962-A1-378   **J. Charles Jascobson*** (`chjacobson@elmira.edu`), Charlie Jacobson, Department of Mathematics, Elmira College, Elmira, NY 14901. *Bolyai's Geometric Constructions.*

In the short work The Science of Absoluate Space, Bolyai elegantly and rigorously lays out the foundations of what would later be called hyperbolic geometry. His work is noteworthy for two reasons, as a source of knowledge of non-Euclidean geometry, and as a glimpse at a mathematician working at his best. The author of this paper will demonstrate two of Bolyai's constructions: a ray passing through a given point and asymptotically parallel to a given ray, and a line asymptotically parallel to one leg of a given angle and perpendicular to the other. Bolyai's proof of each will be outlined, along with more modern treatments. These treatments will include references to models of hyperbolic geometry that would not have been available to Bolyai (such as the Klein disk), and it will be noted how much more impressive that makes the work of Bolyai into the non-Euclidean alternative. These two constructions of Bolyai, when taken together, link angles and lengths in hyperbolic geometry, thus serving as one illustration of just how different hyperbolic space and Euclidean space must be. They are simple constructions easily reproduced, yet are founded on deep insights, and are thus examples of the fruits of great mathematics. (Received September 13, 2000)

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