This book began quite innocently with a search for information that was not there. In the late 1980s, increasing numbers of architectural drawings, from elegant watercolor presentation drawings to ubiquitous photo reproductions, began to appear in the lab of the Conservation Center for Art and Historic Artifacts in Philadelphia, where I served as senior conservator. I noted unexplained puncture marks and embossed lines in image areas; unfamiliar watercolor techniques; a bewildering variety of paper, tracing paper, and fabric supports; and the mysterious photo reproductions, generically referred to as blueprints, in shades of blue, black, brown, magenta, and maroon. Discomfort with providing conservation treatment for materials I did not fully understand led to a search for information about the specialized materials and techniques used for creating architectural drawings and the disquieting discovery that secondary sources could provide little useful insight. So with the encouragement and support of Robert Strauss, director of CCAHA, and Dr. Roger Moss, director of the Athenaeum, home to a major collection of architectural drawings, I began the research that has sporadically occupied much of the last two decades.

Trade catalogs of artists’ and drafters’ materials were invaluable sources in tracing the introduction of new materials and the demise of others. Descriptions, illustrations, and marketing information in catalogs and alluring advertisements in trade journals revealed the issues that influenced drafter’s choices. (Fig. 1) Builders’ manuals from the first half of the nineteenth century provided tantalizing clues, and the more specialized drafting manuals that succeeded them included increasingly detailed instructions to guide the drafter in his choice and use of papers, inks, watercolor, and other media. Nineteenth-century encyclopedia articles and technical literature on reprographics, paper, and artists’ materials provided additional insight into the manufacture of specialty items like tracing papers, tracing cloths, and drafting inks. Finally, as my understanding of the historical and technical context in which they were created grew, the architectural drawings themselves spoke with increasing authority. This book, therefore, grew into more than a manual to catalog and then trace changes in materials and techniques used for architectural drawings. The opportunity to place these changes in their historic context and suggest possible reasons for them became a strong secondary focus.

As research progressed, it became clear that choices made by architects and draftsmen were intimately connected with the development of the architectural profession and with the growth of industries dedicated
to providing drafting supplies and reprographics. The needs of a growing profession increasingly dependent on graphics drove some developments like the rapid adoption and ongoing development of blueprinting. Other changes reflect architects’ discovery that a particular material, such as the surface quality of some tracing papers, enhanced their drawing technique or saved them time; alert manufacturers quickly responded with new and improved variations. Both architects and the more technologically inclined engineers relied on hand-drawn graphics and photo reproductions; time was money, so innovation was valued and the market was large enough to support the research and development it required.

While the basic geometric drafting techniques used by architects remained remarkably constant over time, the materials and techniques used to embellish their drawings reflected their changing self-image and their need to produce a range of graphics that could either tell a builder how to frame the roof or sell the local parish building committee on an inspiring Gothic design for their new church. Never

Figure 1 a, b Trade catalogs such as those issued by N. D. Cotton (1855) and Wadsworth and Howland (1885) of Boston provide a wealth of detailed information about drawing materials marketed to drafters in architectural and engineering offices. Courtesy of the Winterthur Library: Printed Book and Periodical Collection

Figure 2 Elevation and plan by an unidentified builder, Philadelphia, late eighteenth century (iron gall ink and watercolor on laid writing paper). This simple vernacular design is typical of images that have survived from this period. William Palmer Collection, Athenaeum of Philadelphia
perceived as artistic exercises, most drawings of the eighteenth century are modest linear exercises drafted to help construct a building and were often discarded upon completion. (Fig. 2) As they evolved into documents intended to sell the client as well as instruct the builder, architects added landscape elements and colorful watercolor washes. They consciously chose the same fine papers, inks, and watercolors as painters in the fine arts community and placed their drawings in the same exhibits. The ability to produce sophisticated architectural renderings informed by a thorough familiarity with architectural history and current styles became a defining attribute of the architectural profession. (Fig. 3)

An awareness of the training and education of architects, evolving from craft apprenticeship to university education and licensure, proved to be a critical factor in establishing the historical context for the profession and its graphics. Increasingly informal apprenticeships in the building trades dominated training in the eighteenth and early nineteenth centuries. These apprenticeships seldom provided any formal training in drafting techniques, but in urban areas apprentices could supplement their training with drawing classes such as those provided by Thomas Nevell, a master carpenter in Philadelphia, or Asher Benjamin, a master builder in Boston.

As the new and more demanding neoclassical style emerged during the first part of the nineteenth century, the ability to draw became increasingly important. The establishment of mechanics institutes, such as the Franklin Institute in Philadelphia, provided free or low-cost classes and libraries to artisans and apprentices. A systematic presentation of architectural and building principles became available as the architectural profession emerged between 1820 and 1860. Men trained in the building trades, architectural offices, and mechanics institutes who aspired to professional status defined their function as both designer and building supervisor, standing between the client and the artisan builder. The ability to create stylistically correct and visually compelling scale drawings became a key part of their professional identity.

By 1860, office training with an architect rather than apprenticeship in a trade had become the norm for architectural training. Some trainees paid a pupilage fee,