

solar system. Mathematics exposed to Galileo, with the assistance of the telescope, the satellites of Jupiter and the moon. It was mathematics that urged Columbus to start out on the unknown waters to find the lost Atlantis. It was mathematics that led Torricelli to calculate upon the pressure of the atmosphere. Mathematics showed Pascal the pressure of liquid, it elucidated to Newton the laws of gravitation, and it made clear, besides those above enumerated, a large number of material phenomena which were entirely unknown to mankind. Without mathematics we would still have believed that the sun is still revolving around the earth, and dwell in constant fear that at some unexpected day some supernatural being might arise and command him to stop his journey. Without mathematics the new world would still have been hidden beyond the distant horizon, and the glittering hills which span the Hesperian clime would still have been occupied by the savage Indian. Commerce, the principal agent of civilization, is the offspring of mathematics, as only through its instrumentality all inventions have been made possible. Mathematics is the destroyer of all physical barriers, and this makes the progress of mankind possible. By its assistance the human race is enabled to live as one family, to be united in bonds of sympathy, and above all through its instrumentality we are enabled to better comprehend the workings of nature, and thereby recognize the existence of a supreme being by whose hand everything is guided.

A. M. HILDEBRANDT.

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#### The Necessity of a General Education to a Specialist.

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In this age it has become necessary to many of the present rising generation to select some special form of livelihood which can be practiced without going to the expense of a long course of general education such as was found in the institutions of learning half a century ago. This necessity is not alone the characteristic of our generation—it has been true