

Many of the same questions must be asked with respect to civic responsibilities: Shall I sit on this or that board? Respond to which corporation's request for advice? When does my public service or private consulting interfere with my responsibility to my students as teacher and to my department as researcher? Raising this question, I'm suggesting that the academician often is conscious of the need for a certain moral, indeed high-minded unity in his life. The variety of calls upon his services from the outside world, and the attractiveness of those calls, constitutes one example of a kind of constant challenge to his self-image as a purely or overwhelmingly intellectual and moral person.

This, of course, is talk about tensions and responsibilities involved with the teacher's very private self, and it relates to a man's self-esteem twenty years after graduation, and his view of himself in other categories, say as husband and father.

I go into this private world to suggest and reveal the very complicated invisible inner life that runs parallel to and intersects with the complicated public life that itself may be only partially visible. All this may explain why the professor may be full of hang-ups, deeply troubled with many moral intellectual issues, or idiosyncratic in his behavior and dress. As an intelligent person, aware of the state of the world and prone by training to consideration of issues, he may be anguished about almost any failing in the university or community, from maltreatment of animals to mal-exercise of national power. For such reasons, his behavior may be erratic and the outside world may see him at his worst.

To the outsider, he may appear "strange" or "difficult" for yet another reason. Professors, as performers and as creators, whether physicists, historians, or poets, share some of the qualities of artists. The world is tolerant of the poet, musician, sculptor, or actor, who is almost expected to have certain crackpot characteristics. But it does not recognize the same need for personal freedom in the life of the professor . . . who appears so institutionalized in his curricula, ivied walls, and administrative concerns.

All this is not to complain, I must emphasize, but to describe. If there are difficulties and great tensions peculiar to the professor, there are also great privileges bound to those tensions. I'm thinking of the opportunities we have in our relation to the young and the responsibility we have for the moral as well as the technical training of the next generation. We are privileged to work with the mind, and to be supported by society in that venture. We enjoy our obligation to be ultra-critical as we think and as we present the great arguments on moral, social, and political issues.

In so much of this I'm just guessing as to what is known and not known. At the same time, I am trying to speak of what I think should be known about the teaching life. Now I'll conclude with a sort of grab bag by just mentioning:

The drudgery and agony that go into lectures as one works them over again and again to make points clear to students of widely differing abilities and levels of interest.

The anxiety that accompanies the article or book, finally written, once it is sent off to friend or critic or publisher for evaluation.

The moral doubts we have over the clarity and fairness of our presentation of "controversial" issues.

The ultimate challenge we face—in the library or the laboratory—as we struggle, often alone with our varying ambitions and abilities, for Truth.

All these define the life, which is, as I've said, very difficult but very rewarding. And dare I say about teachers what F. Scott Fitzgerald said about the very rich: "They are different from you and me."
Rita Levi-Montalcini
Professor of Biology

Michael A. Weinberg
Assistant Professor of History

Gerald T. Perkoff
Professor of Medicine
The pictures on these pages are intended as a sort of accompaniment to Peter Riesenberg's article "Report on the Professor." Shown here are a few faculty members caught by the camera in characteristic poses. The professors shown were chosen at random, but they do represent a cross-section of veterans and relative newcomers, of scientists and humanists and social scientists and artists. As Dr. Riesenberg points out, professors share many qualities, but as these pictures show, they are all individuals.
Arthur C. Wahl
Professor of Chemistry

Robert H. Salisbury
Professor of Political Science

William Schatzkamer
Professor of Music
George Anselvicius
Professor of Architecture

Raymond E. Callahan
Professor of Education

Kevin B. Herbert
Professor of Classics
Phyllis Cunningham  
Professor of Physical Education

Alfred M. Holtzer  
Professor of Chemistry
The earliest mention of Homer among Greek writers is that of Xenophanes, in the sixth century B.C., who described him as the teacher of Greece. "From the beginning," said Xenophanes, "all have learned from him." This opinion must have been widely held in Greece for Socrates to be able to say in Plato's Republic, "Then Glaucon, whenever you meet with eulogists of Homer, who tell you that he has educated Greece...it will be your duty to greet them affectionately as excellent men." In spite of the severe reservations that Plato sometimes expresses about the religious and social aspects of poetry, Homer must have represented for him the summation of some of the highest values of Greek civilization. Otherwise Socrates could hardly have been made to say in the same dialogue, as he was about to attack the basis of Homer's art: "I have always from my earliest youth had an awe and love of Homer, which even now makes the words falter on my lips."

There is perhaps a good deal of conviction mingled with the irony in the following conversation between Socrates and the rhapsode Ion, who was one of the most successful narrators of the Homeric epics before vast Grecian audiences. Socrates asks, "Does not Homer speak of the same themes which all other poets handle? Does not he speak of human society and of intercourse of men, and of the gods conversing with one another and with mankind?" And Ion answers, "Very true, Socrates." "And do not the other poets sing of the same?" "Yes, Socrates, but not in the same way as Homer. He is incomparably better."

With a little faith and willingness to admit the tre-
mendous authority of Xenophanes and Plato and Socrates on the subject of Homer's excellence as a teacher of Greece, one could accept the foregoing remarks as conclusive. But we can appeal directly to an even greater authority than they, I mean to Homer himself. If he was truly the teacher of Greece, he must have had things to say to all the generations of men.

How did Homer, the blind Poet, become the teacher of a people so profoundly intellectual, the permanently refreshing fountain of much that is beyond price in human society? How did Homer accomplish this without having known either the Decalogue or the Beatitudes, in the relative absence of a structured set of educational institutions such as ours, without the possibility of appeal for foundation support, with no more gift for grantsmanship than was involved in begging his livelihood from door to door?

Legendary Homer in the first book of the Iliad narrates the beginning of the wrath of Achilles against Agamemnon who had unjustly, and in a public council of the Greek army, threatened to take for himself the slave-girl Briseis belonging to Achilles. "And grief came upon Achilles, and within his breast his heart was divided, whether he should draw his sharp sword and kill Agamemnon, or should curb his wrath. While he pondered thus in mind and heart, and was drawing his great sword from its sheath, Athena came from heaven, took her stand behind him, and caught him by his golden hair, making herself visible to him alone. And Achilles was seized with wonder, and turned about, and knew Pallas Athena at once. Terribly did her eyes flash. Then he spoke to her with wingèd words, and said: 'Why hast thou come, daughter of Zeus? Was it to see the insolence of Agamemnon? Nay, I will tell thee, through his overweening pride shall he lose his life.' Then the goddess answered: 'To stay thine anger, if thou wilt listen, did I come from heaven. Cease from strife, and let not thy hand draw the sword.' Then Achilles answered, 'Needs must a man observe your words, goddess, though wrath be in his heart. Whoever obeys the gods, to him do they gladly listen.' He spoke thus, and thrust the great sword back into its sheath."

Homer drew no didactic lesson from this or any other incident in his epic. The legend speaks for itself to those who have an attentive mind and heart to record the words and their meaning. When Athena seizes Achilles' hair, she has already possessed the minds of those who will listen with a warning against excessive anger, even in the face of overweening outrage. This, I think, is what Socrates meant when he asked Ion whether Homer did not show the gods conversing with Man.

Such, then, was the beginning of the wrath of Achilles, a god conversing with a man. As you know, his wrath was not permanently stayed, though by his victory over himself he was saved from raising his sword against the leader of the Greek army. The end of Achilles' wrath tells of a man conversing with a man, and it must have been to scenes of this kind that Socrates was referring when he asked Ion, "Does not Homer speak of human society and of intercourse of men?"

The poet tells how Priam went to the house of Achilles to plead for the body of Hector and to offer ransom for it so that it would not be thrown to the dogs. "Great Priam entered, and coming close to Achilles, kissed his hands, the terrible hands that had slain his many sons. And Priam made entreaty saying: 'Remember thy father, godlike Achilles, whose years are even as mine, on the grievous threshold of old age. When he heareth of thee as yet alive he hath joy at heart. But I am utterly unfortunate, seeing that I begot sons the best in the broad land of Troy, yet of them not one is left. He that alone was left me, him thou slewst. For his sake have I come now. Have thou awe of the gods, Achilles, and take pity on me, remembering thine own father. For I am more to be pitied than he, and have endured what no other mortal on earth hath yet endured, to raise to my lips the hand of him who slew my child.' So spake he, and in Achilles he aroused the desire to weep for his father; and he took the old man by the hand, and gently put him from him. So the two remembered, and the one, bowed at the feet of Achilles, wept for Hector, but Achilles wept for his own father, and the sound of their weeping went up through the house."

It is in this sense that a great poet may be regarded as the teacher of his country, for the most essential part of poetic greatness, as Matthew Arnold said, is the noble and pro-
found application of ideas to life, whether ideas of moderation, even in terrible and justified anger, or of consolation in the sorrows that the gods visit upon man and men on each other.

It has no doubt been imprudent to begin in this way. I have the impression of one who has climbed in your company, and with Homer as our guide, to the summits of human experience, and who does not know how to come down without mortal risk. From the height on which Homer dwells even major poets are sometimes hard to discern far below. And so I find myself in the position of wishing to speak to you of one of the major poets of an intellectually major nation and people, and fearing that everything that I can say may appear as anti-climax. At least no one can quarrel with the standard that I have chosen by which to measure Pierre de Ronsard as a teacher of France. The question that we must answer is: Could Ronsard rise to a great vision of poetry and of life? Did he, too, contribute in some significant way toward expanding the dimensions of the inner human horizon?

It would of course be vain to look in Ronsard's poetry for precisely the qualities that we find in Homer. An immense abyss of time and history, not to mention the unfathomable mysteries of human personality, separates them. Perhaps also, for a legendary figure like Homer, the answer to such a question can be given more easily than for a historical figure like Ronsard. In the case of a legendary figure, the ignoble contingencies of day-to-day existence are, so to speak, consumed in the creative flames out of which the idealized figure emerges. It is a phoenix that ultimately arises out of the ashes of many intellectual fires. No such idealization is possible for the poet who lives in historical, not legendary, time. He must find his way to whatever vision he may reach in the day-to-day struggle against all the pressures and temptations and solicitations that a frequently mean and brilliant and degrading environment can throw in his path. To remain faithful to one's vision is always difficult, but it is all the more difficult for a poet, who often shares, in common with artists and thinkers generally, the bitter reflection that they have nothing to offer society but the frequently despised values without which that society would lose all rational meaning.

What was Ronsard's situation in this splendid life of the French Renaissance—Ronsard who has been called, and quite correctly, the Prince of Poets and the Poet of Princes. He was born in 1524 and was, until his death in 1585, the poet of Henry II and his sons, the feeble Francis II, who reigned only eighteen months; Charles IX, and Henry III. Throughout this entire period he was also the poet of Catherine de' Medici, Queen of Henry II and Regent or Queen-Mother of those who in succession ascended the throne after the death of their father in 1559. Except for some ten years during the reign of Charles IX, who had inherited a taste for poetry from his grandfather, the great Francis I, Ronsard's life in the early years was a constant struggle to attain recognition, and with it, the material circumstances that would assure him a place in society commensurate with his contribution to the culture of his time, and worthy of the laureate of one of the greatest countries of Europe.

The struggle was intense in the years from 1550 until the death of Henry II, because in his youthful impetuosity and arrogance he made enemies at Court, but even more because the king was of mediocre intelligence and devoid of any feeling for poetry. Ronsard, a younger son who, according to French law, could not inherit his father's estate, was tonsured and entered minor orders to be able to obtain ecclesiastical benefices. Most other careers were closed to him—the diplomatic, the legal, the military, because of a partial deafness resulting from a serious illness in adolescence. The recognition he sought did not come until 1564 when he was made prior of the Abbey of Saint-Cosme, near the city of Tours. The ten years that followed under the reign of Charles IX may be described as the halcyon years of Ronsard's creative life as poet of the Court.

With the accession of Henry III in 1574, a profound transformation occurred in Ronsard's position. The new king was intellectually the superior of his father and brothers, and not insensitive to poetry, but he preferred
to be surrounded by the younger men of his own generation. Although Ronsard’s services as a poet continued to be employed, although some of his very greatest compositions were written during these years, and occasionally at the request of Henry III himself, he was in reality supplanted in the favor of the king by a younger man, Philippe Desportes. Ronsard’s declining years from 1574 to his death in 1585 were, like the years of his rise to fame, a period of bitterness and frustration. He lived in voluntary exile from the Court, which he had grown to detest. About two years before he died, on learning that the King and Court were coming to Tours, he wrote to a friend, “I flee to Paris, for I hate the Court like death.”

Against this background of lifelong struggle I should like to sketch the more meaningful aspects of Ronsard’s writings as they related to this struggle and to his evolution as an artist, as a poet of princes, as a descendant of Homer and the Greeks, and above all, as a teacher of France. The magnitude of his work, which fills eighteen volumes in the critical edition by Paul Laumonier, is the least of the difficulties involved in this effort. The central problem is that of making a choice from so large a body of material, a choice that will be truly representative of the personality of Ronsard and of the ultimate meaning that he gave to his life as a poet and as a human being. Inevitably I shall be forced to abridge, to summarize, even, alas! to telescope certain aspects of his work.

If a man is fundamentally sincere, there may be no surer place to look for the meaning of his life, as he conceives it, than in his own epitaph. To look to the end before determining the value of a life is a thoroughly Hellenic admonition. Among Ronsard’s last writings was a six-line poem that he must have wished to be inscribed on his gravestone, since he entitled it “For his tomb.” This is what he wrote: “Here lies Ronsard, who, from childhood, courageously guided the Muses down from Helicon into France, following the sound of Apollo’s lyre. But little did the Muse avail against the sting of cruel death, which confines him in this tomb. May his soul be to God, his body to the earth.” It seems clear from these verses that in Ronsard’s most mature judgment the central achievement of his life as a poet was the fact that he had united the literature of France with the immense stream of the European literary tradition that rises among the inspired springs of Greece. He wanted above all to be remembered by posterity for having reestablished the Hellenic tradition on French soil and in French literature. Few poets could make a greater claim to the gratitude of their country.

But Ronsard was not concerned for the poet alone—he was also solicitous for the man. In the same last poems, appearing quite at the end, and immediately after the lines I have just read, is another epitaph entitled “To his soul.” To understand the full force of this second epitaph one must remember that throughout his adult life Ronsard lived in a France literally torn in two by eight successive civil wars of the most atrocious character between Catholic and Protestant. “Dearest guest of my body,” he wrote, “thou dost descend below, feeble, pale, wasted, solitary, into the cold realm of the dead. Yet thou wast pure, free of remorse for murder, poison, or malice, despising favors and treasure which the multitude covet so much. Passer-by, I have spoken, follow thy fortune, trouble not my rest, I sleep.”

Ronsard wrote these two epitaphs to vindicate separately the poet and the man. The justification for the first I have briefly indicated. The second is, I think, Ronsard’s final reflection on his time and on his desire to dissociate his soul from the terrible evils that the wars of religion had already brought to France, and were to renew for many years to come with the assassinations of the three Henrys—Henry of Guise, organizer of the St. Bartholomew massacre; Henry III, last of the house of Valois; Henry IV, first of the Bourbons.

It is especially significant, in the last words before the apostrophe to the passer-by, that Ronsard should say that his soul had despised what the multitude covets—favors and treasure. He wrote these words in perfect sincerity, but he surely had not forgotten that for many years he, too, had coveted favors and treasure. Thus, in 1558, in his Complaint against Fortune, he had written to a patron, Cardinal de Coligny, in verses that powerfully contrast an earlier state of innocence with a present condition of experience, that at the beginning of his career, completely free of ambition, remote from the Court, he lived in joyful freedom, desiring none of the goods of the world, but that since the Cardinal had deigned to notice him, ambition had lighted a fire in his heart, and he had begun to dream of abbeys and priories; that he had abandoned the Muses and Apollo; that his mind had turned away from his accustomed studies, and his productive pen was rusting away in idleness; that he had learned to disguise the natural honesty of his face, to listen, to spy, to hope for the
death of other ecclesiastics so that he might be the first
to request the vacant benefice;

Si qu'en lieu d'estre seul, d'apprendre & de savoir,
Je brulay du desir d'amasser & d'avoir.

"So that instead of living to myself, instead of learning
and knowing, I burned with the desire of amassing and
of having."

There is no need to insist on what it must have cost
Ronsard to write verses like these, to balance his
destiny as a man and a poet between the rhymes savoir
and avoir, to reflect, with what anguish, that the striving
for personal advancement should have brought him to the
point of living in the hope of another's death. In the torren
t of honesty that drew from him this painful analysis
of the moving forces of his nature at war with his situation
in life, it is to the Muses that he entrusts the words
of punishment and purification, meant for himself, which
they address to the goddess Fortune: "Therefore, great
divinity, into whose hands God has placed the rods to
punish the sins of mankind, chastise this apostate, and
teach him with cruel afflictions that he must not do out-
rage to the maiden daughters of Jupiter."

In 1559, a year after the composition of the Complaint against Fortune, Ronsard wrote a sonnet for a certain Pierre Forget which is one of the most revealing descriptions of the miseries that he was daily forced to drink with the nectar of the Court: "I tell you, Forget, that bread baked in ashes, that water drunk from the hand, are sweeter than the ambrosia and nectar of the Court. Accursed is the profession which bestows wealth on the very atmosphere of the world of politics—on the times have realized the ideal of perfect integrity in which he believed, but it did not abandon him. It was the last thing that lived in him even as he lay dying.

It is not difficult to understand why compromise is
often the very atmosphere of the world of politics—one
would be more surprised by its absence than by its presence
in that world. But what place does it occupy in poetry?

It occupied a very large place in the poetry of the sixteenth century in France. Perhaps we shall understand more fully the nature and the personal cost of Ronsard's sincerity if we examine both sides of some of his compromises. The most serious ones occurred during the reign of Henry III.

Until the accession of this king in 1574 Ronsard had
lived in a state of creative tranquility under Charles IX, with whom he had enjoyed more than once the extraordinary privilege of an exchange of poems. Upon the death of Charles, Ronsard was obsessed by a question full of deepest anxiety: What were to be his relations with Henry III? He would have been only too happy to renew with Henry the congenial association that had existed between himself and Charles. His first reference to Henry after the death of Charles was at once a word of consolation to the spirit of the deceased king and a brilliant deification of both the old and new monarchs: "Mayst thou rejoice in heaven with serene countenance knowing that thy brother reigns in thy stead. A God must inherit the Empire of a God."

Never had the cry "The King is dead! Long live the
King!" been uttered with more courtly grace. Never had
history been further from the truth.

It would appear that precautionary adulation could
have gone no further. But in vain! Ronsard never suceeded in gaining the place in the affections or the en-
tourage of Henry III which he had enjoyed during the reign of Charles IX. It was Philippe Desportes, not
Ronsard, who was chosen to accompany Henry to Po-
land upon his election to the throne of that country in
1573, and after the return, the fortunes of Ronsard's rival
continued to rise. Apart from the young king's prefer-
ence for a poet laureate of his own generation, two
things may have contributed to widening the abyss be-
tween Ronsard and Henry: first, the poet's outspoken
insult of the mismanagement of the country's finances
and, secondly, the violence of his condemnation of the
growing sexual aberrations which in this period had char-
acterized the life at Court even before the advent of Hen-
ry III, but which reached new levels of derangement after
he came to power.

With a naiveté surpassed only by his courage Ronsard
now asked the king's permission to have done with the
erities and hypocrisies of the Court and to speak an
honest mind. The times were such, he said, that even a
wooden tongue would be consumed by an intense itch-
ing of the satiric impulse. He composed a Cahier de
doléances or book of grievances which was, in many
respects, that of all of France. It was an outpouring of
the accumulated miseries of all the years since the death
of Henry II: the rapacities of the military compounded
by the sanguinary quarrel of the Huguenots with the
established religion; the apathy of the clergy to the
spiritual needs of the faithful; the avarice of the bank-
ers; the ambition of the bourgeoisie; the special pleading of Henry III’s... darlings! "If anyone in favor abuses that favor," the poet wrote to the king, "if anyone acts with the duplicity of a courtier; if our prelates of the Court do not attend their churches; if someone comes crying that he has spent his all in Poland, and brags with inflated pride of having made that journey; if those old crows continue to devour your finances; if some famished upstart tries to engulf all your revenue in a single day; let him fear my fury. With the blackest ink I shall engrave the story of his life."

Vigorous and uncompromising as these lines are, they contain little besides the usual commonplaces of the satire of the time, that is to say, little besides the documented promise of the French revolution. But the most remarkable lines of the passage are missing from all editions after the first. They occurred originally immediately before the threat, “Let him fear my fury:” “If some damsel-boy paints or disguises his face... decked out in his ruff and starched collar; if he wears his cape trussed up and his hair curled; if I see any more of these wide farthingales, these shameless hair-styles and effeminate wiglets, this hair borrowed from a page-boy or other lad; if anyone persists in following these strange fashions, let him fear my fury...”

The king is named by title in two satirical sonnets of this period, and in a third there is a reference to “your crown.” There can be no doubt as to the identity of the person to whom they were addressed. These sonnets are the explosive reaction of Ronsard to the betrayal by Henry III of his manhood and his country. The violence of the outburst may, of course, be attributed to the hermetic silence that a regime of official adulation had imposed upon every public voice. Ronsard was moved to anger, intense even for him, when he saw the king, indifferent to the ruin of the country, abandoning himself to his pleasures with the “mignons”: “I am deeply grieved,” he wrote, “that a new wick should darken the flame of natural love. I am saddened to hear what is being said about the Court... The King, they say, embraces, kisses, and licks the fresh hues of his dainty darlings, night and day. They, for money, one after the other, turn to him their...”

The language descends to a level of brutality that Ronsard never before or after exceeded. But to any person aware of the occasion of these sonnets, they will appear as the work of a devoted son and teacher of France. They are, in a sense, infinitely more tragic than satiric. Their indignation and their crude obscenities do Ronsard immensely more honor than all of the silken flatteries of his official pieces. Indeed, a time comes in the life of nations when obscenity seems to the satirist the only prophylactic. Rabelais was not alone in his century to make this discovery.

I invite you to dwell with me for a moment on the infinite strangeness and complexities into which life may bring human beings. It was by this perverse king that Ronsard was commissioned to write a group of poems of natural love. The lady for whom they were intended was no longer living. She had belonged to the highest levels of French nobility. For Ronsard to have lifted his eyes to her would have been an act almost of lèse majesté. Her name is nowhere mentioned in his poetry. And yet it was for her that he wrote what has always been, in my opinion, his greatest sonnet of love, greater than any he had composed for Cassandre Salvati, Marie of Bourgueil, Hélène de Surgères, or the other ladies who had at various times engaged his affections.

Beginning in 1555 and for five or six years thereafter, Ronsard had courted the peasant girl, Marie de Bourgueil. During this period he wrote for her some of his tenderest poetry of love, and then, with the passage of time and with the lighting of other tender fires, in her bosom as well as his, Ronsard’s thoughts turned elsewhere. Many years later, in 1574, Marie de Clèves, wife of the Prince of Condé, died in Paris as she was giving birth to her first child. She had been a person of extraordinary goodness and beauty. Henry, Duke of Anjou, who was soon to become King of Poland and Henry III of France, had fallen wildly in love with her, and apparently intended, on his return from Poland, to have her marriage with Condé annulled so that he might marry her himself. But at the very moment of his return he received the news of her death. It was a terrible blow, and Henry went into deepest mourning. Not fewer than five poets wrote in commemoration of the death of Marie de Clèves. When Ronsard published his fifth collective edition in 1578, by a subterfuge which has duped many generations of readers, he placed the sequence of sixteen poems which he had written for the princess at the end of the Amours for the peasant girl, Marie de Bourgueil. Among the sixteen, one sonnet emerges in a radiance of perfection:

Comme on voit sur la branche au mois de May la rose
En sa belle jeunesse, en sa premiere fleur
Rendre le ciel jaloux de sa vive couleur,
Quand l'Aube de ses pleurs au point du jour l'arrose:
La grace dans sa fleur, & l'amour se repose,
Embassant les jardins et les arbres d'odeur,
Mais batue ou de pluye, ou d'excessive ardeur,
Languissante elle meurt fleur à fleur déclose:
Ainsi en ta premiere & jeune nouvelle,
Quand la terre & le ciel honorent ta beauté,
La Parque t'a tue, & cendre tu reposes.

Pour obseques reçoit mes larmes & mes pleurs,
Ce vase plein de lait, ce panier plein de fleurs,
Afin que vif, & mort, ton corps ne soit que roses.

"As one sees on the branch in the month of May, the rose in its young beauty, in its first flower, making the heavens jealous of its living color, when the dawn waters it with tears at the point of day: grace dwells in its leaf, and love, scented the gardens and trees with fragrance; but, lashed by the rain, or overcome with heat, it languishes and dies, petal upon petal unfolding; thus in the first young dawn of thy life, when heaven and earth did honor to thy beauty, Fate has destroyed thee, and thou dost repose in ashes. For thy obsequies receive my tears and my weeping, this vase full of milk, this basket full of flowers, so that living, and dead, thy body be naught but roses."

Did Ronsard, in his thought, address these lines to the image of Marie de Cleves, or Marie of Bourgueil? or to the image of a perfect love? or to the tragic image of a girl, who is a blossom, and not meant to live? or to the image of a perfect love? or to the tragic image of a girl, who is a blossom, and not meant to live? or to the image of a perfect love? or to the tragic image of a girl, who is a blossom, and not meant to live? or to the image of a perfect love? or to the tragic image of a girl, who is a blossom, and not meant to live? or to the image of a perfect love? or to the tragic image of a girl, who is a blossom, and not meant to live? or to the image of a perfect love? or to the tragic image of a girl, who is a blossom, and not meant to live?

She died like a flower lashed by rain. The beauty of this verse carries us back to Homer, for one of the loveliest and most touching images in the Iliad is the one employed by Homer to describe the death of Corgythion, stricken by the arrows of Teucer: "And he bowed his head to one side like a poppy that in a garden is laden with its fruit and with the rains of spring." Ronsard's transformation of this text in the sonnet for Marie de Cleves reveals his gift for expanding the dimensions of the inner horizons of man. It is clear that from his study of the Homeric writings he brought back a criterion of excellence whose effect in his own work was permanently creative.

As one considers Ronsard's achievement, one is astonished at the magnitude not only of his Homeric, but of his Hellenic legacy. He gave to France, at the most important turning point in her literary history, the example of a poet who was by profoundest inclination a humanist. It was an example of immediate and lasting efficacy. The whole generation of his coevals, not to mention his successors, issued directly from him, as he affirmed with a proud assurance that history has ratified. It is not fanciful to say that the quickening power of his influence reached backward into time, for the literary standards that he set modified the styles of poets older than he. Perhaps the greatest tribute paid to Ronsard by his contemporaries is not to be sought in the praise of his friends, but in the fact that even his adversaries could attack him only with the arms that he had created, arms beaten out often enough upon a Hellenic anvil.

The value of Ronsard's example was that he showed the way back to the living source of much that is greatest in Occidental literature. Through the gates of Homer he stepped far into a natural world which the blind poet taught him to see both in human terms and as aspects of the divine. The imagery of Homer enlarged his comprehension and his sympathies revealed the affinities between the realms of nature and poetry, until he was able to see a human destiny written in a stricken flower, or the destiny of man in the falling leaf. Ronsard peopled French thought with the names and histories and ethical ideals of the great epic heroes and heroines. He made France acquainted with the religion of Greece, with her terrible divinities of earth and lust and blood and vengeance, her gracious and kindly divinities of forest and field and stream, and with the lovely "college des Muses," the college of the Muses. From the pages of Homer and of many other writers of Hellas, as well as from the pages of the Old and New Testaments, he forged anew the personal and liberating concept of a mighty, universal, and beneficent deity who was not the possession of any exclusive doctrine. When he laid down his pen Ronsard had earned the Homeric, the Hellenic title of a teacher of France.
Ancient "alchemists" were men who for hundreds of years tried to change one element into another. They never succeeded in transforming elements, a process now carried out each day at cyclotrons.
Radioactive isotopes are the objects of research of Paul Reeder, assistant professor of chemistry at Washington University. He hunts for these species of atoms at the University cyclotron, teaches graduate students and helps run the freshman chemistry laboratory. A graduate of Wooster College, he received his Ph.D. degree from the University of California at Berkeley. He hunted isotopes at the Brookhaven National Laboratory, Long Island, before joining the Washington University faculty in 1965.

“Out of the Valley of Stability”

French nuclear chemists at the University of Paris, who were doing unique research in isotope-hunting, were much dismayed last summer when their work was virtually halted by the riots.

The upheaval on the Left Bank also was disconcerting to a young Washington University nuclear chemist, Dr. Paul Reeder. He was in Paris for the summer on a NATO fellowship to learn the new techniques developed by his French colleagues.

Despite the disruption at the University of Paris, Dr. Rene Bernas and his associates still managed to show Dr. Reeder how they had coupled a device called a mass spectrometer to a high-energy cyclotron. This system had enabled them to prove the existence of many new isotopes.

Having learned the technique, Dr. Reeder’s next problem was to secure a spectrometer for his own laboratory. The French solved this problem by lending him a spectrometer for an indefinite period. According to the United States Atomic Energy Commission records, this was the first such loan ever made to the United States in the nuclear research field.

Dr. Reeder’s remarkable stroke of luck in bringing home a coveted piece of equipment from the besieged Left Bank came as quite a surprise to his associates on the Washington University campus. In his particular field, however, one needs all the luck he can get.

A poem is tacked to a bulletin board in Dr. Reeder’s office. The poem, by Louis Rosen, entitled “A Nuclear
Professor Reeder works on a mass spectrometer, which he received in an unprecedented loan from the University of Paris Institute of Nuclear Physics at Orsay. This instrument, used in conjunction with the cyclotron, will aid him greatly in tracking radioactive isotopes.
"Chemist's Prayer," starts out with the line, "Oh deliver me from the Valley of Stability." In nuclear chemistry, the Valley of Stability refers to a group of isotopes which are relatively stable atoms. Higher up along the slopes of the valley are the more unstable isotopes. They are radioactive, and live only for fractions of a second before changing into another atom on down the scale of elements. This is the elusive quarry of nuclear chemists in Dr. Reeder's specialty. Roughly, only about 2000 of a possible 8000 isotopes have been found and the vast majority of unknown isotopes are the short-lived radioactive ones.

The simplest of the elements, hydrogen, has one positive particle, a proton, for its nucleus; the proton attracts one negatively charged electron, which determines the atom's chemical behavior. This is by far the most common form of hydrogen. Other isotopes of hydrogen behave the same chemically, but have a heavier nucleus, because the proton is joined by one or more neutral particles called neutrons. The isotope with a nucleus of one proton and one neutron is called deuterium, an ingredient of "heavy water." Heavy water was used to slow down the neutrons in the first nuclear reactors in order to increase the rate of fission.

Certain radioactive isotopes have tremendous practical importance. They are used to diagnose and treat disease; to date and analyze archeological objects and works of art; to analyze materials in crime detection; and to aid in many lines of research and engineering. The future may hold many more remarkable uses. Application depends squarely, however, on the necessarily deliberate and time-consuming work of the men who are trying to fill in the unknown areas in the Chart of the Nuclides. A nuclide is any particular combination of neutrons and protons which forms a nucleus of an element.

In order to identify new isotopes or nuclides, the nuclear chemist's first experimental step is to use the great energies generated by cyclotrons to change nuclides of one element into nuclides of other elements. (Transmutation of the elements was the goal of the old "alchemists" who worked with great frustration for hundreds of years without the benefit of cyclotrons.) After the cyclotron has produced a number of short-lived radioactive isotopes, the nuclear chemist tracks their fleeting existence with one of a variety of detectors. A general idea of the procedure for isotope hunting can be gained by outlining the path which led Dr. Reeder to the discovery of a new isotope, titanium-42.

The number 42 denotes the total number of protons and neutrons in the nucleus—the mass number.

Nuclear chemists, like scientists in all fields, constantly scan the literature for observations or data that might help them in their own work. In 1962, McGill University scientists reported that they had observed new isotopes through a special type of radiation, "delayed proton emission." Each isotope decays with a characteristic half-life by giving off "beta radiation" (electron emission) and possibly "gamma radiation" (the equivalent of a high-energy particle of light). With the 1962 finding, a new window on isotope-hunting was opened: some isotopes decayed into other isotopes by ejecting a proton after emitting a beta particle. The McGill group found five new isotopes by tracking this type of emission. Then, scientists with whom Dr. Reeder was working at the Brookhaven National Laboratory went on to find oxygen-13, argon-33, calcium-37, and titanium-41, which also decay by delayed proton emission. Insofar as the last element was concerned, isotopes of titanium, from mass 43 to 52, had been identified previously, thus leaving a gap at mass 42.

Dr. Reeder joined Washington University in 1965. He decided to hunt down the missing member of the titanium family, but this search would have to be different. It was known that titanium-42 wouldn't decay through delayed proton emission. Titanium-42 was expected to undergo a radioactive transformation to an isotope, scandium-42, by emission of a beta particle. This radiation, however, would be extremely difficult to sort out from a
large number of beta rays expected from other isotopes in this region.

"Then I noticed in someone else's work that there is also an excited state of scandium-42," Dr. Reeder said. "So it was now known that titanium-42 might decay to this state by beta emission and then emit a gamma ray. I could try to detect titanium-42 by studying gamma rays." To start, Dr. Reeder had the known energy states for scandium and the predicted half-life of titanium-42, somewhere between one-tenth and five-tenths of a second.

Last August, after a preliminary test, Dr. Reeder finally ran what he felt was the conclusive experiment.

The first step is alchemy with the cyclotron: "Make" titanium-42, if it exists. Dr. Reeder started with calcium-40 and helium-3. The cyclotron's energy welded these nuclei together forming titanium-43, which should break down into titanium-42. When the cyclotron had done its alchemy, Dr. Reeder looked for the expected gamma ray with a gamma ray detector and found a peak at the energy predicted for titanium-42. He then ran the cyclotron long enough to get one thousand counts at this peak to be statistically sure of his readings. Everything checked out. Also, the half-life of titanium-42 was found to be three-tenths of a second, within the calculated range. He was the proud father of a new isotope.

As present, Dr. Reeder is pressing to get his new mass spectrometer into action at the cyclotron. When he does, it will open up possibilities of searching for other isotopes. Titanium-42 was a lucky choice for the gamma ray detector because of the small number of gamma rays in this region. Tests of other isotopes might produce a bewildering array of energy peaks. The mass spectrometer technique will sort out isotopes of a desired mass and will permit on-line readings with gamma ray detectors of just one isotope. Among other applications, it will be used to study isotopes of bromide and iodine. These isotopes are an important source of delayed neutron radiations, which are the key to controlling nuclear reactors. Data on the energies of this type of radiation are scant, and reactor specialists are following this type of basic research with great interest.

For some time, scientists have been following work by another Washington University nuclear chemist, Dr. Arthur Wahl, who has done outstanding work in charting short-lived products of fission reactions (as a young researcher at the University of California at Berkeley, Dr. Wahl's Ph.D. thesis was on the chemical separation of plutonium, a key contribution in the discovery of that element). Five other University chemists and physicists also have experiments underway at the cyclotron. This is a near ideal workload as far as Dr. Reeder is concerned. It allows him one full day each week to have the cyclotron to himself. At other higher energy accelerators, a wider range of experiments may be possible, but extended use by individual investigators is difficult. At the University of Paris, for example, some researchers have only two weeks each year to use the cyclotron. This is a near ideal workload as far as Dr. Reeder is concerned. It allows him one full day each week to have the cyclotron to himself. At other higher energy accelerators, a wider range of experiments may be possible, but extended use by individual investigators is difficult. At the University of Paris, for example, some researchers have only two weeks each year to use the accelerator.

About four years ago, physicists completed remodeling Washington University's original cyclotron. Many people remember this machine for its role in the Manhattan project; it produced the first minute sample of plutonium used in the atom bomb project. Soon after the war its use in efforts to better understand the elements was limited by fixed energy. The new cyclotron has variable energies and can accelerate a number of different particles. This has expanded the research possibilities for nuclear chemistry and physics on campus.

This is not to say that Dr. Reeder and others at Washington University aren't thinking ahead to long-range experiments that would be possible at higher energies.

Dr. Reeder attended a meeting in Chicago in January to hear plans for a $20,000,000 accelerator at the Argonne National Laboratory, which could produce a tremendous range of new isotopes, including isotopes of elements beyond the present limits. It would be built with federal funds and many universities would share in the use of the machine. If such a machine is made available, Dr. Reeder and his colleagues would be busily planning new experiments not possible with current equipment. It's not likely that they'll ever be caught hibernating in the Valley of Stability.
Dr. Reeder in his office at the radiochemistry building on campus. Last August, he produced and studied a new isotope, titanium-42. Isotopes are species of atoms with additional particles called neutrons. Radioactive isotopes have had numerous and important practical applications.
Immediately after their graduation from Washington University in 1890, Thomas G. Allen and William L. Sachtleben embarked on a three-year trip around the world on bicycles. This account of the pair's adventures, including their voyage across Turkey using bicycle sails of bread, is reprinted from the November, 1968, American Cycling magazine, now known as Bicycling!

Irving A. Leonard is the author of the recently published When Bikehood Was in Flower, a collection of stories of bicycle tours of the 1880's and 1890's, including the Allen and Sachtleben odyssey.
AROUND THE WORLD
ON TWO WHEELS

Two members of Washington University's Class of 1890 spent their senior year dreaming and planning a bicycle trip around the world and the day after graduation in June they departed for New York to make the dream come true. The idea, they said, was conceived as "a practical finish to a theoretical education" in the liberal arts, but the recently (1887) published two-volume account of Thomas Stevens' pioneer feat on a high wheel "ordinary" was probably the true inspiration.

The record bicycle journey of these two spirited youths, Thomas G. Allen, Jr., and William L. Sachtleben, officially started at Liverpool, England. When, in 1894, their book Across Asia on a Bicycle appeared, it was a slim, illustrated volume in which they had chosen to recount only the Asiatic portion—Istanbul to Peking—of their three-year odyssey. That part, particularly western China, the Gobi Desert, and central China, they explained, was really the most remarkable and eventful. Possibly, too, the fact that Thomas Stevens had not passed through these regions of Asia owing to adverse circumstances, contributed to the decision to confine their narrative largely to the most novel portion of an incredible journey.

The experience of crossing Turkey and Iran in 1891 on "safety" bicycles equipped with cushion tires resembled that of Stevens, six years earlier. The roads were mostly caravan trails and each evening, as the weary cyclists trundled their machines through the narrow streets of a town or village in quest of food and shelter, curious crowds nearly mobbed them and harassed the two youth by insistent cries to "Bin! Bin!" (Ride! Ride!), an ordeal often endured again at the morning starts. Nights in dirty khans or inns were frequently noisy and sleepless, while Turkish fare was invariably unappetizing. It usually consisted of yogurt, which the cyclists described as "curdled milk," and ekmet, a cooked bran flour paste, which they called "blotting-paper bread."

The fact that this "Turkish peasant's staff of life" was baked in huge circular sheets inspired the young lads to punch a hole in the middle and slip them over their arms. This procedure happily provided both transportation and food, since they could nibble on the edges without removing their hands from the handle bars. And, with a favoring wind, these pastry sheets even answered the purpose of a sail! Often zaptiehs, or mounted guards, accompanied the riders. These horsemen liked to race with the bicyclists and generally proved more of a nuisance than a protection.

From Ankara they dropped south to Keyseri, or ancient Caesarea, with its ruins of the fourteenth-century Seljuks. There a mountain towering nearly 13,000 feet above them suggested their later rigorous ascent of the Biblical Mount Ararat situated on the borders of Armenia, southern Russia, and Iran. At Sivas in Turkey they lingered several weeks while Allen recovered from typhoid fever, evidently contracted by drinking roadside water. At Erzerum, the Armenian capital, its civil governor accorded them gracious treatment and obliged them to proceed under guard through the pass to the east where, some three years later, another world cyclist, Frank G. Lenz, was fated to die at the hands of brigands (see American Cycling magazine, November, 1966). 2

After planting the American flag on Mount Ararat's lofty peak on July 4, 1891, Allen and Sachtleben wheeled into Iran, described as "one part desert with salt and the other
desert without salt.” At Tabriz illness again delayed them with Sachtleben succumbing this time to typhoid fever. Resuming their journey on August 15, 1891, they rode through heat, sometimes of 120 degrees, to Tehran, the Iranian capital. There it required six weeks to obtain dubious assurances of Russian permission to pass through Turkestan. With only a promise that a travel permit would be telegraphed ahead to Mashad, they pedaled six hundred miles over the “Pilgrim Road,” subsisting on eggs, pomegranates, and pillao, or rice boiled in grease, much as Thomas Stevens had done five years before. More fortunate than he, however, the Russian pledge was kept and, accordingly, they crossed the frontier to Ashkabad and then moved on through legendary Samarkand to spend the winter at Tashkent.

Although they had won Russian consent to traverse Siberia to Vladivostok and had even forwarded spare bicycle parts along the route, they resolved, against everyone’s advice including Chinese officialdom, to take the more hazardous way to the Pacific through China. From May 7 to November 3, 1892, the two cyclists made a truly epic trek through Turkestan, western China, the Gobi Desert to the Great Wall of China, and ultimately to Peking, enduring scarcely credible hardships and privations. “Never since the days of Marco Polo,” they alleged, “had a European traveler succeeded in crossing the Chinese empire from the west to Peking.”

After pedaling over the vast emptiness of the desolate Kirgiz steppe region of Russia at an average speed of seven miles an hour and lodging nights in its relatively decent post-stations, they entered western China and reached Kuldja just over the border. In this city they made final preparations for the long traverse of the Gobi Desert to the Great Wall and Peking without guides, interpreters, or servants. They stripped their equipment to a minimum for the truly formidable journey over the route once traveled by Genghis Khan. To save weight they shortened handle bars and seat posts, and discarded leather baggage carriers for sleeping bags of Chinese shawls and oiled canvas; they even cut off extra parts of their clothing and buttons and shaved their heads. These drastic reductions were, in part, to allow for the heavy burden of Chinese coins necessary for a journey of such length through country without exchange facilities. “Most of the silver was chopped up into small bits and placed in the hollow tubing of the machines to conceal it from Chinese inquisitiveness, if nothing worse,” they reported.

To the sounds of bellowing horns, boom of mortar cannon, and dire predictions of failure, the undaunted cyclists departed from Kuldja at daybreak on July 13, 1892. With moderate difficulties, including a broken rear wheel, shifting sand dunes, and mountain freshets, they reached Urumchi, capital of Sinkiang province. There curious crowds noisily greeted them, surrounding the riders of the “foreign horses” and “foot-moving carriages.”
In return for cycling exhibitions the two youths were royally treated and overwhelmed with gifts: their bicycles, it seemed, were the very best passports for overcoming Chinese antipathy to "foreign devils" and for winning their good will.

RESUMING AN EASTWARD course, the ride to Hami on the edge of the Gobi Desert was comparatively easy over roads that permitted an average of fifty-three miles a day. Then, after a brief pause for rest and repairs, they plunged into the awesome desert "of vast undulating plains of shifting red sands, interspersed with quartz, pebbles, agates, and carnelians and ... lines of hillocks succeeding each other like waves on the surface of the shoreless deep." Relentless, searing winds resisted their advance and deep, unrideable wagon tracks reduced progress to a weary plodding over hot sands that burned their feet and wore out sandals. Only passing packtrains, whose drivers stared in silent amazement, and way-stations of mud huts devoid of every convenience, varied the deadly monotony. Tea and sweetened bread, dubbed "Gobi cake" by the cyclists, were their daily sustenance, and their nights were torments of lice and fleas. Sick, emaciated, and barefoot after 400 miles of journeying, they struggled into the hamlet at the western extreme of the Great Wall of China, where the bewildered natives regarded the mounted strangers as a species of centaur.

Though conditions now improved somewhat, misfortune dogged their progress. The most serious mishap was the breaking of one bicycle frame entirely in two. Somehow they contrived to hold the parts together with an iron bar in the hollow tubing and by telegraph wire but, "with a waddling frame and patched rear wheel describing eccentric revolutions, we must have presented a rather comical appearance over the remaining thousand miles to the coast."

At last, on November 3, 1892, barelegged, clothes in tatters, pinched and haggard, their bicycles battered, and with only the equivalent of a half-dollar left, they limped into Peking. There, at the end of 3,116 miles of traversing "the Flowery Kingdom," they found themselves celebrities who, in borrowed raiment, were exhaustingly feted and entertained in diplomatic and official circles of the city.

OF THEIR SUBSEQUENT careers the record is dim. Allen, apparently the chief author of their book, later published occasional articles in Outing magazine solely under his own name. Sachtleben (1867-1953) presently retraced their travels in Iran and Armenia in a futile effort to locate the remains of the ill-fated cyclist, Frank C. Lenz. But the distinction of being the first to circle the globe on a modern "safety" bicycle clearly belongs to these young graduates of Washington University. Moreover, the success of their longer and more arduous journey eclipsed the hard-earned fame of the pioneer world tour on a high wheel "ordinary" earlier made by Thomas Stevens.
Professor Weidenbaum is chairman of the Department of Economics. He commutes frequently between the campus and the Capital, where he serves as adviser to the National Academy of Sciences, the Joint Economic Committee, and the national Republican leadership. His predictions concerning economic conditions in this country if peace should come in Vietnam have attracted nationwide attention. Since 1946, he has also served as director of the NASA Economic Research Program at the University. This article is an outgrowth of his book Prospects for Reallocating Public Resources, published in 1967.
THE POST-VIETNAM OUTLOOK

By MURRAY L. WEIDENBAUM
Professor of Economics

IT IS THE HOPE, indeed the expectation, of many people that the end of the war in Vietnam will quickly set in motion massive increases in Federal civilian expenditures. Often it seems that visions of block grants and tax-sharing dance in our heads, while taxes even turn negative in these dreams.

It is easy enough to conjure up visions of so-called fiscal dividends and peace dividends totaling over $40 billion in the year after peace is achieved. As we are all aware, our progressive income taxes bring forth rapid expansions in Federal revenue, about $12 billion a year at current levels of income and economic activity. Also, we are spending about $30 billion a year in Vietnam. Hence, even when making some allowance for built-in increases in Federal spending—for such items as wage increases required under existing statutes and veterans' pensions and similar rising but firm commitments—at first blush it would appear that shortly after peace in Vietnam is attained the fiscal millenium will arrive.

If the perennial role of the economist is to be the wet blanket, then I am afraid that I will run true to form. However, I believe that my forecasts and analysis will not constitute sad news; but rather a realistic appraisal. I will try to describe the budget potentials as well as the fiscal limitations that we are likely to face.

Like most forecasts, these are based on some key assumptions. Mine are quite simple: I assume that the incoming administration will practice fiscal responsibility while dealing with the major problems that the nation faces. Now I am not forecasting that the budget will be neatly and exactly balanced each year. But neither am I forecasting the reappearance of a $25 billion deficit, such as was incurred this past year. I am assuming essentially a national economy with fairly steady growth in business activity, where the Gross National Product posts gains in the neighborhood of 4 per cent a year and unemployment stays down to about 4 per cent and where prices no longer rise with the rapidity that we have witnessed during the last few years.

What are the fiscal implications of all this? In answering that question, I find it necessary to examine the various pressures on the Federal budget during the period following peace in Vietnam.

On the revenue side, the major item that warrants our attention is the recently enacted surcharge. It seems likely that the surcharge will be allowed to expire soon after the end of the war. Upon closer examination that turns out to be a very significant action. The surcharge is raising about $10 billion a year. In the year that it lapses we then lose an amount of revenue almost equal to the annual fiscal dividend. Of course in the subsequent years, we would expect to achieve new fiscal dividends.

That still leaves us the $30 billion peace dividend and, after all, that is quite a respectable sum. Before we start spending it, I suggest that we take a longer and harder look at the military budget. To begin with, we must realize that any estimate of the cost of the Vietnam War—whether made by the Pentagon or anyone else—is essentially a guess. I say this simply because the way the Pentagon keeps its books, it can give us very accurate reports on how much it spends for aircraft, missiles, ships, etc., but it cannot tell us precisely how much of the funds for aircraft, for example, were devoted to Vietnam. Essentially, then, the $30 billion annual cost of Vietnam, which is the figure most frequently used, is the difference between the current level of total military spending (about $80 billion) and the pre-war military budget (about $50 billion).

If there is any prediction that I can offer with considerable confidence, it is that the military budget will not decline to the $50 billion level that we experienced before the Vietnam War. For one thing, we have had substantial inflation during the past four years and hence large increases in the prices of the equipment that the military buys and in the wages and salaries that it pays. Thus, just to devote the same amount of real resources to defense programs as prior to the war would require a substantially higher level of expenditures than in 1965, before the Vietnam buildup. This new base is likely to be in
excess of $60 billion a year. With the continuing level of international tensions, and especially the recent actions by the Russians, it is hard to see how we would do any less than maintain at least the 1965 level.

Moreover, many upward pressures on the non-Vietnam part of the military budget already are visible. Considerable deferred maintenance and depleted inventory positions will need to be taken care of. There are also other "built-in" increases. For example, under existing law, the pay of the armed forces and of civilian employees of the military establishment is scheduled to rise by over $2 billion between the fiscal years 1969 and 1970. Also, several weapon systems are in early stages of production and the large expenditures are scheduled to come in the next year or so. Examples include a number of nuclear carriers and destroyers, the Poseidon and Minuteman III missiles, and the Sentinel anti-ballistic missile system.

This is all aside from the consequences of any decisions that soon may be made on the future composition of our arsenal of weapon systems. One indication of Congressional concern is the recent report of the Preparedness Investigating Subcommittee of the Senate Armed Services Committee. Reflecting a year of detailed study and hearings dealing with strategic forces, the committee urged, "Prompt decisions should be forthcoming for the deployment of additional and more modern weapon systems and improvements to existing weapon systems..." The committee specifically recommended rapid development of a new long-range bomber and an accelerated research and development effort on an advanced ICBM. It also has underway studies of limited war requirements for tactical aircraft, missiles, and ships; hence, similar recommendations to those on strategic forces may be forthcoming in the near future.

If peace in Vietnam be achieved early in 1969, I would estimate a total peace dividend closer to $10 billion than the $30 billion figure we hear so much about. In a sense that would just about replace the fiscal dividend that we would lose when the surcharge is lifted. Hence, the immediate post-Vietnam fiscal outlook is not one of great liberality, but of many difficult choices which will have to be made in allocating our large Federal revenues among an even larger array of alternative claims.

To those of us who recall ancient history, prior to the Vietnam War there was considerable public discussion of the fiscal dividend which was going to be brought about by the combination of a rapidly growing economy and a progressive Federal income tax. We were even beginning to get some support for a fairly novel use of the growth in Federal revenues, above the built-in cost increases of ongoing Federal programs. Supposedly, we were going to use the money for block grants to the states—financial aid with no strings attached, or at least not with many.

Although Democrats like Heller and Pechman publicized the idea, Republicans like Laird, Goodell, and Javits introduced bills and tried to put the concept into practice. Under various labels, tax-sharing or block grants seemed to be becoming a bi-partisan concern.

Then came the Vietnam War and the dreams of a fiscal dividend turned into the reality of a massive budget deficit. But much also has happened on the domestic front during these past three to four years. Urban-racial-poverty matters have become a pressing area of concern. The solutions offered (and sometimes it seems that the number of solutions equals the number of poor people) do not generally involve block grants to the states. In fact, many of them do not involve the states at all. Guaranteed annual income schemes, negative income tax plans, community action programs, tax incentives to private industry, mass urban transportation systems—all of these involve Federal agencies dealing directly with municipalities or private organizations or individual citizens.

Why are the states being slighted? There seems to be a variety of reasons. Obviously, some Federal agencies find it easier to deal directly with the ultimate beneficiary, or at least think that it is. Others believe it is more efficient to eliminate the middleman—the states in this case. But perhaps the most important reason for wanting to bypass the states is at least partially of their own doing.

It is the rare state government that convincingly shows that it is really interested in the problems of its urban citizens, particularly the urban poor. I will agree that to some extent this is a question of image rather than reality and also that major differences exist among the states.

Yet, one indication of the non-urban orientation of state governments is so obvious that we take it for granted or just overlook it. Where are our state capitals located and,
hence, where do legislators meet to carry on the state's business and where do so many of the administrators of state programs live and work? We find the capitals of many of our largest states, some of those with the heaviest concentration of urban-racial-poverty problems, to be relatively small or medium-size cities, facing in a sense a different set of problems and concerns. Just go down the list—New York-Albany; Illinois-Springfield; Pennsylvania-Harrisburg; New Jersey-Trenton; Missouri-Jefferson City; Texas-Austin; Wisconsin-Madison; These cities certainly are not insignificant townships; yet neither are they the metropolises of one million or more which have been featured so prominently in the news of urban unrest.

Only five out of the fifty state capitals are located in a metropolitan area with a population of one million or more. In contrast, almost two-fifths of the nation's total population lives in these metropolises.

It does not take much imagination to figure out that if urban-related problems are considered to be one of the nation's most pressing domestic areas of public business, and growing proportions of Federal taxpayers are living in these areas, that state governments which are oriented in such large measure to the concerns of rural and smaller cities will have difficulty in convincing large portions of the public that they are the most attractive instrumentalties for dealing with these problems and hence for receiving the bulk of the funds devoted to these problems. Certainly, I do not see sufficient Federal funds simultaneously for block grants or tax-sharing plus a negative income tax plus major new Federal expenditure programs dealing with domestic welfare and developmental needs. In a sense, these proposals are different ways of achieving the same or similar objectives. In any event, the budgetary situation is most likely to force the nation to choose among them.

I offer these observations with the greatest reluctance, because I strongly believe that the states are the backbone of our Federal system. The inability or unwillingness of some states to face up to the major domestic problems in a meaningful way can only result in a weakening of our Federal form of government.

Already the competitors for Federal funds and national attention are numerous. Private corporations oriented to meeting the needs and requirements of the Federal Government offer an array of sophisticated services, ranging from operating Job Corps camps to designing urban transportation systems to retraining the unemployed. Non-profit institutions are running regional educational laboratories, conducting anti-poverty programs, and offering to do research and development work on virtually every national ill, real as well as imagined. Within the public sector itself, Federal agencies and local governments all represent alternative mechanisms for dealing with nationwide problems.

When we examine the new activities funded by the Federal Government in the last decade or so, the cumulative bypassing of the states is seen to be substantial—the war on poverty, mass transportation, housing, etc., etc.

It is in the light of these developments that I personally find tax-sharing and block grants so attractive—they would help to restore greater fiscal balance to our Federal form of government. However, I believe that we will only succeed in getting public support of this approach if indeed we can convince the public that it truly represents state assumption of responsibility as well as of funds—that in choosing the mechanisms for conducting the public business and achieving major national objectives, the nation would be wise to give the states a larger role than at present.

The General Concept of distributing available Federal funds to the states goes back to early American history. In his second inaugural address, President Thomas Jefferson suggested a general program of Federal aid to the states, to be used for such purposes as "rivers, canals, roads, arts, manufactures, education, and other great objects within each state." The lag between presidential recommendation and congressional action was quite considerable even then. It was not until 1837 that the Congress did vote to distribute surplus funds. It did so on an approximately per capita basis. The $37 million so allocated was more than double the annual budget in those days. Considerable interest in general distribution of Federal funds to the states arose again in the 1880's, but did not result in any Federal action.

As we know, a variety of alternative ways of channeling Federal funds to the states has been suggested in
more recent years. Some would mainly expand the existing types of program grants, such as Federal aid to local airports. Others would make use of the grant-in-aid device but would combine the hundreds of separate grants into a relatively few, each covering a major program area such as transportation or health. Proposed innovations in Federal-state relationships of a more basic nature include, in addition to block grants, proposals for tax-sharing, tax credits, and combinations of these new approaches. Of course, there are those who ostensibly would aid the states by having the Federal Government relieve them of the responsibility for various functions or programs; some direct Federal expenditure programs do of course reduce the pressures on state treasuries.

My own research to date reveals that each of these suggested methods of Federal assistance to the states has advantages as well as disadvantages. Direct Federal expenditures might help to expand some important public programs but they bypass completely both state and local governments. Permitting taxpayers to deduct a portion of their state income tax from their Federal tax due ("tax credits") may reduce taxpayer resistance to state and local rate increases, but it would not directly help state or local treasuries.

Tax-sharing and block grants provide for each state making its own allocation of Federal aid funds among programs, because each state presumably is more familiar with the needs and desires of its residents than the national government. However, little or no provision is made for the burgeoning financial requirements of counties, school districts, and cities and towns, at least under the pure form of block grant which involves Federal payments directly to the states.

There is another key difference among these various plans. The share that each state would obtain varies, often substantially. These variations are not random; fairly clear allocation patterns emerge when we compare the different proposals.

High-income states tend to benefit more from tax-sharing and tax credits than from the other forms of Federal aid being considered. Under tax-sharing, the state shares would correspond to the proportion of Federal income taxes collected in the state. For example, Michigan would receive 8 per cent of the tax-sharing or tax credit funds and exactly half of that, 4 per cent, under straight block grants. New York State would receive almost 18 per cent of tax-sharing and about 9 per cent of block grants distributed on a per capita basis. Under tax credit schemes, the direct beneficiaries would be the individual taxpayers who could deduct a portion of their state income taxes from their Federal income tax liability.

In contrast, the low income states would tend to benefit most from the version of the block grant proposal which has an equalization feature—that is, where a portion of the Federal aid is set aside for distribution to the poorest states. Such is the case of Mississippi, which would receive 2 1/2 per cent of the block grants and only 7% of one per cent of tax-sharing. Similarly, South Carolina would obtain 2 1/2 per cent of block grant funds and 7% of one per cent of tax-sharing proceeds.

One group of states—mainly those with per capita incomes close to the national average—would tend to benefit most from the status quo. That is, they receive larger shares of Federal funds from existing program grants than they would from the various suggested changes. One example is Oklahoma, which receives 2 per cent of existing grants and would obtain only half of that from the alternatives. Missouri provides a similar, but less dramatic example.

Yet another group of states might be considered as benefiting more from direct Federal programs than from Federal funds channeled through the states. The region surrounding the national capital is a prime example. Federal government civilian employees in Maryland and Virginia account for slightly over one-fifth of the Federal civilian payroll. In contrast, these states get about 4 per cent of existing grants and would receive 4 per cent of tax-sharing funds.

There is another and perhaps more positive way of examining the question of Federal-state fiscal relations. In the absence of a national decision to embark upon a major new effort of Federal aid to the states in the post-Vietnam time period, there may be considerable possibility of our not obtaining anything close to an optimum allocation of public resources in the United States.

The possibility certainly exists that the nation may use up potential increases in national revenues for "worth-
while" but relatively lower priority Federal programs, while state and local governments are forced either to defer relatively more worthwhile projects for lack of funds or to increase taxes which have adverse effects on economic growth or taxpayer equity. Hence, simply reacting to specific Federal program demands, as the savings from peace in Vietnam and the consequent fiscal dividends are realized, may result in losing an important opportunity for reallocating public resources.

A deliberate decision to use Federal funds to strengthen state and local governments, via block grants or tax-sharing, may succeed in raising the overall level of public services or reducing the need to expand the combined level of taxation in the United States. It would also constitute, I believe, an important step toward achieving what Nixon has envisioned as "a streamlined Federal system, with a return to the states, cities, and communities of the decision-making power rightfully theirs."

As I personally look ahead to the first four years following the achievement of peace in Vietnam, I see the following major trends and developments in the national economy and in the public sector of the United States:

1. A fairly stable rate of economic growth. The gross national product will rise by about 4 per cent a year, accompanied by less inflation than we have experienced in recent years.

2. A slowdown in the rate of expansion in government spending. This will be a relative, and not absolute, cutback in the public sector, so that most of the resources made available by a growing economy will be used to satisfy private, individual wants and not government requirements. Total government spending in 1972 is likely to constitute a smaller percentage of the GNP than we have experienced in recent years.

3. Within the public sector, state and local governments will receive a larger proportion of total government funds than at present. Much of the initiative as well as the responsibility for new governmental activities will be assumed by state or local governments. This, in turn, will encourage a further reallocation of public resources to the states and their localities.

4. The Federal Government will contract out or delegate a major share of its activities. Relatively small increases are likely in the number of direct Federal employees. Increasingly, Federal agencies will rely upon contracts with business firms, grants to state and local governments and non-profit institutions, tax incentives to private organizations, and direct payments to ultimate beneficiaries. This trend is already evident when we examine the new agencies created by the Federal Government in recent years.

The Office of Economic Opportunity spends most of the anti-poverty funds via grants and contracts to local governments and non-profit institutions. The Department of Transportation devotes the bulk of its appropriations to grants to states and local units. The Department of Health, Education and Welfare is mainly a disburser of benefit payments, some via the states (such as public assistance), and others directly to the beneficiaries (social security providing the major case in point). The National Aeronautics and Space Administration spends ninetenths of its funds with private industry.

In striking contrast, the older Federal agencies, the Departments of State, Justice, and Post Office, use most of the funds at their disposal for activities conducted via their own employees. While private personnel build the roads and airports, provide medical services and design space systems, public employees administer the older functions of justice, foreign relations, and mail delivery.

On balance, it appears likely that in coming years the typical Federal agency will probably be a policy formulator and program overseer dealing with decentralized operations over a wide span of the American economy. The initiative for public activities may vary substantially among the different program areas. In some cases, such as highways, the states may exercise basic responsibility, with Federal financial support. In others, with Federal and state agencies providing money and technical assistance, research may be the area where private agencies and individuals represent the locus of entrepreneurship and various public and non-profit agencies support them.

This continual intertwining of public and private activities may provide considerable strength and resiliency to American institutions during periods of great internal stress and strain.
Listening Post

When the doors of the Audio-Visual Department of Olin Library are opened at eight o'clock in the morning, there are usually students on hand to use the listening facilities. And when those doors are ready to be closed at ten o'clock at night, students have to be roused from their listening and sent packing. In the hours between there is almost never a sound booth, or even a phonograph and headset, available without a wait.

When Olin was built six years ago, the listening room was planned as one of two leisure areas of the library. (The other is the current periodicals area on the main level.) But success of the listening facilities has far outstripped expectation. Librarians estimate about ninety students a day use the six soundproof booths and six mobile units.

Recordings of folk and symphonic music and of modern jazz share almost equal popularity as music to study by. Those categories, however, cover a wide range. The library's folk collection, for instance, ranges from recordings by Indian artist Ravi Shankar through the psychedelic rock of the Electric Prunes.

Though the predominant use of the Olin facilities is for leisure listening, recordings of poetry readings and plays are extensively sought in connection with class work. For the serious music student, the collection and facilities of Gaylord Music Library are available.

The audio-visual room is truly a campus listening post and though the room may be the quietest listening post on record, it is alive with a silence of private sounds.
The Audio-Visual Department of Olin Library is a popular study spot. Individual earphones afford a privacy it's hard to find anywhere else.

A little ingenuity and agility easily makes up for the lack of table space for study in the soundproof room.
Mrs. Jane Hisserich is senior audio-visual assistant in the department, which also handles the library's microfilm collection and its photo reproduction services.

Sound and study seem to make up a total world for the students who come to use the listening facilities.

The selection of music to study by is no matter to be taken lightly. Though Chaucer and Judy Collins wouldn't be compatible, botany and Collins is a different matter.

Obviously the problem and the record don't always end at the same moment.
As student, alumnus, professor, and dean, Alexander Langsdorf has been part of Washington University for nearly seventy-five years.

ALEXANDER LANGSDORF

By MARY JANE BEBOUT
Office of Publications

Alexander S. Langsdorf is the complete Washington University man. Since 1894, when he entered as a freshman engineering student, Dean Langsdorf has filled the roles of student, alumnus, faculty member, and administrator. In 1950 he retired from the University as Professor of Electrical Engineering and Dean Emeritus of the Schools of Engineering and Architecture. Now, at the age of 91, and with his years at the University behind him, Dean Langsdorf has tucked away in his mind three-quarters of a century of Washington University history.

"My recollections go back to the days when the University was located at 17th and Washington Avenue," Dean Langsdorf began. "The main building was an ell-shaped structure which consisted of three parts: the Academy, erected in 1856, facing on 17th Street; the College, erected in 1860, facing on Washington Avenue; and a western extension called the Polytechnic, built in 1871 and intended as headquarters for the School of Engineering after the sale of the original O'Fallon Polytechnic School at 7th and Chestnut Streets in 1868. It was a dismal building—dusty, not fireproof, with wooden floors, and headquarters for a whole army of mice.

"I was a sophomore when the announcement was made that the University had bought property out west and that we would ultimately move there. I went to see this promised land, and I remember what it looked like. It was an old farm with evidences of cornfields still standing and only a handful of trees on the entire tract. The terrain was very rough, with steep hills and deep ravines."

Although the campus and its first five buildings were ready for occupancy in 1902, it wasn't until 1905 that the University finally made the move west. During the intervening years, the buildings were leased for use by the Louisiana Purchase Exposition, familiarly known as the St. Louis World's Fair. With the rental funds obtained through the lease, the University was able to add several more buildings during that time, and nine buildings dotted the Hilltop when the move took place.

The move was a good one for Langsdorf and for the University. By then he was a full professor and acting head of the one-man department of electrical engineering. Langsdorf had graduated in 1898, then joined the faculty as an instructor in physics. He was promoted to assistant professor of electrical engineering in 1901 and to full professor in 1904.

"We rattled around in that place like peas in a pod," Langsdorf laughed. "Our first assembly took place in January, 1905, in the old chapel, the room over the archway of Brookings Hall. That little room held the entire student body, the entire faculty, and many of the mothers and fathers of the students.

"When we moved west, there were no walks on the campus except planks laid down on wooden sleepers. Everything else was mud. Brick walks on the main quadrangle were added a little later, though. We got the bricks for nothing from the World's Fair. They had been used to pave the Pike, the amusement section of the Fair. Those bricks were, and still are, a good deal of a nuisance because they were laid a little too far apart. You could always tell a Washington University man by the fact that the toes of his shoes were worn where they struck against the uneven edges of the bricks. I know my shoes always showed that worn toe."
The University's buildings had suffered a little at the hands of the World's Fair, Langsdorf recalled. David Francis, president of the Fair, had had his office in the south end of Brooking Hall on the second floor. An adjoining room had been used as a bar. "The champagne smell lingered for months," Langsdorf said with a chuckle, "and all the walls in the bar had been streaked by men striking matches to light their cigars."

One of the first big steps in converting the desolate hilltop into today's green campus was Arbor Day, held on April 15, 1905. Langsdorf recalled: "Members of the faculty and the student body were each given the privilege of buying a tree, and many of us did. That line of pin oaks which now runs from January Hall to Graham Chapel was faculty row. I remember paying $2.00 for one of those trees."

As an undergraduate, a graduate student, and a young faculty member, Langsdorf was impressed with the quality of the University. "One of the most outstanding features of those early days was the number of truly distinguished men on the faculty," he said. "Here was a little bit of a school with an unusual percentage of high-grade men. Some of those men I remember with great affection."

"Sylvester Waterhouse had come to the University in 1856, when the foundations were being laid for the collegiate level of instruction. When I began teaching in 1898, my office was just across the hall from his. We became great friends."

"Waterhouse never had much of a salary—in fact, salaries in those days were negligible—and he lived a penurious life. Everybody thought that he was as poor as Job's turkey. He always pinched pennies and saved money every way he could. I remember when, in his later years, Waterhouse's doctor recommended that he drink spring water, which was better for him than the city water. Because the bottled water was somewhat expensive, Waterhouse made a deal with the chemistry department to supply him regularly with carboys of distilled water. The distilled water was flat to the taste, but it cost him nothing, and the old gentleman accepted it as equivalent to medicine. When Waterhouse died, I think it was in 1902, the whole University community was flabbergasted when it was found that he had left an estate of something like $250,000."

"Another faculty member was Francis E. Nipher, professor of physics from 1874 to 1914. His influence on me was greater than that of any other individual." Langsdorf explained that Nipher's method of teaching was quite different. A common physics laboratory requirement of the time was for students to verify the law of the pendulum, measuring the time of oscillation corresponding to particular length and then comparing the result with the time computed from the given formula. Nipher's students, on the other hand, were required to measure the times of oscillation corresponding to a series of pendulum lengths, and from these data derive the law.

Langsdorf recalled the eccentricities of Professor Gustav Hambach, professor of geology. "Hambach was a circus," Langsdorf recalled. "He carried six toothbrushes in his vest pocket to dust off the fossils and mineral specimens he carried in his coat pockets. Some of the specimens, he told us, he had swiped from Yellowstone Park when the guards weren't looking."

And there was the Latin professor, George E. Jackson, who dyed his graying beard black. Langsdorf and his fellow students looked forward to the times when the dye began to wear off and the professor's beard took on a greenish tinge.

But for Dean Langsdorf, the greatest example of campus humor appeared in the late 1890's. Two professors, Otto Heller and Alexander Chessin, were the terror of all the students, especially freshmen. Heller, an eminent scholar, but notorious for his outbursts of temper, was "imbued with the notion that a professor was quite something and had to be kowtowed to," Langsdorf recalled. Chessin, he said, was "a splendid mathematician, but a holy terror for the number of failures he handed out."

The highlight of student reaction to the two men appeared one day in a blackboard comment: "Positive, Heller; Comparative, Chessin; Superlative, Chessin."

Once a faculty member, of course, Langsdorf occasionally found himself the victim of student jokes. To this day, Dean Langsdorf remains staunch in his ac-
cussion that alumnus Walter Bryan, MT 03, BSEE 07, was responsible for a sketch of himself and Mrs. Langsdorf which appeared in Student Life. The sketch showed two shadowy figures embracing beyond the closed glass door to Langsdorf's office. The caption read: "No Ohms Resistance," a somewhat esoteric engineer's reference to electrical properties. Word has it that the newly-married young Langsdorf laughed heartily at the sketch, then instituted a student-by-student inquisition to discover the snoopy artist. Bryan, now secretary of the Engineers' Club of St. Louis, remains equally adamant on the question of his innocence, but his eyes twinkle when he recalls the joke.

BEGINNING IN 1901, Langsdorf taught electrical engineering in a department separate from the parent physics department. The textbooks available at that time were not entirely adequate, he recalls, so he began making up his own notes. The young professor was by then a leader in his field, and he was invited to serve as a member of the Jury of Awards of the World's Fair of 1904.

"The entries included large motors and Generators and telephone equipment," Dean Langsdorf said, "and we had the first long-distance radio transmission of messages from Chicago to St. Louis at that time. Lots of people questioned whether the radio waves came down through the air or followed the railroad tracks," he laughed. "Radio was new then and just beginning to take hold."

Langsdorf's classroom notes, his research, and his experience at the World's Fair stood him in good stead in 1909, when the McGraw-Hill Book Company, through a national committee of electrical engineering professors, asked him to write a textbook on direct current machinery. Planning a series of texts to fill the sparse section in electrical engineering, the committee issued to several professors invitations to write textbooks. Dean Langsdorf's book, the first of the series to be completed, was published in 1915 and swept the field. "It was the bible in that field for many years thereafter," he said. The book has since been through six editions in this country, an English-language printing in Japan now being used throughout Southern Asia, and a Spanish translation in use in South America and Mexico. In 1931, the text was translated into Chinese and was used in mainland China at least up until the Communist takeover. A follow-up book, on alternating current machinery, was published in 1937 and has been translated into Spanish.

IN 1910, LANGSDORF was appointed Dean of the School of Engineering. The official notice of his appointment, as received from Chancellor David F. Houston, limited the appointment to the School of Engineering. Architecture, previously a department of the School of Engineering, was made an independent school with its own director. A year later, however, Langsdorf was asked to take on the duties of the School of Architecture, and for years thereafter his name appeared twice in the University catalog, once as Dean of the School of Engineering, again as Dean of the School of Architecture—notwithstanding the fact that there was nothing on record to show that the Board of Directors had ever approved such an appointment.

During his years on the faculty, Dean Langsdorf enjoyed a special kind of relationship with his students. "He was an excellent teacher," recalls Raymond E. Tucker, BS MechE 20; honorary LL D 55, former mayor of St. Louis and a fellow faculty member. "Langsdorf was very fair. He was for, and very sympathetic with, the students, but he would not permit any transgression of the rules. The students didn't try to get by him because they knew they couldn't. So they worked."

The student viewpoint is reflected by Walter Bryan: "We had three full hours of other classes each morning, then Langsdorf's lab in the afternoon. He expected us to study two hours for every one in class, plus write up lab results and do extra reading and study. Langsdorf's traditional reply to complaints about too much work was 'Well, you know that the electrical motor works at peak efficiency when it is slightly overloaded.' We felt that we, too, were overloaded. But the question lay in Langsdorf's interpretation of the word 'slightly.'"

On several occasions, Langsdorf was compelled to come to the rescue of his high-spirited students. A. Carl Weber, BS ArchE 30, now vice president of the Laclede Steel Company and still a man always ready with a
The petite but dynamic Elsie Langsdorf spent her first years of married life rearing the Langsdorf's two children. Later, not one to sit around, she took up state and local politics and child guidance. "She was mixed up in everything," her husband remembers.

joke, recalled his former dean with great affection. Weber told of a still which several laboratory students had hidden between the second-floor ceiling and the roof of Cupples Hall II. One night the still blew up, and according to Weber, "there was human interest all over the place." Weber spoke of another incident, when Gabriel Ferrand, professor of architectural design, preceded a student through a classroom door, catching on himself the bucket of water propped above the door in anticipation of the student's arrival. "Ferrand was very wet and very distressed," Weber said, "and it took a great deal of Langsdorf's political ability to keep the school intact."

In a more serious mood, Tucker discussed the many contributions made by Dean Langsdorf to the University and to engineering. "As I said, Langsdorf was an excellent teacher. But equally important, he drew to the faculty many very able and capable men. He brought honor to the University by his technical competence and professional conduct. He gave to his students a healthy attitude toward life and demonstrated that attitude in his own actions."

James M. McKelvey, MSChE '47, PhD '50, now dean of the School of Engineering and Applied Science and the Sever Institute of Technology, said of Langsdorf: "He was a great man and an outstanding dean. Langsdorf had tremendous strength of character and purpose. He represented impeccable character and dignity, the best of everything in the professional man."

On November 15, 1900, Alexander Langsdorf met the young woman who later became his wife. "It was when I was a graduate student at Cornell," he recalls. "We met at a whist party and, well, that was the end of me!" The couple was not married until 1906, however. Young Langsdorf first had to "establish" himself.

Mrs. Langsdorf was a very active person. "She was mixed up in everything," her husband recalled with a smile, "and she had a genius for making friends." A charter member of the League of Women Voters, Mrs. Langsdorf was the first woman from St. Louis to serve in the State Legislature, representing the fourth district in 1943 and 1944. There she worked in the area of penal reforms and civil liberties, continuing work she had begun as vice chairman of the Missouri Welfare League and as a member of the board of the Urban League.

An expert in the field of child guidance, Elsie Langsdorf conducted classes for parents throughout the area and was an instructor in family relations at the University. At the age of 76, she was, as she said, "bounced right out of my rocking chair" when she ran and was elected to the Clayton, Missouri, Board of Aldermen. Mrs. Langsdorf was the Board's first feminine alderman. When she died in June of 1966, a fellowship was established in her name by the American Association of University Women.

In 1930 Dean Langsdorf entered the business world. He was associated for six years with two firms: the Crunden-Martin Manufacturing Company and the Alvey Manufacturing Company. In 1926 he returned to the University as director of industrial engineering. He rose to acting dean of the Schools of Engineering and Architecture in 1928 and in 1929 became dean of the schools for the second time.

Although Langsdorf preferred to work in the University atmosphere, he was very interested in civic affairs on a scale from local to international. From 1916 to 1936 he was a member and vice chairman of the City Planning Commission in St. Louis, where he helped draft the city's first zoning ordinance. New York was the first city to have a zoning code, Langsdorf recalled, and St. Louis was second. Dean Langsdorf has been a member of the American Association for the Advancement of Science since 1898, a member and president for seven years of the St. Louis Ethical Society, and in 1912 president of the Engineers' Club of St. Louis. In 1938 he became the first president of the Committee for Nuclear Information, now called the Committee for Environmental Information to include air and water pollution.

Several awards have been presented to Dean Langsdorf in recent years. In 1954 he was the first recipient of the Achievement Award Medal of the Engineers' Club. This was followed in 1960 by the President's Award of the St. Louis Electrical Board of Trade, and in 1964 by a Special Award for Distinguished Achievement by the St. Louis Section of the Institute of Electronic and Electrical Engineers. In 1966 the University
Announced a series of engineering fellowships in his name. The Alexander S. Langsdorf Seminar Room in Cupples II was dedicated in September of 1967 in honor of the Dean's ninetieth birthday.

After serving as dean of the School of Engineering for thirty years, Langsdorf retired from that position in 1948. He remained on campus as a professor of electrical engineering until 1950. His association with the University did not end there, however. That same year, he was asked by Chancellor Arthur Holly Compton to write a history of the University in observance of the coming centennial anniversary. Although Langsdorf had not been trained as a historian and could only write from his recollections, he took on the job and spent two years researching and writing. The two-volume history was never published—probably, Langsdorf feels, because he had told too many inside jokes.

Dean Langsdorf has followed many old interests and taken on a few new ones. For two years he has served as president of Experience, Inc., a group of retired executives assisting charitable organizations by way of their "knowing the ropes." The group also operates a shop, Opportunity, Inc., which employs handicapped men and women.

The Dean now has time for painting, a hobby he developed since his retirement. He travels, too, visiting his daughter, Mrs. Leonard Shiman, and his son, Alexander S. Langsdorf, Jr., senior physicist at the Argonne National Laboratory. The present Langsdorf family boasts five grandchildren and seven great-grandchildren.

Dean Langsdorf maintains a strong interest in Washington University and in engineering. Several years ago he spoke at a convocation of freshman students and was rewarded with a long, standing ovation.

On the subject of engineering education today, Dean Langsdorf laughingly declines to stick his neck out. He feels that the whole of engineering has given way to a narrow concentration in electronics and computers, with the result that present graduates know very little about machinery. When the time comes for today's designers of transformers and generators to retire, he fears there will be no one to replace them.

Langsdorf defends science, however, against charges that inventions and discoveries dating from the atomic bomb have caused a degeneration of society. "Scientific men have discovered a lot of new things within my lifetime," he said, "things which are now causing all sorts of disturbances. But who is responsible for the disturbances? Not the scientists, but businessmen and politicians. They must take a major part of the blame for the present misdirection of effort. My hope is that there will be enough scientists available who will help to guide people to a saner type of thinking."

"In looking ahead, I want to see the University continue to be a factor for the good life. I've always been very proud of the University and hopeful for what it will become."

Dean Langsdorf is, admittedly, outraged at the publicized incidents in the national student power movement. "Much of student power is just youthful impatience and—I let me say also—ignorance. I think it's quite all right for students to have access to the administrators and to the teachers, and there should be friendly relations. I've always been in favor of that. But I don't think that takes anything special by way of organization. The guidance of an institution should come from on top, from the older people. As far as students in politics is concerned, I feel that they have the right to be heard, but not the right to be obeyed. Some young people have breadth of view, but it is not characteristic of youth.

"From my position now, as an outsider looking in, I can only assume and hope that the newcomers to the faculty and administration at Washington University are people of wisdom. I take it for granted that the offerings are good ones."

Dean Langsdorf remains genuinely unimpressed with his age and the accomplishments of his lifetime. "Don't make me out to be a phenomenon," he instructed. "To tell you the truth, I have never been conscious of getting old, although I see other people ageing and showing it in all sorts of ways. But I've been a very healthy animal. So far as I know, I haven't had any hardening of the arteries of the brain," he chuckled. "I was a good tennis player and baseball pitcher; I was always active and strong. I was a tough gazabo."
Dr. Reynolds looks up from injured lineman David O'Brien to call for a stretcher. Working with the team surgeon on the playing field is Trainer Jack Rockwell.
For five years now, the job of keeping the St. Louis Cardinal football machine in running order has depended a great deal on the skills of a Washington University alumnus and faculty member, Dr. Fred Reynolds, AB 31, MD 34, professor of surgery and head of the University’s Division of Orthopedics at Washington University and team surgeon for the NFL’s Big Red.

At the University, Dr. Reynolds has a demanding and exacting position as a teacher, a research scientist, and a busy orthopedic surgeon. Barring direst emergencies, however, every Sunday during the regular National Football League season, he is at the game—sitting on the bench, pacing the sidelines, or rushing out on the field if a Cardinal player is hurt. His job with the Cardinals involves not just repairing damage after it happens, but trying to see that it doesn’t happen in the first place. Before each game, he arrives early at the Cardinal dressing room to look over the progress injured players are making toward recovery, to give advice and counsel to players about their injuries and their various pre-game aches and pains, and to confer with the trainers.

When the team trots out on the field, Dr. Reynolds trots out right behind them, wearing his usual business suit and topcoat, plus regulation football shoes. During the game, he keeps an eye on his patients (who might number a goodly portion of the whole squad toward the end of the season) and stays alert to give instant treatment and diagnosis if an accident does occur. When there is a serious injury, any necessary surgery is performed by Dr. Reynolds or by one of his staff under his direction.

Dr. Reynolds first began serving as a team surgeon with the Washington University Bears, but took on the assignment with the Cardinals when the pro team moved to St. Louis from Chicago. He’s an extremely knowledgeable football fan, but he looks at the game in a slightly different way from most fans. After one cliff-hanging game this fall, won by the Cardinals in the last few seconds, Dr. Reynolds, happy that no players were injured, remarked, “It was a great game. Nothing happened.”
Dr. Reynolds checks leg injury of tackle Bob Reynolds. At right, the Cardinals' young quarterback Jim Hart is helped off the field by teammates Jackie Smith and Charlie Johnson, with the team surgeon leading the way.

Dr. Reynolds ministers to a stunned player in the middle of the field as Coach Charlie Winner and veteran quarterback Charlie Johnson look on anxiously.
Dr. Reynolds studies X-ray pictures of a football injury to determine best surgical procedure. Football players comprise only a small fraction of the cases Dr. Reynolds and his staff handle annually at the Washington University Medical Center.

Star running back Johnny Roland, NFL Rookie of the year in 1966, observes Dr. Reynolds and his assistant bandage his injured leg.
EARLY IN DECEMBER, Washington University was the scene of two separate student demonstrations, one involving a group primarily of white students and the other a smaller group of black students. Although both demonstrations were completely peaceful and caused no material interference with the University's normal functions, they received widespread, if sometimes misleading publicity throughout the country.

To set the record straight and to try to put the situation into proper perspective, the current Washington University Alumni News carries a complete and detailed account of the incidents. Included in the current Alumni News, which goes to most readers of this magazine, are the complete texts of the important statements issued during the demonstrations, a full page of questions and answers on the issues involved, a roundup of representative student opinion, and other pertinent information.

We decided to carry the full report on the demonstrations in our companion publication, the Alumni News, because the News was scheduled for publication a full month ahead of this magazine and we felt that it was extremely important to get the complete facts to alumni and other readers as rapidly as possible. If you missed the Alumni News report, you may have a copy by writing for it in care of this magazine.

Looking back on the incidents of early December, we feel that the situation was handled with great tact, restraint, and common sense. The demonstrations involved only an extremely small number of students and, unlike so many incidents at other institutions all over the country, there was no violence, no destruction of property, no administrators imprisoned in their offices, no calling on the police. All during the demonstrations, classes went on as scheduled, concerts were held, a basketball game was played (and won), and University business went on as usual. It was a singularly sane and orderly and even-tempered affair in these times of wild and tumultuous campus riots from coast to coast.

In fact, one is tempted to label our December incidents as "The Riot That Wasn't." That it wasn't a tribute to the way Chancellor Eliot and other administrators reacted to the incident and how they handled it. It is a tribute, too, to the understanding and cooperation shown by the faculty, and to the willingness of the student demonstrators themselves to listen to reason, to debate and discuss, and to keep their heads. In essence, the fact that the demonstrations remained peaceful and capable of solution is the result of the kind of climate that has been painstakingly built on this campus over the years.

IT HAS BEEN ANNOUNCED that Vice Chancellor Carl A. Dauten will succeed George E. Pake as Executive Vice Chancellor on July 1. Dr. Pake, who is also professor of physics, plans to return to full-time teaching and research. He will be appointed Edward Mallinckrodt Distinguished University Professor, succeeding Viktor Hamburger, who retires in June.

Lattie Coor, Jr., assistant dean of the Graduate School of Arts and Sciences and assistant professor of political science, will succeed Dauten as Vice Chancellor.

Carl Dauten is a graduate of Washington University and received his doctorate here in 1944. He joined the faculty of the Business School the following year. Chancellor Eliot has revealed that Professor Dauten was the first person whom he invited to join his administration after accepting the Chancellorship in 1962. Eliot also said, "George Pake and I have been a team, and except for the ultimate executive responsibility, our duties are interchangeable. He has brought great distinction to the University and given great service to it. For the past year, our team has really been a triumvirate, including Carl Dauten. I look forward to working even more closely with him."

Dr. Coor is a graduate of Northern Arizona University and received both his M.A. and Ph.D. at Washington University. After serving as administrative assistant to Governor John Swainson of Michigan, he was assistant to Chancellor Eliot from 1963 to 1967.

The new appointments strengthen a long-standing University policy and tradition of staffing the top administration with outstanding faculty members—men with experience as teachers and scholars and with strong ties with other faculty members and with the students.

WASHINGTON University can take great pride in the accomplishments of Weeb Ewbank, whose American Football League New York Jets upset the NFL Baltimore Colts in the Super Bowl to win the professional football championship of the world.

Weeb Ewbank coached the Washington University Bears for two years of postwar football in 1947 and '48. He posted a 5-3 record in his first year and chalked up a remarkable 9-1 mark in his second. Those Ewbank-coached Bear teams included such memorable stars as Hank Christman, Bob Nischwitz, Clarence Turley, John Mahoney, and a hard-running halfback named Charley Winner, who went on to marry the coach's daughter and later to become the coach of the St. Louis Cardinals.

Ewbank is the second ex-Washington University coach to win a national professional football title. Jimmy Conzelman, who coached the great Bear teams of 1932-39, went on to direct the Cardinals (then the Chicago Cardinals) to the NFL title in 1947 and to the division championship in 1948.

Coach Ewbank, who led the Baltimore Colts to NFL titles in 1958 and '59, has become the first man in professional football history to win the championships of both the American and National Football Leagues. All we can say is: we had him first!
G eorge P ake will begin a new chapter in his career at Washington University when he succeeds Viktor Hamburger as Edward Mallinckrodt Distinguished University Professor on July 1. Dr. Pake's University career began in 1952, when at the age of 29 he became chairman of the Department of Physics. He served with distinction in that post until 1956, when he accepted a professorship of physics at Stanford University. In 1962, he returned to Washington University as Provost and later became Executive Vice Chancellor and Provost.

When he announced that he was resigning his administrative position, Dr. Pake said, "For more than a year I have felt a strong desire to concentrate on science . . . I am devoted to Washington University and I am proud to have served with Chancellor Eliot's administration, which has achieved nationally recognized distinction for the University and which, incidentally, handled the recent student demonstrations so fairly and wisely. But I do not enjoy exclusively administrative work, except perhaps with respect to specialized scientific areas, and I want to return to science before I acquire many more gray hairs."

George Pake, too, has brought national recognition and distinction to the University. As a member of numerous national bodies, including the President's Science Advisory Committee and the Physics Advisory Panel of the National Science Foundation, he has done much to advance science and science education throughout the country.

As one of the pioneer investigators in the field of magnetic resonance, Dr. Pake has made many outstanding contributions to science. In his new role, he should make many more.