Preface

Along the banks of the Charles River, reaching back into the heart of Cambridge, rise the buildings of an impressive institution.[1] Today at the Massachusetts Institute of Technology, more than five thousand students pursue interests that range from soil mechanics to meson physics, from industrial dynamics to existentialism, and include much in between. A faculty of nearly a thousand is here to guide, to teach, to add some contribution large or small to our understanding of the world in which we live.[2]

But MIT is more than classrooms and laboratories, more than the sum of particular groups of students, professors, and researchers at any moment in time. Embedded within us is an intellectual heritage, a cluster of ideas that inspired the founders and that has shaped the character of the institution over more than a century. Several generations of faculty, students, staff, alumni, and trustees have built on these ideas to mold a great center of teaching and research.

The coherence and continuity of any cluster of ideas find expression in personal and social goals, in concepts of progress, in reflections on the meaning of life. With the passing of centuries, philosophies have come and gone. Sometimes they have grown powerful, sometimes endured, sometimes transmuted into different forms, sometimes disappeared. Often they stem from a perception of needed change, of goals not yet achieved, of aspirations to be fulfilled. Philosophies take shape through the dedicated work of disciples, partisans, and advocates, followed by a widening public influence, the emergence of schools of thought and political and social movements, the establishment of new institutions and the reshaping of old ones.

So what is this cluster of ideas that has imparted to MIT its own special character and helped define its mission? The roots are in the Enlightenment of the late eighteenth century, when as a result of the influence of the new science—originating with Newton, Locke, and others—people began to believe that through human effort *this* world could be made a better place to live, and that we need not wait for the next. Out of this emerged the idea of progress, which led to the rapid advance of technology through the Industrial Revolution. This in turn encouraged yet more forward-thinking movements: representative democracy as a form of government, the utilitarian philosophy of Bentham, the conviction that "the greatest happiness for the greatest number" should be a key human goal.

The Industrial Revolution was born in Europe, but quickly crossed the Atlantic. With this migration came also an impetus for the study of science in America, which gradually transformed views on the nature and role of higher education. Tension between the old (classical) and the new (scientific) stimulated opportunities for reform, and for the rise of innovative, diverse institutions. MIT emerged, thus, as an experiment in scientific and technical education in the middle of the nineteenth century. It was not the first such experiment—Rensselaer Polytechnic, for example, predated it by three decades—but it was among the most successful.

Among the people profoundly influenced by the intellectual trends of their age—by this cluster of ideas—was MIT's founder, William Barton Rogers. In many respects it is difficult to talk about him as *the* founder, as others who contributed to the experiment played key roles as well—members of his own family, friends, colleagues, other scientists, local benefactors, a whole range of people swept up by the notion of progress. And, while they came from different backgrounds, they shared a sense of the importance of education for useful work.

But how much of the driving force for their experiment was derived from political and social convictions, how much from dedication to teaching the new technology for application in industry, and how much from the pursuit of career plans by energetic, imaginative individuals? Samuel Prescott, whose book on MIT is the only full-length history to date,[3] touches on some of these issues, but his work is more a chronicle than a study of the intersection between intellectual traditions, social and political forces, and personal goals. It tells much about external events but little about the heart and mind beneath.

Our goal here, in contrast to Prescott's, is to explore the ideas that shaped the institution as it emerged and as we know it today. As time has passed, how true have we remained to the original philosophy? What other factors have come into play? What can the process of drawing together sometimes disparate intellectual elements tell us

about where we are now? Does MIT still hold meaning as a special kind of institution? The MIT we know today is vastly different from what it looked like fifty or a hundred years ago. But underneath the surface change lies an intellectual heritage with remarkable relevance and staying power.

I have been at MIT for more than half a century. I have seen it from the vantage point of a student, of a faculty member in two departments, and of an administrator. I have watched it grow from a rather small institution focused on the preparation of engineers into an institution with broad research and educational interests in engineering, the sciences (natural and social), the humanities, and related disciplines. The changes that have taken place here are a reflection of our common need to adapt to new circumstances, knowledge, and experience.

The more I think about MIT, the more it presents itself not as a collection of buildings, of professors, of students, of courses, of papers and catalogues, but as a living vital entity—a being with a character, a personality, a philosophy, a mode of action, a heritage of ideas and methods that have made a deep impression on all who come to know it. And like other living beings, MIT has a history—the story of where and how it was founded, its struggle for survival, its growth and innovations, its evolving position in the nation and the world.

MIT was established because the time and the place were right, because a group of citizens, teachers, scientists, and prospective students were ready to make it work. Through the years, while remaining true to its initial purpose, it has evolved in ideas, in approach, in reach, and in material development and numbers. Faculty and administrators with philosophies of their own have come and gone, science and industry have undergone dramatic shifts, and society as a whole is in many respects unrecognizable compared to what it was in the mid-nineteenth century. Yet MIT's core values remain—its cluster of ideas, its bedrock principles—even as adjustments are made over time in response to new ideas, demands, and needs.

This is a study that I have pondered for many years. It relates to philosophical questions that interested me as a graduate student in France and at MIT, and to which I have always wished to return. This is not a history, therefore, in the usual sense, but more a reflection on the emergence of an institution. The narrative begins with our European heritage; proceeds to trace the continuum between this heritage, American higher education, and the founding of MIT; and concludes with an account of the Institute feeling its way in the early years.[4]

I am reminded, finally, of what Samuel Eliot Morison confided to readers in his preface to *The Founding of Harvard College* (1935), about the process of writing institutional history:

> It has been an exciting cruise for an American historian, who now invites the reader to glide downstream with him and enjoy the sights. You may join the trip if you wish, where the movement becomes rapid and the bottle-neck begins; but you must not expect me to carry you through the gorge into calm reaches in the space of a single volume. Although warned by the horrid example of Thomas Prince (A.B. 1707), who began his "Chronological History of New-England" with the Creation, and died before he reached the year 1631, I have been unable to get beyond 1650 in the present tome.

In other words, it is virtually impossible to capture and convey in a single volume the essence of a complex, varied institution such as MIT or Harvard. But even though this narrative goes only as far as 1870, I hope that it will contribute to a deeper understanding of our origins, of where we are today, and of where we may go in the future. I also hope that others will pick up the story from where we have left off.

Julius A. Stratton

Notes

1. Adapted from Julius A. Stratton's drafts and notes for a preface, written in the 1970s.
2. As much of this text was drafted in the 1970s, the figures cited are not accurate in "today's" terms. The faculty has remained steady at about a thousand, but the student body has almost doubled to around ten thousand.
3. Samuel C. Prescott, *When M.I.T. Was "Boston Tech," 1861-1916* (Cambridge, Mass.: Technology Press, 1954).
4. Dr. Stratton planned to publish this work in two volumes. The present book, conceived as volume 1, carries the narrative through 1870; volume 2 was intended to proceed through 1900.