

It is sometimes said that a scientific theory is not thoroughly and clearly apprehended until it is capable of being explained to the man in the street. It is a hard saying, for there is no created thing more hopelessly out of harmony with the very atmosphere and foundation of science than that same street-walking gentleman. Perhaps he is not the same in all countries, but in our own country . . . no trace of the scientific spirit seems able to permeate the mind of the average man. His interest in science begins with an experience of its application to . . . pecuniary profit, and ends with the perusal of some very light popular illustrated text-book.<sup>78</sup>

A true and full appreciation of scientific knowledge was off limits to all except properly schooled experts who belonged to restricted textual communities. The lofty *Electrician*, for example, despised popular science, and its editors were quite unconvinced that ordinary men could profitably share in scientific knowledge. It divided the domain of scientific writing into "pure" science, which traced out truth, "applied" science, which appealed to the pocket, and "popular" science, which endeavored to render truth "in a pleasing form."<sup>79</sup> Popular science was a sport for immature and gullible intellects, a cheap imitation of the form of scientific textuality without its substance. Consider these observations from the *Illustrated London News* on the characteristically brief, unskeptical presentation of the "facts" of science in popular periodicals:

It is conveyed in brief but most attractive portions, and never hampered with details as to how the intelligence was procured, the instructions drawn, or the figures calculated. In the present issue of my favourite periodical, I read that "Icebergs last for two hundred years." One cannot help wondering how this information, doubtless gathered from trustworthy sources, has been obtained. Do you catch your iceberg young, and watch its growth, deputing the interesting task to your descendants, or do you select one from its companions on account of its vast proportions, and note from decade to decade its gradual diminution? "It takes a snail fourteen days, five hours, exactly, to travel a mile." What patience and assiduity it must have taken to record this fact with accuracy! How curious, too, to discover that all snails have the same rate of progress! . . . "Persian women have a horror of red hair." How few of us are acquainted with Persian women, or could have learnt this by other means! How enterprising must be the periodical which sends, perhaps, a special correspondent to ascertain such a circumstance. . . . No work of information has ever given me the pleasure I derive from these weekly additions to knowledge. Sometimes they surprise as well

as delight me, for example: "Kissing originated in England." Heavens!<sup>80</sup>

True technological literacy for electrical engineers could be learned only at proper professional schools, the kind Henry Floy wrote about in an *Electrical World* article published in 1894. Floy was a true man of science, a Cornell graduate in mechanical engineering whose professional reputation was based on his work on long-distance power transmission. Floy divided electrical engineering aspirants into "students" at classical or technical colleges and "artisans" working their way up from the practical end of the profession. He portrayed a field crowded with all the electricians society could use, unable to absorb many more in the near future. In this struggle the competitive edge belonged to restricted textuality, to students equipped with high technological literacy instead of to craft artisans, throwbacks to a pre-professional age. "The college curriculum cannot help but make [the students] exact thinkers in addition to furnishing them a supply of theoretical knowledge which the 'practical man' has failed to obtain." Whatever temporary advantage artisans might have over inexperienced graduates would vanish as soon as the latter acquired a modicum of practical experience. "It is but natural," wrote Floy, "that they should outstrip men who have not received the advantages of a college training, and in very many cases, not even a high school education."<sup>81</sup>

Who did not understand what it meant to be a professional, expertly conversant with esoteric technical literature? Who had no reliable knowledge of the need for electrical engineers, or the training they required? Who thought to bypass the stringent, textually oriented selection procedures built into professional training? Who else but the popular, that is, the nonprofessional press. The existence of a pool of aspirants without prospects was laid at the door of the "present depression . . . but more truly to the overpopularizing of this particular profession," which brought too many hopefuls flocking. Driving home the point that professional training was the prerogative of elite institutions, Floy offered catalogue descriptions of the elaborately technical electrical engineering course at Princeton, a "classical" school, and Cornell, a "high-grade technical school." He cited figures to prove that too many students were being trained even in these schools, warning that most would be forced into low-paid jobs beneath their expectations unless they were exceptionally talented or well connected.

In the sight of experts, the popular press erred equally in its wor-