

P r o l o g u e

*O*n April 10, 1861, Governor John A. Andrew of Massachusetts signed into law an act of the General Court granting a charter to the Massachusetts Institute of Technology and reserving from sale forever one square of state land, “namely the second square westwardly from the Public Garden between Newbury and Boylston streets, according to the plan reported by the Commissioners on the Back Bay, February twenty-one, eighteen hundred and fifty-seven,” for the use of the new Institute and for the Boston Society of Natural History, the latter to have one third of the square granted.¹

In its initial concept, the Massachusetts Institute of Technology was not a school. It was a three-part educational institution designed to consist of a “society of arts, a museum of arts, and a school of industrial science,” to aid “generally, by suitable means, the advancement, development and practical application of science in connection with arts, agriculture, manufactures and commerce.”² The proposed institution was patterned after British and European models, and its founders expected that all three components would develop as planned and contribute significantly to the diffusion of useful knowledge, the advancement of the industrial classes, and the strengthening of the region’s economy. It was not their original intention to compete with existing institutions of higher learning, a point they were careful to emphasize on a number of occasions.

It was as a Society of Arts, and a Society of Arts *only*, that the Institute functioned from its formal organization in May 1862 until a preliminary session of the School of Industrial Science opened in February 1865. The society was intended as a “department

of investigation and publication . . . to promote research in connection with industrial science, by the exhibition, at the meetings of the Society, of new mechanical inventions, products and processes; by written and oral communications and discussions, as well as by more elaborate treatises on special subjects of inquiry; and by the preparation and publication, statedly, of Reports exhibiting the condition of the various departments of industry, the progress of practical discovery in each, and the bearings of the scientific and other questions which are found to be associated with their advancement.” The society’s members were to be organized into several committees relating to the industrial arts, and there would be committees responsible for a proposed journal and for the supervision of the museum and the school.³

The meetings of the society would consist chiefly of oral presentations and demonstrations. The mid-nineteenth century was the heyday of the public lecture; in Boston, for example, the Lowell Institute lectures had been enormously popular. It was a time, too, when people in all walks of life were keenly interested in natural history and when their fancy had been caught by the promise of science and technology redounding to the benefit of commerce, industry, and individual prosperity. As an educational medium, the public lecture would soon be overtaken by programs of formal study and by the availability of schools established in response to rising aspirations. Eventually it would be outmoded by changes in the character of life brought about by the very scientific and technical developments that at first had been the magnet for its popularity. But in its prime, the public lecture served a useful purpose and was highly valued.

The museum, termed the “central feature” of the Institute, was designed to extend its educational influence through exhibition facilities for raw materials, working models of machinery and mechanical inventions, and industrial products. The emphasis was to be on the “practical instruction” it afforded, and the “great purpose of *instruction*” was not to “be lost sight of in the multitudinous gathering of materials.”⁴

Finally, the School of Industrial Science promised “*systematic training in the applied sciences*, which can alone give to the industrial classes a sure mastery over the materials and processes with which they are concerned” through “regular courses of instruction . . . by lectures and other teachings, in the various branches of the applied sciences and the arts” so that “persons destined for any of the industrial pursuits might, at small expense, secure such training and instruction as would enable them to bring to their profession the increased efficiency due to enlarged views and a sure knowledge of fundamental principles, together with adequate practice in observation and experiment, and in the delineation of objects, processes, and machinery.”⁵

Among the most interesting aspects of MIT’s founding is the manner in which its initial form and purposes emerged through the refinement of an amorphous, ill-

defined, and unsuccessful effort in 1859 for the establishment of a Conservatory of Art and Science. And an important aspect of its early development, following the granting of the charter in 1861, is the way in which the founders wisely adapted their original plan in response to the growing need for scientific and technical education of the highest order. That the Institute did emerge, with a groundswell of support that sharpened its focus, testifies to an awakening in the community to the need for educational change. There was a conviction, too, on the part of a number of influential and knowledgeable citizens that in an age that was becoming increasingly dependent upon the fruits of advancing science and technology, the future of Boston—and indeed New England—lay in an enlightened response to the needs of the times. The apprenticeship system of Colonial times was not only unwieldy and complicated to manage, but also unsuitable for an expanding economy. The promise for the future lay in the systematic training of young people in the useful arts and in those scientific and technical principles which could provide a base for improving the welfare of all citizens. For a long time science had been largely a preoccupation of the amateur. But now, from this haphazard approach, science was moving toward professionalization and specialization, and its aspirants sought sound, fundamental training in scientific principles and in the arts of manufacture.

The traditional, classical system of higher education found itself under increasing scrutiny. The Lawrence Scientific School at Harvard had been the only local response to the perceived need for educational reform since its inception in 1847, the same year in which Yale's Sheffield Scientific School was inaugurated, but it had fallen short of expectations in the area of technical education and its integration into the larger fabric of the university was a fundamental problem. Indeed, the question of whether technical education could achieve its highest aims within the context of a university would become the focus of a debate between Harvard and the new Massachusetts Institute of Technology that would extend over the next half century, threatening the Institute's very existence on more than one occasion.

By the midpoint of the nineteenth century, however, circumstances and currents of thought combined to create a favorable climate for educational reform. In an age of expansion, science and technology were fostering change in ways of doing things, and New England, unable to prosper on an agricultural base, had little alternative but to capitalize on its growing manufacturing and industrial expertise. Further agents of change were the public's thirst for new knowledge, the expanding functions and activities of learned societies, New England's traditional bent toward institutions for the public good, and the availability for development of new land created by the filling of Boston's Back Bay.