George Leland Bach and the Rebirth of Graduate Management Education in the United States, 1945–1975

by Robert E. Gleeson and Steven Schlossman

George Leland Bach died of Parkinson's disease on September 29, 1994. The loss to management education was great, for Bach was one of its titans. Throughout his career, he was a leader in the development of management training as an endeavor that owes more to science than to practice. He was the founding dean of Carnegie Mellon University's Graduate School of Industrial Administration, and he later served as the Frank E. Buck Professor of Economics and Public Policy at Stanford University's Graduate School of Business. As the following article and reminiscences make clear, Bach's influence was universal in the field. We are pleased to remember him in this issue.

The Editors

Prior to World War Two, education for management at the graduate level was a minor part of the American university system. Only two of the nation's hundreds of colleges and universities supported schools devoted exclusively to graduate management education. Harvard Business School was founded in 1908; Stanford's Graduate School of Business Administration followed seventeen years later, in 1925. Graduate management programs at other colleges and universities were small add-ons to vocationally oriented undergraduate departments. Only several hundred master's degrees in business were awarded nationwide each year.[1]

Neither Harvard nor Stanford succeeded in creating a model of exclusively graduate management education that other universities emulated in the prewar era. Indeed, each school suffered from prolonged internal disputes regarding mission, lack of respect from elsewhere on campus, and general indifference from both students and prominent business leaders. Both programs remained "uncertain ventures" for a surprisingly long time.[2]

Between 1945 and 1975, the fortunes of graduate management education in American universities reversed dramatically. By 1975, virtually every substantial U.S. college and university had entered the field. Graduate business educators were generally held in high esteem by their academic colleagues, by leaders from all segments of America's political and economic elite, and, perhaps most of all, by prospective students who were eager to enroll.

Nothing preordained the rise of graduate management education in the postwar years. The turnaround was the result of sustained entrepreneurialism among a network of individuals, both inside and outside universities, who built the graduate business school industry. These entrepreneurs convinced principal segments of the American elite of the efficacy of efforts to improve corporate management through a combination of systematic professional education and basic social scientific research. Such efforts, the entrepreneurs intimated, would serve as a tonic for a wide variety of problems that plagued the country. These arguments attracted new stakeholders into the arena of graduate management education and brought unprecedented levels of financial support and social legitimacy to the enterprise.

Of several dozen individuals who played strategic roles in the transformation of graduate management education following World War Two, perhaps the most enduring figure was George Leland (Lee) Bach. The reminiscences that accompany this article were written by individuals who knew Bach best at different stages of his professional life. They reveal a career that was wide in scope, ambitious in scale, dynamically creative, and profoundly influential in shaping the form and substance of modern management education. In this article we sketch the broad outlines and character of Lee Bach's career, relying on a wide range of historical documents, interviews with former colleagues, and several extended interviews that we had the good fortune to conduct with Bach during the last three years of his life.

THE ONLY CHILD of J. Everett and Ethel Sies Bach, Lee Bach was born in the small town of Victor, Iowa, on April 28, 1915. Shortly after Lee's birth his parents moved to the nearby college town of Grinnell, where his father became head of the Grinnell Bank. The bank's principal customers were local farmers, and the bank's fate rose and fell with the turbulent fluctuations in the farm economy that preceded the Great Depression. The depression severely undermined Iowa's economy, and business at the Grinnell Bank was bleak during most of Lee's adolescent years.

Lee attended public school in Grinnell. His grades earned him a place in the National Honor Society, and he was a member of the high school tennis and golf teams, as well as the school band. Despite financial strains, Lee's parents wanted him to go on to college. Both had attended college, and Lee's father was a college graduate (Berea College in Berea, Kentucky). The least expensive choice was Grinnell College, since Lee could remain at home. He enrolled in fall 1932 and decided to major in economics.

The following March, the Grinnell Bank closed its doors to comply with President Roosevelt's "bank holiday" and, like thousands of other small banks, never reopened. Along with his parents, Lee moved in with his grandparents. He continued to live with them while completing college at Grinnell.

The personal financial hardships that Bach experienced while studying economics as an undergraduate profoundly affected his intellectual perspective on economic theory. As he pointedly recalled one economics lecture at Grinnell:

> The professor explain[ed] that, theoretically, there couldn't be a lasting depression in a competitive, capitalist-type economy. I looked out the window at a long line of unemployed men waiting to apply for one of the two WPA jobs the town government had managed to get. There must be a better way for either the economists or the "practical" men who ran the system, I thought.[3]

After graduating in 1936, Bach studied law for one year in Texas before giving it up to pursue advanced studies in economics in the prestigious doctoral program at the University of Chicago. Chicago introduced him to the intellectual world that would define his career.

Chicago's economics department placed primary emphasis on graduate education and faculty research, despite attempts by the university's dynamic president, Robert Hutchins, to raise the status of undergraduate education throughout the university during those years.[4] Students in the economics program were infused with the academic culture fostered by the department. They also developed a serious commitment to public service, one that perhaps could have come only from studying economics in the midst of the turbulent 1930s. The Great Depression presented a fundamental challenge to classical economics. Its breadth and persistence defied all theoretical explanations. The inability of classically trained economists to produce policies that would restore growth brought about a crisis in the profession that spawned several new schools of thought, the most influential of which was centered around the theories of the British economist John Maynard Keynes.

Keynes challenged orthodoxy by arguing that government fiscal policy could regulate aggregate demand sufficiently to overcome fluctuations in the business cycle and "solve" the problem of recurring cycles of boom and bust. Although Keynes's ideas were received skeptically by young, classically trained economists like Bach, none could deny the necessity of finding some avenue out of the social and economic chaos that seemed to be the root cause of mounting domestic and international tensions in the late 1930s. Orthodoxy itself was difficult to defend. New avenues of pragmatic economic research seemed essential for solving the social crisis and defusing the incendiary political climate that followed in its aftermath. In Bach's opinion, no factor was more corrosive to social stability than inflation — the topic to which he devoted his dissertation.[5]

In 1939, before he had finished his dissertation, Bach was hired to teach at Iowa State College by an influential rising economist, Theodore W. Schultz. Schultz became a lifelong mentor of Bach's. Bach earned his degree from Chicago the following year. He left Iowa State College in 1941, when Schultz helped him to secure a research position as special assistant to Menc Stephen Syzmczak, a member of the Board of Governors of the Federal Reserve. Bach rose quickly at the Federal Reserve. By the time the United States entered the war in December 1941, he was a senior economist. Between 1942 and 1945, Bach's economics training was put to the test as he coped with a wide variety of assignments related to the unique problems of money supply and banking during the gigantic buildup in war production. Immediately after the war, Bach helped Syzmczak to design policies for the postwar reconstruction of the Belgian economy. In 1946, at the youthful age of thirty-one, Bach was named principal economist in the U.S. Department of Commerce.

Unlike any generation of young economists before or since, Bach and his cohort experienced dizzying levels of control over the economy during the war. The unique vantage point afforded them by wartime authority made clear the chasm that separated university-based economics from the day-to-day realities of managing corporations and determining economic policies in government. Neither classical economics nor the provocative theories of Keynes offered much practical advice for economists who needed to administer wartime price controls, banking policies, investment plans, distribution systems, and production schedules.

Young economists like Bach came away from their wartime experiences determined to bridge the gap between theory and practice in the postwar era. They were inspired by the work of colleagues such as Robert Nathan, who had brought quantitative rigor to the national accounts and had led the masterminding of the so-called Victory Plan, which set the macro-level parameters for meeting wartime production goals. They were equally inspired by the new field of operations research, which brought the same kind of creative, quantitative rigor to more micro-level decision making. Quantification and mathematical precision were the common elements that fueled advances at both the micro and macro levels of analysis.

Those in the cohort of wartime economists were eager to expand the reach of quantitative analysis in their postwar research. The times called for bold but practical thinking. After all, in 1946, it had been at least seventeen years since the U.S. economy had enjoyed stable, peacetime growth.[5] The depression and war production had transformed virtually every sector of economic activity since the 1920s, and the potential for the economy to slide back into prolonged depression and social disarray seemed quite real. The stock of knowledge about how to prevent that — in both economics and business — seemed dangerously low. In addition, international tensions remained high after the war, as the United States and the Soviet Union quickly evolved from being wartime allies to Cold War adversaries. If war should break out again, it was argued, the United States would need to remobilize its economy almost overnight. Research was needed to determine how to do this better than it had been done between 1941 and 1944. As principal economist in the U.S. Commerce Department, Bach was well positioned to help shape the postwar research agenda among government economists. Yet Bach's career was to take an unexpected turn.

1946

In early 1946, Bach was contacted by Robert Doherty, president of the Carnegie Institute of Technology. Doherty and his provost, Elliot Dunlap Smith, were looking for an economist to restart Carnegie Tech's economics department, which had become dormant because of faculty departures during the war. Theodore Schultz had told them to contact Bach. Doherty had met Schultz during wartime service, and Smith had known him years before, when Smith headed the economics department at Yale.

Although Carnegie Tech was primarily an engineering school, Doherty and Smith wanted to hire a small group of top-notch social scientists to teach social science courses to engineering students.[6] Their goal was to reform engineering education by exposing students to more courses in the humanities and social sciences. By doing so, they hoped to prepare engineers to take on larger responsibilities in society and thus improve the status of engineering vis-à-vis other professions. Their reform agenda for engineering education became known as the Carnegie Plan. Some progress had been achieved in the late 1930s in implementing the plan, but Doherty wanted faster change in the postwar years.

Since Carnegie Tech's budget was very tight, Doherty and Smith decided to begin their strategy by first building an economics department. Bach accepted the new assignment on two conditions, both of which revealed his Chicago roots: first, he wanted leeway in choosing his own faculty; second, he wanted the university to commit to starting up a graduate program as soon as the budget allowed. Bach argued that he needed to attract active researchers in order to get the caliber of teaching Doherty and Smith wanted, and that active researchers needed a graduate program. Despite Doherty's and Smith's vision that the economics department would be a service bureau for the more liberal education of engineers, they agreed to Bach's conditions, and the deal was struck.

Cooper

Bach wasted no time in building his new department. He found his faculty members by mining two wartime networks. The first was his own set of contacts from wartime Washington, which he expanded after the war through his involvement in the work of the Commission on Organization of the Executive Branch of the Government (known as the Hoover Commission).[7] Among his first hires was William W. Cooper, whom Bach knew from Cooper's wartime assignments at the Bureau of the Budget. Cooper quickly became Bach's chief confidant.

I am probably the only one who can still do this, so I will write about how little G. L. Bach had to work with at the start and let others write about his subsequent contributions to management education.

In the summer of 1946, I was on leave from the University of Chicago to work as a consultant to the U.S. Bureau of the Budget (now the Office of Management and Budget). I chaired an interagency committee charged with reviewing the statistical systems developed by the government during World War Two. We were to provide policy guidelines that could be used to effect a rational transition to the kinds of systems that would be needed after the war.

When I first met Lee, he was involved in a related activity, reviewing the statistics programs of the Federal Reserve System. Upon his accepting the chairmanship of the Department of Economics at Carnegie Institute of Technology, Bach recruited Evsey Domar, Melvin Reder, John Crawford, and me. He recruited us in part because he could do so quickly — we were all in Washington on similar assignments — so that he would be able to effect the start he wanted to make at Carnegie in the coming fall.

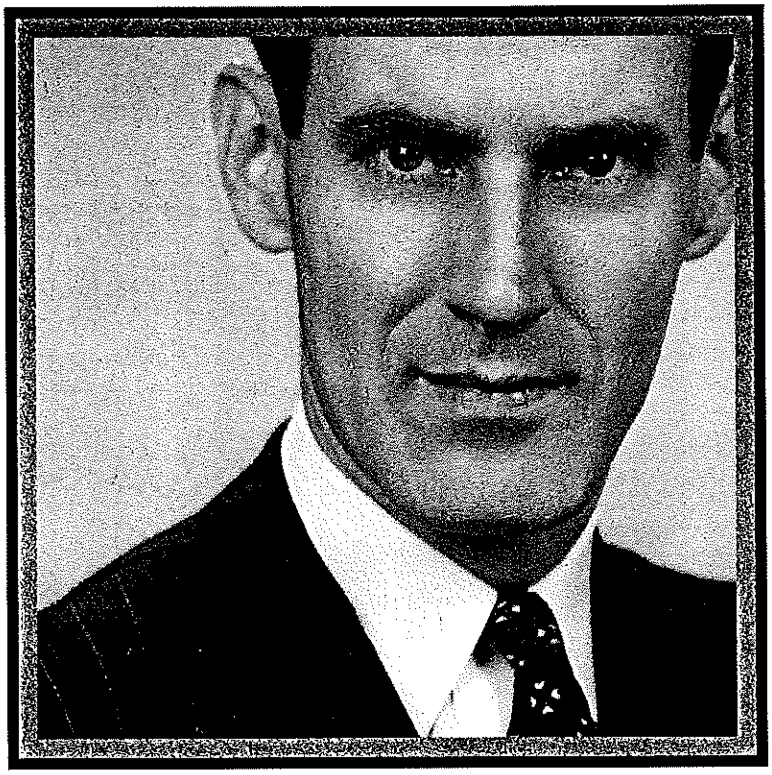
My wife, Ruth, and I took an overnight train from Chicago to Pittsburgh. When we arrived, I drew back the blinds in our roomette and was surprised to find that it was still dark, although we were scheduled for a morning arrival. As we descended from our Pullman car, my surprise gave way to dismay when I learned that the source of this darkness was Pittsburgh-type smog. I was further dismayed when our taxi took us to a remodeled attic, when we had believed we had rented an apartment that had been described to us in glowing terms from a distance in Chicago. I promised Ruth that I would find another post and have us out of there in a year, at most. (Thirty years later, we both regretted leaving Pittsburgh.)

The situation at the school was similarly dismaying. The entire faculty in residence in the Department of Economics consisted of one professor of accounting, and the library was virtually nonexistent. Not one of the standard economics journals had ever been subscribed to, and the other library references consisted of a few battered and obsolete textbooks.

Fortunately, Bob Doherty, the president, and Elliott Dunlap Smith, the provost, proved responsive to Lee's requests that he be allowed to recruit Bert Hoselitz from the University of Chicago and charge him with the duty of building a library as rapidly as possible to serve our research as well as our teaching needs. These needs all expanded when Lee was asked to take over the Department of Industrial Engineering, which had also been allowed to run down during the war. As part of this "takeover," Lee asked me to look into the IE curriculum, which ranged from training in method-time-motion studies to some introductory engineering and some management. The latter included one and a half years of accounting and a half year of statistics, and this was where my attention was to be directed. The personnel selection and other management parts of the curriculum were taken over by the provost, who broadened them into a "human relations in organizations" approach to management.

After completing my review (including extended discussions with Lee Bach and Provost Smith), I wrote a memorandum recommending that accounting and statistics be combined into one two-year course to be called "Quantitative Controls in Business." Accounting and statistics could then also be combined with such other topics as statistical quality control and acceptance sampling. Although not customarily included in academic courses in management, and not to be found in texts on accounting or statistics, these topics could be included in this kind of course in ways (and with materials) that I had learned about while sharing an office with W. Edwards Deming at the Budget Bureau during the war.

Fortuitously, but also fortunately, these revisions had other consequences. Putting these ideas together with others (such as the provost's reorientation of the program in personnel management), Bach and President Doherty used them as a basis for the negotiations with William Larimer Mellon which led to the founding of the Graduate School of Industrial Administration, with G. L. Bach as its first dean. In retrospect, this ground-zero beginning was not all bad, in that it provided challenges and opportunities that helped to initiate the spirit of innovation and flexible responses that subsequently became the hallmark of this school under the leadership of Bach and his successors, with the resulting worldwide impacts on management education.



1949

Cooper brought ties to the second network: the wartime Cowles Commission for Research in Economics.[8] What Bach brought in vision regarding how quantification could help revolutionize economics, Cooper brought in methods to help realize that vision. Cooper's commitment to quantification ran deep. Indeed, he had not been awarded his doctorate in economics from Columbia because the dissertation committee could not agree on whether his method of using linear programming fit within the accepted boundaries of the discipline. Rather than make the changes suggested by the committee, Cooper chose to let time be his judge.[9]

Between 1946 and 1949, Bach's entrepreneurial spirit and his shrewd use of wartime contacts allowed him to build one of the nation's most innovative economics faculties from the ground up. With Doherty and Smith as his venture-capital investors, Bach assembled a team of young economists who shared his perspective that progress in economic research depended on moving analysis — both micro and macro — in the direction of more quantification and greater mathematical precision. Of his fifteen faculty hires, ten had had experience with government policy-making during the war. Among the agencies represented were the Federal Reserve, the War Production Board, the Office of Price Administration, the Bureau of the Budget, the National War Labor Board, the Office of the Secretary of War, and the Foreign Economic Administration. Of the five faculty hires who did not have federal government experience, one had been at the National Bureau of Economic Research, and two had had foreign government experience. The remaining two had been too young for such experiences during wartime.

Like an ad hoc wartime agency, Carnegie Tech's economics department could not offer its employees prestige, high pay, comfortable working conditions, or career security. But under Bach's direction, it did offer a creative intellectual environment, free from the skeptical oversight of older, more traditional colleagues who were wary of quantification. And it offered intellectual equity — that is, the opportunity to help revolutionize the discipline. As Bach recalled years later,

> I was young, smart, and brash. I was going to build the best economics department in the country from scratch. When I arrived at Carnegie, there was nothing going on at all outside of science and engineering. . . . The economics faculty began publishing a lot. We worked long hours and (sometimes) neglected our families. It was a hardball place.[10]

While Bach was assembling his economics department, however, he found himself drawn away from the field of economics toward the broader field of management education. He was pulled in this direction by two forces that eventually combined to give him an extraordinary vision for reforming management education.

The first force came from within Carnegie Tech. Doherty and Smith involved Bach in restructuring the school's undergraduate business curriculum.[11] Doherty wanted to revitalize the undergraduate department of management engineering, which had always suffered from low status in comparison with other engineering departments. The department had been closed during the war because its students did not qualify for draft deferment, and it remained in disarray between 1945 and 1948. The school of engineering was reluctant to revitalize the department, since it had traditionally attracted students with lower grades.

But Doherty refused to abandon the notion of teaching management to undergraduate engineers. So, in 1948, he transferred principal responsibility for the undergraduate program to Bach's group of economists. Always the entrepreneur, Bach accepted the task, since it gave him additional resources to use creatively. For example, the administrative responsibilities brought with them the benefit of one additional faculty slot. Bach and Cooper were able to add Herbert Simon to their group by bringing him in as the director of the undergraduate business program.

The second force pulling Bach toward management education came from outside Carnegie Tech. In 1948, the trustees of the Ford Foundation — including Henry Ford II, MIT's president Karl Compton, and Donald David, dean of Harvard Business School — hired H. Rowan Gaither to organize an intensive study to guide future Ford Foundation philanthropy.[12] Gaither was a key figure in a series of efforts to bring knowledge to bear to address problems facing the nation. He had just finished organizing the RAND Corporation (he chaired its board), and during the war he had been assistant director of MIT's famous Radiation Laboratory.

At the time Gaither was hired, the Ford Foundation was making only modest grants, since the bulk of its income went toward paying off debts incurred to settle inheritance taxes from the estates of Henry and Edsel Ford. In addition, all of its assets were invested in Ford Motor Company stock, and the erratic financial performance of the auto company made income projections uncertain. But the trustees expected that both problems would soon end, and when they did, the Ford Foundation would emerge as the single largest source of philanthropy in the nation.[13]

Gaither's study was organized around a set of working groups, each of which held a series of advisory meetings around the country. Prominent individuals from business, politics, government, academia, labor, and the military were invited to each meeting. Attendees were asked to define the principal problems facing American society and to suggest ways that the foundation could contribute to solving them. The theme that dominated most meetings was U.S. national security. Bach's former mentor, Theodore Schultz, was one of four members of the social sciences group, and consequently Bach was enlisted to help organize that working group's advisory meetings.

Bach's introduction to the powerful network of advisors who swirled around Gaither's study expanded his own wartime contacts to include many more senior leaders. The study process shaped his thinking profoundly. One of the persistent themes that emerged from these meetings was that the Ford Foundation could contribute to enhancing U.S. national security by improving the managerial capacities of both private firms and public agencies.

In December 1950, during the height of war mobilization in Korea, Gaither summarized the collective wisdom of the advisory groups in a memo to Ford Foundation president Paul Hoffman.

> The fundamental elements of the ideological appeal and the international propaganda attack of communism are economic. Communism proposes to grant a better standard of living for the mass of the people and asserts the exploitation of the working man by capitalists; it claims that the capitalistic and imperialistic United States plans to exploit the weaker nations.[14]

Gaither argued that better management [illegible] society — both private and public — was the [illegible] way to beat the fundamental challenge of commu[illegible] he wrote to Hoffman,

> If we are to achieve a better realization of de[illegible]goals within the United States and for the peoples of the world, our domestic economy must stand as an example before th[illegible] world as a strong and growing economy characterized by hi[illegible] output, the highest possible level of constructive employment, and a minimum of destructive instability.[15]

Gaither's memo reflected the growing consensus among American political and economic leaders that the economic, military, and ideological challenges posed by communism required quantum improvements in A[illegible] management capabilities. It also reflected the widel[illegible] optimism that dramatic improvements were possibl[illegible] both the short and long terms, if the power of scientific methods could be applied systematically to management. In Gaither's own words,

> Pressing day-to-day economic problems during the period of mobilization must be solved by the most effective use of available economic knowledge and with the long-run foundations for economic freedom and strength clearly in mind. Although we cannot wait for additional validated economic theory before we must act, a substantial flow of additions to the storehouse of verified economic knowledge should be encouraged. Any new knowledge should, of course, be made available for use promptly....
>
> The Study Committee took the position that success in the complex realm of economic affairs may come if we accept the fact that we are living in a period of conflict and change so fundamental in character that only experimental and unorthodox thinking will be equal to the task. It recognized the extensive work now being done in the economic area, particularly in applied research directed toward limited and very specific problems. Accordingly, it recommended strongly foundation support (a) of efforts to validate economic theory, which has all too often been allowed to remain in the realm of speculation, and (b) of efforts to promote more effective use in practice of verified knowledge.
>
> If our policy-makers — both government and private — are to be forced to make economic decisions of crucial import to the country and to the world, if indeed they are to assume the role of world leadership in economic affairs, they must surely have and use the best available knowledge.[16]

Simon

T[illegible]e Ford Foundation advisory meetings, as summarized [illegible] Gaither, confirmed to Bach that his faculty's taste for [illegible]olutionizing economics by making it more quantitative [illegible] scientific had many admirers — and potential financial [illegible]porters — among key segments of America's political, [illegible]lanthropic, business, and military elite. The key to [illegible]ning credibility within these circles was to build a bridge [illegible]ween the research aspirations of the faculty and the [illegible]ds of private and public managers in the context of [illegible]ed concern about American security during the [illegible]r.

[illegible] two forces pulling Bach toward management education combined into one in January 1949, when Doherty announced that William Larimer Mellon — a member of Pittsburgh's powerful Mellon family and the principal entrepreneur behind the success of Gulf Oil — had agreed to give Carnegie Tech $6 million to endow a new school of industrial administration. Mellon shared Doherty's conviction that engineers made the best managers, and he agreed that Doherty's Carnegie Plan could serve as the basis for a better approach to educating engineers to become managers. Doherty envisioned a five-year course of study leading to a bachelor's degree in engineering and a master's degree in industrial administration. He assigned the task of designing the new school to a committee cochaired by Bach and Smith. Soon afterward, Bach agreed to merge his economics department into the new school, and he became its first dean.[17]

Throughout 1949 and 1950, Bach tried to reconcile two distinctly different visions that competed for control of Carnegie Tech's School of Industrial Administration. On the one hand were Doherty and Smith. To them, the school was an integral part of Carnegie Tech's new approach to engineering education. They valued its educational programs above all else, and they expected the school's students to be its greatest product.

On the other hand was the economics faculty, led by William Cooper and Herbert Simon.[18] To them, the mission of the new school lay mainly in its research output. Although neither Cooper nor Simon wished to downplay the importance of teaching, and each carried what today would be considered a heavy teaching load, their vision placed primary importance on the school's scientific contributions to knowledge. Cooper and Simon were confident that their research into new quantitative methods for modeling and prescribing how people make decisions would render obsolete all traditional intellectual bases for business education. The school's curriculum could not be its immediate or central task, in their view, since all business curricula that existed at the time would need to change radically as their research progressed. Research was their fundamental engine of progress.

Lee Bach arrived at the Carnegie Institute of Technology in Pittsburgh in the autumn of 1946. He was to serve as head of a small economics department that mainly taught service courses in economics to prospective engineers and scientists, but that also directed a program in industrial management (aka industrial engineering). W. W. (Bill) Cooper arrived the same year, hired, I believe, by Lee. Together with their colleagues — especially Provost Elliott Dunlap Smith and a young engineer named Edward Schatz — they revamped the IM curriculum into an innovative program that integrated both engineering and social science knowledge and skills.

The new program was called to the attention of William Larimer Mellon, who represented one branch of Pittsburgh's powerful Mellon family and who had founded the Gulf Oil Company. Mellon felt strongly that there was a need for industrial executives who understood, on the one hand, business and economics, and on the other, the science and technology that underlie modern industry. Discussions of the common interest in meeting this need led Mellon to endow a Graduate School of Industrial Administration at Carnegie Tech. Its main function would be to offer a master's degree (essentially an MBA) to students who had already completed a BS in science or engineering. The new school opened its doors in 1949, the year I came to Pittsburgh to head up its managerial and organizational segment. Lee, at thirty-four, became the dean.

Under Lee's leadership, within five or six years GSIA had become one of the nation's most visible and admired business schools. In particular, it was leading American business education into wholly new territory that incorporated a formidable component of basic social science knowledge and quantitative (operations research and management science) skills. The school's spectacular rise was not solely a product of its own labors, as it soon became the model for several national efforts (of the Ford Foundation and the Carnegie Corporation) to reform business education. Most importantly, it resonated with the appearance of operations research on the postwar corporate scene and, early in the fifties, with the arrival of the computer. It thrived, as successful revolutions do, because it was in tune with the *zeitgeist*. And, of course, the prior science and engineering training of its students had prepared them for its rigorous and quantitative curriculum.

Now, Lee Bach was an economist, and a very good one, but by no stretch of the imagination could he be called a mathematical economist of the kind that now so dominates the profession. His main tool of reasoning was the English language, used precisely and insightfully. His economics textbook, for many years one of the most widely adopted, was sparing in its use of equations. It is ironic that Lee should have led business education into the new era of quantitative tools. Nor was he unambivalent about the direction, and occasional immoderation, of this movement. How, then, did he maintain a firm and sobering hand on the developing new school (sometimes cooling the ardor of faculty members who were overfascinated by the new mathematics)? How did he keep the business school fully attached to the real world of business firms and economic affairs, a world operated mostly by persons even more innocent of mathematics than Lee could claim to be?

One important part of the answer, I have always believed, lies in the postgraduate year Lee spent at the University of Texas Law School, deciding that he didn't want to be a lawyer but at the same time acquiring skills in rigorous reasoning and, especially, in cross-examination. At the luncheon table in the faculty club or in any other serious social exchange, Lee vigorously put these skills to work. He believed that anything technical, if understood by the person propounding it, could be put into plain language. He was simply not bowled over (one of his favorite phrases) by fancy language or mathematical pyrotechnics, and he used his cross-examining abilities to extract plain-language explanations from those he dealt with.

Lee insisted not only on understandability, but also on relevance. It was not enough that a theorem have mathematical beauty; it should also say something interesting and important. As a result of his skill and no-nonsense attitude, the mathematically adept were never able to weave a cloak of mystery about their trade that would keep them immune from challenge and evaluation.

I do not wish to propose a one-factor theory of deanship, for there were many other dimensions to Lee's leadership style. But in a highly specialized world where each specialist is well armed to defend his or her fiefdom, the ability to penetrate the castle walls is an indispensable executive tool (and one, alas, that is not widely shared). So, in my memories of Lee, he is most vividly present when he is sitting quietly but alertly at the luncheon table, absorbing the argument or proposal or explanation that is being put to him, and waiting for the right occasion to ask the next incisive "Why?" When he begins interrogating his companion, I hear his speech take on (or do I imagine it?) a slight Texas-lawyerly drawl.

Lee Bach's influence extended far beyond the faculty of GSIA, or even of business school faculties generally. It was also exercised in the classroom, where many students, as they later testified, experienced the thought-awakening impact of that cross-examining style. His influence was exercised, too, in his lifelong devotion to the improvement of economics education at both the secondary and college levels. In that domain, as evidenced by his textbook, he was never seduced by the high-church formalism and unworldly abstraction of much contemporary economics.

I can only wish that I could have persuaded Lee to break even further from mainstream orthodoxy. He was fully aware that human rationality operates within narrow limits, and that life is quite different from a continual game of optimizing utilities. But, like many other leading economists, he found the sharp tools of neoclassical analysis too powerful and useful to be given up easily. Though he was strongly supportive of the behavioral theory of the firm and of the boundedness of human rationality, he was not "bowled over" by arguments that these still budding and inchoate developments in economics were ready to supplant the older theory.

Hence, the task of bringing the new developments to the level where they can accomplish that transition remains for the next generation of economics researchers and educators. Although Lee Bach did not enter this promised land during his lifetime, through his leadership at GSIA he brought us to its shores.

The two visions became more and more difficult for Bach to reconcile as important decisions regarding faculty hiring, student selection, curricular development, and class size needed to be made. Even the school's name became contentious. Doherty insisted on calling it the School of Industrial Administration; he had refused to use the word *graduate* in its title, since he wanted the undergraduate program to enjoy equal, if not superior, status. Bach, however, insisted on inserting that word into all school-related documents, despite Doherty's obvious annoyance.

Perhaps more than anyone else, Bach saw the tremendous opportunity that could come from blending together a Chicago-style academic department — with its emphasis on advanced graduate training and faculty research — and a practically oriented professional school of management. Such a school would respond directly to the nation's needs as defined by Gaither: tackling the political challenges of the Cold War by creating a new social science of administration, and applying that science directly to vital problems of public and private management. The clarity of Bach's vision emboldened him; he spent less and less time arbitrating between the two visions, and more time advocating his faculty's point of view.

Despite the ongoing struggle over (G)SIA's soul in 1949–1950, two unexpected deaths in 1950 ended the debate within Carnegie Tech. The first was that of William Larimer Mellon. Even though Mellon had remained silent during the school's first, experimental year, he had always held the potential to intervene. That potential weighed heavily on the Bach-Cooper-Simon camp, since Mellon had given his money to Doherty and Smith, not to them.

The second unexpected death was more directly consequential. Robert Doherty retired as president of Carnegie Tech in May 1950, and he died shortly thereafter. Although Doherty's death was deeply felt by all parties, it did clear the way for greater school autonomy from the central administration. Carnegie Tech's new president, John C. (Jake) Warner — a physical chemist who had worked on the Manhattan Project — was more than willing to grant Bach and his colleagues a great deal of latitude in the school's affairs. From 1950 on, no one ever doubted GSIA's core commitment to research. Warner kept Smith on as provost, but without Doherty's backing, Smith's power was limited.

BACH'S ENTREPRENEURIAL SKILLS showed results quickly once the struggle for control was over. He had already succeeded in attracting an eclectic but talented group of social scientists to the economics department. Within a few years, he used the additional resources of GSIA to parlay that group into one of the most powerful groups of quantitative and mathematically oriented social scientists in the country. Along with Cooper and Simon, the GSIA stars included Franco Modigliani, Jack Muth (who had been trained in the school's doctoral program), James March, Merten Miller, Charles Holt, Harold Guetzkow, Allan Newell, Richard Cyert, Harold Leavitt, and George Kozmetsky, among many others.

As manager of a high-powered research organization, Lee Bach stood toe-to-toe with the best of his peers within government circles, academia, the not-for-profit think tanks, and the private sector. But GSIA was more than the research aspirations of its faculty, and Bach was much more than its day-to-day manager.

Under Bach's direction, GSIA sought legitimacy across the broad array of activities normally associated with graduate-level, professional education. His devotion to sponsoring trailbreaking social science research gave the school a level of respect within academic circles that had generally eluded graduate business schools prior to GSIA's founding. But that alone did not satisfy Bach's larger vision for the school. Perhaps driven by the ethos of public service that had been fostered in him by his graduate school and wartime experiences, Bach wanted GSIA's research to be used, not just published. More ambitiously still, he wanted GSIA to serve as a model for the rebirth of American business education that other universities could emulate.

One way to put the research to immediate use was to integrate it into the school's educational programs. Despite the reign of research, Bach sponsored a full array of educational programs at GSIA, including undergraduate business education, master's education, a doctoral program, and, eventually, even executive-education programs. The curriculum at each instructional level incorporated as much new research content as its target audience was considered capable of digesting. Executive education, for example, received the most watered-down version. Bach was careful to shield participants in the school's executive-education programs from all but the most eloquent professors, who were capable of boiling their research down into plain, simple language. And, when he could not find eloquence locally, Bach never hesitated to hire experienced teachers from other schools to transmit what became known as "the Carnegie line" to executive students. Doctoral students, on the other hand, were trained as apprentices on active research projects, where they either thrived or died on the vine at the hands of the school's most ardent researchers. Undergraduates and master's students experienced a mixture of both.

Another way to encourage the applicability of GSIA's research to real-world problems was to generate research contracts with businesses and government agencies. The incentives for GSIA to seek this kind of legitimacy with outside funders were originally thought to be quite small, since the school's endowment was very generous. But not even Bach anticipated the drain on cash that would come from the faculty's research ambitions and his hiring plans. In addition, a key commitment that Carnegie Tech had made to William Larimer Mellon was to construct a new building for the school. The promise of a new building was also key in selling the advantages of the new school to the rest of Carnegie Tech's faculty. A new building meant more space for everyone on a campus that was already very crowded.

A financial crisis hit the school in late 1950, when it was learned that the new building would cost almost twice its original $1 million budget to construct, equip, and furnish. A prominent corner on the edge of campus had been chosen for the new building, which was to be brick and had been designed in a sleek, modern style, with clean lines and a utilitarian appearance. The new building would contrast sharply with Carnegie Tech's ornate older buildings, designed by Henry Hornbostle. The no-nonsense, efficient character of the new GSIA structure was the physical expression of the "New Look" that GSIA was bringing to the content of American management education, and Bach displayed it proudly on the school's stationery and all school-related publications.

Regardless of the building's cost, Bach was determined not to be sidetracked. He simply refused to slow the pace of faculty hiring or research expenditures. Some corners were cut, such as eliminating an elevator and postponing the installation of air-conditioning. But in the end, Bach convinced Warner to lend GSIA extra money from the university's general endowment, to be paid back from GSIA's future stream of income from Mellon's endowment. Although the short-term crisis was solved, Bach and his senior faculty clearly understood that further growth would depend heavily on the finding of new sources of money from outside the school. In two short years they had outgrown Mellon's generosity.

Despite the financial stress, Bach was delighted. At least he knew the incentives would encourage GSIA to achieve his goals. As he recalled years later,

> So few faculty really wanted to do research on administrative problems. I needed real intellectuals, and I never had more than a few at one time. Good men were rare. I spent much of my time just looking for good men. Most kept within their disciplines. But real intellectuals would go beyond their training and work on administration. . . . Research contracts were helpful, because no matter what field a man came from, he had to work with others on particular problems.[19]

The contract research conducted by GSIA in the early 1950s did more than improve the school's cash flow and encourage faculty members to work together on interdisciplinary teams. In many ways, GSIA's ability to win research contracts, as well as the nature of the contracts it won, sent powerful signals throughout higher education — and, more importantly, throughout the business community — that GSIA was an up-and-coming school with national credibility and status. Bach understood the market for GSIA's New Look style of quantitative research better than anyone else. The principal market was the same network of political, business, philanthropic, and military elites that saw the strategic value for national security of radically transforming public and private managerial methods.

Bach did not seek credibility for GSIA among typical businessmen of his day. Indeed, when GSIA's building was ready for dedication in 1952, he had to scramble at the last minute to organize a business advisory group before he could invite businessmen to speak at its dedication. In 1951 Bach wrote, "American management will be highly skeptical of basic research in this field [management] for many years, just as it was skeptical of the usefulness of early research in the basic physical sciences."[20] The economist in Bach preferred to see management research as a kind of public good, just like national security itself. And, just as with other public goods, society could not afford to rely on businesses to produce a sufficient quantity of management research. Bach used the political and military tensions of his day to make this point ever more forcefully. As he wrote in 1951,

> In a mobilizing economy, rapid development of more effective production and general management is at a special premium. In such an economy the case for extensive basic research in the entire area of management responsibilities is doubled. Industry itself can be counted on to do something, especially in the application of research findings. But the whole idea of research in administration is far behind the now accepted ideas of industrial research in chemistry, physics, engineering, and related areas. As in the development of the physical sciences and engineering, educational institutions probably must take the lead in original basic research in the area of management, especially since much of this research will inevitably appear slow and impractical — even "long haired." Moreover, many findings may well be disruptive for long-established patterns of business operations and the men who stand for them.[21]

THE MOST OBVIOUS SOURCE of funds for GSIA's research expansion was the Ford Foundation. After all, in some ways GSIA was custom designed according to the specifications discussed in the Gaither study. But Henry Ford II unexpectedly chose Paul Hoffman to run the foundation in 1950, and Hoffman, who had directed the Marshall Plan in Europe, gave most of his attention to overseas initiatives. Hoffman hired former University of Chicago president Robert Maynard Hutchins to run the foundation's domestic programs, which gave Hutchins authority over potential philanthropy in management education. Hutchins commissioned a study that reflected his own skeptical approach to research. That study's author, MIT economics professor Richard Bissell, summarized his conclusions as follows:

> As I have tried to put my own ideas in order, I have become more rather than less skeptical of the possibility of devising a program in this area that will be worth its cost. I hope you and your associates will find time to give some real consideration to the very great difficulty of exercising any real influence on public and private decisions concerning economic matters. . . . It is tempting to believe that some useful research, pulling together of the facts, and skillful analysis of them will move the world ahead. And there is a strong case to be made for supporting research in order to add to the sum of human knowledge. But this is not the way to influence action. If we are interested in action, then I am opposed to writing, financing, or having anything to do with any more reports unless and until I can see some chance that the reports will be acted upon.[22]

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I first met Lee Bach in 1953, when I joined the faculty of the Carnegie Tech Graduate School of Industrial Administration, fresh from a PhD and a post-doctoral fellowship. I was twenty-five years old, and Lee — then approaching forty — was the dean. He was midwestern friendly, which is different from California friendly, but I didn't know the difference then, having grown up in Wisconsin and not yet having experienced the West. I just thought he was friendly — in a somewhat terrifying way, a bit like an older brother who is also an archbishop (or a Lutheran minister, which is about the same). He was austere, powerful, and formal, not given to excessive words or unnecessary displays.

Although I never worked with him closely, either as an administrator or as a faculty member, I have been a witness to (and a beneficiary of) what Lee Bach did for education generally and for Carnegie and Stanford particularly. My most vivid memories come from the minor, everyday events of an academic life and friendship that we shared, rather than from Lee's long list of accomplishments. They are events that hardly do justice to his eminence but may perhaps illustrate his style and his beliefs in the minor ways that mark a man.

Lee believed in the academic endeavor, even when he found the behavior of its denizens bizarre — as he frequently did. Early in my years at GSIA, I decided to run some experiments on group decision making. For reasons that have become mercifully elusive, I thought that a good experimental situation would be one in which male Carnegie Tech undergraduates ranked the head-and-shoulders photographs of a set of anonymous human females in terms of physical attractiveness. I secured the photos and permission to use them from a local modeling agency and submitted the bill to the proper authorities. When Lee got the bill, he asked me for an explanation. I don't recall that he said much of anything in response, even while indicating rather clearly that he thought I was completely wacky; but he authorized the payment.

Lee believed in civilized discourse, even in the presence of strong feelings. I once disagreed with a decision that he had made at GSIA. I wrote him a note about it. I don't remember the details of my note, but I'm sure it reflected an exuberant overdose of self-important intemperance. Lee called me. He said he could understand how I might disagree with him, particularly since I didn't really know the facts, but he didn't much appreciate the language of outrage that I had adopted. I don't remember the exact term he used to refer to my verbiage. It was somewhere between *hyperbole* and *bullshit*, perhaps closer to the former than the latter, but I knew what he meant. He didn't make a big deal of it, but he managed to communicate a preference for J. S. Mill over Thomas Paine. He didn't change his decision.

Lee believed in self-control in the face of surprises. One day at Carnegie Tech, he opened the door to my office without warning (or perhaps the warning was not heard), inviting a visitor to see a typical junior faculty office. The visitor got a bonus — not just a typical office, but a typical faculty member, sound asleep. As anyone who knew him can attest, Lee was dedicated to propriety and would never have thought of embarrassing me. He apologized to me for the intrusion. But he did not apologize to the visitor for my indolence. With the aplomb of a man who was rarely disconcerted, he started talking to him about my research.

Lee believed in honest assessments, straight talk, and decisive action. After we both left Carnegie Tech in the mid-1960s, I didn't see much of him until I was considering coming to Stanford in 1970. I had been offered an appointment at the university and had been invited to meet a number of the faculty, who had perhaps been chosen more for their seniority than for their vigor. The day after my visit to the campus, Lee called me at my home. He said he had just seen a list of people with whom I had met. He said he didn't think they were representative of what I could find at Stanford, and he told me in plain words why. He proposed that I return for another visit, saying he would organize an evening with a different set of colleagues. I did, and he did. It was a much appreciated act by a perceptive man with a passion for quality, an ability to make hard-nosed judgments, and a genius for timely intervention.

The events I've recalled here have no significance, but the stories have a point. Lee Bach looked and acted in many ways more like a banker than a professor, but his dedication to education and the academic enterprise was unconditional. He was committed to the integrity, independence, and effectiveness of the university. He saw academic appointments not as jobs but as callings, a vision from an Iowa heritage. In pursuing his own calling, he was driven by a consciousness of self, an exceptional taste for excellence, a dour optimism about the possibilities, and an exquisite sense of how academic institutions function. Operating with few words and great reserve, he contributed enormously not only to graduate education in business but also to the enduring meaning of academic life and to the splendor of the university.

1952

With [illegible] research during [illegible]'s tenure at the Ford [illegible]ation, Bach, C[illegible] and Si[illegible] found other patr[illegible] their work. T[illegible] was the [illegible] Air Force, which [illegible] a multiyea[illegible] beginning [illegible] 1950 entitled "[illegible]m Planning [illegible]havior." T[illegible] study dealt wi[illegible] application of [illegible]alytical [illegible] and technique[illegible]duction plannin[illegible] control [illegible] individual fir[illegible] and with the whole process [illegible]age-rial co[illegible]behavior."[23]

The second major contract came the sa[illegible]. This one was from the Controllership Founda[illegible] a study entitled "Centralization vs. Decentr[illegible]on of Accounting and Control Functions in Business." Cooper took the lead on the air force project, and Simon took the lead on the Controllership Foundation project.

The subject of each study revealed the ties that bound GSIA's research to national security concerns during the Cold War. The air force, for example, sought to devise new, fundamental methods for coordinating the complex web of subcontractors required to build modern aircraft. The Controllership Foundation's focus on the question of whether adequate central control could be maintained after decentralizing operations sought an answer to the most important strategic choice confronting defense planners at the time. The inefficiencies of World War Two–style, centralized war-production bureaucracies were legendary, but mobilization planners in the early 1950s were deeply divided on whether adequate controls could be maintained in a decentralized approach. The audience for GSIA's analysis of this debate went far beyond the private foundation that had agreed to sponsor the project.

Between 1950 and 1955, during which time GSIA established itself at the forefront of American management education research, virtually all of the school's outside research funds came from projects that targeted management issues holding strategic importance for national security. Among those who joined the air force and the Controllership Foundation in providing funds was the Office of Naval Research, Westinghouse Air Brake Company, and the accounting firm of Touche, Niven, Bailey and Smart.

The success of GSIA in cultivating financial support for research relating to national security gave the school almost instant credibility and status among elite business leaders, especially those whose businesses were intricately entwined with the production of goods for the nation's defense. As companies in the aircraft industry, for example, began to notice that their chief customer — the U.S. Air Force — was taking advice from "long-haired" researchers at GSIA on how to manage its contractors, they naturally began looking at business professors with greater respect than ever before. Even though the business school faculty never exercised direct authority over anything beyond their own and their students' affairs, their ability to position themselves [illegible] those charg[illegible]e awesome responsibili[illegible] security d[illegible] War allowed th[illegible]m to bask in the refle[illegible]on of po[illegible].

No[illegible]e at GSIA was better at this than [illegible]ch himself. Be[illegible] of another unexpected turn of [illegible]s, the prime [illegible] power with which Bach [illegible] to associate himself [illegible]d-1950s was the Fo[illegible]oundation. The Hoffman e[illegible]d came to [illegible], when the trustees [illegible]d him as [illegible]dation with their lo[illegible]e advisor H. Rowan Gaither. Gaither's return to po[illegible]rought back his network of earlier advi-[illegible] whom had been shut out during the Hoffman era. Management education was only one of many earlier initiatives that had been dormant during the Hoffman years and Gaither went about energizing most of them. Thomas Carroll, then dean of the School of Business at the University of North Carolina and previously assistant dean at Harvard Business School, was hired to direct the area that included management education. Carroll assembled a team of advisors, chaired by the distinguished economist and former Columbia business school dean Robert Calkins, who at that time headed the Brookings Institution. Lee Bach was included on the list of advisors.[24]

Bach quickly emerged as the most influential member of Carroll's advisory panel, and he used that position to advance the cause of GSIA's style of management education within the Ford Foundation. Bach's influence on management education thinking at Ford was second only to that of Ford's long-time advisor and trustee Donald David, then dean of Harvard Business School. The initial benefit to Carnegie Tech of Bach's growing influence at Ford was that the foundation was convinced to finance the last remaining piece of his vision for GSIA: the doctoral program. Until then, doctoral students had been financed haphazardly through meager internal resources and research contracts (with the students serving as research assistants). But research contractors were hesitant to support doctoral students, and even though Bach liked using the discipline of contract research to compel his faculty to work collaboratively to solve complex administrative problems, he wanted more leeway in training future researchers. Because of Bach's influence at Ford, GSIA's request for doctoral funding was granted without much hesitation.

By 1954, all of the administrative pieces were in place to fulfill Bach's original vision of blending a Chicago-style, research-oriented department with a professional school of management. He had assembled stars from several social science disciplines and nurtured an intellectual environment that encouraged collaboration by making quantification and mathematics the common language of discourse. He had persuaded the faculty to work together on interdisciplinary teams and, through contracting, had even created a few incentives for them to do so. He had created diverse curricula at different levels of sophistication in order to transfer innovative research findings to various professional

As a beginning student in Lee Bach's new master's program at Carnegie, I hoped to ace his course. I had already been led through his *Economic Analysis and Public Policy* by a master lecturer. Bach's opening question to us seemed simple: "What is inflation?"

That question, and the fusillade of nested queries that followed, slid by us like pitches from Sandy Koufax. Bach retired the side on strikeouts before the end of the first class. Forty years later, all of us remember the rout and are grateful for what it taught us.

Lee threw questions at students to spur them to learn. But he asked questions of everyone in sight so that *he* could learn. Charged with creating a new graduate school from scratch, he spent a year asking both business leaders and observers and critics of business what made sense. He pushed beyond their initial answers to get them to sort out what would be important for the future. From the responses to his cascades of queries, he framed his remarkable blueprint for GSIA — a blend of academic and practical content, a design that cut to fundamentals and to the importance of building into graduates the capacity to continue to change and learn.

Bach asked questions not only to calibrate the needs of business, but also to get on top of the many fields beyond economics that he felt belonged in the research and teaching portfolio of a graduate school. When I joined the GSIA faculty in 1956 as an assistant professor of management, I found that Bach's questioning had followed me from my student days. In faculty seminars, whatever the discipline, Lee probed in order to fully understand what the speaker had to offer and how it related to other things Lee knew were important. At a time when benchmarking was an unheralded concept, Bach kept asking for measures on the career progress of graduates and for comparisons with other programs. He wanted the faculty to be involved with him in measuring early results and deciding how the school could be improved.

Bach also asked questions in order to judge. He queried young faculty about their work in ways that made them simultaneously despair of prospects for tenure and understand that his eventual decision would be informed and fair. The way he dug into corner-cutting and lapses in integrity taught deeper lessons about quality and ethics than any full courses could have.

For those of us who read David Riesmann in the 1950s, Lee Bach was the quintessential inner-directed man. Who else would have answered William Larimer Mellon's request to teach engineers how to manage in Pittsburgh's heavy industries by spending Mellon's money to assemble a faculty made up mostly of people who had neither business experience nor business school training? Who else would have trusted the one recruit who had a lifetime of business experience but minimal academic credentials to teach a sweeping review of Western literature and philosophy, a history of ideas and social change? How many others would have doggedly overridden the predilections of a research-oriented faculty — three of them headed for Nobel Prizes — to hold them to weekly luncheons to coordinate the teaching of first-year master's courses? Or, even more improbably, to get them to put on "practical" hats for the interdisciplinary grading of student analyses of complex business cases? How many, early in the aftermath of the McCarthy era, would have shrugged off the *Wall Street Journal* editorials attacking as leftist the plans to use television to prepare high school teachers to teach economics? And no one, we discovered after he left Carnegie for Stanford, could match Lee's firmness and equanimity as an umpire facing the taunts of colleague contestants in the annual GSIA softball game.

Some thought Bach a skinflint — not stingy, but thrifty, in ways that more academic leaders should have been during the growth years of the seventies and eighties. Presiding over the best-endowed unit for its size at Carnegie, Lee paid faculty well, but far from the top of the market. GSIA's first building owed more to U.S. Steel than to the Taj Mahal. Lee was more inclined to believe that summer research grants to young faculty would pay off than that electric typewriters could be cost-effective. Foundations favored Bach for more than the quality of his ideas. They also knew that he would spend the funds well.

Lee was intensely interested in how individual students and faculty developed, in ways that some who never saw beyond his shyness and formality as dean did not appreciate. I saw it first when I, an English major with a smattering of calculus, asked Lee for admission to a program explicitly designed for people with engineering degrees. I saw it again when Lee tailored an invitation to me to return to Carnegie as a doctoral student to let me build on self-designed efforts at research in Norway. When, just after attaining tenure and promotion to full professor, I decided to leave Carnegie for a job with IBM, Lee was one of very few who considered it an opportunity rather than a dumb career move.

Lee Bach is appropriately celebrated at both Carnegie and Stanford for demonstrating how productive investments in research can be for freshening a master's program and for insuring that those who teach in it are somewhere out ahead of current managerial practice. But it also mattered to him what kinds of research we undertook. Theory and technique could be esoteric, but Bach liked focus on problems that managers would recognize. He gambled with people who wanted to try ideas from econometrics, political science, social psychology, and applied mathematics, yet test them against real business challenges like organizing the controllership function or scheduling work in paint factories and oil refineries.

Lee also pushed interdisciplinary work. He valued cross-field explorations over neat elaborations of theory, experiment, or fieldwork within a single discipline.

The initial design of Carnegie's doctoral program asked candidates to give nearly equal weight to four different fields: economics, behavioral sciences, quantitative methods, and applied fields of management. Bach's aversion to overspecialization could also be seen in his dictum that students in the master's program not be allowed to take more than two courses in any discipline beyond the core. In later years, Bach asked whether business schools' tolerance of specialization at the doctoral level and recruiting preferences for business doctoral program graduates had become serious barriers to MBA relevance and innovation.

Too many of the efforts to imitate Lee Bach focused on what he did at Carnegie and Stanford rather than on how he did it. His persistence and artistry as questioner matter more than the answers he found. His steadfastness regarding the things he believed in created a protective setting within which results could be achieved. And Lee's sense for priorities helped him to get the most from both money and people. He could intimidate the best academics into looking beyond their disciplines, expanding their perspective from theory to the challenges of management practice, and the best executives into looking beyond their accomplishments to the needs for research and change. By his own example and his quiet encouragement, he spurred students and colleagues to reach higher and farther than we thought we could.

As we all do, Lee Bach liked recognition for success. To him, however, success was a moving target. Restless, inquisitive, expectant that others would share his drive for assessment and improvement, he was what many top business schools have needed in recent years — the world's best antidote for complacency.

audiences. And he had cultivated credibility, legitimacy, and high status for his model of graduate management education among academic colleagues, talented graduate students, and elite decision makers in government, business, and philanthropy.

Although the various components of Bach's model generally retained their distinctive identities, Bach kept them all within one institution. He did this through the sheer force of his personality, coupled with his distinctly authoritative style of management. Bach consulted regularly with senior faculty, but no one doubted that final decisions were his alone to make. He insisted on continuous engagement among all elements of the school. No one component of the enterprise — interdisciplinary research, curricular development, student recruitment, doctoral training, even executive education — was permitted to isolate itself from the school's mainstream. Bach insisted on keeping all parts of the organization in constant contact because he believed that regular interchange would invariably stimulate conflict, and from conflict would flow intellectual creativity and an ethos of hard work. He described his approach years later:

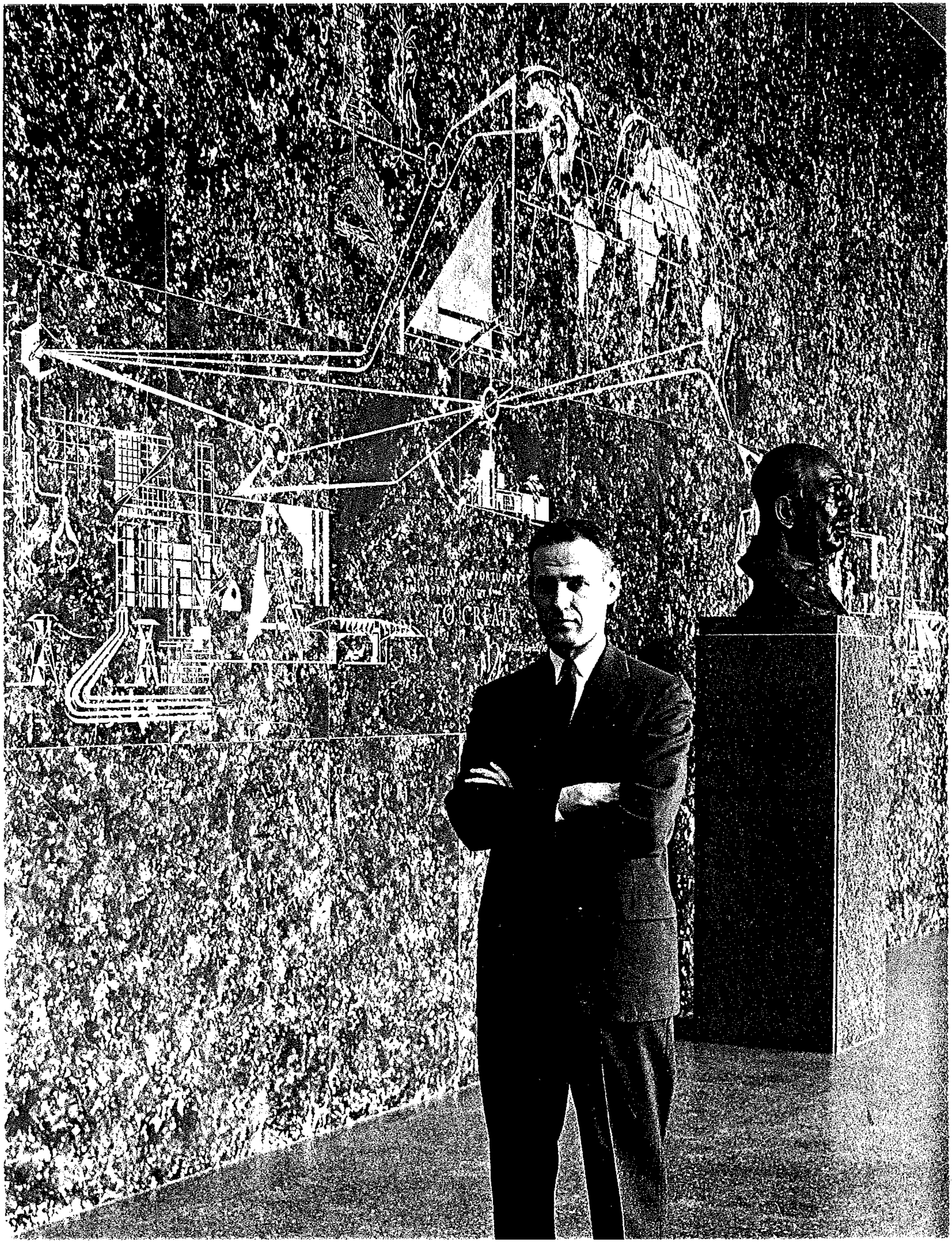
> The key ingredient in the intellectual climate of GSIA in its first years was the fact that everyone debated everything. Tempers sometimes became hot, but people would cool down and the ferment would continue. My job as dean was to keep standards high. Only the best could be tolerated. We were doing important work, and there was no room for second-rate work. Sometimes that meant that I had to make difficult decisions, about personnel and other things. But the quality always came first. I was the dean, and they were my decisions.[25]

As early as [illegible], however, the scale of GSIA's success in nurturing [illegible] innovative research began tugging away at the unity of purpose that Bach wanted so badly to maintain. Rather than blending together, the different components of the school began to show their seams. Nowhere was this more apparent than in the school's research groups. GSIA's ambitious commitment to quantification simply was not sufficient to pull together the different disciplines represented on its faculty. Yet the systematic application of quantification and mathematical modeling to research rapidly advanced [illegible] researcher's reputation in his own discipline. As more and more faculty members became [illegible]ed in [illegible]s for — revolutionizing their own disciplines with mathematical rigor, they became less interested in group projects that required them to cross disciplinary boundaries and work together on contract research. Though there were exceptions, most faculty members' allegiance to one or another of the school's research groups — the management scientists, the organizational and behavioral theorists, the neoclassical economists, and the macroeconomists — became more all-encompassing. Scholarly boundaries that had been intentionally blurred now became more distinct. Although the GSIA faculty continued to inhabit the same institution, attend the same faculty meetings, and teach the same students, they were evolving into distinctly separate groups that had less and less to say to each other.

By the late 1950s, evidence was abundant that the common language of mathematics did not necessarily yield shared approaches to creating new knowledge or a new era of unity in the social sciences. Most economists at GSIA, for example, used mathematics to refine their capacity to deduce rationally preferred outcomes in economic decision making, but quantification did not lead them to abandon classical theory and replace it with measurable behavior as their starting point. While behavioral scientists were able to use quantification and mathematical models to expand greatly their capacity to measure behavior and analyze its components in search of underlying rationalities, quantification did not lead them to abandon their generally inductive style of research in favor of the economist's deductive style. The common language of quantification and mathematics yielded great advances within each discipline, but it alone could not build necessary or permanent bridges between disciplines.

Between 1954 and 1957, Bach reluctantly abandoned the goal of grand synthesis through research.[26] But he did not give up his belief in the value of research, nor his view that research should hold a central position in a first-class graduate school of management. Even though he was unable to meld the various components of GSIA research into a new, unified science of administration, Bach recognized the very real advances each group of scholars had made in its discipline, and in managerial practice as well. He insisted that those scientific advances needed to be integrated into teaching on a continual basis, and that this task could be sustained only by keeping the flow of new research vigorous.

Bach never wavered in his dual conviction that research was the engine of social progress and that GSIA was the single best model for revolutionizing management education. Nor did he waver in his belief that the school's various components needed to use quantification as their common language. Indeed, the more Bach was willing to tolerate the growing chasms between groups, the more he insisted on keeping their work quantitative in order to encourage intellectual exchange at whatever level remained achievable. He concentrated his role on keeping the various strands of GSIA intact as a single organization without trying to solder them together. And, increasingly, he devoted himself to bringing GSIA's New Look to other schools via a series of external "missionary" activities.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[illegible]N 19[illegible] 1966, the Ford Foundation awarded [illegible]ion [illegible]ively small group of business schools [illegible]in the United States, including [illegible]ech, Columbia, Chicago, Stanford, [illegible]few others. Lee Bach remained a principal advisor to the foundation throughout this period, and its program in many ways reflected his growing pragmatism about the revolution in management education. Ford grants did not force each school to adopt one narrow approach to bringing social science research and teaching more systematically to bear on issues of public and private management. Instead, they encouraged different schools to pursue separate paths with confidence that the emerging system of schools would be strengthened through diversity. But there were limits to Ford's flexibility, and when disputes arose about what range of diversity Ford should support, Bach's early vision remained both his and the foundation's guidepost.

Ford's was clearly a top-down strategy for reforming management education. The foundation's trustees agreed with its advisors and program officers that the most important payoff for the nation would come from transforming the education of students at elite institutions whose graduates were most likely to become top managers at influential public and private institutions. They also chose to concentrate their giving at private universities, preferring to steer clear of the more public process of reform in state-supported institutions.

By 1957, however, Carroll and his advisors both inside and outside the foundation were anxious to disseminate the reform process through a broader range of colleges and universities. Their model of how to do so cost-effectively was the famous Flexner Report, written by Abraham Flexner.[27] Commissioned by the Rockefeller Foundation in the early part of the century, the Flexner Report had served as a blueprint for dramatic reforms in American medical education during the years between world wars.

Carroll, his staff, and his advisors consciously set out to find a modern-day Flexner to issue a clarion call for radical reform in management education. They found him in the person of Robert Gordon, a very highly regarded economist from Berkeley who, like Bach, had been a long-time advisor to the Ford Foundation. Gordon hired James Howell, a recent PhD in economics from Yale, to assist on the project. Together, they conducted a comprehensive assessment of the state of American business education between 1956 and 1958. The project was overseen by the advisory team Carroll had assembled at the start of Ford's grant-giving to business schools, which was still dominated by Lee Bach.

The Gordon-Howell Report, as it generally came to be known (the full title was *Higher Education for Business*), was published in 1959.[28] Its recommendations reflected the increasingly pragmatic approach to reform that characterized Bach's thinking during this period. This was not surprising, given Bach's pivotal position as a Ford consultant and his key role on the advisory board that worked with Gordon and Howell to edit the final report. Gordon and Howell summarized their argument as follows:

> Collegiate business education should educate for the whole career and not primarily for the first job. It should view the practice of business professionally in the sense of relating it to what we have in the way of relevant, systematic bodies of knowledge. It should emphasize the development of basic problem-solving and organizational skills and socially constructive attitudes rather than memory of facts or training in routine skills.
>
> It should recognize that businessmen in the decades ahead will need a higher order of analytical ability, a more sophisticated command of analytical tools, a greater degree of organizational skill, a greater capacity to deal with the external environment of business, and more of an ability to cope with rapid change than has been true in the past.[29]

The report was openly disdainful of traditional business curricula that emphasized highly specialized, vocational course work, and it stated bluntly that "relatively few" schools adhered to the principles described above.

The Gordon-Howell Report was distributed to every collegiate school of business in the United States. With the authority of the Ford Foundation behind it, it was widely read. For the first time, it explained to many administrators and faculty members the nature of changes that had been going on for almost a decade in a handful of elite graduate business schools. By giving a common voice to reform, it urged nonelite schools to follow suit as they saw fit.

At the same time that Gordon and Howell were conducting their study, the Carnegie Corporation of New York undertook its own analysis of business education. The project team for the Carnegie study was headed by Professor Frank Pierson of Swarthmore College. Like Ford, the Carnegie Corporation organized an advisory board to oversee the project. It also commissioned a series of papers that eventually formed the backbone of the Pierson Report (whose official title was The *Education of American Businessmen*), which was published a few months after the Gordon-Howell Report.[30] Bach was the only scholar who was closely involved in both the Ford and Carnegie studies. He was commissioned to write the key essay in the Pierson Report, and his influence was also evident in Pierson's overall assessment of business education. Pierson wrote:

> Stated briefly, the special area of undergraduate and graduate business schools appears to lie in the application of general knowledge and scientific methods to significant issues of business policy. At the undergraduate level, it is particularly important that students get the foundation preparation they will need in their later careers. At the graduate level, attention can quite properly center on application of background knowledge to important business problems and to widening the boundaries of this field through research. At the same time, both undergraduate and graduate work need to be kept in a broad context and limited to problems of solid analytical content. If business schools, or at least a substantial number of them, are not prepared to move in this direction, they can never hope to achieve the leadership role that is their due. . . .
>
> Implicit in the conception of business education set forth in this study is the prime role which should be accorded research. The need is not for just any kind of research, as that rather elastic term is often defined, but for research which meets high scientific standards and is aimed at problems of general significance. It would not be practical to support extensive programs of research at a large number of institutions; for maximum results most of the work should be confined to a small group of schools. At the same time, all schools should strive to make some contributions to the enrichment of the field, and faculty members should keep as much abreast of current research work as they possibly can. Only by this means is it possible for teachers in this, as in any other field, to remain intellectually alive.[31]

Bach's essay in the Pierson Report, entitled "Managerial Decision Making as an Organizing Concept," expressed the identical point of view. Bach explained his justification for organizing business education around rational, scientific decision making as follows:

> Over the quarter-century ahead, management will almost certainly become persistently more analytical, more rational. The role of "hunch" and even of "informed judgment" will become smaller as the years go by. At the extreme, this will mean increasing use of such fairly elaborate analytical approaches as mathematical programming. To focus too heavily on these, however, would be a serious mistake. The critical change will be the increase in the clarification of variables that need to be considered in making decisions, the increase in the use of carefully obtained quantitative information concerning these variables, and the increase in rigorous analysis weighting and combining the variables involved. We all know that in some vague, intuitive way this is what we must be doing when we make decisions now. The change I am predicting is, therefore, one of clarifying and of bringing to the surface the variables and implicit logical models our minds must be using now in decision making, and of persistently improving the logic of these models.[32]

Bach urged graduate business schools to organize the first-year MBA curriculum around three "foundation stems." The first he called "the administrative process and organizational behavior," the heart of which was "the analytical tools of the behavioral sciences." The second stem was "economic analysis" at both the micro and macro levels. Bach argued that

> [the] student should obtain a good grasp of the central analytical concepts of modern economics. He should get some experience in using them in thinking through diverse problems of making managerial decisions within the firm. Equally or more important, he should use them in considering the behavior of the firm as an individual unit in the market economy, the overall process of economic growth and fluctuations, and the public policy issues related to business behavior in these areas. . . . Such fundamental concepts as opportunity cost, comparison of alternatives at the margin, income, capital accumulation, and elasticity of demand are obviously useful in analyzing the behavior of a market economic system, in understanding interactions between the individual firm and the outside economy, and in thinking through public policy problems. They can be equally useful in managerial decision making within the firm. . . . Here again, both the potential usefulness and the dangers of misusing such abstract tools would be emphasized.[33]

Robinson

1959

As these essays are about the pivotal role Lee Bach played in the reformation of American management education, I want to talk about two institutions that were transformed by his presence. But first, a personal note about his sustained influence on me.

As a graduate student I knew Lee Bach through his articles about the workings of the Federal Reserve Board. The Fed, which was so clear and familiar to him, was at the center of my doctoral dissertation, a document that probably would not have been completed without Bach's observations of the terrain and the creatures it contained. He was, without knowing it, my mentor. And, in what follows, his continuing role in my life is apparent.

I finally met Lee Bach around 1957, when he gave a talk at the Brookings Institution. I saw him from time to time over the next few years. In early 1960, I called him for advice on a matter that had nothing to do with monetary policy. My problem was that Edward Litchfield, the flashy new chancellor of the University of Pittsburgh, wanted to dump his School of Retailing and largely part-time undergraduate business curriculum and establish a new graduate school of business. He'd asked me to become dean, to close out the old and create the new institution.

I knew very little about what really goes on in a business school. But I knew that Bach was now the dean of something like a business school, that he was a real economist, and that he was in Pittsburgh. So I called him.

My first question was, "Can an economist who knows nothing about the world of business be a responsible organizer and manager of a business school?" Thirty-odd years later, I can still remember his response, starkly uncharacteristic of his normal modesty: "Of course. Come up here and look!" Then, more gently, he gave me a brief tour of some of the current and future puzzles confronting business enterprises and the world in which they operate. He told me that these puzzles call for analytical minds, unbound by the lore of institutional practices, and that the issues require people who can work with theories, explore alternatives, weigh choices, generate data to illuminate choices, and set the grounds for making decisions and the systems to follow through. The faculties who were to prepare people for these tasks must themselves, he believed, be among the brightest in the academic realm, solid in their disciplinary roots, alert to emerging puzzles, and ethically comfortable in the world of business.

What I did not know at that time was that Bach had already given the same speech to the trustees and officers of the Ford Foundation, in a manner that had caused the foundation to underwrite a $45 million program to reform management education programs in American universities.

I went to Pittsburgh, where Lee introduced me to that stunning array of talent assembled at Carnegie Tech (now Carnegie Mellon). Many of his colleagues subsequently served our fledgling school as unpaid advisors on faculty recruitment as we built a faculty shaped by the foundation's newly published guidelines. Indeed, Lee's gentle guidance, backed by his troops, clearly enabled Pitt's Graduate School of Business to become the first wholly new school to embrace the Bach model from the ground up. That model, subsequently endorsed and expanded by Dean Jerome Zoffer, has succeeded far beyond the hopes of any of its founders.

Three and a half years after I arrived in Pittsburgh, Lee apparently decided that the Pitt experiment had worked, and that I should now go to the Ford Foundation to deal with the final stages of the management education programs and economic research. And, of course, everyone accepted Lee Bach's rulings.

At Ford, where the files recorded the activities of countless large and small business schools, one could see how deeply and swiftly the face of American management had been changed by Bach's initiative — the revolution had taken only six or seven years from start to finish! Some laggards had taken a bit longer, but even they now knew what the future looked like.

Also at Ford, one learned how deeply Bach had influenced the foundation itself — not only in the realm of economics and management education, but also in the conduct of the foundation's relations with university faculties in all fields. It was always the same: Lee Bach's imagination, wisdom, and integrity deeply influenced every institution he served.

Bach's third curricular stem was quantitative methods or, as he put it, "the use of figures in business decision making and control."[34] He placed special attention on managerial accounting and managerial statistics, emphasizing that students should not learn the detailed methods by which accountants or statisticians organize their data, but instead should become familiar with such details only to the extent that it would enhance their ability to use accounting and statistical data as inputs in decision-making methods.

By placing these three stems at the heart of the first-year curriculum, Bach hoped to de-emphasize isolated coverage of specific business functions, among which he included production, marketing, and finance. These topics should instead be thought of as "applied problem areas" to which the analytical tools in the three fundamental stems could be applied to reveal solutions to functionally based problems. His example of how a marketing course should be organized shows his point of view clearly:

> In the marketing area, the student should get a good exposure to some of the major types of problems faced by modern business in the whole process of selling or distributing. In looking at these selected major problems, he would pick up a good deal of institutional information about marketing in the modern business world. But the main emphasis of the course would be as an exercise in analysis of problems in the various subareas of marketing, bringing to bear the tools being learned in the rest of the first-year curriculum, with repeated emphasis on the importance of orderly problem-solving behavior.[35]

The ideal second-year MBA curriculum, Bach argued, would require students to take two full-year courses and several electives in "problem areas." The first required course would be a broadly conceived examination of business policy, designed to give students experience with integrative thinking as top managers. The second required course would be on "The Place of Business and the Businessman in the Economic, Political, Legal and Social Environment."[36]

Bach forcefully stated the rationale for givi[redacted] on the business environment equal status with one on [redacted] ness policy:

> It is likely that the social responsibility of the corporati[redacted] and of the businessman in it will continue to bulk larg[redacted] the day-to-day life of most business firms. In contrast t[redacted] simple emphasis on short-term profit maximization, e[redacted] interest in "the public good" as a legitimate and import[redacted] goal of business behavior will continue to grow. Busine[redacted] participate in a conscious fashion to an increasing exte[redacted] the social-economic processes of our democratic societ[redacted]

The publication of the Gordon-Howell and Piers[redacted] reports in the same year was particularly satisfying for [redacted] Although each report bore the imprint of many s[redacted] and business leaders, and each argued in its own [redacted] flexibility in reforming management education, [redacted] unique stamp on both reports was self-evident. The reports confirmed Bach's position as the leading intellectual in the field, and they acknowledged GSIA as the main engine of reform that challenged business education orthodoxy. Yet, despite a decade of stunning achievement, Bach viewed the overall situation in management education rather pessimistically. As he explained in a memo to Ford's Thomas Carroll in 1960,

> The revolution . . . is in full swing at a number of the leading business schools, and is getting under way in others to varying degrees. But the revolution is still in its early stages; the forces of mediocrity and stand-patism are on the run but still hold substantial power in most universities, including most of the leading ones. Thus, the next few years are crucial ones for capitalizing on the remarkable progress made to date and for developing fuller momentum. Many deans, though convinced that major change is needed and desirable, feel insecure in trying to force changes on doubting faculties, especially when the deans themselves all too frequently do not fully understand what is going on. Thus, continued strong external support for the central elements of improvement and change is crucial while new curricula are being developed, new courses are being established, new teaching approaches are being installed, and, most important, while new junior faculty members are built up into positions of influence.[38]

By [redacted]er 1960, Bach had concluded that his challenge as d[redacted]SIA was essentially over. Despite the school's [redacted]sses, the model he had wanted to build was in [redacted]s new problems were fundamentally different [redacted]hat had interested Bach in the late 1940s and earl[redacted] The 1950s had been years of experimentation, rapi[redacted]g, and institution building. In the 1960s, by con[redacted] main challenge would be to maintain a thriving [redacted]tirely coherent) enterprise whose basic structure[redacted]y established. As James March put it, "Having wor[redacted], now you had to occupy the place."[39] In addi-[redacted]fame created new and frustrating pressures on [redacted]fice. The group of academic stars Bach had [redacted]n the edge of Carnegie Tech needed to decide whether or not to dig in personally and professionally, committing the rest of their careers to the institution. By 1960, GSIA's faculty was being raided routinely by other graduate business schools seeking to add components of the New Look to their own faculties. As March recalled,

> I think that almost everyone there was being waited on by almost every major university, every year. It was not a time when you had search committees. Deans called you up and talked to you. It was also growing, so you've got more people, which gives you some advantages, because you can bring in young people, who can become big and famous. But it is hard to maintain a common community of intellectual interests. And having succeeded, it is a little hard to maintain the missionary zeal.[40]

In the early 1960s, GSIA's various intellectual groups had boiled down to two main camps. The first was the economists. The second was a loose combination of organizational theorists and management scientists whose emphasis on empirically based fieldwork made them skeptical of the major assumptions of neoclassical economic theory. Intellectually, the rift between these two groups was profound. Nonetheless, a few key senior faculty managed to maintain an institutional culture of respect for the differences. Key to this climate in the late 1950s were two scholarly titans, Herbert Simon and Franco Modigliani.

Simon and Modigliani disagreed across the board on intellectual matters, but they visibly maintained collegial respect. For example, their interactions at faculty research seminars and at Bach's regular Saturday morning faculty meetings set a tolerant tone for their junior colleagues. But Simon gradually withdrew from GSIA. His work on artificial intelligence with RAND and his success in recruiting Allan Newell to GSIA's faculty began to absorb him in trailbreaking new research on how to model human decision making with computers. Simon's work with computers allowed him to abandon entirely the rational-outcomes perspective of the economists, and to focus instead on rigorous models of bounded rationality that described the processes of decision making. The computers that GSIA faculty had used primarily to assist with computational challenges became the tools with which Simon and Newell tried to model the processes of rational human thought. Although Simon and Newell both believed that their research would eventually revolutionize management education, they eventually withdrew from the organizational dynamics of the school during this time period in order to devote their energies almost exclusively to research.

Modigliani, on the other hand, withdrew physically, moving to Northwestern in 1960.[41] Without Simon and Modigliani, the rifts within GSIA's faculty grew ever wider. Bach had little interest in trying to re-create the kind of creative tension he had worked so hard, and successfully, to create once before. He had been an academic administrator since 1946, and he wanted a professional change. In addition, he had begun to experience the first signs of Parkinson's disease, which was to exact a heavy toll on his later career. In 1962, Bach resigned as dean of GSIA. He was succeeded by his long-time junior colleague Richard Cyert (who went on to become the university's president ten years later).

Bach's personal visibility brought him many options concerning what to do next in his career. One particularly enticing option came from the Ford Foundation. Thomas Carroll, the program officer who managed Ford's grants to business schools, was stepping down to become a university president, and Ford's trustees offered Bach the position.[42] Bach considered the offer seriously but in the end decided to stay on at Carnegie Tech as the Maurice Falk Professor, in order to devote time to teaching and to revising his economics textbook (which at the time was second in sales only to Paul Samuelson's popular textbook). He had also promised Carnegie Tech's president, John Warner, that he would stay on as a senior advisor in broader university governance issues.

But Bach was not content to remain on the sidelines for long. Throughout 1963 he continued to keep track of reform efforts in business education as a consultant to the Ford Foundation, and he lectured frequently on the topic. Before long, he was anxious to get back into the field more directly, and he began looking for a good opportunity. As he recalled,

> I think I could have gone just about anywhere. First thing I decided was, I didn't want to be a university president. And I promised Jake Warner I would help him, but I had too much time on my hands. And I didn't want to be in Dick's (Cyert's) way. I had too much respect for him for that. He was the dean now, and my being there must have made it hard for him. His job was hard enough. It wasn't my school anymore, and it should not have been. It was his. I thought about going to Harvard or to Berkeley or somewhere else. So I went to Stanford as a visitor for a change.[43]

As Bach looked for a new roost in the industry he had pioneered, there was perhaps no better place for him at that time than Stanford. Bach's interest in graduate management education had always blended a personal commitment to the value of scientific research with a commitment to public service, especially with regard to issues of national security. The process of reform that was under way at Stanford in the early 1960s shared the same two objectives.

Bach was already intimately aware of the reform process at Stanford when he arrived there as a Ford Visiting Professor during the academic year 1963–64. Founded in 1925, Stanford was the nation's second-oldest graduate business school, preceded only by Harvard. Although it had started with a very ambitious strategy of integrating the social sciences into management education, between 1930 and 1956 its dean, J. Hugh Jackson, eschewed such grandiose goals and developed a highly specialized, even vocational, curriculum.[44]

In many ways, Stanford's program in the early 1950s was the epitome of what Bach's New Look had sought to replace. The school's faculty carried heavy teaching loads, devoted little time to research, and organized the curriculum around specialized business functions. When James Howell visited Stanford while gathering data for a study that would precede the Gordon-Howell report, Stanford president J. E. Wallace Sterling asked him bluntly to assess the school. His very negative assessment was no surprise to Sterling.[45]

Repeated attempts since the end of World War Two to bring Stanford Business School into the mainstream of New Look reform had failed. Dean Jackson's personal integrity and his long years of distinguished service to both the business school and the university made him a hard man to remove. For example, Jackson, who was an accountant, had personally overhauled the university's financial procedures during the Great Depression, and he was credited with having saved the university from bankruptcy on more than one occasion. In addition, he was a powerful leader of the International Rotary. Key Bay Area businessmen lent credibility to Jackson's practical approach to the school's mission, and many of them allowed the school to list them as consulting faculty in school publications, even though they performed no real teaching duties.

Despite Jackson's standing, Sterling's predecessor, Donald Tressider, had asked for and received Jackson's resignation in 1947. Tressider had arranged for Stanley Teele, associate dean of Harvard Business School, to take over Stanford's deanship and reinvigorate the school. By remarkable coincidence, however, Tressider died in New York the evening before he was to meet with Teele to finalize the arrangements. Tressider's interim successor, Alvin Eurich, completed the offer; without Tressider to back him up, however, Teele declined the offer. Eurich simply returned Jackson's resignation letter and asked him to stay on.[46]

When Sterling was named president of the university in 1949, he had more pressing problems to resolve than the declining status of the business school. He contented himself with urging the school to develop a long-term plan for future growth. He met with the business school faculty several times during his first years as president, and each time he told them bluntly that he was not satisfied with the status quo. But Sterling apparently decided to allow Jackson to retire at his own speed, which he did in 1956.

Once Jackson retired, Sterling and Stanford's trustees — who still included Herbert Hoover — began to push for major changes at the business school. They charged that Stanford was lagging conspicuously in an era in which other business schools were experimenting with different shades of the New Look. Sterling looked outside the academy for his change agent, appointing a search committee chaired by a prominent local businessman, Ernest Arbuckle. Arbuckle, the executive vice-president of W. R. Grace and Company, was a graduate of Stanford Business School and a Stanford trustee. He had served on advisory groups at the school for many years. Soon after Arbuckle agreed to chair the search committee, Sterling surprised him by offering him the deanship. But Arbuckle declined, saying that he was a businessman and had little appetite for academic life. Carlton "Bud" Pederson, then associate dean, was appointed acting dean until a new dean could be found. After two years of fruitless search between 1956 and 1958, Arbuckle finally relented and became dean in 1958.

Sterling's charge to Arbuckle was clear. He wanted the status of Stanford Business School to match the rising status of Stanford's other academic departments and professional schools, and he was willing to give Arbuckle all the latitude he wanted in deciding just how to do it. As Arbuckle recalled his discussion with Sterling,

> I said, "Now tell me what your ideas are for the business school. What do you want to do with it? What do you want me to do?" And — I'll never forget it — he looked at me and said, "It's here" — putting his hand on the table — "We want it here" — putting his hands over his head. "Take it there." I said, "Thank you very much." And he never once second-guessed me on anything I was doing. What he said to me was, "You're going to need more money than your tuition will bring in for the first couple of years to get this thing going." That was because we had a $500,000 budget. I said, "All right, let's make a deal. If after two years, or maybe it will take three, you'll let me keep 75 percent of our tuition income, then I'll take on the responsibility for raising the rest of the money." He established the principle [at Stanford] of putting a tub on its own bottom. That made all the difference in the world to me because, as I said to him, I couldn't really do this job without having the incentive system behind it. And the incentive system is that you can do as much as the money you raise will let you do.[48]

Having negotiated the broad outlines of his relationship with Arbuckle, Sterling gave him a list of schools that had greater status than Stanford in business education and told him to get advice from their deans on what to do. Lee Bach was first on the list.

Sterling had great ambitions for Stanford, but he needed a massive infusion of new endowment capital in order to realize his goals. When Arbuckle took over the business school, Sterling was already cultivating the Ford Foundation to support Stanford's upcoming capital campaign. In 1957, for example, Sterling hired John Jay Corson — the director of McKinsey and Company's Washington, D.C., office and a close advisor to Ford's Rowan Gaither — to advise him on how to restructure Stanford.[49] Corson had just completed a stint as executive vice-chairman of the Ford Foundation's College Grants Advisory Committee. Gaither was regularly briefed on Corson's study of Stanford, and Sterling used the information that was being gathered to build Ford's confidence in the university's future potential for growth.

Corson's advice was to decentralize Stanford's internal structure and streamline its administration. In the wake of Sputnik, Corson argued that universities like Stanford needed to modernize their administrations as part of a nationwide mobilization for economic warfare with the Soviet Union. He believed that Soviet economic growth posed the most serious threat to American interests in the world. Winning the economic war with the Soviets would require extraordinary partnerships among American businesses, universities, foundations, and the U.S. government to spur growth and prosperity at home and to bring the perceived benefits of capitalism to undeveloped countries, which Corson referred to as the "Swing Third" of the world. Universities like Stanford, Corson argued, should become vital centers of knowledge and action to which government could "contract out" the profoundly important and complex tasks of determining how to stabilize the domestic economy while stimulating economic growth in the Swing Third.[50]

1963

In 1960, Sterling's cultivation of the Ford Foundation paid off handsomely: Ford made a pledge of $25 million to Stanford's general capital campaign, on the condition that Stanford raise three additional dollars for every Ford dollar. Ford's pledge became the cornerstone of Stanford's successful effort, known as the PACE campaign, to raise $100 million. (Indeed, between 1950 and 1970, no university in the country received more money from Ford than Stanford.)[51] It was no surprise that Sterling pointed Arbuckle in the direction of Lee Bach — Ford's principal advisor in business education — for inspiration on reforming Stanford Business School.

But Arbuckle also sought advice more broadly on how to improve business education at Stanford. Although he accepted Bach's advice that rigorous scientific research needed to be a central reform objective, he solicited input as well (with Bach's encouragement) on how to pursue change pragmatically from business school deans at Harvard, MIT, Cornell, and Columbia. He also met with officers from the Ford Foundation, the Carnegie Corporation, the Sloan Foundation, and the Statler Foundation to discuss Stanford's situation.[52]

Arbuckle was careful to balance his external advice with plenty of internal consultation. As he reflected years later,

> It all proved one of my theories, though, and that is that a team spirit in any endeavor is more likely to produce success than [an endeavor] without it. That sounds obvious, but when I got there I found everyone was loyal to his own discipline and his own career, and they never thought about it as a group of people working together for a given objective. And that's why we put together the ten-year plan and got the faculty to vote on it and say, "Yes, this is what we ought to do." It was a faculty committee that put it together. I got Bud Pederson to be chairman of the committee, and I just sat there. That's when Alex Bavelas made the famous statement that I cut into the conversation too much. He said, "The trouble with this meeting is that we've got one too many deans."[53]

The ten-year plan developed by the faculty foresaw a dramatic increase in the scale of Stanford Business School.[54] When Arbuckle became dean in 1958, the school's entire budget was just over $500,000. The ten-year plan anticipated that by 1969 the annual budget would grow to more than $2 million. The projected growth had two effects on the school's long-time faculty members, who were best positioned to oppose change. First, it assured them that change would not come at their expense. Arbuckle made it clear that senior faculty members would not be expected to make drastic changes in their own professional work styles. Most importantly, they would not be expected to produce research that they neither wanted to do nor felt adequately prepared to do. Second, Arbuckle made it clear that change would not be unidimensional. In other words, New Look–oriented faculty — Bach's "long-haired" types — would not be the only new additions. Every subgroup of faculty could participate in at least some of the growth. Arbuckle's savvy combination of internal consensus building and external pressure for reform created a climate conducive to pragmatic change, with no clear losers.

Jaedicke

An ad hoc faculty committee assigned to review the curriculum in 1959 expressed the faculty consensus and incorporated some elements of Bach's own changing perspective on the scope and process of New Look reform in graduate business education:

> The practice of management has been an applied art involving ability, experience, and judgment. It will continue for the foreseeable future to have these characteristics. We believe, however, that management is becoming more professionalized, in the sense that, increasingly, practice is coming to be a conscious application of a systematic body of knowledge to organizational and environmental problems. However, though management is making greater use than ever before of science and scientific methods, it will continue to be the artful application of knowledge and methodologies to applied problems. We do not agree with those who believe business administration is essentially applied economics, applied human relations, or even applied behavioral science.
>
> Of course, we do recognize the traditional relevance of economics and hope that it will be even more relevant in the future, just as we recognize that recent advances in the behavioral sciences have reemphasized their importance to organizational management. But we also see relevance in other fields: for example, the pace of development of the physical and social sciences and the changing character of business organization and technology make an intelligent understanding of the essential nature and uses of modern statistics and applied mathematics more important than ever before.
>
> Thus, whether it be in our MBA, doctoral, management development, or research programs, we will look to all the disciplines — social, natural, and humanistic — for help in our mission of increasing managerial effectiveness, because we believe that management is that area of human affairs which is concerned with applying relevant knowledge from all the disciplines to organizational problems.[55]

I recently read about a graduate school of management that describes its educational programs as being based on innovative research that has an impact on management thought and practice. The materials pointed out that the programs are outstanding in quality, and are also based on the conviction that the management of enterprises takes place in a global setting. Additionally, this school, like others, is noted for an outstanding student and alumni body and has an outstanding faculty.

It's probably my age, but all this reminded me that we have come a very long way in the past forty years, and that the developments (maybe even a revolution?) in management education have been nothing short of remarkable. Many people have played a leadership role, but I know of no one who contributed more, and over a longer period of time, than Lee Bach. He was, indeed, a leader among leaders, a visionary, a doer, a counselor to countless students and faculty peers, and — perhaps most important of all — a most highly valued friend to all who knew him. His name is synonymous with increasing the quality of management education.

During the fifties, we saw the introduction of some key disciplines into business schools — economics, organizational behavior, and mathematics/statistics (or operations research). Along with some other changes, this was a major breakthrough and a major set of events. Lee was an early advocate of this move, and he probably understood its potential better than anyone else. He proceeded to actually build an outstanding school around this concept. Lee recruited many outstanding people from their native disciplines into the world of management education and research. This was not an easy sell, I am sure, but Lee did it. He was good at it in part because he had made the switch himself; he was an outstanding economist. I think it was at this point that the term "business education" quit just describing business and started to become what we now know as modern management education, based on innovative research that helps us understand markets and organizations as well as behavioral and economic phenomena. Lee was a very important prime mover in the early stages of the development of modern management education. We now have Nobel Prize winners on our faculties — truly remarkable!

Lee also deserves a lot of credit for developing the field of business and the changing environment. In the mid-1960s, when most of us were still pretty much focused on the introduction of the disciplines mentioned earlier, Lee was pushing for the inclusion of political science and political economy faculty talent in management schools, and he was developing and teaching courses in this important area. Today, I note that the accreditation standards call for educational program coverage of "the influence of political, social, legal and regulatory, environmental, and technological issues." We probably take that for granted today, but we really have Lee to thank.

In the late 1960s, we started a systematic program of faculty evaluation that included discussions on everything from salary increases, teaching assignments, and research support to various other important faculty-development matters. As a young associate dean, it was my job to meet with every faculty member one or more times during the year, in what became known as the fireside chats.

Now, there were several giants at Stanford, but Lee was one of the greatest. Every once in a while a colleague would ask me, "When do you meet with Lee?" The first time I did I felt that whoever had invented the word *awe* — defined as "a mixed feeling of reverence, fear, and wonder caused by something majestic, sublime, and sacred" — must have had me in mind on this occasion. I was supposed to evaluate Lee Bach? Get real! I thought maybe my boss, Dean Arjay Miller, would at least join me. However, Arjay (a very close friend of Lee's) could sometimes delegate to the point of abandonment, and he did so on this occasion.

To shorten a long story, I met with Lee, who proceeded to give me a complete, insightful, penetrating, and not entirely favorable evaluation of his performance during the preceding year, together with a plan for improvement. There was no false modesty involved. He said he was just stating the facts.

In future years, I always started my round of firesides with Lee. I felt that if anyone ever wanted a penetrating and completely objective evaluation of Lee Bach, they should ask Lee himself. He clearly ranks among the giants of his time. Ruth Bach and the Bach family have suffered a great loss, but the community of students and scholars in economics and management is not far behind.

The advice Arbuckle received from his fellow deans and his faculty concerned what to do in business education, but it did not address questions of why those things should be done. Arbuckle wanted to communicate the reasons for change clearly to faculty members, students, and potential supporters. In 1958 the school devoted its annual business conference to the theme of "Growing Dimensions of Management." The school invited businessmen, academics, and foundation executives to discuss their views regarding why management and management education were important matters of social as well as educational concern. The keynote speaker, not surprisingly, was Ford's H. Rowan Gaither, who argued that improving management was the supreme challenge facing American society in the Cold War era:

"There is no contemporary human society," said Britain's Lord Halisham, "whose needs — economic, social, political, even military — do not transcend its national boundaries.

"But," Lord Halisham continues, "there is no adequate international machinery to match these needs. The East has an answer, but that answer is a conspiracy against human freedom. Has the West? Can the West produce a political idea less offensive than imperialism, less anarchic than the petty nationalism which has brought war and ruin wherever it has been tried — an idea not negative but positive, an idea dynamic for peace which neither sacrifices justice nor provokes aggression?"

I am willing to take the challenge of this thoughtful Englishman as our own. And it is against it that I would measure the role of management. . . .

Let us not mince words. Freedom is under all-out assault from that part of the world dominated by international communism. There is no assurance that, blandly and effortlessly, freedom somehow will survive.

I should like in this connection to make three basic points:

1. The Soviet challenge is not simply an intergovernmental difference of opinion. This is a challenge between two total ways of life, involving not alone the military capacity of each country, together with its allies, but the total political and economic capacity of each country.

2. To grapple realistically with this total defiance of our way of life, we must project the Soviet challenge into the decades ahead, and certainly for a period of not less than fifteen to twenty years. Anything short of this is makeshift and make-believe.

3. The Soviet challenge requires that we seek out and utilize the best intelligence of American management — and in turn puts on management a national responsibility of unparalleled dimension.[66]

BETWEEN 1958 AND 1963, ostensibly in response to the Cold War challenge laid out by Gaither and other pragmatic champions of the New Look, Stanford Business School underwent sweeping changes. These changes were both internal, in the composition of the faculty and curriculum, and external, in the school's relations to business and government.

Internal changes were made possible by a series of grants from the Ford Foundation. An initial grant of $25,000 in 1959 defrayed the costs of curricular review and other related planning activities. This was followed by an aggressive request from Arbuckle for $3 million to defray the projected $4 million deficit in the school's ten-year operating plan. Ford responded in 1960 with a grant of half that amount to expand the faculty and establish a visiting professorship. This grant was followed in 1962 by an $800,000 award aimed specifically at expanding the school's research output. Arbuckle placed high priority on providing funds and released time from teaching for his new faculty members, almost all of whom were active researchers. Although he himself had no grand design for the school's research activities, he knew that the school's fundamental commitment to progress and change would be measured in large part by its scholarly output.

Other internal growth came from university sources. Arbuckle's agreement with Sterling to allow the business school to receive a larger share of its tuition income gave the school an incentive to increase class size, which in turn allowed for additional faculty hiring. Arbuckle set the goal of a twelve-to-one overall student/faculty ratio, and MBA enrollments grew, in stages, from approximately 400 in 1960 to the goal of 600 by 1966. The size of the faculty was expanded accordingly. At the same time, the school lowered its per-pupil financial aid by making arrangements with a Los Angeles bank to lend students up to $4,000 to pay tuition expenses, secured by a reserve fund set up by the school. This arrangement increased the amount of cash realized annually by the school through tuition income.[57]

Externally, Arbuckle established a blue-ribbon business advisory committee and asked each member to make a regular annual donation to the school. He kept key members of Jackson's old Bay Area business network, but, significantly, Arbuckle's network was more national in scope and included many prominent businessmen from companies with substantial ties to the federal government.[58] The resulting affiliates program became a new source of discretionary income for the dean, and the school's business advisors helped Arbuckle network among wealthy businessmen in search of additional capital funds.[59] Arbuckle's principal capital goal was to build a new building for the school, which was still housed in a series of separate spaces within Stanford's central quadrangle.[60]

The largest external undertaking was funded, again, by the Ford Foundation. Arbuckle was invited to New York with a group of other graduate business school deans in 1959 to discuss ways in which business schools could help foster free enterprise in Corson's "Swing Third" nations. A commission known as the Boeschenstein Committee had been organized among a group of businessmen in 1958, at the request of President Dwight D. Eisenhower. Its charge was to recommend ways to counteract Soviet economic-aid programs in Swing Third nations.The committee was chaired by Harold Boeschenstein, president of the Owens-Corning Fiberglas Corporation, and it had been staffed by McKinsey's Corson. It had recommended that "universities should be utilized to the fullest in assisting [Swing Third] countries with their educational, training, and public health problems."[61] The Ford Foundation decided to follow suit on the Boeschenstein Committee's recommendation, and it proposed to establish a center in the United States for improving the effectiveness of collegiate business teachers from Swing Third nations. The center would, in effect, train the trainers, thereby fostering greater economic growth in key strategic regions of the world.

Much to Arbuckle's surprise, when the meeting in New York ended he was asked by Thomas Carroll, Ford's Director of Economic Development and Administration, to accept a $3.5 million grant to establish the center at Stanford. After discussing the offer briefly via telephone with a handful of faculty members, Arbuckle accepted. The center, which was called the International Center for Advanced Management Education (ICAME), was established in 1961. In 1962, its first year of operation, it admitted thirty-eight participants from Swing Third nations.

Another ambitious undertaking reflected Stanford's willingness to participate actively in work that it considered to be public service. Using funds from the Agency for International Development (AID), Stanford Business School agreed to help sponsor a new graduate business school in Peru in 1964. As a former top executive in W. R. Grace and Company, Arbuckle had managed that company's business investments in Peru and was therefore quite familiar with the country. Beginning in 1964, five Stanford faculty members were assigned to assist the new school.

BACH LIKED WHAT HE SAW as a visitor at Stanford in 1963–64. Although he quibbled about several faculty appointments and about the subject matter and methodology of some of their research, he concluded that all in all, Stanford had institutionalized important elements of the New Look. And it had done so within the context Gaither had laid out of applying new knowledge to solving important problems related to national and international economic security and peace.

Sterling and Bach agreed that what Stanford needed was a more sophisticated voice for the New Look within the business school's senior faculty. Money from Ford provided the means for Arbuckle to add to the faculty at the senior level. However, Arbuckle tended to choose exceptional people committed to particular functional specialties, such as marketing, accounting, and insurance, rather than individuals with broad and synthetic interests. While new faculty members at Stanford often published a great deal, Bach thought that their work focused so much on advancing knowledge within narrow disciplines that little time was left to integrate new knowledge from disparate business and social-scientific fields.

To remedy this situation, Bach and Sterling urged Arbuckle to recruit more pure social scientists. Arbuckle, though, was reluctant to do so. Perhaps his business pragmatism diluted his enthusiasm for research that Bach himself often called "long-haired." Eventually, Sterling proposed that Bach move to Stanford permanently. But Bach did not want a faculty slot for himself based on Ford funding, and he was uncertain as to whether Arbuckle really wanted him there. Consequently, Bach told Sterling that he would return if the school could raise funds for a new chair to support him. Bach returned to his duties as Falk Professor at Carnegie Tech in the fall of 1964. Eighteen months later, Stanford offered him the new Frank E. Buck professorship in economics and public policy, to which Arbuckle himself had contributed one thousand dollars as a sign of his enthusiasm. Bach moved permanently to Stanford in 1966.

For the remaining three years of Arbuckle's term as dean, Bach acted as senior faculty ballast for the younger faculty members who had been hired to raise the school's profile in quantitative and mathematical research. Bach's standards and tastes in research determined the fates of many junior faculty members. In regard to teaching, Bach participated in curricular reviews, each time stressing the need to focus more attention on what he termed the "fundamental analytical skills" of business analysis. In addition, Bach created a new elective course entitled "Business and the Changing Environment" in order to expose students to his broader vision of the relationship between management and society. Although he did not succeed in making this course part of the required core curriculum, by its second year it regularly attracted half of the MBA class.

But Arbuckle was the dean, and his commitment to the New Look was only partial. His credibility in the Bay Area as a businessman, his respect among the school's long-time senior faculty (many of whom were Harvard trained and case oriented), and his ability to raise money and secure a new building for the school (which was completed in 1966) reinforced his role as the school's ultimate decision maker. Sterling involved Bach as a key advisor on committees throughout Stanford, but Bach's influence at the business school was bounded by Arbuckle's broad and independent authority.

Bach's power in the school was to rise dramatically. In 1968, Arbuckle — fulfilling a vow he had made to his long-time friend John Gardner (Secretary of Health, Education, and Welfare) that he would keep the job for only one decade and would then "re-pot" himself elsewhere — retired as dean. He then accepted an offer to become chairman of Wells Fargo Bank.

Recognizing Bach's position with Sterling, Arbuckle suggested that Bach chair the search committee for a new dean, and that a balanced group of business school faculty members be included in the search.[62] Sterling appointed a large group, as Arbuckle had recommended, but Bach clearly took the lead in conducting the search. As Bach recalled,

> I thought we needed another businessman as dean, and I knew several who were up to the task. But the best one was Arjay Miller, whom I knew, confidentially, was about to leave the presidency of Ford Motor Company. Arjay was a true intellectual, which was rare among businessmen. He never lived in Detroit, choosing instead to live near the university in Ann Arbor. He was also a marvelous manager.[63]

Bach knew Arjay Miller well from his days as dean at Carnegie Tech. Miller was a regular member of GSIA's business advisory group, and Ford Motor Company each year hired several of GSIA's top graduates. Miller was a close colleague of Robert McNamara's, and he had ascended to Ford's presidency after McNamara had left that position to become secretary of defense in the Kennedy administration. Miller and McNamara were two of the famous "Whiz Kids" whom Henry Ford II had hired en masse after World War Two from the Air Force's Stat Control group. Miller had dedicated his managerial career to implementing the New Look at Ford. He had thereby replaced the chaos that had existed at Ford at the end of the war with order and profitability. As Miller recalls,

> Lee Bach, for whom I have great respect, called me up in the spring of 1968 and asked me to be dean of Stanford Business School. My first reaction was to say no, but then he spent a whole night on the train with me on my way to Washington, and we talked about it. The more I thought about it, the more intrigued I became.
>
> What led me to think about joining up with academic education was the failure of graduate schools of business to prepare managers for the demands that were placed upon them in the nonbusiness sense. For example, when I was president of Ford, it was the golden era. There were the three companies, but up until that time there was no real foreign competition, and we just had three companies in an oligopolistic situation where the profits were good.
>
> But there was a real change in 1965, when Ralph Nader wrote *Unsafe at Any Speed*. Well, we just didn't know what to do about the safety issue. [Senator Abraham] Ribicoff called the presidents of the four companies, including American Motors, down to Washington, D.C., to testify to Congress, and we just blew that opportunity. We didn't know how to respond. It was a pretty bad situation. We knew we had better pay more attention to the political situation in Washington because of the new safety regulations. Incidentally, after the legislation was passed, the main requirement for the safety czar was to have no connection with the auto industry. . . .
>
> At the same time, the Detroit riots of 1967 occurred. I was designated as head of the economic development corporation in Detroit, and I was supposed to help the mayor in getting businesses in the inner city. All of this came together with the fact that, first, the bureaucrats with whom we dealt didn't understand business, and we sure didn't understand them. I said the mayor of Detroit had a harder job than I did and had no training for it. So it seemed to me that all these other social responsibilities that were placed on business to do something in the social arena meant that the businesspeople of the future should be trained in how to respond to the demands being placed upon them.

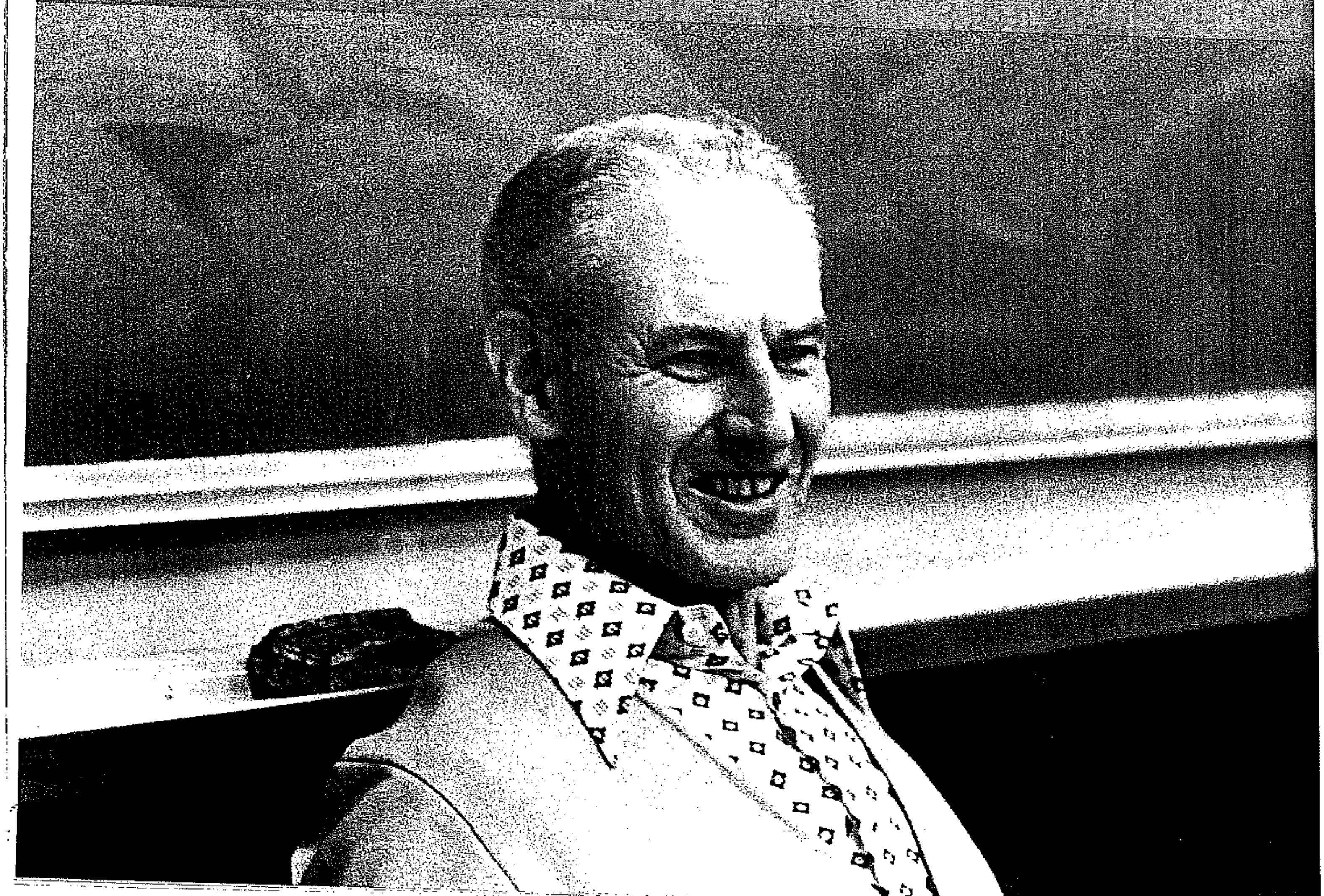
Arjay Miller
Dean and Professor of Management (Emeritus), Graduate School of Business, Stanford University

I first became aware of Lee Bach's genius when an analysis by Ford Motor Company revealed that the best source of management talent was an MBA from Carnegie Graduate School of Industrial Administration, founded by Lee in 1949. My respect was reinforced during a discussion among Brookings Institution trustees, when it was decided that a proposed economic study would be undertaken only if Lee could be persuaded to take the assignment. His seminal ideas on how business school education should be revised added further to his reputation.

Lee telephoned me in April 1968 and mentioned the possibility of my becoming dean of the Stanford Graduate School of Business. I replied that I was not interested, but I welcomed him to drop by my home in Ann Arbor on his next trip to Washington. Friends of Lee know how persuasive he can be. When he said he planned to remain at Stanford, I replied, "With you as advisor, anyone could be a successful dean." I voiced my opinion that no business school was doing an adequate job of teaching business leaders how to cope with the new social, environmental, and political demands being made upon them, and that there was also a real shortage of qualified managers in the nonprofit sector, especially government. I added that if I went to Stanford, I would want to add new courses and faculty to meet these needs. Lee voiced his support, stating that he had already added a new core course pointing in that direction, entitled "Business and the Changing Environment."

The degree of Lee's help after I became dean cannot be overstated. He was the only permanent member of the dean's advisory group, and he was especially helpful in the recruitment of faculty, based upon his intimate knowledge of scholars throughout the entire United States.

One word above all else describes Lee Bach: he was a real giant. I welcome this opportunity to join his many friends in paying him tribute.



Miller agreed to accept the Stanford deanship, provided that Bach could get the trustees to accept several conditions. First, he wanted assurance that no other part of Stanford would pursue graduate-level management education. Second, he wanted clearance to expand the curriculum, as some other New Look business schools were doing at the time, in order to expose students to issues of broader social management in addition to business management. Third, he wanted assurance that he could raise money for the school and keep that money in the school. Going beyond Arbuckle's earlier agreement, Mi[illegible]e business school to become fully financial[illegible]university — truly a "tub on its own bottom," especially in regard to controlling its own endowment. And, finally, he wanted an appointment as a full professor with tenure along with his appointment as dean, on the grounds that he would otherwise be viewed by academics as a "second-class citizen."

The trustees agreed to all of his terms, and Miller took over as dean in 1969. Bach's success at recruiting Arjay Miller to Stanford boosted the school's national reputation and propelled Bach's personal standing within both the business school and the university. Soon after arr[illegible] appointed a committee of senior faculty mem[illegible] him on strategy. Membership on the commit[illegible]ing, with the exception of Lee Bach, whom M[illegible]oint[illegible] on a permanent basis. Miller and Bach worke[illegible]r closely after 1969 to accomplish three princip[illegible]

The first goal was to secure a permanent [illegible]l ba[illegible] for the school. Arbuckle had expanded the school's operat[illegible]ing scale fourfold, and he expanded the number of endowe[illegible] professorships from one to four. But Stanford Business School's annual budget still depended heavily on tuition income, contracts, and fickle annual giving. Miller prided himself on his ability to raise funds, and he set about buil[illegible]ing the school's permanent endowment. As one current fa[illegible]ulty member recalls, "Arbuckle built us a new building, a[illegible] Miller filled it with chairs." Between 1969 and 1978, Mill[illegible] added more than twenty endowed chairs to the perm[illegible] endowment. The environment of growing prosperit[illegible] possible by Miller's fund-raising savvy assured that [illegible] school could afford to maintain Arbuckle's style of g[illegible]teeing a no-losers method of institutional evolution.

The no-losers style facilitated Miller and Bach's second principal goal: to deepen and expand Stanford's commitment to the New Look style of business education and research. Whereas Arbuckle had permitted growth among all factions within the school — including those whose members voiced grave reservations about the wisdom of sophisticated quantitative methods for research and education — Miller and Bach diverted virtually all new resources to those faculty members who embraced the New Look. Dissenters with tenure continued to enjoy the benefits of the school's prosperity. And the school's faculty continued to expose students to many points of view regarding education for business. But dissenters could no longer claim a piece of the growing pie. Bach's tastes in scholarship more and more influenced the school's decisions regarding hiring and promotion, curricular development, doctoral student selection, and new program development. The shift in emphasis was not without debate — and some rancor — within the faculty. But the overall climate of prosperity diffused contention, and the rapid growth of the faculty diluted dissent.

The third principal goal pursued by Miller and Bach was the amending of the school's core curriculum to address broad issues of social management as well as business problems. As discussed above, Miller believed strongly that business managers should be equipped to cope with larger issues of social governance. Bach's interest in this aspect of business education was fundamental. It stretched back to his own involvement in Robert Doherty's Carnegie Plan for engineering education and its extension into business education in the early years of his deanship at Carnegie Tech.

T[illegible]ROU[illegible] HIS CAREER, Bach fought hard to make busi[illegible]s st[illegible]ware of the social context of business in [illegible] United States, and he worked tirelessly to ensure that [illegible]siness research targeted administrative issues that were [illegible]evant to meeting social needs. In the context of the early [illegible]ld War, the dominant social context of business was its [illegible]e in keeping the economy semimobilized for war pro[illegible]ction. In the early 1960s, that context changed in response [illegible]he perceived shift of Cold War competition from the [illegible]litary sphere to the economic sphere. The social and [illegible]nomic chaos of the late 1960s shifted the context once [illegible]t each shift in the social context of business only [illegible] Bach's belief that the rational tools for decision [illegible]hat had been developed by the New Look were directly relevant for solving the full range of problems facing modern society.

In October 1969, in a speech at the annual Stanford-Sloan Alumni Conference, Bach uncharacteristically offered a few predictions about the world of 1980. Those predictions revealed his views about the shifting social context for business, and his belief that older distinctions between business problems and social problems were disappearing altogether:

> Over the decade ahead, business faces a revolution of rising aspirations — rising aspirations for the performance of the economy as a whole, and rising aspirations for business within that economy. And business faces growing intolerance of failure to achieve those aspirations. . . .

The dividing lines between business, government, and nonprofit organizations have been gradually blurring over the past quarter-century. They will blur further by 1980. Government has increasingly intervened in the private sector, but private business has also entered fields traditionally associated with the government. Universities and nonprofit institutions have become actively involved in social-action activities. The problem of cities, of racial conflict and discrimination, of air pollution, of unemployment, of inflation — all these and many more are major social problems somehow to be handled. . . .

Increasing interdependence in our economy and the world [and] the increasing complexity of our problems all combine to hasten the obsolescence of traditional economic and political boundaries. . . .

Economic efficiency, in the traditional Adam Smith sense, will no longer be enough — businesses must help to solve the social problems that surround them, whether or not there is a direct short-run contribution to profits. The criteria by which business is judged by the general public will be much broader than the mere production of useful goods and services.[65]

The need to keep the New Look's rational and analytic style relevant to the tumultuous social environment during the Vietnam War was brought home forcefully by Stanford's campus unrest in 1969 and 1970. Although student protests against military contracts on campus had originated as early as 1966, the issue peaked in spring 1969. The culmination was a series of demonstrations and sit-ins that led Stanford to disavow all classified research and sever the university's ties to the Stanford Research Institute. Protests turned violent during the "days of rage" in May 1970, following the shooting deaths of several student protesters by National Guard troops at Ohio's Kent State University. Stanford Business School was not spared; rock-throwing students smashed all of its windows, including those of its new dean. Arjay Miller had experienced riots firsthand in Detroit, but he had never imagined that violent student protests might reach into his own office on Stanford's bucolic campus.[66]

Students at the business school intervened and kept an all-night vigil to prevent further damage to the building. Following the window smashing, a series of lunchtime seminars was hastily organized to help defuse the situation. Lee Bach himself organized one of the seminars, at which he analyzed the economic implications of U.S. involvement in Southeast Asia. Doctoral students organized other seminars — mostly for non-GSB student protesters — to explain the role of profits in business, to discuss the social role of business, and to "provide protesters with some management techniques for constructive action as an alternative to 'rhetoric and violence'. . . . [These seminars were designed to] show them that the GSB is not monolithic in its views, but aware of the need for changes in our society."[67]

Business school students eventually voted to join a university-wide student strike, but on a "non-coercive" basis — that is, no one would be prevented from entering the building and attending classes. The business students also insisted that their strike support was targeted specifically to protest the U.S. invasion of Cambodia, and not to advance the wider range of student demands that were voiced by more militant student leaders at Stanford and nearby Berkeley. The business faculty met in an emergency session and agreed to adapt their teaching schedules and coursework requirements to their students' demands, particularly since the students made no attempt to shut down classes altogether. For example, the faculty voted to ease grading policies for the remainder of the spring quarter so that "a positive program of political action" could be followed by "those students who felt so committed."[68]

All in all, the business school faculty cultivated the image that they stood with, not against, moderate student protesters, and thereby probably defused the potential for the school itself to become a major target of protest. In a newsletter sent to alumni the week after the strike, Dean Miller's description of events laid the groundwork for moving ahead quickly on his long-standing desire to integrate the analysis of social issues more fully into the school's educational and research concerns. Miller wrote,

Following the turmoil of last week, class attendance in the business school is now normal. An overwhelming desire exists here to accomplish our educational objectives. We would be misreading student attitudes, however, if we interpreted student actions as a defense of the status quo. As part of the younger generation, they share a determination to help build a better world. They take a broader view of business responsibilities than did my student generation, concerning themselves with such problems as peace, racial discrimination, urban blight, poverty, housing, and air and water pollution, as well as the more traditional goals of business.

Those among us who have been concerned with the charge that business has no social conscience should welcome them to our ranks. The fact that they elected to attend a graduate school of business indicates they desire to see changes made *within* the established decision-making processes. The skills and training they possess, plus their commitment and willingness to work hard, will enable all of us to progress together toward our common goals. I look forward to helping them become constructive members of the business community and of the political democracy that is the United States. We at the GSB hope we have your continued support toward this goal. We welcome your help and suggestions.[69]

When I met Lee Bach in the late 1960s, he had already become a legend at Stanford, despite the recency of his arrival from Carnegie Mellon. Partly it was the textbook, clearly a legend in its own right; partly it was Lee's calm, almost reserved academic style — a manner that let the clarity of his analysis emerge undecorated. At the end of a conversation about some difficult subject, he would often do a summary in characteristic short bursts of speech, punctuated by pauses for thought. That would often mark the end of the discussion — not because Lee wanted it to be over, but because there just wasn't much left to say.

I first witnessed these attributes when Lee and I were both members of Stanford's advisory board, a committee on appointments and promotions whose seven members were elected from across the institution. In addition to being able to bring discussions of faculty appointments into sharper, clearer focus, Lee had a knack for raising the right questions. He was curious about schools other than the Graduate School of Business, where his primary appointment was, and the School of Humanities and Sciences (the home of the Department of Economics, where many of his friends and closest disciplinary colleagues were). It is the somewhat unusual task of the advisory board to consider all appointments and promotions: surgeons, civil engineers who are experts in concrete, and analysts of the Old Testament. To each such discussion Lee brought a lively (though sometimes slightly incredulous) interest, and he always managed to discover something about each new discipline that gave him serious intellectual traction on the appointment at hand.

Our greatest challenge on the board came from the special duty to serve as a hearing body when the university president proposed to penalize a faculty member for professional misconduct. Naturally, this function had almost never been exercised. But the time was 1971, when campuses everywhere were in turmoil. Stanford was no exception, and a professor of English had been charged with incitement in connection with events surrounding the occupation of the university's computer center by students and others.

It was required by our rules that the board hold the hearings in public if the defendant so requested — and, naturally, this defendant did so, announcing that the hearing would be a referendum on a brutally repressive society and the university's involvement with the war machine. In between demonstrations and exhibitions of guerrilla theater, we managed to hear testimony for six weeks, six days a week, six hours a day. In the end, the board concurred with the president's recommendation that the faculty member be fired.

We thought at the time that it was a moment of severe trial for the institution's processes, that in some sense its very life was at stake, and that our engagement with it was a pretty serious duty. It was, of course, unpleasant and even threatening at times, and the seven of us weren't getting much regular work done. Lee was a bastion of strength and good sense. He knew what mattered and what didn't, and at nearly every difficult point he supplied his own brand of sound reason. Our group met frequently in the aftermath of the case, and there remains a bond among us that will always be special.

Much later, after I had gone away to Washington for a stretch and had then returned to Stanford to become provost and, later, president, Lee asked me to give talks before his summer executive programs on a few occasions. There, I got to see another side of him. One cannot enter another person's class — particularly not an intensive-exposure academic venture like this one — without detecting something about the resonance between teacher and class. It was immediately apparent that Lee had the same impact on these mature, accomplished students that he had on the MBAs. There was a feeling of high energy, as well of respect. And one could detect, in addition, how fond the students had become of Lee over a few summer weeks. There was no surprise there; it had happened to all of us.

The tumultuous spring 1970 quarter brought quick action on the part of Miller and Bach with regard to broadening the range of social issues in both education and research at the school. To Bach, the students' political activism and the violence that accompanied it were alarming signs that the New Look's analytic precision and managerial approach to problem solving might be summarily swept aside, unless the new generation of managers and scholars emerging from American universities fully understood the virtues of the New Look. This stark challenge to the managerial approach to solving social and economic problems needed to be met head-on.

The business school's response to the student challenge began with Dean Miller's decision to move Bach's course "Business and the Changing Environment" into the core curriculum to ensure that all students would be taught how to think systematically about the role of management in society. In addition, Bach and Miller organized a joint committee of faculty and students, led by business school professors Eugene Webb and Charles Holloway, to develop a new concentration in public management. This new program would demonstrate that the business school was not divorced from contemporary social issues, and that it respected the aspirations of students interested in broad problems of public as well as private management. It would also enable Bach and other faculty to redirect the energies and concerns of these students toward an analytic style of problem solving that remained largely alien to the management of public institutions in the 1960s.

Seed money for the public management program was secured by a $75,000 grant from the Sloan Foundation. Full funding for the program's first five years was secured by three additional grants: $550,000 from Sloan, $250,000 from the Ford Foundation, and $450,000 from the Richard King Mellon Foundation. The new program, which formally became an option in the MBA curriculum in 1971, was called the Urban Management Program (it would later be renamed the Public Management Program). Twenty students from the regularly admitted MBA class chose to concentrate in the new program in its first year.

Bach's argument for regarding the Urban Management Program as an appropriate and vital business school activity was evident in the document that the school distributed to prospective funders:

> The Stanford Graduate School of Business believes that the major revolution in business education over the past two decades provides a foundation in knowledge and method that can equally serve to develop the new breed of managers which our modern cities and other governments require. The Stanford MBA program is primarily designed to produce a manager who is an effective problem solver in a wide range of situations. He cannot know today, except in the broadest terms, what problems he will face five to twenty-five years hence, as he grows in managerial responsibility and leadership. Thus, the stress is on general analytical tools and methods, on skills in using them, on the *process* of problem solving, and on the ability to learn from experience as he faces different situations. Above all, students are led to consider the interactions between policy determination and administrative implementation, as they learn the art and skill of management.
>
> We believe that this same set of goals applies for public managers. The public manager of tomorrow must be an effective problem solver, and an effective manager who can get the "solutions" to his problems effectively carried out. The core program for the MBA is in large part the same core that is needed to train the public manager for tomorrow's world — basic economic analysis, organizational behavior, quantitative methods (accounting, statistics, computers, and the like), finance and operations management, plus major stress on pulling all these things together in solving overall business or public policy problems. It also involves attention to the ever-important interface between the activities of the private firm and the vast environment, including the political and social processes, which surrounds us all.[70]

Bach remained intimately involved in the new program's development, including the effort to recruit a new senior faculty member to direct it. In early 1972, Henry Rowen, outgoing president of the RAND Corporation, joined the business school faculty as director of the Urban Management Program. The selection of Rowen ensured that the program would evolve with a full commitment to the New Look's analytic style. During his term at RAND, Rowen had created its own highly analytic graduate program (the RAND Graduate Institute), and he had also led RAND's effort to apply sophisticated analytic tools to the solving of real-world urban problems by establishing the New York City RAND Institute, in coordination with New York City mayor John V. Lindsay.

Horngren

With Rowen in charge of the Urban Management Program, Bach settled back into his roles as senior advisor to the dean, senior statesman to the MBA and doctoral programs, and the business school's ambassador in university-wide affairs. Yet he felt a continuing need to respond to mounting challenges within academia, especially from economists who began calling themselves the New Left and who sharply criticized the New Look's analytic and managerial style of addressing social problems. Bach read the outpouring of "radical" New Left economics and became both a fan and a critic of the work.

Bach's pragmatic, flexible, yet scientifically skeptical approach to the intellectual turmoil of the 1970s reflected his lifelong commitment to the integration of scientific rigor with socially relevant, applied scholarship. He had begun his scholarly career as a pragmatic reformer in the social and intellectual turmoil of the Great Depression and World War Two. His embrace of the New Look meant that

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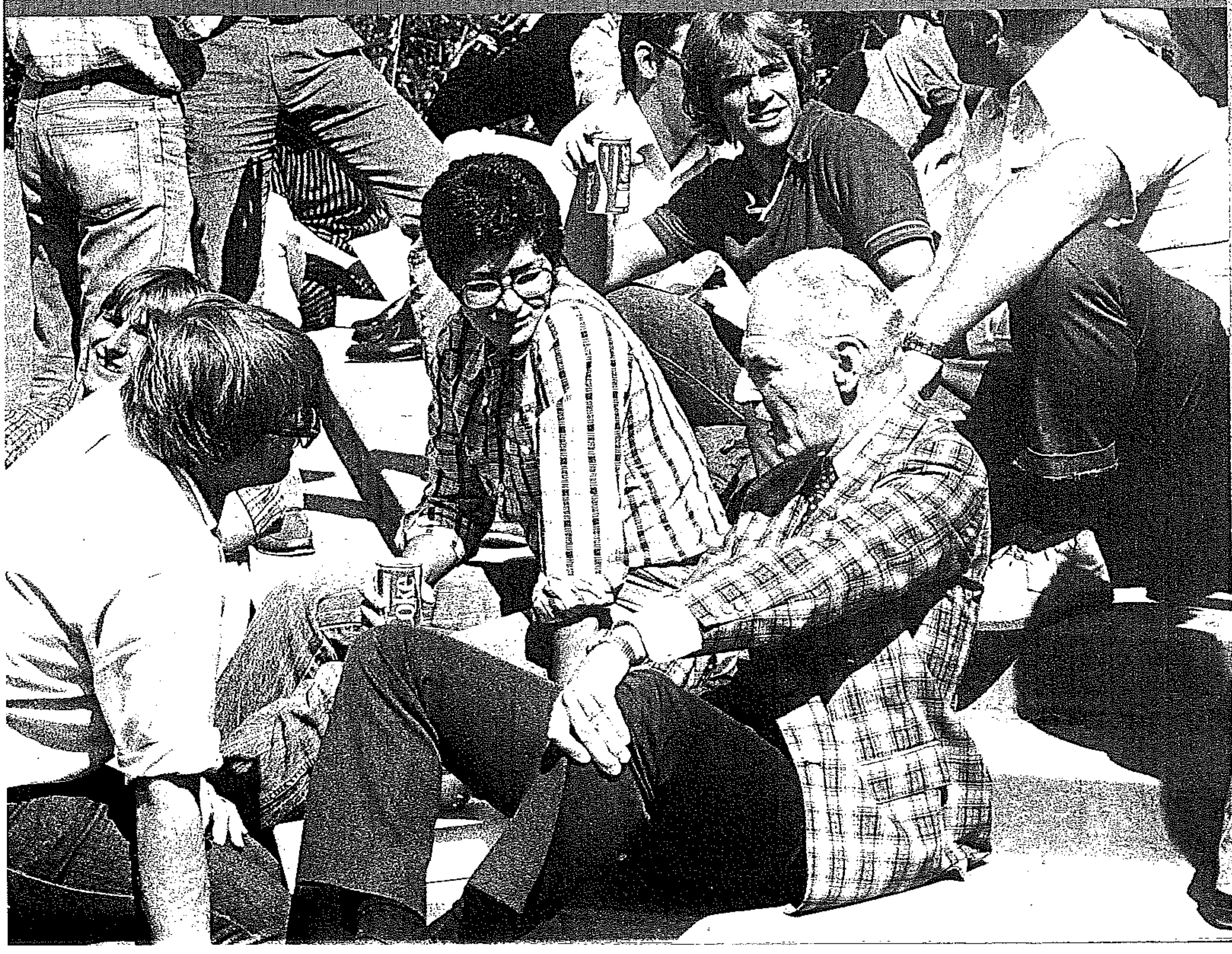
■ Lee Bach and I were colleagues and friends at Stanford for twenty-eight years. The first two words that come to my mind in reflecting on Lee's professional characteristics are *breadth* and *rigor*. He had a sweeping view of education for management, embracing the past, present, and future and encompassing all the fields ordinarily found in business schools. He also had a probing, Socratic way of drawing out all who came in contact with him. His style forced all of us to improve — to think more deeply, and to defend or abandon our positions as seemed appropriate. His appetite for knowledge and for integration among disciplines was insatiable.

An earmark of topflight professors is their discomfort with the status quo. They worry about falling behind in a changing world. Lee Bach was exemplary in this regard. He was steadily concerned about how the future would unfold, and about how education should prepare managers to cope with increasing turbulence.

Having observed Lee's teaching and having worked with him in a wide assortment of school and university assignments, I can think of nobody who has had more institutional loyalty and dedication to continuous improvement of all aspects of academe. Bach's focus was not confined to the Stanford Business School. It extended to the university as a whole; he had many roles in university governance. Moreover, he had a career-long passion for improving the teaching of economics at all levels, worldwide.

Shortly after Lee and I joined the Stanford faculty, we worked closely together as members of a long-range planning committee that met weekly throughout the academic year. We discussed potential desirable changes in all aspects of the business school. I shall never forget a remark he made about the recruiting of faculty. He always followed the general rule of trying to find and hire individuals "who are smarter than I am." He cited Herbert Simon and W. W. Cooper as examples of some successes. I have often thought that Lee Bach could not possibly have found many faculty who were smarter (or more productive) than Lee Bach.

Lee had many talents. His ability to define and explore important issues, his efficiency at getting things done, and his habitual unease with the status quo amazed me again and again. G. Leland Bach was an invaluable force. ○



he always remained open to new data, new methods, and new concepts, no matter how much they threatened the status quo. Bach's assessment of New Left economics in 1972, excerpted below, quintessentially captured the style, power, and breadth of his intellect, his continuing openness to serious debate, and his abiding confidence that, ultimately, all new academic and political controversies could be resolved with the analytic tools of the New Look.

> The modern radical literature, like other literature, has its own "in" jargon. . . . We are urged to lift our thinking to new and higher levels of consciousness — again, a new way of perceiving and understanding "reality." But saying that modern radical economics offers a new scientific paradigm does not make it so. Perhaps we need a new perception of reality to understand the world. But until the New Left shows us how their words give significant operational guidance, with some degree of scientific rigor, in analysis and prescription of the problems they cite, the rhetoric is often vivid, but not very helpful.
>
> But there are visible the beginnings of some serious scientific work, especially by some of the younger economists — attempts to provide careful empirical evidence on the propositions advanced by the New Left and comparisons between these propositions and those made by conventional economics. . . . This way lies progress. To them I say, Right On! . . . I doubt that the New Left will fade away soon, nor should it. But a rising ratio of reason to rhetoric will make it a more productive challenge in the future.[71]

LEE BACH CONTINUED TO SERVE Stanford University and its business school for the remainder of his life, despite the gradual physical decline brought on by Parkinson's disease. Considering higher education's well-earned reputation as an industry that adopts change slowly, Bach's career stands as a remarkable achievement in combining intellectual revolution with institutional rebirth. His unique ability to command respect from students, academic colleagues — including some of the most brilliant minds of his era — and key members of the American social and political elite enabled him to become the most powerful architect of change in business education between 1945 and 1975, moving the field from relative disrepute to a place of substantial prestige and power.

Bach was an educational missionary, intent on advancing scientific progress and transforming fundamental educational processes. In realizing his vision, he helped demonstrate how the power of the modern university could be harnessed to serve national goals in ways that would have been unimaginable only a generation earlier.

§

Leavitt

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■ I first met Lee in Paris, in 1956. I was living there, and Lee and several others had come to conduct one of those seminars we used to do for Europeans after the war. In that environment he really stood out: a midwestern icon, tall, lean, calm, reticent — an intellectual John Wayne. I liked and trusted him immediately, even though he was as unlike me as anyone I could imagine.

He later offered me a job at Carnegie, and, later still, I followed him to Stanford. Our relationship was both close and distant. He used to eat two desserts at lunch; I resonated to that. He often scolded the rest of us at faculty meetings, and that used to infuriate me. Even more infuriating, Lee was just about always right. He was right in his assessment of people and situations, and in his decisions about courses of action. And somehow, what always came through were two things: high standards and integrity. Lee always focused on the task at hand, not on himself. His ego never got in the way. His heart, as Andrew Carnegie is supposed to have said, was in the work. No wonder his influence on management education was so enormous. So was his influence on me. While I never felt I could meet his standards of excellence, I always felt compelled to try.

During his last few years, several of us — Jerry Miller, Gene Webb, and Homa Barahmi, among others — met frequently at Ruth and Lee's house (always *cum* brownies, cookies, and cake) to see if we could point out a new direction for management education. "The Book," repeatedly outlined and continually debated, never emerged. Nevertheless, Lee, characteristically, kept at it almost to the end. ●

1. See James H. S. Bossard and J. Frederick Dewhurst, *University Education for Business: A Study of Existing Needs and Practices* (Philadelphia: University of Pennsylvania Press, 1931).
2. On Harvard's and Stanford's early years, see Robert E. Gleeson, Steven Schlossman, and David Grayson Allen, "Uncertain Ventures: The Origins of Graduate Management Education at Harvard and Stanford, 1908–1939," *Selections*, Spring 1993, pp. 9–36. Prior histories of Harvard Business School include Jeffrey Cruikshank, *A Delicate Experiment: The Harvard Business School, 1908-1945* (Boston: Harvard Business School Press, 1987) and Melvin T. Copeland, *And Mark an Era: The Story of the Harvard Business School* (Boston: Little, Brown and Co., 1958). Insightful histories of other schools include Steven Sass, *The Pragmatic Imagination: A History of the Wharton School, 1881-1981* (Philadelphia: University of Pennsylvania Press, 1982) and Michael W. Sedlak and Harold F. Williamson, *The Evolution of Management Education: A History of the Northwestern University J. L. Kellogg Graduate School of Management, 1908-1983* (Urbana and Chicago: University of Illinois Press, *1983*).
3. Quoted in James G. March (chair), Charles Bonini, James Howell, Harold Leavitt, Arjay Miller, and Ezra Solomon, "Memorial Resolution: George Leland Bach (1915–1995)," *Campus Report*, Stanford University, April 26, 1995.
4. Mary Ann Dzuback, *Robert M. Hutchins: Portrait of an Educator* (Chicago: University of Chicago Press, 1991).
5. Bach's dissertation was printed as George Leland Bach, *Price Level Stabilization: Some Theoretical and Practical Considerations* (Chicago: University of Chicago, 1940). Copies are available in the Library of Congress and at the University of Pittsburgh.
6. Glen U. Cleeton, *The Story of Carnegie Tech: The Doherty Administration, 1936-1950* (Pittsburgh: Carnegie Institute of Technology, 1965).
7. Bach wrote the Hoover Commission's working paper on the Board of Governors of the Federal Reserve System, later published as George Leland Bach, *Federal Reserve Policy-Making: A Study in Government Economic Policy Formation* (New York: Knopf, 1950).
8. Clifford Hildreth, *The Cowles Commission in Chicago, 1939–1955*, Lecture Notes in Economics and Mathematical Systems, no. 271, ed. M. Beckman and W. Krele (Berlin and Heidelberg, Germany: Springer-Verlag, 1986).
9. Interview with William W. Cooper, April 10, 1992. Cooper eventually received two honorary doctorates (Ohio and Carnegie Mellon), as well as the unusual degree of honorary MBA from Harvard.
10. Interview with George Leland Bach, November 30, 1990.
11. Robert E. Gleeson, "Management Education at Carnegie Tech before GSIA, 1905–1949," Heinz School Working Paper Series, January 1995.
12. The study report — known as the Gaither Report — was published as *Report of the Study for the Ford Foundation on Policy and Program* (Detroit: Ford Foundation, 1949).
13. Francis X. Sutton, "The Ford Foundation: The Early Years,"*Daedalus* 116(1) (Winter 1987): 41–91.
14. Gaither to Hoffman, "Subject: Program Three," memorandum dated December 27, 1950, Ford Foundation Archives (FFA), ACC 88/4, Box 14500, FF "Program Development 1953."
15. Ibid.
16. Ibid.
17. For a more detailed account of these events, see "The Many Faces of the New Look: The University of Virginia, Carnegie Tech, and the Reform of American Management Education in the Postwar Era, Part II," *Selections*, Spring 1992, pp. 1–24.

18. Herbert Simon recalls these events in his autobiography, *Models of My Life* (New York: Basic Books, 1991). Other accounts are included in Yuri Ijiri and Rona A. Watts, eds., *Bill and Ruth Cooper and Their Friends* (Pittsburgh: Carnegie Mellon University Press, 1990).
19. Interview with George Leland Bach, March 7, 1992.
20. George Leland Bach, "Education for Management in a Mobilizing Economy," *Advanced Management*, May 1951, pp. 7–9.
21. Ibid.
22. Richard M. Bissell, Jr., to Paul Hoffman, "Proposed Work on the Development of an Area III Program," memorandum dated February 15, 1952. FFA, ACC 88/4, Box 14500, FF "Program Development 1953."
23. George Leland Bach, "Department of Economics, Annual Report 1950–51," p. 2, Carnegie Mellon University Archives, H&SS Box.
24. For a detailed account of these events, see Steven Schlossman, Michael Sedlak, and Harold Wechsler, *The "New Look": The Ford Foundation and the Revolution in Business Education* (Los Angeles: Graduate Management Admission Council, December 1987).
25. Interview with George Leland Bach, November 30, 1990.
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27. Abraham Flexner, *Medical Education in the United States and Canada* (New York: Carnegie Foundation for the Advancement of Teaching, 1910).
28. Robert Aaron Gordon and James Edwin Howell, *Higher Education for Business* (New York: Columbia University Press, 1959).
29. Ibid., p. 127.
30. Frank C. Pierson et al., *The Education of American Businessmen: A Study of University-College Programs in Business Administration* (New York: McGraw-Hill Book Company, 1959).
31. Ibid., pp. xi, xv–xvi.
32. Ibid., pp. 321–322.
33. Ibid., p. 328.
34. Ibid., p. 329.
35. Ibid., p. 332.
36. Ibid., p. 334.
37. Ibid.
38. George Leland Bach, "The Ford Foundation and the Revolution in Business Education," dated September 20, 1960, FFA, Report 002591.
39. Interview with James March, August 13, 1993.
40. Ibid.
41. After a brief stay at Northwestern, Modigliani moved again, to MIT's Sloan School.
42. Henry Heald to George Leland Bach, letter dated February 2, 1961. George Leland Bach to Henry Heald, letter dated February 19, 1961, FFA, Heald Papers, Box 2, Series 1, FF 28.
43. Interview with George Leland Bach, August 14, 1993.
44. See Gleeson, Schlossman, and Allen, "Uncertain Ventures," pp. 23–30, 34–35.
45. Interview with James Howell, August 6, 1993.
46. Notes on Ferris Miles's discussion with Stanley F. Teele, dated February 1, 1952, Department of Special Collections, Stanford University Libraries (SUL), SC 216, Box 36, FF 4.
47. Stanford Oral History Project, transcript of "Remembering Wallace Sterling," SUL, pp. 20–21.
48. Ibid., p. 40.
49. Corson's final report was completed on May 28, 1958. See SUL, SC 216, Box A20, FF 7 for the report, appendices, and associated correspondence.
50. See John J. Corson, "Mobilizing for the Real War, the Economic War," address to the International Economic Affairs Committee, National Association of Manufacturers, April 28, 1959, SUL, SC 216, Box A20, FF 7.
51. "Twenty-five American Universities Receiving Largest Amount from the Ford Foundation, 1950 through May 1964," FFA, ACC 88/4, Box 14502, FF "American Universities." Stanford ranked number one, with $51.7 million; Carnegie Tech ranked twenty-five, with $7.3 million.
52. Ernest C. Arbuckle to J. E. Wallace Sterling, memorandum dated September 30, 1958, SUL, SC 216, Box 36, FF 15.
53. Stanford Oral History Project, transcript of "Remembering Wallace Sterling," SUL, pp. 50–51.
54. "Long-Range Program, Graduate School of Business, Stanford University: A Statement of Philosophy, Objectives and Needs," dated June 15, 1959, Stanford University Graduate School of Business, Jackson Library Archives (JLA).
55. "Statement of the Educational Objectives of the Stanford Graduate School of Business," Ad Hoc Committee, memo no. 1, dated January 23, 1959, SUL, SC 216, Box 36, FF 13, pp. 3–4.
56. H. Rowan Gaither, Jr., "Freedom and the Challenge to Management," address given to the Seventeenth Annual Stanford Business Conference, July 23, 1958, JLA.
57. The arrangement was negotiated by members of the school's busine advisory committee, including Robert McNamara, then president of Fo Company. The bank involved was Security-First National Bank of Los A whose chairman, Elden Smith (GSB '30), also chaired the school's effort the loan program. "Dean's Letter" dated December 6, 1960, JLA.
58. Included among the advisory committee's twenty-seven members w ert McNamara, of Ford Motor Company; Wright A. Patterson, president Airlines; Edward Littlefield, of Utah Construction Company; William D of Dean Witter & Co.; L. B. Worthington, of U.S. Steel Corporation; Step Bechtel, Jr., of Bechtel Corporation; Cyril Chappellet, of Lockheed; and J Allen, of Booz Allen & Hamilton.
59. In its first year, the affiliates program included seventy-one member yielded $92,505 for the school. "Dean's Letter" dated December 6, 1960,
60. See collection of "Dean's Letters" at the JLA.
61. See Corson, "Mobilizing," pp. 19–22.
62. Ernest Arbuckle to J. E. Wallace Sterling, memorandum dated Octob 1967, SUL, SC 216, Box C1, FF 9.
63. Interview with George Leland Bach, August 14, 1993.
64. Interview with Arjay Miller, August 9, 1993.
65. George Leland Bach, "The Economic Environment, 1980," address gi Stanford-Sloan Alumni Conference, October 1969, JLA.
66. Interview with Arjay Miller, August 9, 1993.
67. GSB *Bulletin*, Spring 1970, p. 7.
68. Ibid.
69. Ibid., p. 9.
70. "The Interest of the Stanford Business School in Public Management, May 1971, personal papers of Arjay Miller.
71. George Leland Bach, "Symposium: Economics of the New Left, Comm *Quarterly Journal of Economics* 86 (November 1972): 641.

Photographs

Page 8: Graduation from Grinnell College, 1936. Courtesy of Ruth Bach.
Page 11: First day in the navy, 1944. Courtesy of Ruth Bach.
Page 12: The new chairman of the department of economics, Carnegie Insti of Technology, ca. 1946. Courtesy of Ruth Bach.
Page 16: The first MBA class at the Graduate School of Industrial Administ Carnegie Institute of Technology, 1948. Lee Bach is at the far right. Courtes Carnegie Mellon University Archives.
Page 24: Dedication of the new building of the Graduate School of Industria Administration, Carnegie Institute of Technology, 1953. Lee Bach stands be a bust of William L. Mellon. Courtesy of Ruth Bach.
Page 28: Lee Bach, ca. 1958. Courtesy of Ruth Bach.
Page 34: Lee Bach at the Graduate School of Business, Stanford University, c 1965. Courtesy of the Graduate School of Business, Stanford University.
Page 38: Lee Bach in the classroom, Graduate School of Business, Stanford U sity, 1975. Courtesy of the Graduate School of Business, Stanford University
Page 43: Lee Bach at MBA registration and orientation, Graduate School of Bu ness, Stanford University, 1981. Courtesy of the Graduate School of Business Stanford University.