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https://www.100test.com/kao_ti2020/497/2021_2022__E8_AF_8D_E6_B1_87_E8_BE_85_E5_c84_497904.htm Unit one Elementary Schools in early America What accounts for the great outburst of major inventions in early America -- breakthroughs such as the telegraph, the steamboat and the weaving machine? Among the many shaping factors, I would single out the countrys excellent elementary schools. a labor force that welcomed the new technology. the practice of giving premiums to inventors. and above all the American genius for nonverbal, "spatial" thinking about things technological. Why mention the elementary schools? Because thanks to these schools our early mechanics, especially in the New England and Middle Atlantic states, were generally literate and at home in arithmetic and in some aspects of geometry and trigonometry. Acute foreign observers related american adaptiveness and inventiveness to this educational advantage. As a member of a British commission visiting here in 1853 reported, "With a mind prepared by thorough school discipline, the American boy develops rapidly into the skilled workman." A further stimulus to invention came from the "premium" system, which preceded our patent system and for years ran parallel with it. This approach, originated abroad, offered inventors medals, cash prizes and other incentives. In the United States, multitudes of premiums for new devices were awarded at country fairs and at the industrial fairs in major cities. Americans flocked to these fairs to admire the new machines and thus to renew their faith in the

beneficence of technological advance. Given this optimistic approach to technological innovation, the American worker took readily to that special kind of nonverbal thinking required in mechanical technology. As Eugene Ferguson has pointed out, "A technologist thinks about objects that cannot be reduced to unambiguous verbal descriptions. they are dealt with in his mind by a visual, nonverbal process. The designer and the inventor are able to assemble and manipulate in their minds devices that as yet do not exist." This nonverbal "spatial" thinking can be just as creative as painting and writing. robert fulton once wrote, "The mechanic should sit down among levers, screws, wedges, wheels, etc. , like a poet among the letters of the alphabet, considering them as an exhibition of his thoughts, in which a new arrangement transmits a new idea." When all these shaping forces -- schools, open attitudes, the premium system, a genius for spatial thinking -- interacted with one another on the rich U.S. mainland, they produced that american characteristic, emulation. Today that word implies mere imitation. But in earlier times it meant a friendly but competitive striving for fame and excellence. 100Test 下载频道开通 , 各类考试题目直接下载。 详细请访问 www.100test.com